

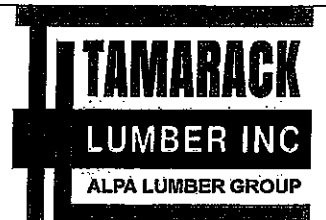
Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	1	10
J3	14-00-00	11 7/8" NI-40x	1	2
J4	4-00-00	11 7/8" NI-40x	1	1
J5	2-00-00	11 7/8" NI-40x	1	4
J6	22-00-00	11 7/8" NI-80	1	4
J7	20-00-00	11 7/8" NI-80	1	56
B7	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B4	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/11.88
10	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
1	H2	HUS1.81/10
1	H2	HUS1.81/10
9	H3	IUS3.56/11.88
1	H4	HGUS412

CITY OF HAMILTON  
Building Division  
Permit No. 21-150884  
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE  
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH  
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW  
These drawings and/or specifications have been reviewed by  
FOR CHIEF BUILDING OFFICIAL  
DATE OCT 04 2021

DATE: 2021-04-29

1st FLOOR



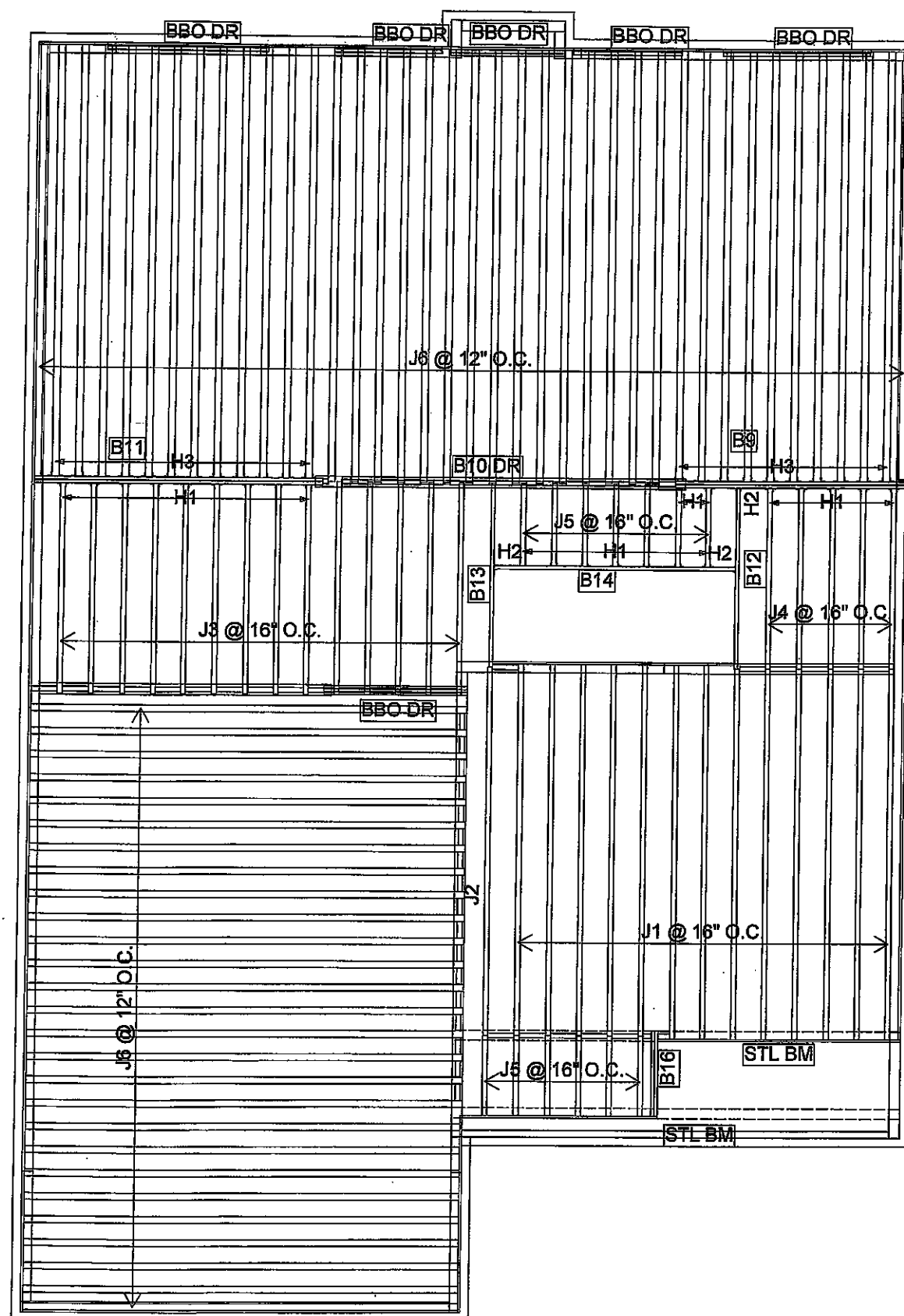
FROM PLAN DATED: 2021/2  
BUILDER: GREENPARK HOMES  
SITE: RUSSELL GARDENS PH4  
MODEL: SPRINGFIELD 2  
ELEVATION: 1  
LOT:  
CITY: HAMILTON

SALESMAN: RICK DICIANO  
DESIGNER: AJ  
REVISION:

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

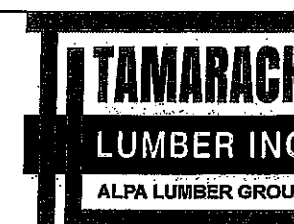
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft²  
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	13
J2	16-00-00	11 7/8" NI-40x	1	1
J3	10-00-00	11 7/8" NI-40x	1	14
J4	8-00-00	11 7/8" NI-40x	1	5
J5	4-00-00	11 7/8" NI-40x	1	13
J6	20-00-00	11 7/8" NI-80	1	66
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/11.88
16	H1	IUS2.56/11.88
2	H2	HUS1.81/10
1	H2	HUS1.81/10
22	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2  
 BUILDER: GREENPARK HOMES  
 SITE: RUSSELL GARDENS PH4  
 MODEL: SPRINGFIELD 2  
 ELEVATION: 1  
 LOT:  
 CITY: HAMILTON

SALESMAN: RICK DICIANO  
 DESIGNER: AJ  
 REVISION:

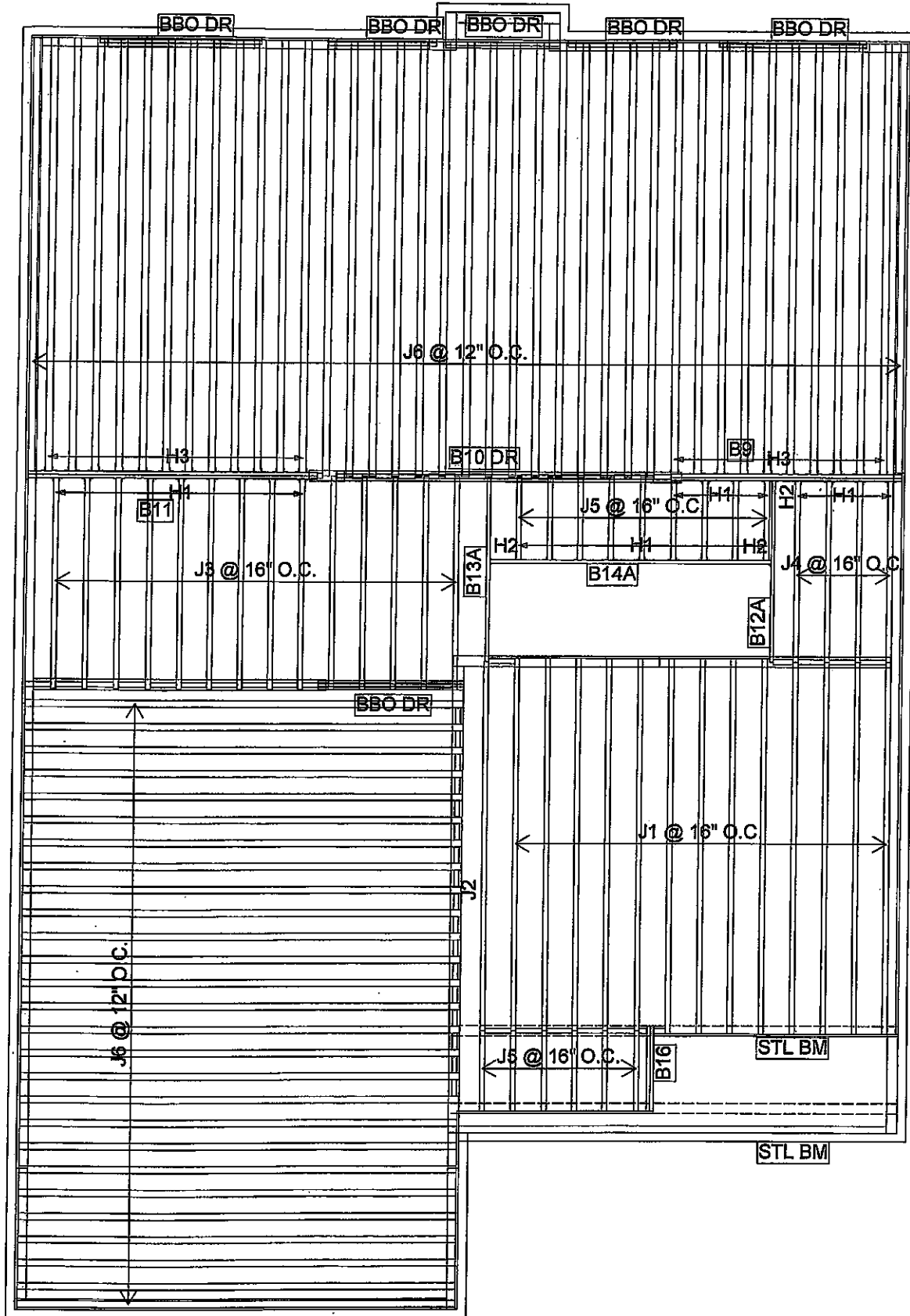
NOTES:  
 REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.  
 SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK RI I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC T APPLICATION AS PER O.B.C 9.30.6.

LOADING:  
 DESIGN LOADS: L/480.000  
 LIVE LOAD: 40.0 lb/ft²  
 DEAD LOAD: 15.0 lb/ft²  
 TILE LOAD: 20.0 lb/ft²

DATE: 2021-04-29

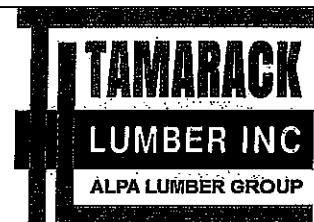
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	13
J2	16-00-00	11 7/8" NI-40x	1	1
J3	10-00-00	11 7/8" NI-40x	1	14
J4	8-00-00	11 7/8" NI-40x	1	4
J5	4-00-00	11 7/8" NI-40x	1	15
J6	20-00-00	11 7/8" NI-80	1	66
B14A	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B9	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
17	H1	IUS2.56/11.88
2	H2	HUS1.81/10
1	H2	HUS1.81/10
22	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2  
 BUILDER: GREEN PARK HOMES  
 SITE: RUSSELL GARDENS PH 4  
 MODEL: SPRINGFIELD 2  
 ELEVATION: 1  
 LOT:  
 CITY: HAMILTON  
 SALESMAN: RICK DICIANO  
 DESIGNER: AJ  
 REVISION:

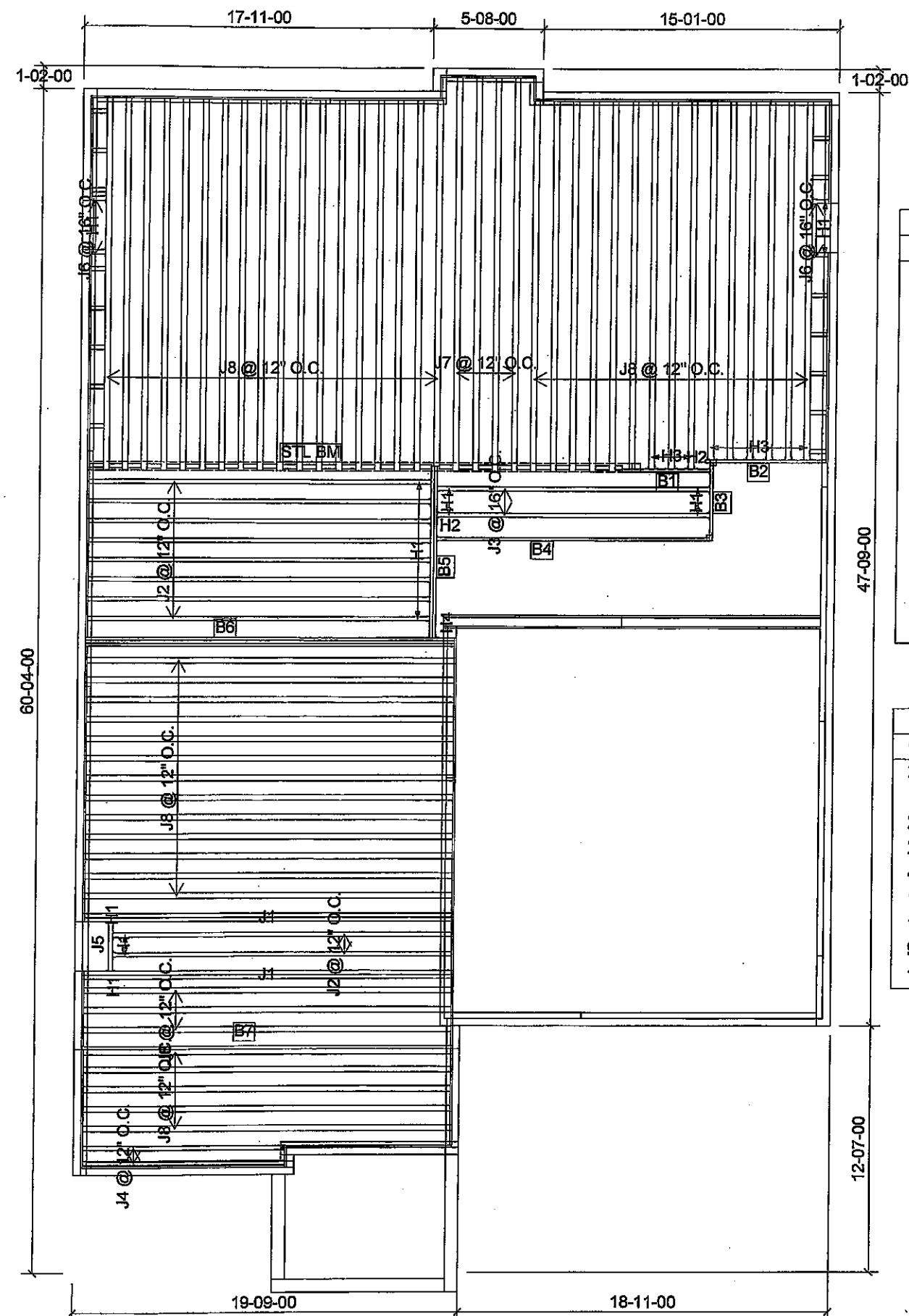
**NOTES:**  
 REFER TO THE **NORDIC INSTALLATION**  
 GUIDE FOR PROPER STORAGE AND  
 INSTALLATION.  
**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.  
 REQ'D UNDER INTERIOR UNIFORM LOAD  
 BEARING WALLS. **MULTIPLE SQUASH**  
**BLOCKS** REQ'D UNDER CONCENTRATED  
 LOADS. SEE FIGURE 1. **CANTILEVERED**  
**JOISTS** INCLUDING **CANT' OVER BRICK RI**  
**I-JOIST** BLOCKING ALONG BEARING AND  
 RIMBOARD CLOSURE AT ENDS. SEE  
 FIGURES 4 & 5 FOR REINFORCEMENT  
 REQUIREMENTS. FOR **HOLES** INCLUDING  
**DUCT CHASE** AND **FIELD CUT OPENINGS**  
 SEE FIGURE 7, TABLES 1 & 2. **CERAMIC T**  
 APPLICATION AS PER O.B.C 9.30.6.

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

DATE: 2021-04-29

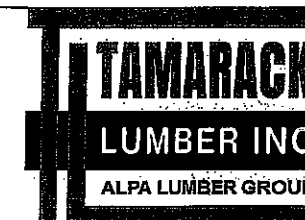
2ND FLOOR OPT. 10'  
 MAIN FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	1	10
J3	14-00-00	11 7/8" NI-40x	1	2
J4	12-00-00	11 7/8" NI-40x	1	2
J5	4-00-00	11 7/8" NI-40x	1	1
J6	2-00-00	11 7/8" NI-40x	1	4
J7	22-00-00	11 7/8" NI-80	1	4
J8	20-00-00	11 7/8" NI-80	1	54
B7	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B4	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/11.88
10	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
1	H2	HUS1.81/10
1	H2	HUS1.81/10
9	H3	IUS3.56/11.88
1	H4	HGUS412



FROM PLAN DATED: 2021/2  
 BUILDER: GREEN PARK HOMES  
 SITE: RUSSELL GARDENS PH 4  
 MODEL: SPRINGFIELD 2  
 ELEVATION: 2  
 LOT:  
 CITY: HAMILTON  
 SALESMAN: RICK DICIANO  
 DESIGNER: AJ  
 REVISION:

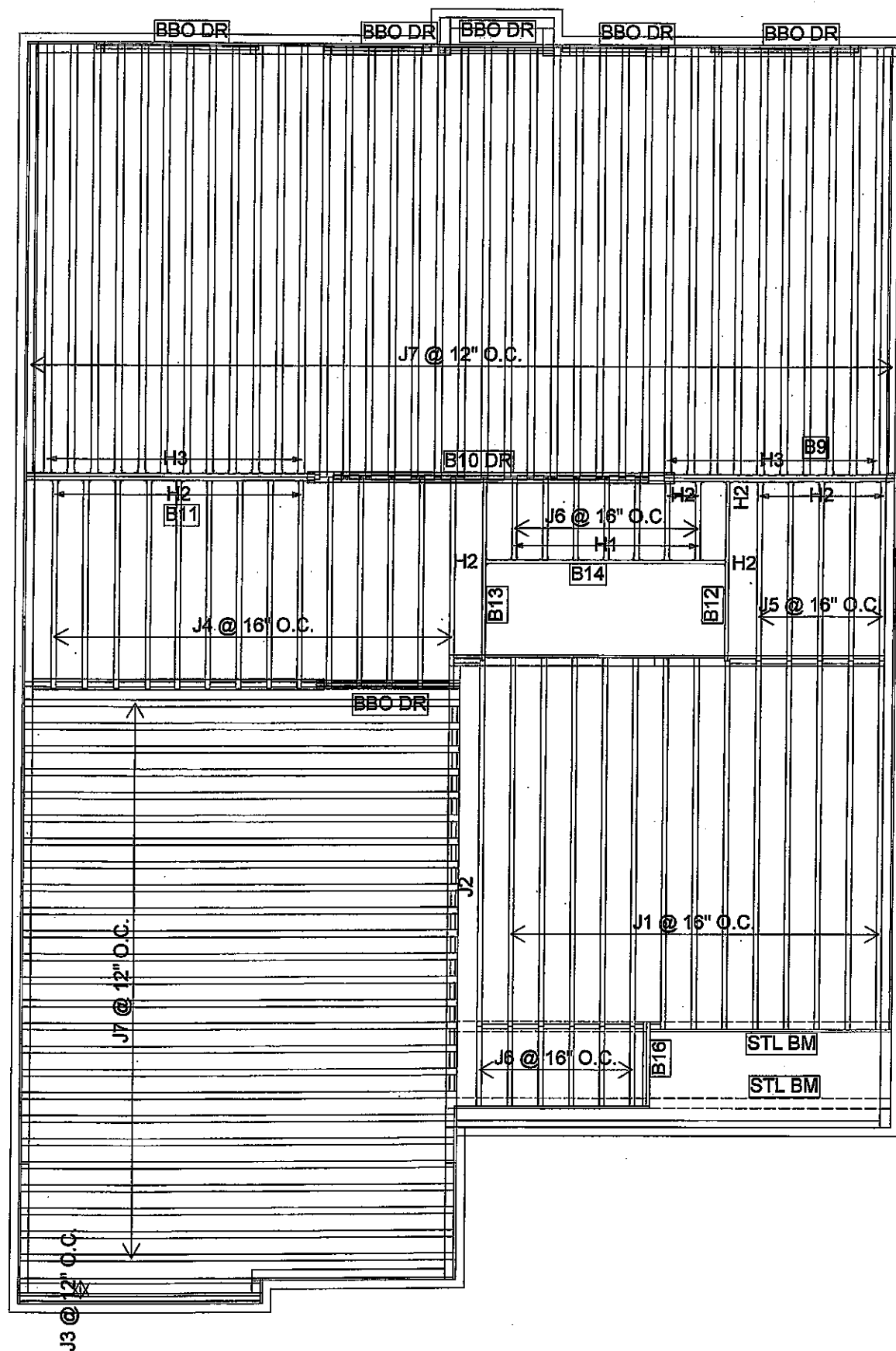
NOTES:  
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 SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK RI I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC T APPLICATION AS PER O.B.C 9.30.6.

LOADING:  
 DESIGN LOADS: L/480.000  
 LIVE LOAD: 40.0 lb/ft²  
 DEAD LOAD: 15.0 lb/ft²  
 TILE LOAD: 20.0 lb/ft²

DATE: 2021-04-29

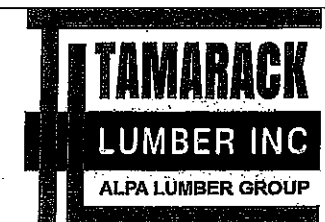
1st FLOOR

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	13
J2	16-00-00	11 7/8" NI-40x	1	1
J3	12-00-00	11 7/8" NI-40x	1	2
J4	10-00-00	11 7/8" NI-40x	1	14
J5	8-00-00	11 7/8" NI-40x	1	5
J6	4-00-00	11 7/8" NI-40x	1	13
J7	20-00-00	11 7/8" NI-80	1	64
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/11.88
16	H1	IUS2.56/11.88
2	H2	HUS1.81/10
1	H2	HUS1.81/10
22	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2  
 BUILDER: GREEN PARK HOMES  
 SITE: RUSSELL GARDENS PH 4  
 MODEL: SPRINGFIELD 2  
 ELEVATION: 2  
 LOT:  
 CITY: HAMILTON

SALESMAN: RICK DICIANO  
 DESIGNER: AJ  
 REVISION:

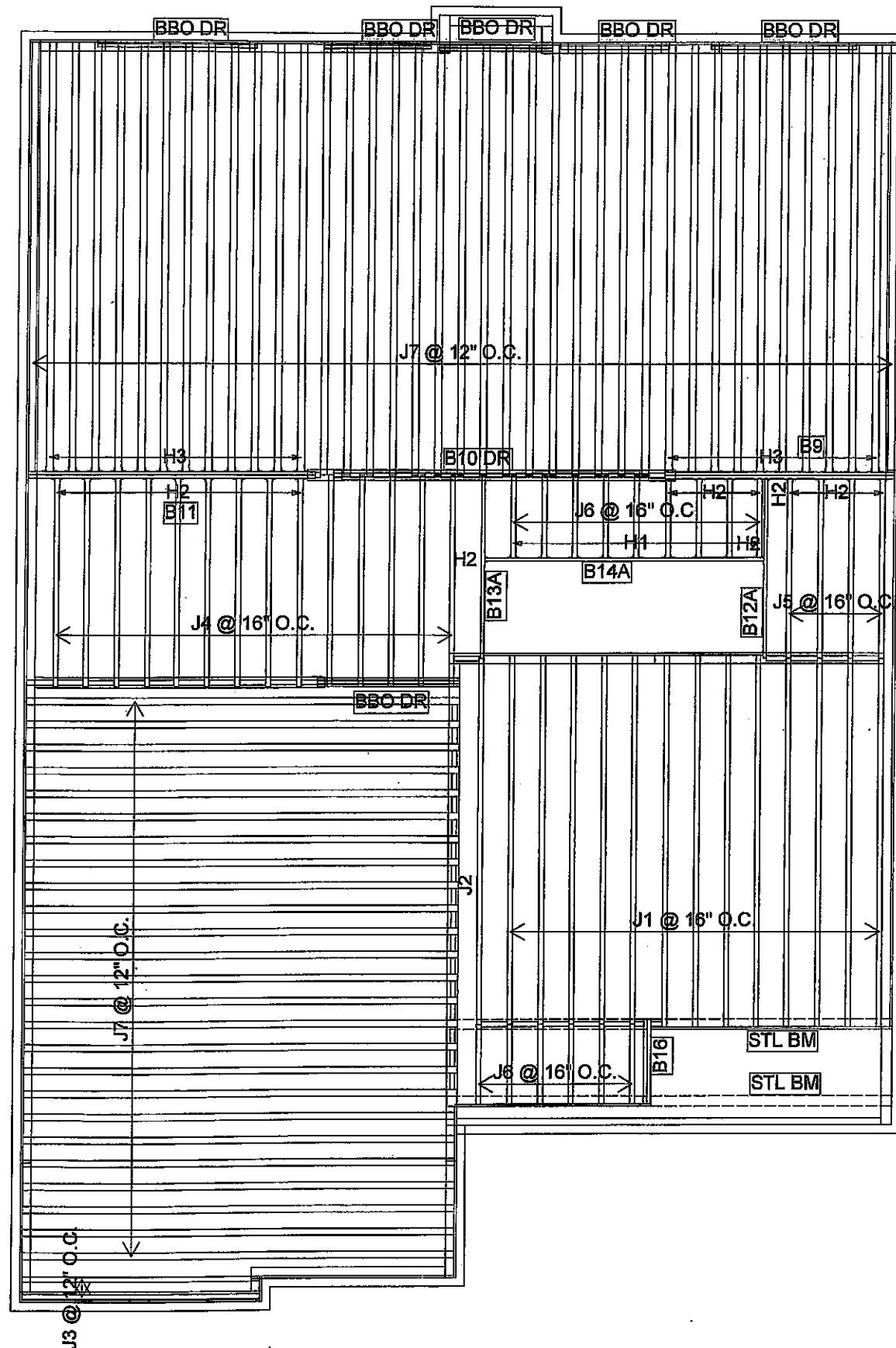
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**LOADING:**  
 DESIGN LOADS: L/480.000  
 LIVE LOAD: 40.0 lb/ft²  
 DEAD LOAD: 15.0 lb/ft²  
 TILE LOAD: 20.0 lb/ft²

DATE: 2021-04-29

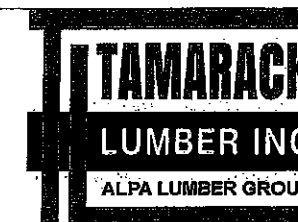
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	13
J2	16-00-00	11 7/8" NI-40x	1	1
J3	12-00-00	11 7/8" NI-40x	1	2
J4	10-00-00	11 7/8" NI-40x	1	14
J5	8-00-00	11 7/8" NI-40x	1	4
J6	4-00-00	11 7/8" NI-40x	1	15
J7	20-00-00	11 7/8" NI-80	1	64
B14A	14-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B10 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	3	3
B9	10-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B12A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
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Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
2	H2	HUS1.81/10
1	H2	HUS1.81/10
17	H2	IUS2.56/11.88
22	H3	IUS3.56/11.88



**FROM PLAN DATED: 2021/2**  
**BUILDER: GREEN PARK HOMES**  
**SITE: RUSSELL GARDENS PH 4**  
**MODEL: SPRINGFIELD 2**  
**ELEVATION: 2**  
**LOT:**  
**CITY: HAMILTON**

**SALESMAN: RICK DICIANO**  
**DESIGNER: AJ**  
**REVISION:**

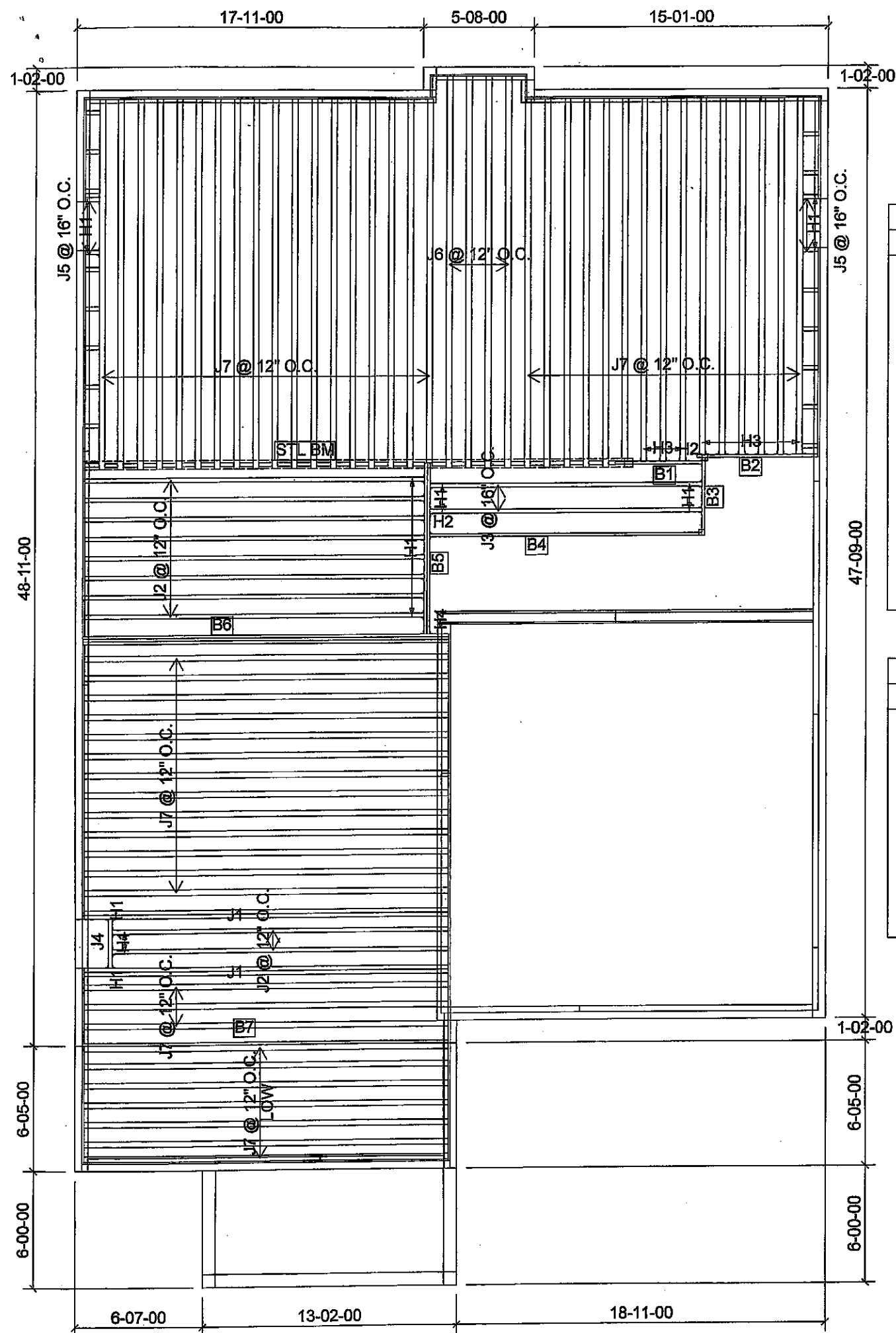
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**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.  
 REQ'D UNDER INTERIOR UNIFORM LOAD  
 BEARING WALLS. **MULTIPLE SQUASH**  
**BLOCKS** REQ'D UNDER CONCENTRATED  
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 SEE FIGURE 7, TABLES 1 & 2. **CERAMIC T**  
 APPLICATION AS PER O.B.C 9.30.6.

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

DATE: 2021-04-29

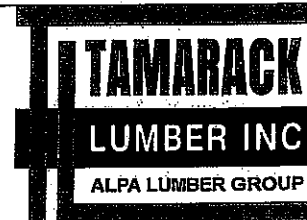
2ND FLOOR OPT. 10'  
 MAIN FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	1	10
J3	14-00-00	11 7/8" NI-40x	1	2
J4	4-00-00	11 7/8" NI-40x	1	1
J5	2-00-00	11 7/8" NI-40x	1	4
J6	22-00-00	11 7/8" NI-80	1	4
J7	20-00-00	11 7/8" NI-80	1	56
B7	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B4	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/11.88
10	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
1	H2	HUS1.81/10
1	H2	HUS1.81/10
9	H3	IUS3.56/11.88
1	H4	HGUS412



FROM PLAN DATED: 2021/2

**BUILDER:** GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 4

MODEL: SPRINGFIELD 2

ELEVATION: 3

**LOT:**

CITY: HAMILTON

**SALESMAN: RICK DICIANO**

**DESIGNER: AJ**

**REVISION:**

**NOTES:**

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

**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P. 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 RI** I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC T** APPLICATION AS PER O.B.C 9.30.6.

**LOADING:**

DESIGN LOADS: L/480.000

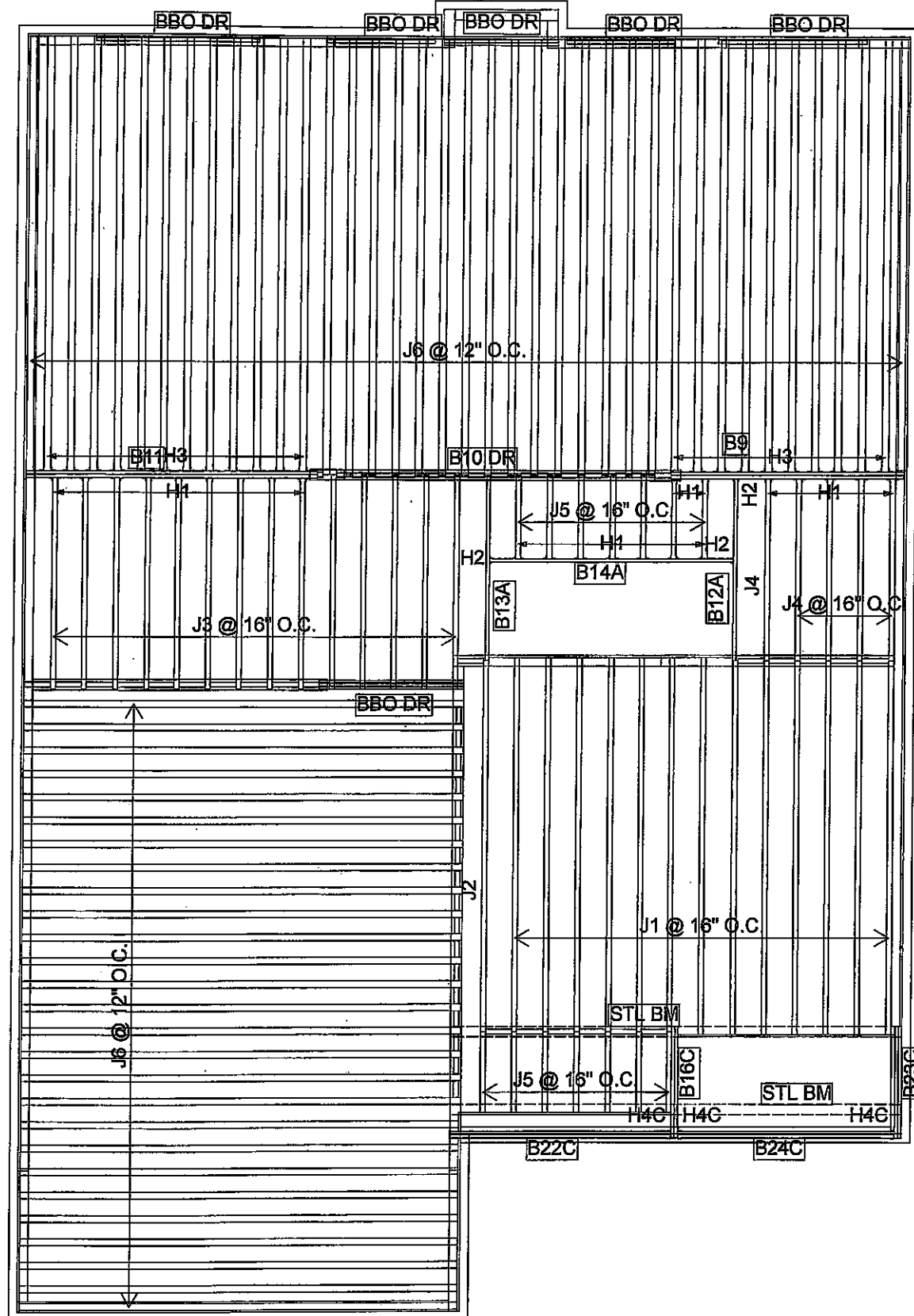
LIVE LOAD: 40.0 lb/ft<sup>2</sup>

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

**SUBFLOOR: 3/4" GLUED AND NAILED**

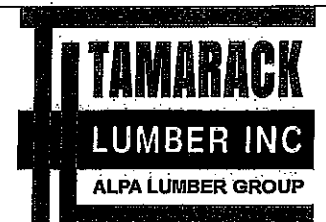
DATE: 2021-04-29

## 1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	13
J2	16-00-00	11 7/8" NI-40x	1	1
J3	10-00-00	11 7/8" NI-40x	1	14
J4	8-00-00	11 7/8" NI-40x	1	5
J5	4-00-00	11 7/8" NI-40x	1	14
J6	20-00-00	11 7/8" NI-80	1	66
B22C	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B24C	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B23C	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B14A	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16C	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/11.88
16	H1	IUS2.56/11.88
2	H2	HUS1.81/10
1	H2	HUS1.81/10
22	H3	IUS3.56/11.88
1	H4C	HUC412
2	H4C	HUC412



**FROM PLAN DATED: 2021/2**  
**BUILDER:** GREEN PARK HOMES  
**SITE:** RUSSELL GARDENS PH 4  
**MODEL:** SPRINGFIELD 2  
**ELEVATION:** 3  
**LOT:**  
**CITY:** HAMILTON

**SALESMAN:** RICK DICIANO  
**DESIGNER:** AJ  
**REVISION:**

**NOTES:**  
 REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.  
**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P. 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 RI** I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC T** APPLICATION AS PER O.B.C 9.30.6.

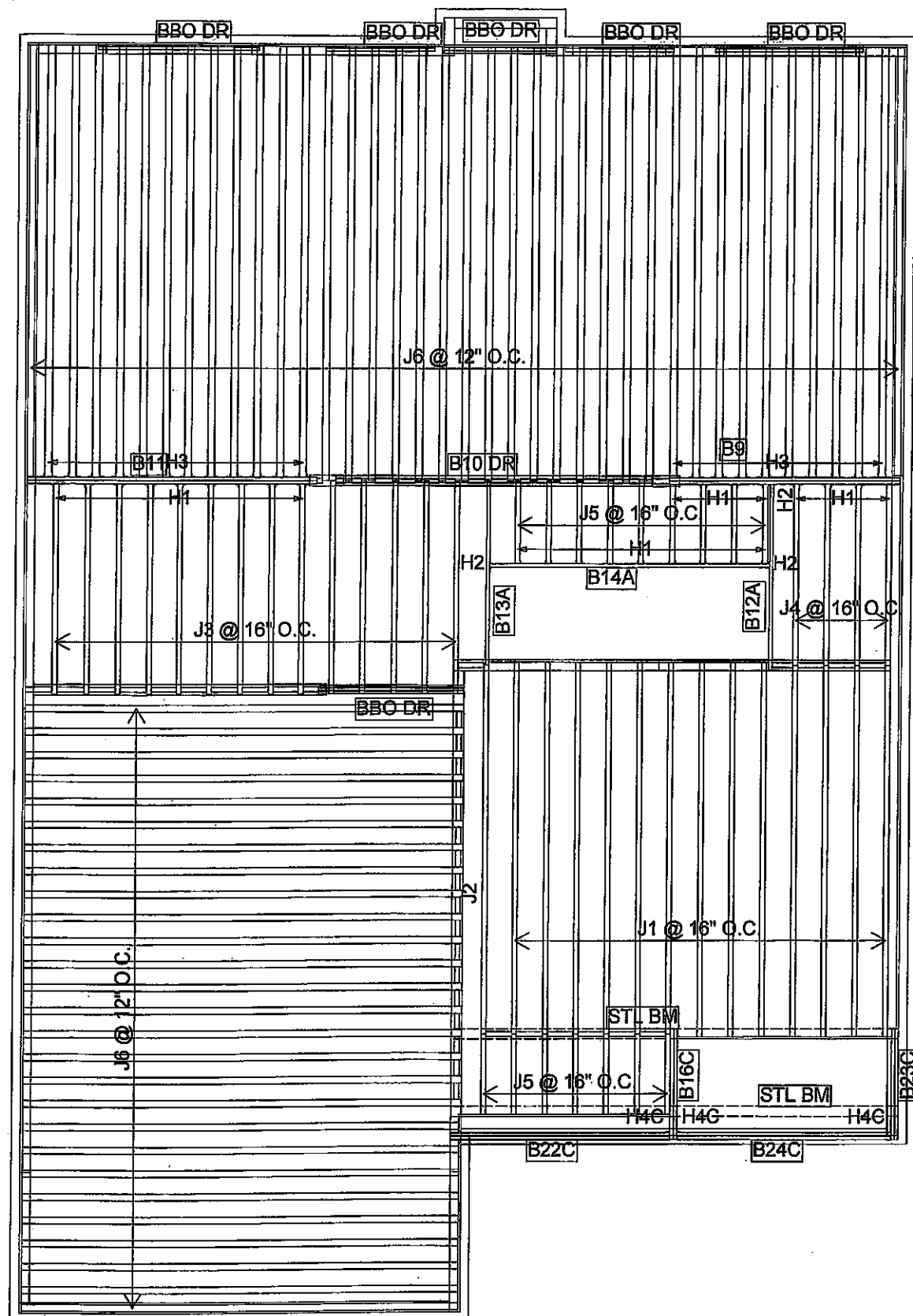
**LOADING:**  
 DESIGN LOADS: L/480.000  
 LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
 DEAD LOAD: 15.0 lb/ft<sup>2</sup>  
 TILE LOAD: 20.0 lb/ft<sup>2</sup>

**DATE:** 2021-04-29

**2ND FLOOR**

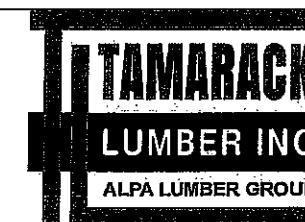
**SUBFLOOR:** 5/8" GLUED AND NAILED





Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	13
J2	16-00-00	11 7/8" NI-40x	1	1
J3	10-00-00	11 7/8" NI-40x	1	14
J4	8-00-00	11 7/8" NI-40x	1	4
J5	4-00-00	11 7/8" NI-40x	1	16
J6	20-00-00	11 7/8" NI-80	1	66
B22C	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B24C	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B23C	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14A	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B12A	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B13A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16C	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
17	H1	IUS2.56/11.88
2	H2	HUS1.81/10
1	H2	HUS1.81/10
22	H3	IUS3.56/11.88
1	H4C	HUC412
2	H4C	HUC412



FROM PLAN DATED: 2021/2  
 BUILDER: GREEN PARK HOMES  
 SITE: RUSSELL GARDENS PH 4  
 MODEL: SPRINGFIELD 2  
 ELEVATION: 3  
 LOT:  
 CITY: HAMILTON

SALESMAN: RICK DICIANO  
 DESIGNER: AJ  
 REVISION:

NOTES:  
 REFER TO THE **NORDIC INSTALLATION**  
 GUIDE FOR PROPER STORAGE AND  
 INSTALLATION.  
**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P  
 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 R**  
**I-JOIST** BLOCKING ALONG BEARING AND  
 RIMBOARD CLOSURE AT ENDS. SEE  
 FIGURES 4 & 5 FOR REINFORCEMENT  
 REQUIREMENTS. FOR **HOLES** INCLUDING  
**DUCT CHASE** AND **FIELD CUT OPENINGS**  
 SEE FIGURE 7, TABLES 1 & 2. **CERAMIC T**  
 APPLICATION AS PER O.B.C 9.30.6.

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

DATE: 2021-04-29

2ND FLOOR OPT 10'  
 MAIN FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Dropped Beams\B10 DR(I629) (Dropped Beam)**

**PASSED**

BC CALC® Member Report  
 Build 7773

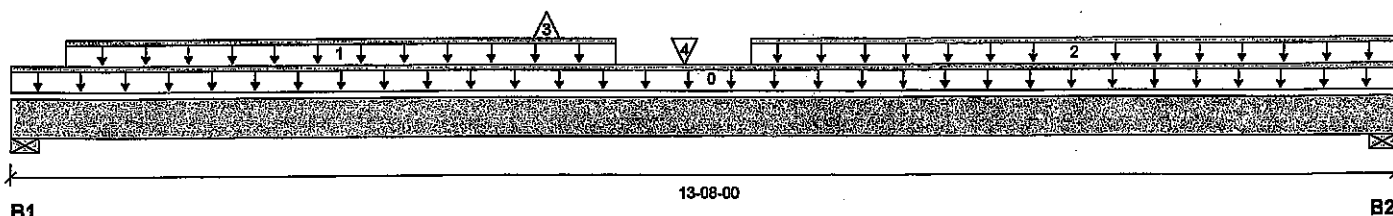
Dry | 1 span | No cant.

March 17, 2021 09:56:22

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

CCMC 12472-R

File name: SPRINGFIELD 2 EL 2.mmdl  
 Description: 2ND FLR FRAMING\Dropped Beams\B10 DR(I629)  
 Specifier:  
 Designer:  
 Company:



Total Horizontal Product Length = 13-08-00

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

Bearing	Live	Dead	Snow	Wind
B1, 4"	3576 / 0	1932 / 0		
B2, 4"	3460 / 0	1874 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-08-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-08	05-10-08	Top	603	301			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	07-02-08	13-08-00	Top	481	241			n/a
3	J3(I734)	Conc. Pt. (lbs)	L	05-02-08	05-02-08	Top	0				n/a
4	-	Conc. Pt. (lbs)	L	06-06-11	06-06-11	Top	714	398			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	24709 ft-lbs	55211 ft-lbs	44.8%	1	06-06-14
End Shear	7062 lbs	21696 lbs	32.5%	1	01-03-14
Total Load Deflection	L/432 (0.365")	n/a	55.6%	4	06-09-13
Live Load Deflection	L/667 (0.236")	n/a	54.0%	5	06-09-13
Max Defl.	0.365"	n/a	n/a	4	06-09-13
Span / Depth	13.3				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 5-1/4"	7779 lbs	27.8%	30.4%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 5-1/4"	7532 lbs	26.9%	29.4%	Spruce-Pine-Fir

**Notes**

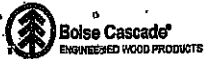
Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9  
 Calculations assume unbraced length of Top: 00-10-04, Bottom: 13-08-00.

CONFORMS TO OBC 2012

AMENDED 2020



OWG NO. TAN 9544-21  
 STRUCTURAL  
 COMPONENT ONLY



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

**PASSED**

2ND FLR FRAMING\Dropped Beams\B10 DR(i629) (Dropped Beam)

Dry | 1 span | No cant.

March 17, 2021 09:56:22

BC CALC® Member Report  
Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B10 DR(i629)

City, Province, Postal Code:

Specifier:

Customer:

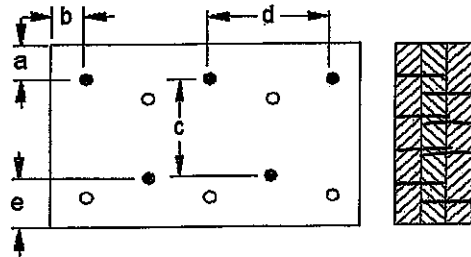
Designer:

Code reports:

CCMC 12472-R

Company:

## Connection Diagram: Full Length of Member



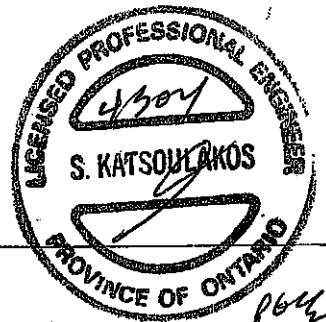
4 rows

a minimum = 1"  
b minimum = 3"

c = 6-7/8"  
d = 6-7/8"  
e minimum = 3"

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

3 1/2" ARDOX SPIRAL



SWG NO. YAM 9544-21  
STRUCTURAL  
COMPONENT ONLY

## Disclosure

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

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



# Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12(i1151) (Flush Beam)

**PASSED**

BC CALC® Member Report  
Build 7773

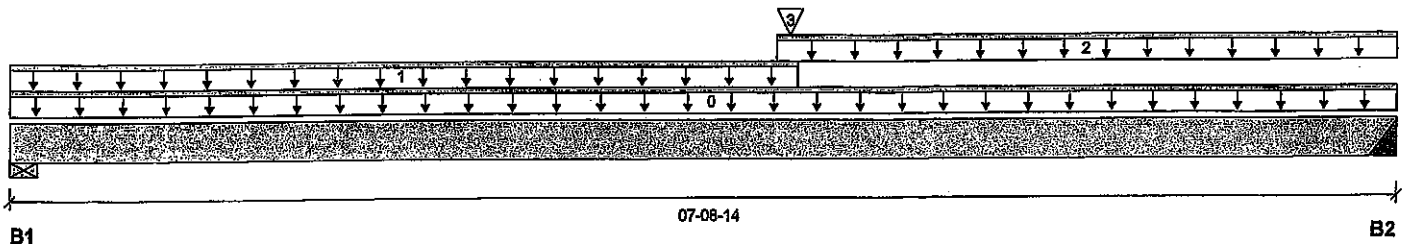
Dry | 1 span | No cant.

March 17, 2021 09:56:22

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

CCMC 12472-R

File name: SPRINGFIELD 2 EL 2.mmdl  
Description: 2ND FLR FRAMING\Flush Beams\B12(i1151)  
Specifier:  
Designer:  
Company:



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

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	966 / 0	521 / 0		
B2, 2"	621 / 0	351 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-08-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-04-02	Top	240	120			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-02-12	07-08-14	Top	53	27			n/a
3	B14(i633)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	Top	345	204			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3875 ft-lbs	17696 ft-lbs	21.9%	1	04-00-08
End Shear	1463 lbs	7232 lbs	20.2%	1	01-02-10
Total Load Deflection	L/999 (0.053")	n/a	n/a	4	03-10-04
Live Load Deflection	L/999 (0.034")	n/a	n/a	5	03-10-04
Max Defl.	0.053"	n/a	n/a	4	03-10-04
Span / Depth	7.5				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 1-3/4"	2100 lbs	70.9%	35.8%	Spruce-Pine-Fir
B2	Hanger 2" x 1-3/4"	1370 lbs	n/a	32.1%	HUS1.81/10

## Cautions

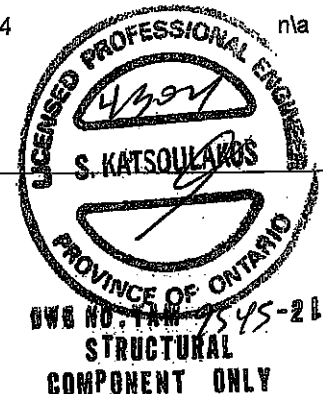
Header for the hanger HUS1.81/10 is a Triple 1-3/4" x 11-7/8" LVL Beam.  
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Hanger Manufacturer: Unassigned  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 9  
Calculations assume unbraced length of Top: 00-00-00, Bottom: 04-00-00.

CONFORMS TO OBC 2012

AMENDED 2020



## Disclosure

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

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



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

**PASSED**

## 2ND FLR FRAMING\Flush Beams\B13(i632) (Flush Beam)

Dry | 1 span | No cant.

March 17, 2021 09:56:22

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

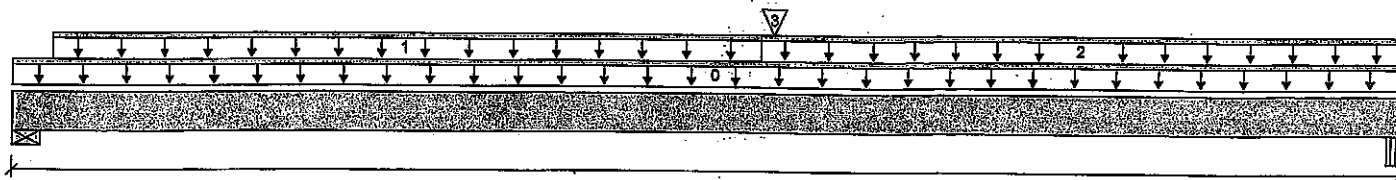
File name: SPRINGFIELD 2 EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B13(i632)

Specifier:

Designer:

Company:



B1

07-11-08

B2

Total Horizontal Product Length = 07-11-08

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

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	212 / 0	145 / 0		
B2, 2-5/8"	345 / 0	214 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-11-08	Top		6			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-12	04-02-12	Top	3	2			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-02-12	07-11-08	Top	53	27			n/a
3	B14(i633)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	Top	347	205			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1942 ft-lbs	17696 ft-lbs	11.0%	1	04-03-10
End Shear	639 lbs	7232 lbs	8.8%	1	06-09-00
Total Load Deflection	L/999 (0.025")	n/a	n/a	4	04-01-10
Live Load Deflection	L/999 (0.015")	n/a	n/a	5	04-01-10
Max Defl.	0.025"	n/a	n/a	4	04-01-10
Span / Depth	7.7				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 1-3/4"	499 lbs	16.9%	8.5%	Spruce-Pine-Fir
B2	Beam 2-5/8" x 1-3/4"	785 lbs	14.0%	14.0%	VL 2.0 3100 SP

### Notes

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

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

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

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

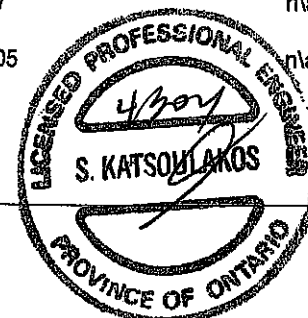
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 04-00-00.

CONFORMS TO CBC 2012

AMENDED 2020



OWG NO. TAM 9546-21

STRUCTURAL

COMPONENT ONLY

### Disclosure

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



**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B14(i633) (Flush Beam)**

**PASSED**

BC CALC® Member Report  
 Build 7773

Dry | 1 span | No cant.

March 17, 2021 09:56:22

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14(i633)

City, Province, Postal Code:

Specifier:

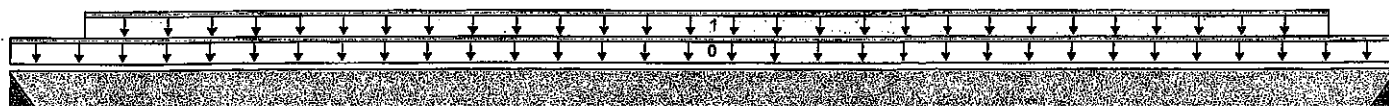
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

10-05-04

B2

Total Horizontal Product Length = 10-05-04

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

Bearing	Live	Dead	Snow	Wind
B1, 2"	347 / 0	205 / 0		
B2, 2"	345 / 0	204 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-05-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-12	09-10-12	Top	74	37			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2190 ft-lbs	17696 ft-lbs	12.4%	1	05-02-12
End Shear	767 lbs	7232 lbs	10.6%	1	01-01-14
Total Load Deflection	L/999 (0.059")	n/a	n/a	4	05-02-12
Live Load Deflection	L/999 (0.037")	n/a	n/a	5	05-02-12
Max Defl.	0.059"	n/a	n/a	4	05-02-12
Span / Depth	10.3				

**Bearing Supports**

				Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing Supports		Dim. (LxW)	Demand			
B1	Hanger	2" x 1-3/4"	776 lbs	n/a	18.2%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	773 lbs	n/a	18.1%	HUS1.81/10

**Cautions**

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.

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

**Notes**

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO CBC 2012

AMENDED 2020



090 NO. TAM 9547-21

**STRUCTURAL  
COMPONENT ONLY**

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

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B16(i639) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

March 17, 2021 09:56:22

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B16(i639)

City, Province, Postal Code:

Specifier:

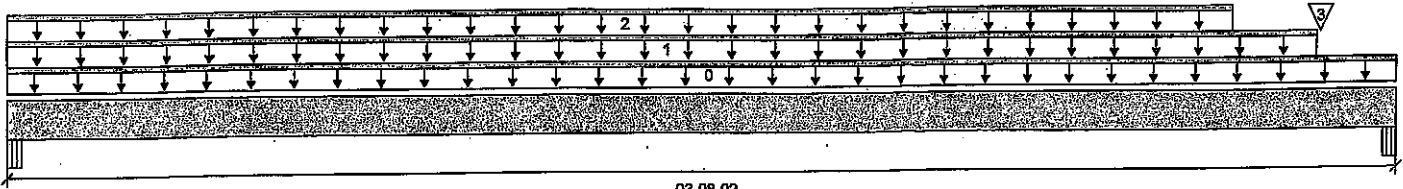
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 03-08-02

B2

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

Bearing	Live	Dead	Snow	Wind
B1, 4-1/8"	32 / 0	233 / 0	82 / 0	
B2, 5-1/4"	30 / 0	231 / 0	88 / 0	

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-08-02	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	03-05-08	Top	18	9			n/a
2	E27(i11113)	Unf. Lin. (lb/ft)	L	00-00-00	03-02-14	Top		109	46		n/a
3	E28(i11112)	Conc. Pt. (lbs)	L	03-05-10	03-05-10	Top		36	21		n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	207 ft-lbs	23005 ft-lbs	0.9%	0	01-09-08
End Shear	83 lbs	9401 lbs	0.9%	0	01-04-00
Total Load Deflection	L/999 (0")	n/a	n/a	35	01-09-08
Live Load Deflection	L/999 (0")	n/a	n/a	51	01-09-08
Max Defl.	0"	n/a	n/a	35	01-09-08
Span / Depth	3.1				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam 4-1/8" x 3-1/2"	326 lbs	6.5%	2.8%	Unspecified
B2	Beam 5-1/4" x 3-1/2"	324 lbs	5.1%	2.2%	Unspecified

**Notes**

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

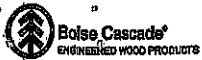
Calculations assume unbraced length of Top: 00-00-00, Bottom: 02-10-12.

CONFORMS TO CBC 2012

REVISED 2020



OWN NO. TAM 9548-21  
STRUCTURAL  
COMPONENT ONLY



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

2ND FLR FRAMING\Flush Beams\B16(i639) (Flush Beam)

Dry | 1-span | No cant.

**PASSED**

March 17, 2021 09:56:22

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: SPRINGFIELD 2 EL 2.mmdl

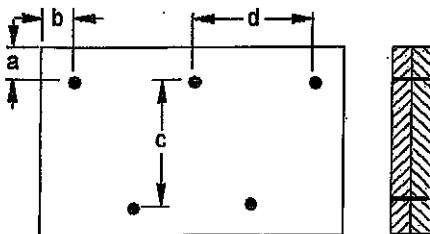
Description: 2ND FLR FRAMING\Flush Beams\B16(i639)

Specifier:

Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Connectors are:

Nails

3 1/2" ARDOX SPIRAL



OWN NO. TAM 9548-21  
STRUCTURAL  
COMPONENT ONLY

## Disclosure

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

PASSED

## 1ST FLR FRAMING\Flush Beams\B1(I1238) (Flush Beam)

Dry | 1 span | No cant.

March 17, 2021 09:56:22

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1(I1238)

City, Province, Postal Code:

Specifier:

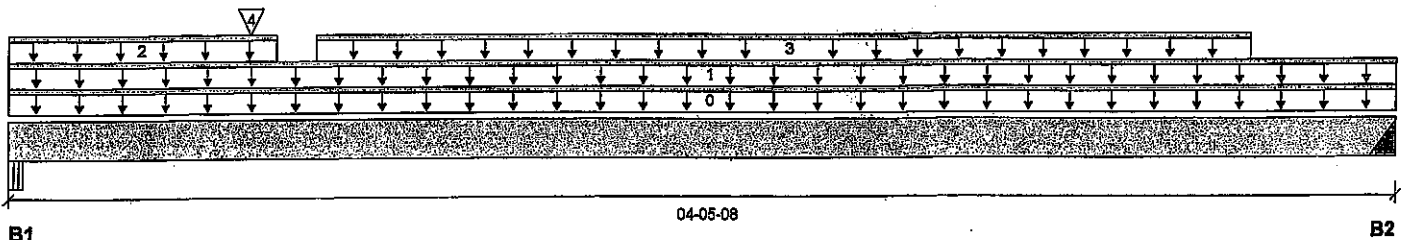
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



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

Bearing	Live	Dead	Snow	Wind
B1, 10-7/8"	3673 / 0	2043 / 0		
B2, 2"	568 / 0	295 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-05-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	04-05-08	Top	19	10			n/a
2	4(I627)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-04	Top		81			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-12	03-11-12	Top	373	186			n/a
4	4(I627)	Conc. Pt. (lbs)	L	00-09-04	00-09-04	Top	3018	1631			n/a

### Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Moment	1368 ft-lbs	17696 ft-lbs	7.7%	1	02-05-12
End Shear	1020 lbs	7232 lbs	14.1%	1	03-03-10
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	02-07-00
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-07-00
Max Defl.	0.004"	n/a	n/a	4	02-07-00
Span / Depth	3.5				

### Bearing Supports

Bearing	Support	Dim. (LxW)	Demand	Demand/Resistance	Material
B1	Beam	10-7/8" x 1-3/4"	8064 lbs	79.3%	Unspecified
B2	Hanger	2" x 1-3/4"	1221 lbs	n/a	HUS1.81/10

### Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.

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

### Notes

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

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

Hanger Manufacturer: Unassigned

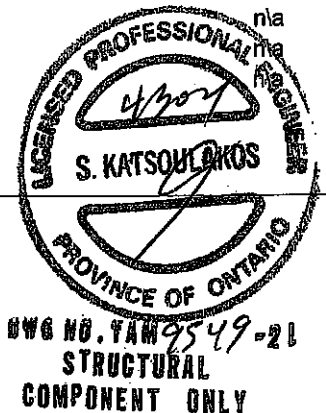
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-10-00.



### Disclosure

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CONFORMS TO OBC 2012



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

**PASSED**

## 1ST FLR FRAMING\Flush Beams\B2(1169) (Flush Beam)

Dry | 2 spans | L cant.

March 17, 2021 09:56:22

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B2(1169)

City, Province, Postal Code:

Specifier:

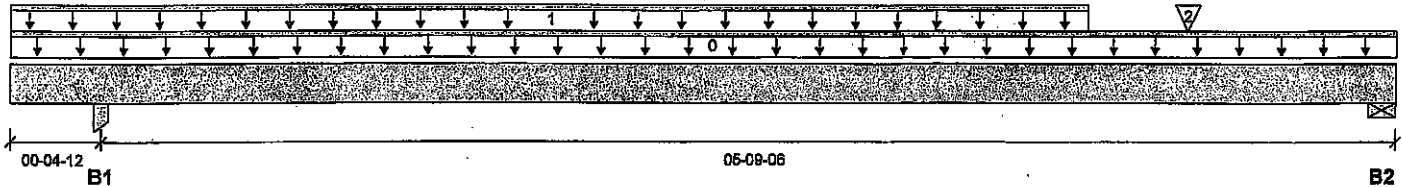
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 06-02-02

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1280 / 0	659 / 0		
B2, 2-3/8"	954 / 0	495 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-02-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-09-04	Top	383	191			n/a
2	J7(I530)	Conc. Pt. (lbs)	L	05-02-12	05-02-12	Top	379	190			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3232 ft-lbs	17696 ft-lbs	18.3%	1	03-03-04
End Shear	1834 lbs	7232 lbs	25.4%	1	04-11-14
Cont. Shear	1736 lbs	7232 lbs	24.0%	1	01-06-06
Total Load Deflection	L/999 (0.026")	n/a	n/a	8	03-02-08
Live Load Deflection	L/999 (0.017")	n/a	n/a	11	03-02-08
Total Neg. Defl.	2xL/1998 (-0.006")	n/a	n/a	10	00-00-00
Max Defl.	0.026"	n/a	n/a	8	03-02-08
Span / Depth	5.7				

### Bearing Supports

B1	Column	3-1/2" x 1-3/4"	2744 lbs	55.2%	36.7%	Unspecified
B2	Wall/Plate	2-3/8" x 1-3/4"	2050 lbs	80.2%	40.4%	Spruce-Pine-Fir

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-08-08.

**CONFORMS TO OBC 2012**



**STRUCTURAL COMPONENT ONLY**

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

## 1ST FLR FRAMING\Flush Beams\B3(i1232) (Flush Beam)

**PASSED**

BC CALC® Member Report  
Build 7773

Dry | 1 span | No cant.

March 17, 2021 09:56:22

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3(i1232)

City, Province, Postal Code:

Specifier:

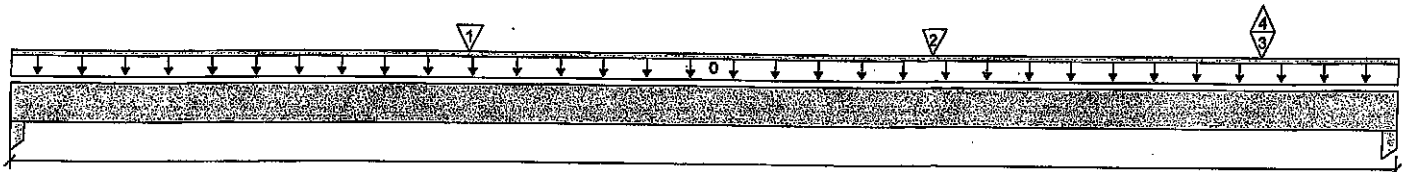
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

04-00-00

B2

Total Horizontal Product Length = 04-00-00

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	431 / 0	228 / 0		
B2, 1-3/4"	844 / 2	435 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-00-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	J3(i547)	Conc. Pt. (lbs)	L	01-03-10	01-03-10	Top	375	188			n/a
2	J3(i1237)	Conc. Pt. (lbs)	L	02-07-10	02-07-10	Top	337	168			n/a
3	B1(i1238)	Conc. Pt. (lbs)	L	03-07-04	03-07-04	Top	561	282			n/a
4	B1(i1238)	Conc. Pt. (lbs)	L	03-07-04	03-07-04	Top	-2				n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1150 ft-lbs	17696 ft-lbs	6.5%	1	02-07-10
End Shear	921 lbs	7232 lbs	12.7%	1	01-03-06
Total Load Deflection	L/999 (0.004")	n/a	n/a	6	02-01-02
Live Load Deflection	L/999 (0.003")	n/a	n/a	8	02-01-02
Max Defl.	0.004"	n/a	n/a	6	02-01-02
Span / Depth	3.7				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	931 lbs	18.7%	12.5%	Unspecified
B2	Column 1-3/4" x 1-3/4"	1809 lbs	72.7%	48.4%	Unspecified

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012

AMENDED 2020



### Disclosure

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

## 1ST FLR FRAMING\Flush Beams\B4(i476) (Flush Beam)

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

March 17, 2021 09:56:22

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B4(i476)

City, Province, Postal Code:

Specifier:

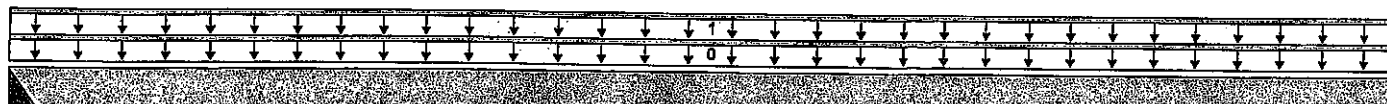
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

13-11-04

B2

Total Horizontal Product Length = 13-11-04

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

Bearing	Live	Dead	Snow	Wind
B1, 2"	182 / 0	133 / 0		
B2, 1-3/4"	181 / 0	132 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-11-04	Top	1.00	0.65	1.00	1.15	
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	13-11-04	Top	26	13			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1486 ft-lbs	17696 ft-lbs	8.4%	1	06-11-12
End Shear	366 lbs	7232 lbs	5.1%	1	01-01-14
Total Load Deflection	L/999 (0.074")	n/a	n/a	4	06-11-12
Live Load Deflection	L/999 (0.043")	n/a	n/a	5	06-11-12
Max Defl.	0.074"	n/a	n/a	4	06-11-12
Span / Depth	13.9				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	439 lbs	n/a	10.3%	HUS1.81/10
B2	Column 1-3/4" x 1-3/4"	437 lbs	17.6%	11.7%	Unspecified

### Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

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

### Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 13-11-04.

CONFORMS TO OBC 2012

AMENDED 2020

### Disclosure

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**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B5(i1212) (Flush Beam)**

Dry | 1 span | No cant.

March 17, 2021 09:56:22

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B5(i1212)

City, Province, Postal Code:

Specifier:

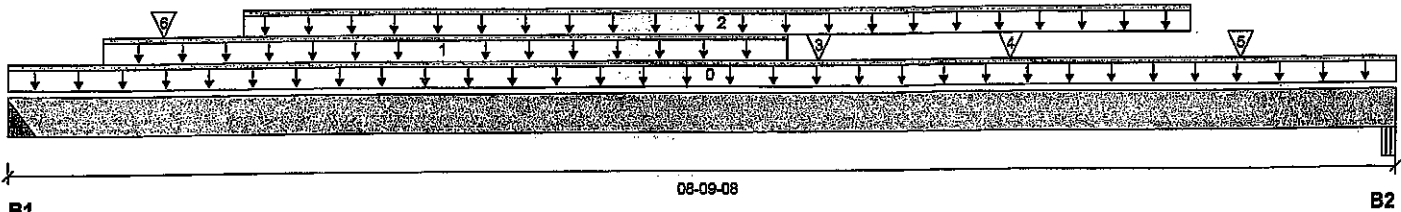
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

08-09-08

B2

Total Horizontal Product Length = 08-09-08

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

Bearing	Live	Dead	Snow	Wind
B1, 4"	2402 / 0	1270 / 0		
B2, 3-1/8"	2402 / 0	1276 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-09-08	Top		12			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-07-00	04-10-08	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-10	07-05-10	Top	358	179			n/a
3	B4(i476)	Conc. Pt. (lbs)	L	05-00-14	05-00-14	Top	181	132			n/a
4	J3(i547)	Conc. Pt. (lbs)	L	06-03-10	06-03-10	Top	371	186			n/a
5	-	Conc. Pt. (lbs)	L	07-09-09	07-09-09	Top	657	328			n/a
6	J2(i542)	Conc. Pt. (lbs)	L	00-11-10	00-11-10	Top	395	197			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	11402 ft-lbs	35392 ft-lbs	32.2%	1	04-05-01
End Shear	4870 lbs	14464 lbs	33.7%	1	01-03-14
Total Load Deflection	L/999 (0.103")	n/a	n/a	4	04-05-01
Live Load Deflection	L/999 (0.067")	n/a	n/a	5	04-05-01
Max Defl.	0.103"	n/a	n/a	4	04-05-01
Span / Depth	8.4				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger 4" x 3-1/2"	5190 lbs	n/a	30.4%	HGUS412
B2	Beam 3-1/8" x 3-1/2"	5198 lbs	89.0%	39.0%	Unspecified

**Cautions**

Header for the hanger HGUS412 is a Triple 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



OWG NO. TAM 9553-21  
STRUCTURAL  
COMPONENT ONLY



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

## 1ST FLR FRAMING\Flush Beams\B5(11212) (Flush Beam)

Dry | 1 span | No cant.

**PASSED**

March 17, 2021 09:56:22

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: SPRINGFIELD 2 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(11212)

Specifier:

Designer:

Company:

### Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

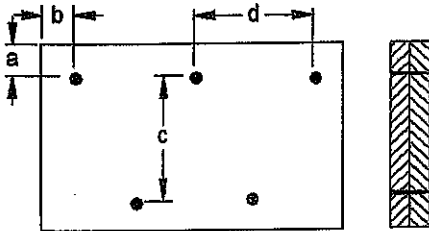
Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-10-06.

CONFORMS TO OBC 2012

AMENDED 2020

### Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 6"

Calculated Side Load = 766.5 lb/ft

Connectors are: 16d Nails

3/4" ARDOX SPIRAL



STRUCTURAL  
COMPONENT ONLY

### Disclosure

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**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B6(i1218) (Flush Beam)**

Dry | 1 span | No cant.

March 17, 2021 09:56:22

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B6(i1218)

City, Province, Postal Code:

Specifier:

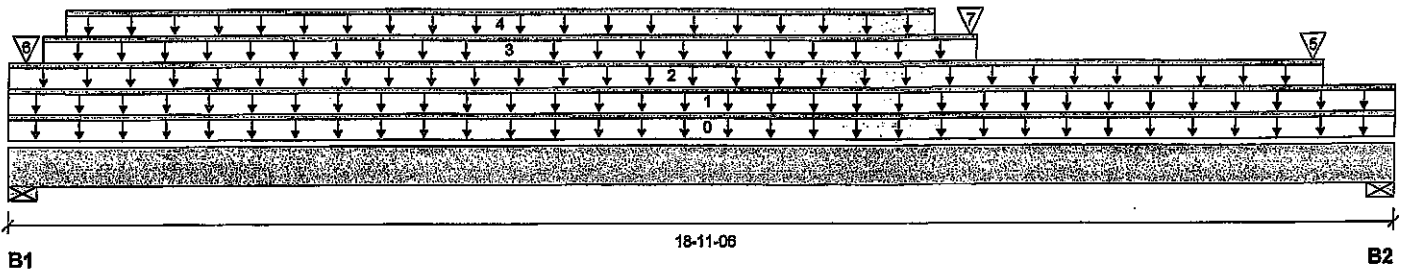
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 18-11-06

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2325 / 0	2073 / 0		
B2, 4-3/8"	3848 / 0	2542 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-11-06	Top		18			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	18-11-06	Top	19	10			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	17-11-08	Top	24	12			n/a
3	5(i634)	Unf. Lin. (lb/ft)	L	00-05-08	13-01-08	Top		81			n/a
4	5(i634)	Unf. Lin. (lb/ft)	L	00-09-04	12-06-12	Top	182	91			n/a
5	B5(i1212)	Conc. Pt. (lbs)	L	17-09-12	17-09-12	Top	2331	1233			n/a
6	E24(i1107)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	127	136			n/a
7	5(i634)	Conc. Pt. (lbs)	L	13-00-08	13-00-08	Top	609	331			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	27876 ft-lbs	55211 ft-lbs	50.5%	1	09-05-04
End Shear	7745 lbs	21696 lbs	35.7%	1	17-07-02
Total Load Deflection	L/263 (0.84")	n/a	91.2%	4	09-05-04
Live Load Deflection	L/481 (0.46")	n/a	74.9%	5	09-05-04
Max Defl.	0.84"	n/a	n/a	4	09-05-04
Span / Depth	18.6				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	6079 lbs	53.8%	27.1%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 5-1/4"	8950 lbs	63.3%	31.9%	Spruce-Pine-Fir

**Cautions**

Concentrated side load(s) 17 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



ENG NO. TAM 9554-21  
STRUCTURAL  
COMPONENT ONLY



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

## 1ST FLR FRAMING\Flush Beams\B6(I1218) (Flush Beam)

**PASSED**

BC CALC® Member Report  
Build 7773

Dry | 1 span | No cant.

March 17, 2021 09:56:22

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B6(I1218)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

### Notes

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

CONFORMS TO OBC 2012

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

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

AMENDED 2020

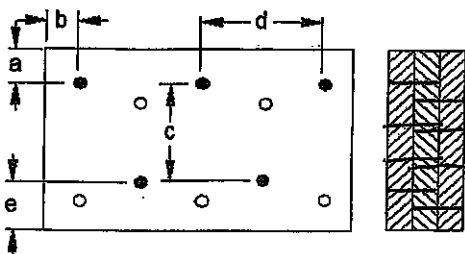
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 17-04-08.

### Connection Diagram: Full Length of Member



4 ROWS

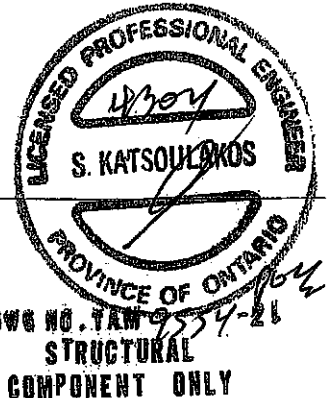
a minimum = 4"  
b minimum = 3"

c = 8-7/8"  
d = 8"  
e minimum = 2"

Nailing applies to both sides of the member

Connectors are: 1 Nails

3/4" ARDOX SPIRAL



### Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC1®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





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

**PASSED**

## 1ST FLR FRAMING\Flush Beams\B7(i516) (Flush Beam)

Dry | 1 span | No cant.

March 17, 2021 09:56:22

BC CALC® Member Report  
Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B7(i516)

City, Province, Postal Code:

Specifier:

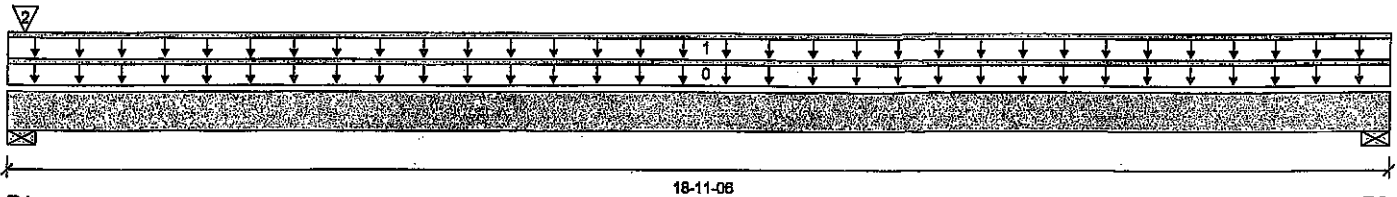
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 18-11-08

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	219 / 0	191 / 0		
B2, 2-3/8"	189 / 0	151 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-11-06	Top		6			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	18-11-06	Top	20	10			n/a
2	E24(1107)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	29	38			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2159 ft-lbs	17696 ft-lbs	12.2%	1	09-06-04
End Shear	412 lbs	7232 lbs	5.7%	1	01-03-06
Total Load Deflection	L/1127 (0.198")	n/a	21.3%	4	09-06-04
Live Load Deflection	L/999 (0.11")	n/a	n/a	5	09-06-04
Max Defl.	0.198"	n/a	n/a	4	09-06-04
Span / Depth	18.8				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	567 lbs	15.1%	7.6%	Spruce-Pine-Fir
B2	Wall/Plate 2-3/8" x 1-3/4"	472 lbs	18.4%	9.3%	Spruce-Pine-Fir

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 18-05-08.

CONFORMS TO CBC 2012

AMENDED 2020



OWG NO. YAM9555 -21  
STRUCTURAL  
COMPONENT ONLY

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**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B12A(i1491) (Flush Beam)**

**PASSED**

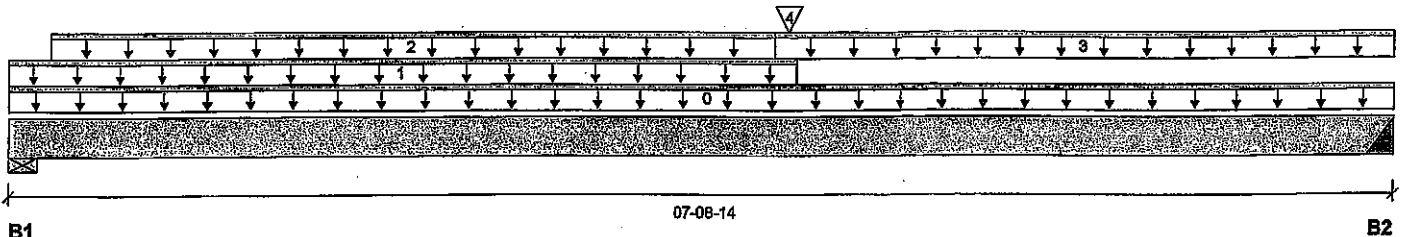
BC CALCC® Member Report  
 Build 7773

Dry | 1 span | No cant.

March 17, 2021 10:26:15

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

File name: SPRINGFIELD 2 EL 2 HIGH CEILING.mmdl  
 Description: 2ND FLR FRAMING\Flush Beams\B12A(i1491)  
 Specifier:  
 Designer: AJ  
 Company:



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

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	1047 / 0	563 / 0		
B2, 2"	624 / 0	356 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-08-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-04-02	Top	240	120			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-12	04-02-12	Top	23	11			n/a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-02-12	07-08-14	Top	27	13			n/a
4	B14A(i1457)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	Top	444	259			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4244 ft-lbs	17696 ft-lbs	24.0%	1	04-00-08
End Shear	1595 lbs	7232 lbs	22.1%	1	01-02-10
Total Load Deflection	L/999 (0.058")	n/a	n/a	4	03-10-04
Live Load Deflection	L/999 (0.037")	n/a	n/a	5	03-10-04
Max Defl.	0.058"	n/a	n/a	4	03-10-04
Span / Depth	7.5				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 1-3/4"	2274 lbs	76.8%	38.7%	Spruce-Pine-Fir
B2	Hanger 2" x 1-3/4"	1381 lbs	n/a	32.3%	HUS1.81/10

**Cautions**

Header for the hanger HUS1.81/10 is a Triple 1-3/4" x 11-7/8" LVL Beam.  
 Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DATE NO. TAM 9556 -21  
**STRUCTURAL COMPONENT ONLY**



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP  
2ND FLR FRAMING\Flush Beams\B12A(i1491) (Flush Beam)

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

March 17, 2021 10:26:15

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2 HIGH CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B12A(i1491)

City, Province, Postal Code: HAMILTON

Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

**Notes**

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 04-00-00.

CONFORMS TO OBC 2012

AMENDED 2020



896 NO. TAM 9556 -21  
STRUCTURAL  
COMPONENT ONLY

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



**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B13A(I1534) (Flush Beam)**

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

March 17, 2021 10:26:15

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 2 HIGH CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13A(I1534)

City, Province, Postal Code: HAMILTON

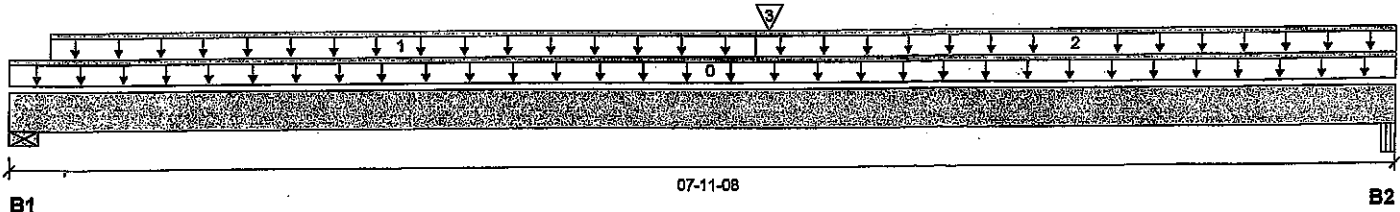
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 07-11-08

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

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	240 / 0	161 / 0		
B2, 2-5/8"	378 / 0	233 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-11-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-12	04-02-12	Top	3	2			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-02-12	07-11-08	Top	53	27			n/a
3	B14A(I1457)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	Top	407	240			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2195 ft-lbs	17696 ft-lbs	12.4%	1	04-03-10
End Shear	711 lbs	7232 lbs	9.8%	1	06-09-00
Total Load Deflection	L/999 (0.028")	n/a	n/a	4	04-01-10
Live Load Deflection	L/999 (0.017")	n/a	n/a	5	04-01-10
Max Defl.	0.028"	n/a	n/a	4	04-01-10
Span / Depth	7.7				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 1-3/4"	560 lbs	18.9%	9.5%	Spruce-Pine-Fir
B2	Beam 2-5/8" x 1-3/4"	857 lbs	15.3%	15.3%	VL 2.0 3100 SP

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9  
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 04-00-00.

CONFORMS TO OBC 2012

AMENDED 2020



STRUCTURAL  
COMPONENT ONLY

**Disclosure**

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

**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B14A(i1457) (Flush Beam)**

Dry | 1 span | No cant.

March 17, 2021 10:26:15

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

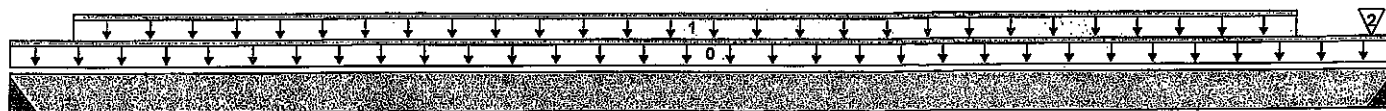
File name: SPRINGFIELD 2 EL 2 HIGH CEILING.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B14A(i1457)

Specifier:

Designer: AJ

Company:



B1

12-01-04

B2

Total Horizontal Product Length = 12-01-04

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

Bearing	Live	Dead	Snow	Wind
B1, 2"	408 / 0	240 / 0		
B2, 2"	443 / 0	259 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-01-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-12	11-02-12	Top	74	37			n/a
2	J6(i1595)	Conc. Pt. (lbs)	L	11-10-12	11-10-12	Top	59	30			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2918 ft-lbs	17696 ft-lbs	16.5%	1	06-06-12
End Shear	903 lbs	7232 lbs	12.5%	1	01-01-14
Total Load Deflection	L/999 (0.108")	n/a	n/a	4	06-00-12
Live Load Deflection	L/999 (0.068")	n/a	n/a	5	06-00-12
Max Defl.	0.108"	n/a	n/a	4	06-00-12
Span / Depth	12-0				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	912 lbs	n/a	21.4%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	988 lbs	n/a	23.1%	HUS1.81/10

**Cautions**

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.

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

**Notes**

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

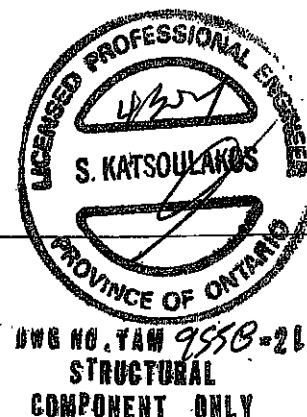
Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

**CONFORMS TO OBC 2012****Disclosure**

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

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





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B24C(i1159) (Dropped Beam)

**PASSED**

BC CALCO® Member Report

Dry | 1 span | No cant.

March 17, 2021 11:00:36

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B24C(i1159)

City, Province, Postal Code:

Specifier:

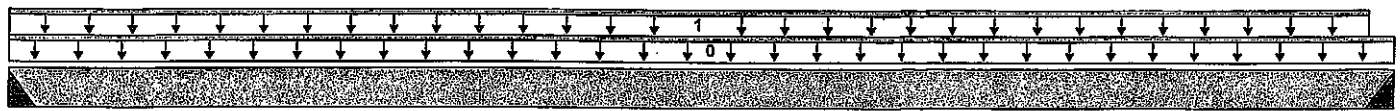
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

09-03-00

B2

Total Horizontal Product Length = 09-03-00

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

Bearing	Live	Dead	Snow	Wind
B1, 2"		156 / 0	213 / 0	
B2, 2"		152 / 0	205 / 0	

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-03-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	09-01-00	Top		24	46		n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1135 ft-lbs	17202 ft-lbs	6.6%	1	04-07-08
End Shear	407 lbs	11571 lbs	3.5%	1	00-11-08
Total Load Deflection	L/999 (0.024")	n/a	n/a	12	04-07-08
Live Load Deflection	L/999 (0.014")	n/a	n/a	17	04-07-08
Max Defl.	0.024"	n/a	n/a	12	04-07-08
Span / Depth	11.4				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	514 lbs	n/a	6.0%	HUC412
B2	Hanger 2" x 3-1/2"	497 lbs	n/a	5.8%	HUC412

## Cautions

Header for the hanger HUC412 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUC412 is a Double 1-3/4" x 9-1/2" LVL Beam.

## Notes

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

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

Hanger Manufacturer: Unassigned

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

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

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

Design based on Dry Service Condition.

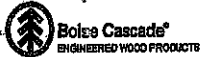
Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 09-03-00, Bottom: 09-03-00.

CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. TAM 9559-21  
 STRUCTURAL  
 COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Dropped Beams\B24C(11159) (Dropped Beam)**

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

March 17, 2021 11:00:36

File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

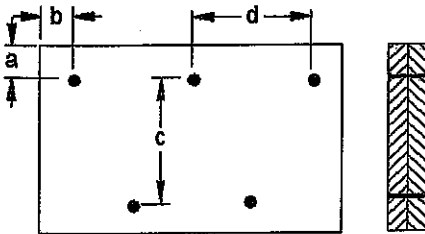
Description: 2ND FLR FRAMING\Dropped Beams\B24C(11159)

Specifier:

Designer:

Company:

**Connection Diagram: Full Length of Member**



a minimum = 2"

b minimum = 3"

c = 5-1/2"

d = 6"

Connectors are: 1 Nails

**3 1/2" ARDOX SPIRAL**



**STRUCTURAL  
COMPONENT ONLY**

**Disclosure**

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



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

## 2ND FLR FRAMING\Flush Beams\B16C(i639) (Flush Beam)

**PASSED**

BC CALC® Member Report

Dry | 3 spans | L cant.

March 17, 2021 11:00:36

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B16C(i639)

City, Province, Postal Code:

Specifier:

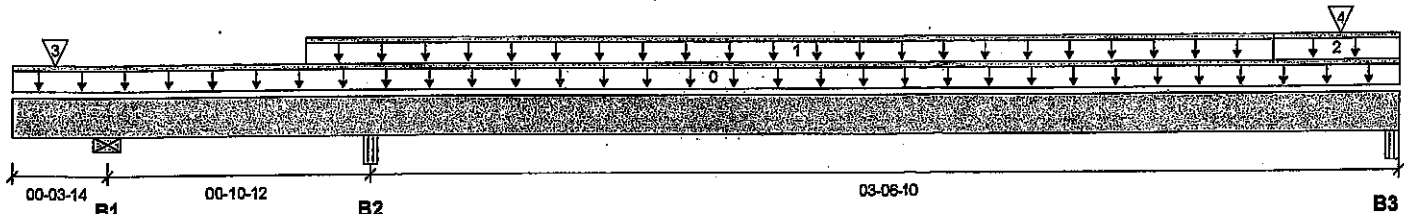
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-09-04

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	0 / 9	366 / 0	509 / 0	
B2, 5-1/4"	25 / 0	0 / 16	0 / 95	
B3, 5-1/4"	12 / 0	52 / 0	3 / 0	

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-09-04	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	01-00-00	04-04-00	Top	8	4			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-04-00	04-09-04	Top	5				n/a
3	-	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top		306	417		n/a
4	E28(i1112)	Conc. Pt. (lbs)	L	04-06-12	04-06-12	Top		24			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	22 ft-lbs	23005 ft-lbs	n/a	0	03-00-00
Neg. Moment	-181 ft-lbs	-33987 ft-lbs	0.5%	37	00-03-14
End Shear	8 lbs	9401 lbs	n/a	0	03-04-02
Cont. Shear	1011 lbs	14464 lbs	7.0%	37	00-02-02
Total Load Deflection	L/999 (0")	n/a	n/a	83	02-10-10
Max Defl.	0"	n/a	n/a	83	02-10-10
Span / Depth	3.2				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	1222 lbs	16.2%	8.2%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	24 lbs	0.2%	0.1%	Unspecified
B2	Uplift	162 lbs			
B3	Beam 5-1/4" x 3-1/2"	72 lbs	1.1%	0.5%	Unspecified

### Cautions

Uplift of 162 lbs found at bearing B2.

CSIMPSON 2-H25A @ (B2)



ENG. NO. TAM 9560-21  
STRUCTURAL  
COMPONENT ONLY





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

2ND FLR FRAMING\Flush Beams\B16C(i639) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 3 spans | L cant.

March 17, 2021 11:00:36

File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B16C(i639)

Specifier:

Designer:

Company:

## Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

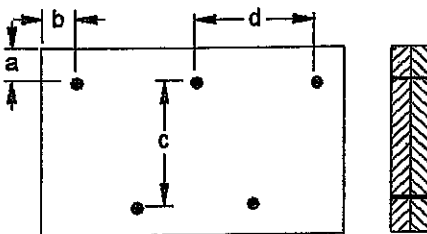
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Calculations assume unbraced length of Top: 00-08-08, Bottom: 02-10-12.

CONFORMS TO OBC 2012

AMENDED 2020

## Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Calculated Side Load = 253.0 lb/ft

Connectors are:

Nails

3/4" ARDOX SPIRAL



BWG NO. TAM 9560-21  
STRUCTURAL  
COMPONENT ONLY

## Disclosure

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



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

## 2ND FLR FRAMING\Flush Beams\B22C(i1155) (Flush Beam)

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

March 17, 2021 11:00:36

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B22C(i1155)

City, Province, Postal Code:

Specifier:

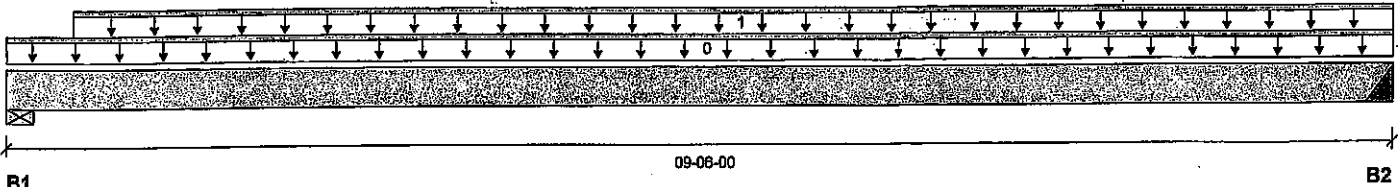
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"		154 / 0	204 / 0	
B2, 2"		155 / 0	212 / 0	

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-06-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-05-08	09-06-00	Top		24	46		n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1124 ft-lbs	17470 ft-lbs	6.4%	1	04-10-12
End Shear	405 lbs	11571 lbs	3.5%	1	01-03-00
Total Load Deflection	L/999 (0.024")	n/a	n/a	12	04-10-12
Live Load Deflection	L/999 (0.014")	n/a	n/a	17	04-10-12
Max Defl.	0.024"	n/a	n/a	12	04-10-12
Span / Depth	11.4				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	498 lbs	4.2%	2.1%	Spruce-Pine-Fir
B2	Hanger 2" x 3-1/2"	511 lbs	n/a	6.0%	HUC412

### Cautions

Header for the hanger HUC412 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

### Notes

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

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

Hanger Manufacturer: Unassigned

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

AMENDED 2020

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 09-00-08, Bottom: 09-00-08.

CONFORMS TO OBC 2012



DWG NO. TAM 9561 -21  
STRUCTURAL  
COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B22C(i1155) (Flush Beam)**

**PASSED**

BC CALC® Member Report  
 Bulld 7773

Dry | 1 span | No cant.

March 17, 2021 11:00:36

Job name:

File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B22C(i1155)

City, Province, Postal Code:

Specifier:

Customer:

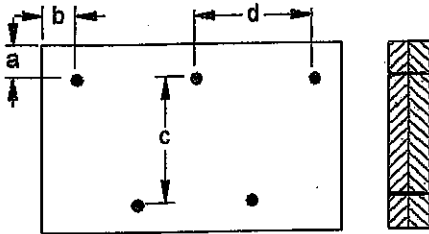
Designer:

Code reports:

CCMC 12472-R

Company:

**Connection Diagram: Full Length of Member**



a minimum = 2"  
 b minimum = 3"

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

Connectors are:

1 Nails  
 3/4" ARDOX SPIRAL



ENG NO. 9561 -21  
 STRUCTURAL  
 COMPONENT ONLY

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

## 2ND FLR FRAMING\Flush Beams\B23C(i1157) (Flush Beam)

**PASSED**

BC CALC® Member Report

Dry | 1 span | L cant.

March 17, 2021 11:00:36

Build 7773

Job name:

File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B23C(i1157)

City, Province, Postal Code:

Specifier:

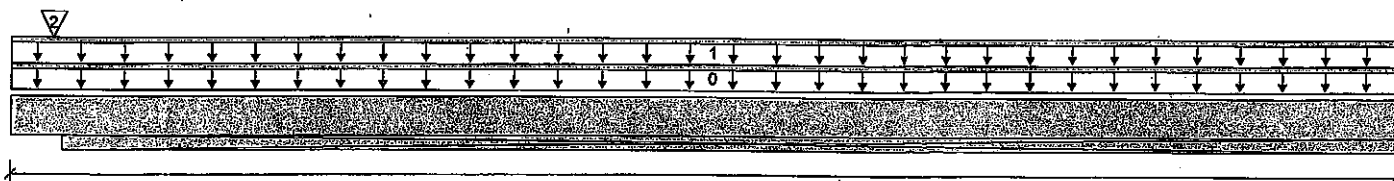
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



04-09-04

Total Horizontal Product Length = 04-09-04

B1

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

Bearing	Live	Dead	Snow	Wind
B1, 55-1/8"		314 / 0	428 / 0	

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-09-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	04-09-04	Top		24	46		n/a
2	B24C(i1159)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top		154	209		n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
End Shear	20 lbs	11571 lbs	0.2%	1	00-02-02
Span / Depth	0.2				
Dist. Load (B1)	99 lb/ft	57645.1 lb/ft	0.2%		

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 55-1/8" x 3-1/2"	1036 lbs	1.0%	0.4%	Unspecified

### Notes

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

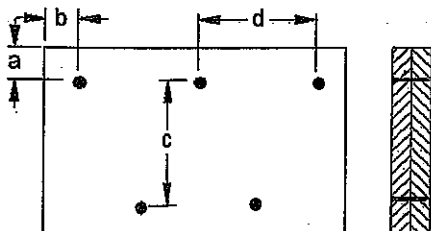
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Calculations assume unbraced length of Top: 04-00-08, Bottom: 02-10-12.

CONFORMS TO OBC 2012

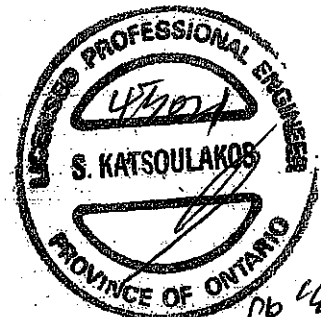
AMENDED 2020

### Connection Diagram: Full Length of Member



a minimum = 2"  
b minimum = 3"

c = 5-1/2"  
d = 6"



OWN NO. YAW 9562-21  
STRUCTURAL  
COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B23C(I1157) (Flush Beam)**

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | L cant.

March 17, 2021 11:00:36

File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B23C(I1157)

Specifier:

Designer:

Company:

**Connection Diagram: Full Length of Member**

Calculated Side Load = 253.0 lb/ft

Connectors are: 1 Gun Nails

**3 1/2" ARDOX SPIRAL**



DWG NO. TAM 9562-21  
**STRUCTURAL  
COMPONENT ONLY**

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

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B11(11289) (Flush Beam)**

Dry | 1 span | No cant.

April 29, 2021 08:46:48

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

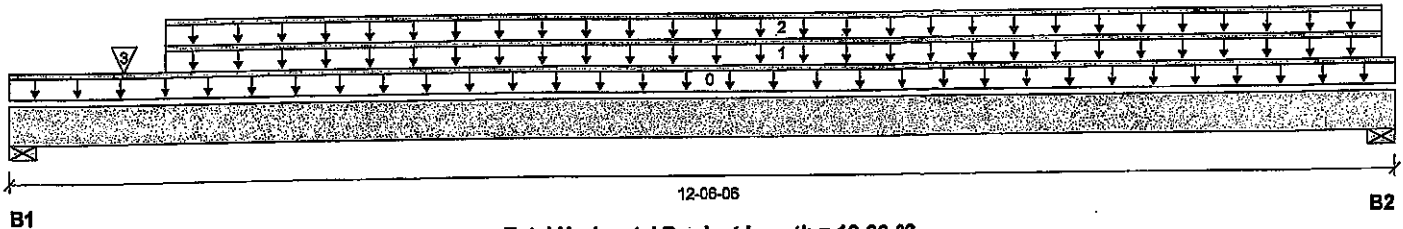
File name: SPRINGFIELD 2 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B11(11289)

Specifier:

Designer: AJ

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	3200 / 0	1675 / 0		
B2, 4"	3431 / 0	1790 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-06-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-14	12-04-14	Top	373	186			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-14	12-04-14	Top	178	89			n/a
3	-	Conc. Pt. (lbs)	L	01-00-09	01-00-09	Top	565	283			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	21403 ft-lbs	35392 ft-lbs	60.5%	1	06-06-14
End Shear	6494 lbs	14464 lbs	44.9%	1	01-04-04
Total Load Deflection	L/360 (0.399")	n/a	66.7%	4	06-02-14
Live Load Deflection	L/547 (0.262")	n/a	65.8%	5	06-02-14
Max Defl.	0.399"	n/a	n/a	4	06-02-14
Span / Depth	12.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	6893 lbs	73.2%	36.9%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	7384 lbs	85.7%	43.2%	Spruce-Pine-Fir

**Notes**

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-08-08.

CONFORMS TO OBC 2012

AMENDED 2020



44521

S. KATSOULAKOS

PROVINCE OF ONTARIO

000 NO. 1409563-21

STRUCTURAL COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B11(i1289) (Flush Beam)

Dry | 1 span | No cant.

April 29, 2021 08:46:48

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 2 EL 1.mmdl

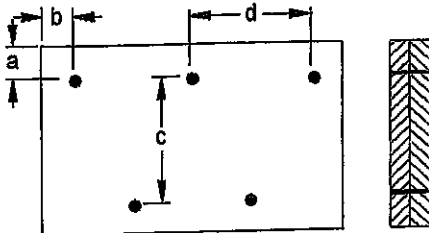
Description: 2ND FLR FRAMING\Flush Beams\B11(i1289)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Calculated Side Load = 796.9 lb/ft

Connectors are: 16d x 4 Nails

3 1/2" ARDOX SPIRAL



046 NO. TAM 9563-21

STRUCTURAL  
COMPONENT ONLY

## Disclosure

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

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

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B9(i1303) (Flush Beam)**

Dry | 1 span | No cant.

April 29, 2021 08:46:48

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

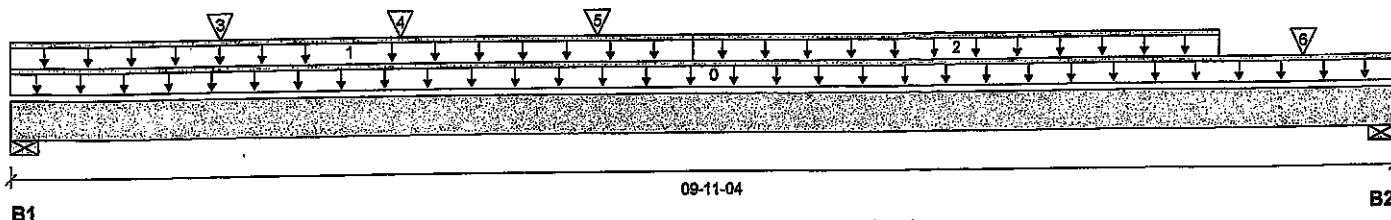
File name: SPRINGFIELD 2 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B9(i1303)

Specifier:

Designer: AJ

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	2787 / 0	1483 / 0		
B2, 4"	2459 / 0	1299 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-11-04	Top	12				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-09-12	Top	395	198			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	04-09-12	08-07-12	Top	573	286			n/a
3	J5(i1283)	Conc. Pt. (lbs)	L	01-05-12	01-05-12	Top	98	49			n/a
4	B12(i1327)	Conc. Pt. (lbs)	L	02-09-02	02-09-02	Top	343	211			n/a
5	J4(i1291)	Conc. Pt. (lbs)	L	04-01-12	04-01-12	Top	245	123			n/a
6	-	Conc. Pt. (lbs)	L	09-03-01	09-03-01	Top	463	231			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12765 ft-lbs	35392 ft-lbs	36.1%	1	05-01-12
End Shear	4790 lbs	14464 lbs	33.1%	1	01-05-02
Total Load Deflection	L/778 (0.143")	n/a	30.8%	4	05-00-04
Live Load Deflection	L/999 (0.094")	n/a	n/a	5	05-00-04
Max Defl.	0.143"	n/a	n/a	4	05-00-04
Span / Depth	9.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/4" x 3-1/2"	6034 lbs	53.4%	26.9%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	5312 lbs	61.7%	31.1%	Spruce-Pine-Fir

**Notes**

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

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

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

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

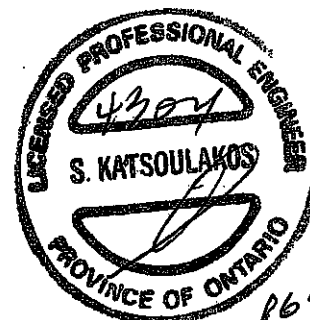
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-08-08.

CONFORMS TO OBC 2012

AMENDED 2020



ONE NO. 74W 9564-21  
STRUCTURAL  
COMPONENT ONLY





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

PASSED

## 2ND FLR FRAMING\Flush Beams\B9(I1303) (Flush Beam)

Dry | 1 span | No cant.

April 29, 2021 08:46:48

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 2 EL 1.mmdl

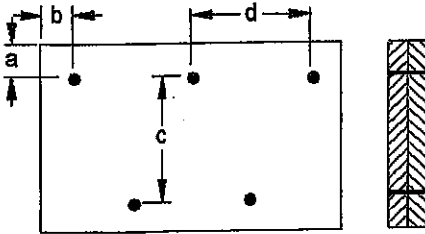
Description: 2ND FLR FRAMING\Flush Beams\B9(I1303)

Specifier:

Designer: AJ

Company:

### Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 796.9 lb/ft

Connectors are: 16d Nails

3/4" ARDOX SPIRAL



STRUCTURAL  
COMPONENT ONLY

### Disclosure

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

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

# NORDIC STRUCTURES

**COMPANY**  
Mar. 18, 2021 15:14

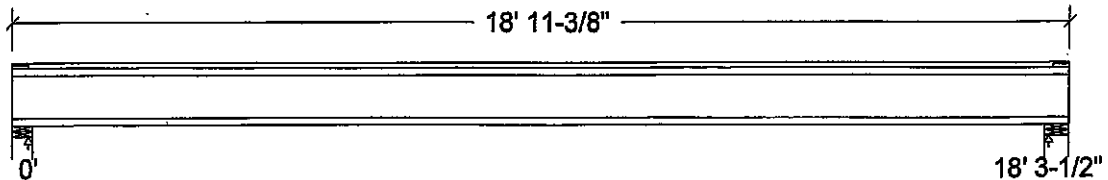
**PROJECT**  
J6 2ND FLOOR.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 7.2

### Loads:

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

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



Unfactored:			
Dead	183		183
Live	366		366
Factored:			
Total	777		777
Bearing:			
Capacity			
Joist	2336		2336
Support	10841		12995
Des ratio			
Joist	0.33		0.33
Support	0.07		0.06
Load case	#2		#2
Length	4-3/8		5-1/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

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

### Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

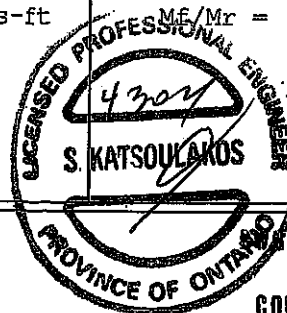
Supports: All - Lumber Wall, No.1/No.2

Total length: 18' 11-3/8"; Clear span: 18' 1-3/4"; 5/8" nailed and glued OSB sheathing

**This section PASSES the design code check.**

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 777$	$V_r = 2336$	lbs	$V_f/V_r = 0.33$
Moment (+)	$M_f = 3555$	$M_r = 11609$	lbs-ft	$M_f/M_r = 0.31$
Perm. Defl'n	$0.10 = < L/999$	$0.61 = L/360$	in	0.16
Live Defl'n	$0.19 = < L/999$	$0.46 = L/480$	in	0.42
Total Defl'n	$0.29 = < L/769$	$0.91 = L/240$	in	0.31
Bare Defl'n	$0.21 = < L/999$	$0.61 = L/360$	in	0.34
Vibration	$L_{max} = 18'-3.5$	$L_v = 19'-11$	ft	0.92
Defl'n	$= 0.028$	$= 0.034$	in	0.81



NO. YAM 9541-21  
STRUCTURAL  
COMPONENT ONLY

**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake

L=live (use, occupancy) Ls=live (storage, equipment) f=fire

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

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

**CALCULATIONS:**E<sub>I</sub>eff = 613.27 lb-in<sup>2</sup> K= 6.18e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...) CONFORMS TO OBC 2012

**Design Notes:**

AMENDED 2020

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



OWG NO. YAM 9541 -21  
STRUCTURAL  
COMPONENT ONLY

# NORDIC STRUCTURES

**COMPANY**  
Mar. 18, 2021 15:15

**PROJECT**  
J6 1ST FLOOR.wwb

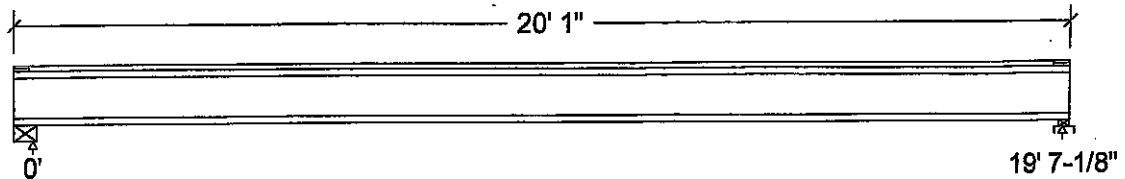
## Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

### Loads:

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

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



Unfactored:			
Dead	196		196
Live	392		392
Factored:			
Total	833		833
Bearing:			
Capacity			
Joist	2336		2188
Support	-		5573
Des ratio			
Joist	0.36		0.38
Support	-		0.15
Load case	#2		#2
Length	5-1/4		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
fcg sup	-		769
Kzcg sup	-		1.09

### Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

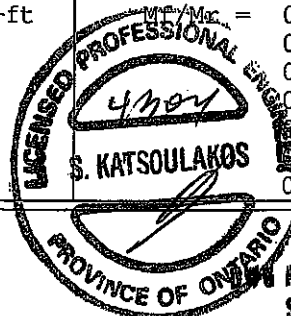
Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2;

Total length: 20' 1"; Clear span: 19' 5-3/8"; 3/4" nailed and glued OSB sheathing

This section **PASSES** the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 833	Vr = 2336	lbs	Vf/Vr = 0.36
Moment(+)	Mf = 4079	Mr = 11609	lbs-ft	Mf/Mr = 0.35
Perm. Defl'n	0.12 = < L/999	0.65 = L/360	in	0.19
Live Defl'n	0.24 = L/971	0.49 = L/480	in	0.49
Total Defl'n	0.36 = L/647	0.98 = L/240	in	0.37
Bare Defl'n	0.27 = L/863	0.65 = L/360	in	0.42
Vibration	Lmax = 19'-7.1	Lv = 21'-2.7	ft	0.92
Defl'n	= 0.027	= 0.033	in	0.82



NO. 9542-21  
STRUCTURAL  
COMPONENT ONLY

**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

**CALCULATIONS:**E<sub>ieff</sub> = 625.37 lb-in<sup>2</sup> K = 6.18e06 lbs

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

**CONFORMS TO OBC 2012****Design Notes:****AMENDED 2020**

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



046 NO. TAM 9542-21  
STRUCTURAL  
COMPONENT ONLY

# NORDIC STRUCTURES

**COMPANY**  
Mar. 18, 2021 15:16

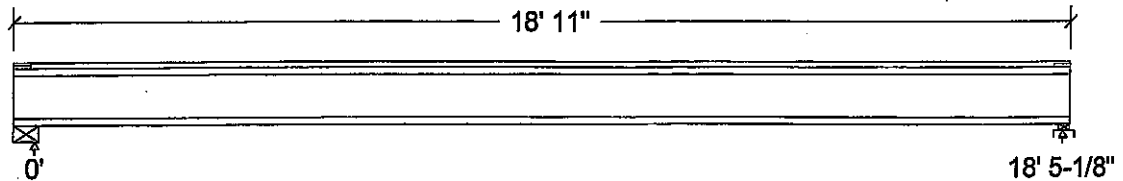
**PROJECT**  
J7 1ST FLOOR.wwb

## Design Check Calculation Sheet Nordic Sizer - Canada 7.2

### Loads:

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

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



Unfactored:			
Dead	184		184
Live	369		369
Factored:			
Total	783		783
Bearing:			
Capacity			
Joist	2336		2188
Support	-		5573
Des ratio			
Joist	0.34		0.36
Support	-		0.14
Load case	#2		#2
Length	5-1/4		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
fcpsup	-		769
Kzcp sup	-		1.09

### Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

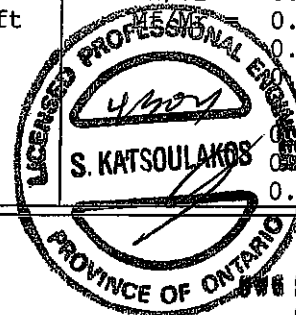
Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2;

Total length: 18' 11"; Clear span: 18' 3-3/8"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 783	Vr = 2336	lbs	Vf/Vr = 0.34
Moment(+)	Mf = 3608	Mr = 11609	lbs-ft	Mf/Mr = 0.31
Perm. Defl'n	0.10 = < L/999	0.61 = L/360	in	0.16
Live Defl'n	0.19 = < L/999	0.46 = L/480	in	0.42
Total Defl'n	0.29 = L/766	0.92 = L/240	in	0.31
Bare Defl'n	0.22 = < L/999	0.61 = L/360	in	0.35
Vibration	Lmax = 18'-5.1	Lv = 21'-2.7	ft	0.87
Defl'n	= 0.024	= -0.034	in	0.71



NO. TAM9543-21  
STRUCTURAL  
PERMANENT ONLY

**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

**CALCULATIONS:**E<sub>ieff</sub> = 625.37 lb-in<sup>2</sup> K= 6.18e06 lbs

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

CONFORMS TO OBC 2012

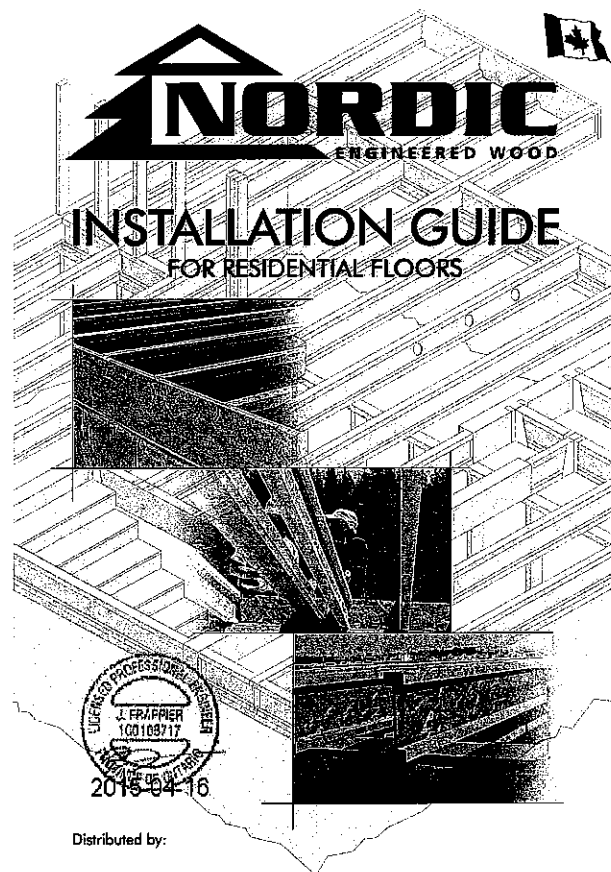
**Design Notes:**

AMENDED 2020

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



046 NO. YAW 9543 -21  
STRUCTURAL  
COMPONENT ONLY



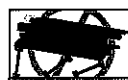
Distributed by:



## SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

### WARNING

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

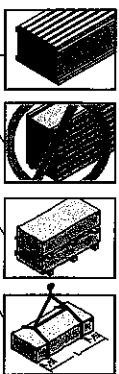
#### Avoid Accidents by Following these Important Guidelines:

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

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

## STORAGE AND HANDLING GUIDELINES

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



## MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm  
1 foot = 0.305 m

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

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing
12"	NI-20	15'-1"	14'-2"	13'-9"	13'-5"	14'-3"	13'-4"	12'-10"	12'-6"
12"	NI-22	16'-1"	15'-2"	14'-8"	14'-4"	15'-1"	14'-2"	13'-9"	13'-5"
12"	NI-24	16'-3"	15'-4"	14'-10"	14'-11"	15'-3"	14'-4"	13'-10"	13'-6"
12"	NI-26	17'-1"	16-11"	15-6"	15-7"	16-7"	15-8"	14-10"	14-6"
12"	NI-28	17'-3"	16-3"	15-8"	15-9"	16-9"	15-10"	14-11"	14-7"
12"	NI-30	18-11"	17-0"	16-5"	16-6"	17-5"	16-6"	15-10"	15-6"
12"	NI-32	18-4"	17-3"	16-7"	16-8"	17-8"	16-9"	15-11"	15-7"
12"	NI-34	19-6"	18-0"	17-4"	17-5"	18-4"	17-5"	16-11"	16-7"
12"	NI-36	19-9"	18-3"	17-7"	17-7"	18-7"	17-8"	16-11"	16-7"
12"	NI-38	20-2"	18-7"	17-10"	17-11"	19-0"	18-1"	17-0"	16-10"
12"	NI-40	20-4"	18-9"	17-11"	18-0"	19-2"	18-3"	17-1"	16-11"
12"	NI-42	20-1"	18-7"	17-10"	17-11"	18-9"	18-0"	16-11"	16-7"
12"	NI-44	20-5"	18-11"	18-1"	18-2"	19-3"	18-4"	17-1"	16-10"
12"	NI-46	21-7"	20-0"	19-11"	19-2"	20-10"	19-1"	18-1"	17-2"
12"	NI-48	21-11"	20-3"	19-4"	19-5"	20-4"	19-5"	18-4"	17-5"
12"	NI-50	22-5"	20-8"	19-9"	19-10"	20-9"	20-0"	18-9"	18-0"
12"	NI-52	22-7"	20-11"	19-11"	20-0"	21-1"	20-2"	19-1"	18-10"
12"	NI-54	22-3"	20-6"	19-6"	19-7"	20-7"	19-8"	18-10"	18-6"
12"	NI-56	23-6"	21-9"	20-9"	20-10"	21-0"	20-1"	19-10"	19-11"
12"	NI-58	23-11"	21-1"	21-1"	21-2"	21-5"	20-6"	19-11"	19-7"
12"	NI-60	24-5"	22-4"	21-5"	21-6"	22-11"	21-2"	20-11"	20-1"
12"	NI-62	24-8"	22-7"	21-8"	21-9"	22-3"	21-4"	20-4"	19-4"
12"	NI-64	24-9"	22-8"	21-9"	21-10"	22-4"	21-5"	20-5"	19-5"

CCMC EVALUATION REPORT 13022-R

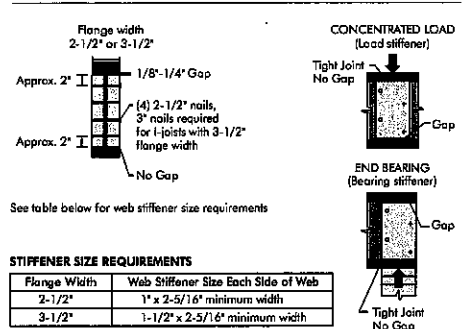
## WEB STIFFENERS

### RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2  
WEB STIFFENER INSTALLATION DETAILS

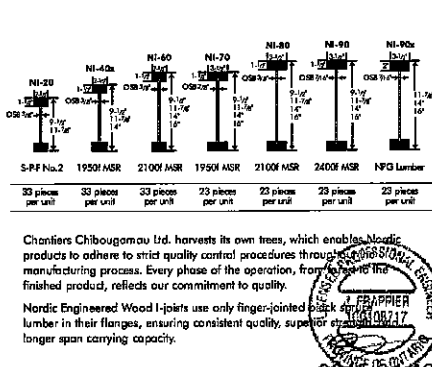


See table below for web stiffener size requirements

### STIFFENER SIZE REQUIREMENTS

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

## NORDIC I-JOIST SERIES



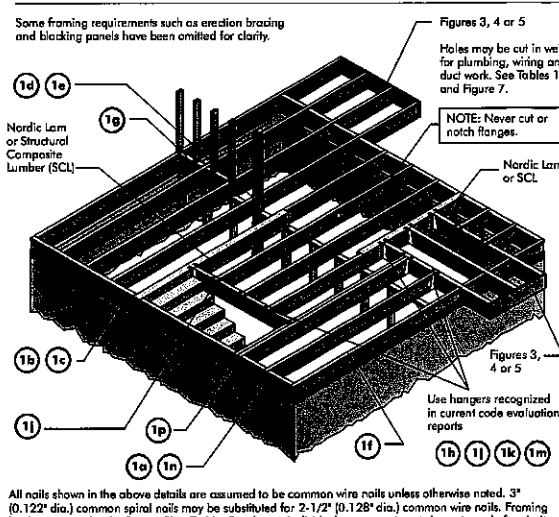
Chantiers Chibougamou Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from the raw log to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed black spruce lumber in their flanges, ensuring consistent quality, superior strength and longer span carrying capacity.

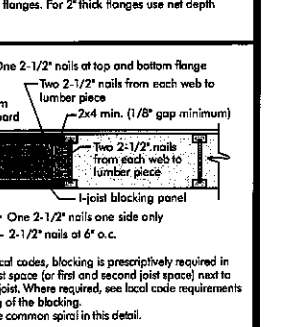
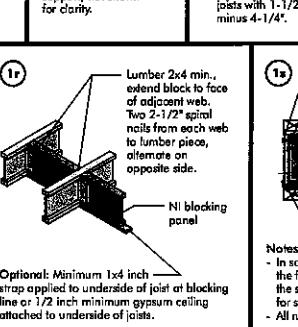
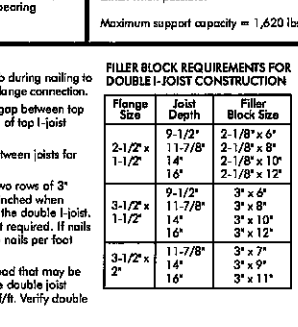
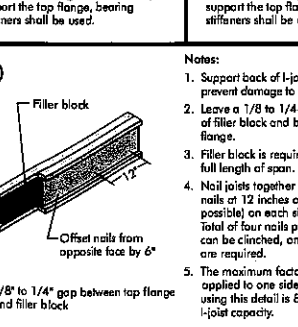
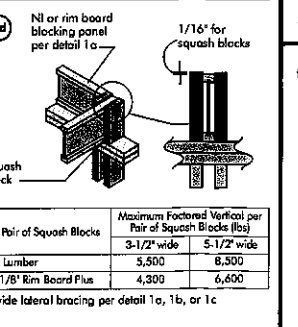
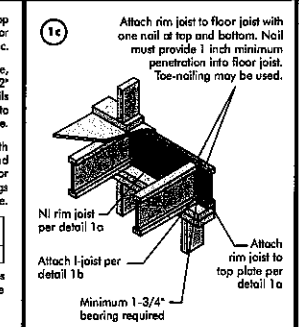
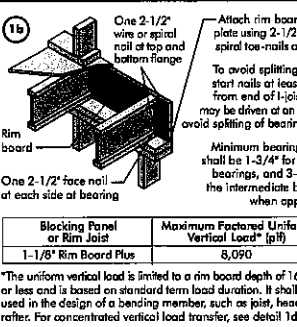
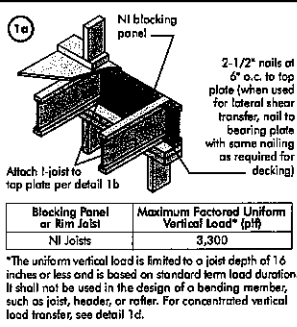
## INSTALLING NORDIC I-JOISTS

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

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



All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



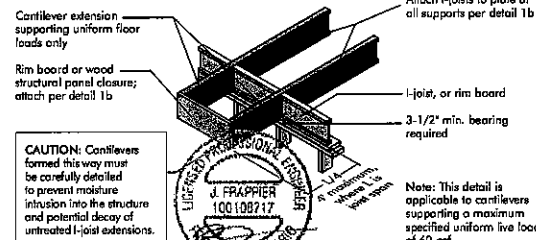
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

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

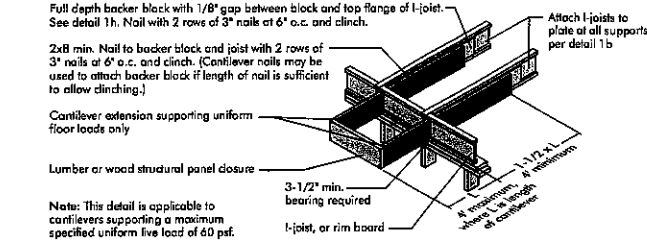


# CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

## 3a I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

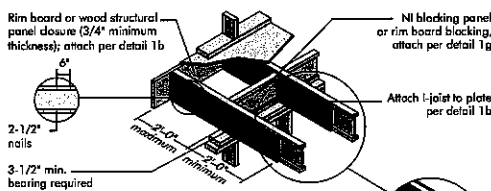


## 3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

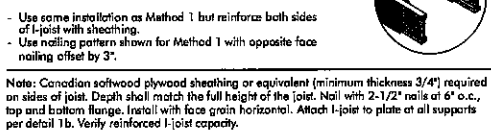


# CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

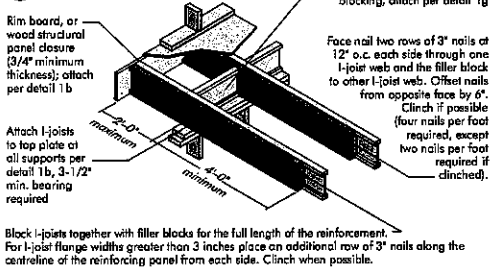
## 4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



## Method 2 — SHEATHING REINFORCEMENT TWO SIDES



## 4b Alternate Method 2 — DOUBLE I-JOIST



## FIGURE 4 (continued)



## CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)				JOIST SPACING (in.)			
		LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 60 psf, DL = 15 psf	12	16	19.2	24
12	N	N	N	N	N	N	N	N	N
16	N	N	N	N	N	N	N	N	N
19.2	N	N	N	N	N	N	N	N	N
24	N	N	N	N	N	N	N	N	N
28	N	N	N	N	N	N	N	N	N
32	N	N	N	N	N	N	N	N	N
36	N	N	N	N	N	N	N	N	N
40	N	N	N	N	N	N	N	N	N
44	N	N	N	N	N	N	N	N	N
48	N	N	N	N	N	N	N	N	N
52	N	N	N	N	N	N	N	N	N
56	N	N	N	N	N	N	N	N	N
60	N	N	N	N	N	N	N	N	N
64	N	N	N	N	N	N	N	N	N
68	N	N	N	N	N	N	N	N	N
72	N	N	N	N	N	N	N	N	N
76	N	N	N	N	N	N	N	N	N
80	N	N	N	N	N	N	N	N	N
84	N	N	N	N	N	N	N	N	N
88	N	N	N	N	N	N	N	N	N
92	N	N	N	N	N	N	N	N	N
96	N	N	N	N	N	N	N	N	N
100	N	N	N	N	N	N	N	N	N
104	N	N	N	N	N	N	N	N	N
108	N	N	N	N	N	N	N	N	N
112	N	N	N	N	N	N	N	N	N
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120	N	N	N	N	N	N	N	N	N
124	N	N	N	N	N	N	N	N	N
128	N	N	N	N	N	N	N	N	N
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652	N	N	N	N	N	N	N	N	N
656	N	N	N	N	N	N	N	N	N
660	N	N	N	N	N	N	N	N	N
664	N	N	N	N	N	N	N	N	N
668	N	N	N	N	N	N	N	N	N
672	N	N	N	N	N	N	N	N	N
676	N	N	N	N	N	N	N	N	N
680	N	N	N	N	N	N	N	N	N
684	N	N	N	N	N	N	N	N	N
688	N	N	N	N	N	N	N	N	N
692	N	N	N	N	N	N	N	N	N
696	N	N	N	N	N	N	N	N	N
700	N	N	N	N	N	N	N	N	N
704	N	N	N	N	N	N	N	N	N
708	N	N	N	N	N	N	N	N	N
712	N	N	N	N	N	N	N	N	N
716	N	N	N	N	N	N	N	N	N
720	N	N	N	N	N	N	N	N	N
724	N	N	N	N	N	N	N	N	N
728	N	N	N	N	N	N	N	N	N
732	N	N	N	N	N	N	N	N	N
736	N	N	N	N	N	N	N	N	N



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

## WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

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

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

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

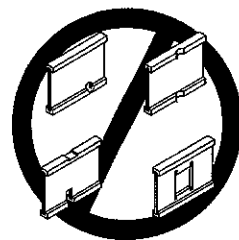
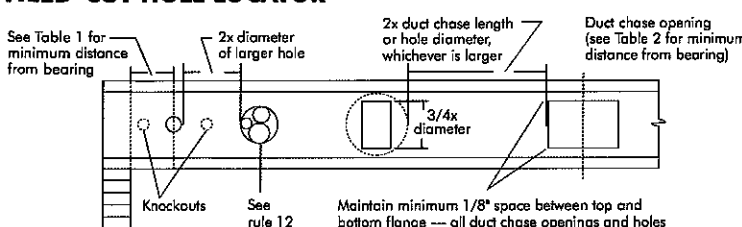
- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joints being used at their maximum spans.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

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

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

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

FIGURE 7  
**FIELD-CUT HOLE LOCATOR**



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

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

Holes in webs should be cut with a sharp saw.

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

## SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

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

**PRODUCT WARRANTY**

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

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

**1a** NI blocking panel

Blocking Panel or Rim Joist NI Joists

Maximum Factored Uniform Vertical Load\* (plf)

3,300

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

Attach I-joint to top plate per detail 1b

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

**1b** Rim board

Blocking Panel or Rim Joist 1-1/8" Rim Board Plus

Maximum Factored Uniform Vertical Load\* (plf)

8,090

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

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

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

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

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

**1d** NI or rim board blocking panel per detail 1a

Squash block

Pair of Squash Blocks

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

3-1/2" wide 5,500

5-1/2" wide 8,500

2x Lumber 1-1/8" Rim Board Plus 4,300 6,600

Provide lateral bracing per detail 1a or 1b

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

**1g** Joist attachment per detail 1b

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

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

NI blocking panel per detail 1a

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

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

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

\* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C3025 or CAN/CSA-O437 Standard.

\*\* For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

**1i** Nordic Lam or Structural Composite Lumber (SCL)

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

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

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

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

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

Top-mount hanger installed per manufacturer's recommendations

**1m** Multiple I-joint header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joint capacity to support concentrated loads.

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

Filler block per detail 1p

Maximum support capacity = 1,620 lbs.

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

Attach I-joint per detail 1b

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

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

NI blocking panel

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

**1p** FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Filler block

Offset nails from opposite face by 6"

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

NOTES:

- Support back of I-joint web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joint flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joint. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
- The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joint capacity.

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

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

Two 2-1/2" nails from each web to lumber piece

Joist blocking panel

One 2-1/2" nail one side only

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

- All nails are common spiral in this detail.

Flange Size	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2" 11-7/8" 14" 16"	2-1/8" x 6" 2-1/8" x 8" 2-1/8" x 10" 2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2" 11-7/8" 14" 16"	3" x 6" 3" x 8" 3" x 10" 3" x 12"
3-1/2" x 2"	11-7/8" 14" 16"	3" x 7" 3" x 9" 3" x 11"

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

## WEB STIFFENERS

### RECOMMENDATIONS:

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

FIGURE 2  
**WEB STIFFENER INSTALLATION DETAILS**

**CONCENTRATED LOAD** (Load stiffener)

**END BEARING** (Bearing stiffener)

**STIFFENER SIZE REQUIREMENTS**

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

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

Approx. 2" I

1/8"-1/4" Gap

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

No Gap

Tight Joint No Gap

Gap

Tight Joint No Gap

See the adjacent table for web stiffener size requirements

## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

**4a** Method 1 — SHEATHING REINFORCEMENT ONE SIDE

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

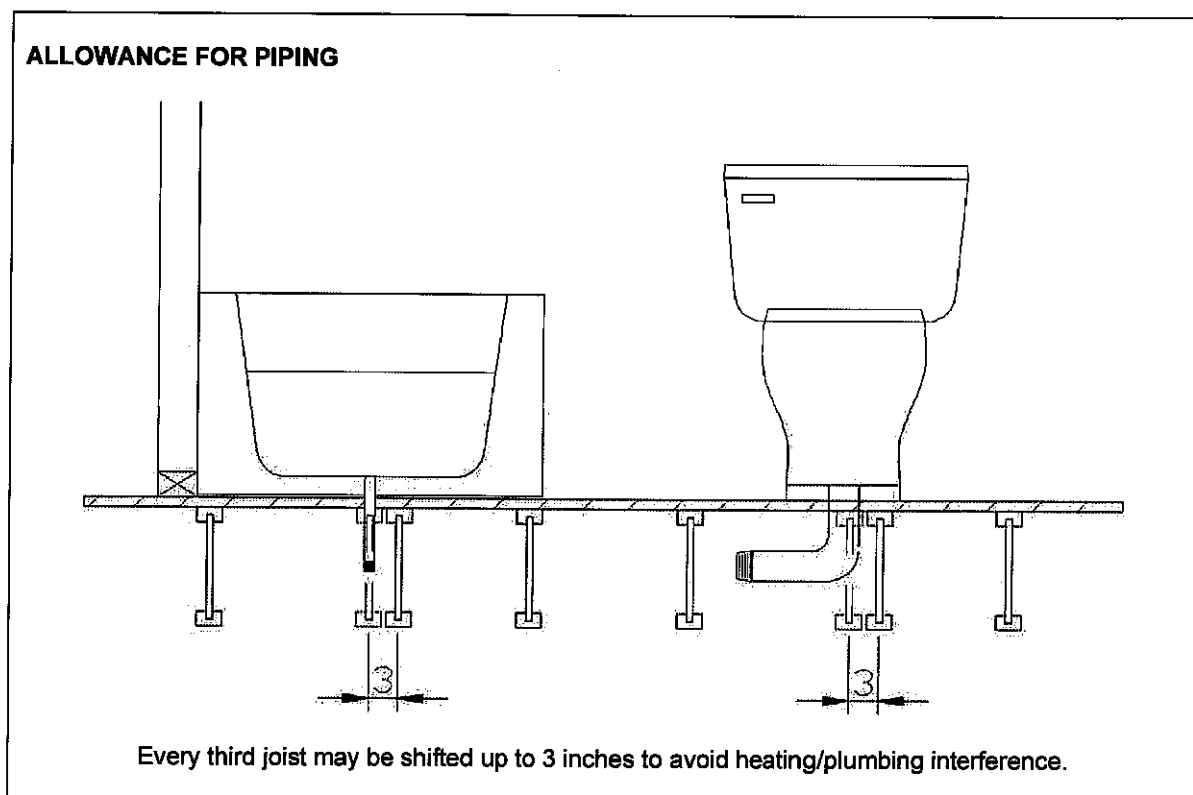
NI blocking panel or rim board blocking, attach per detail 1g

## Allowance for Piping (Installation Notes)

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

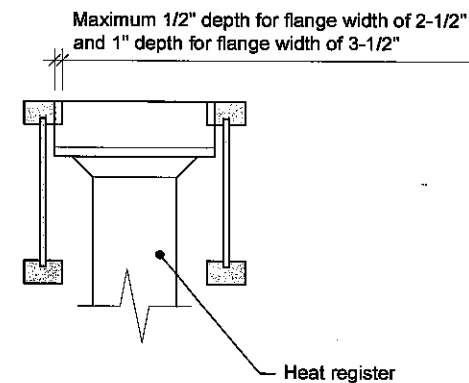
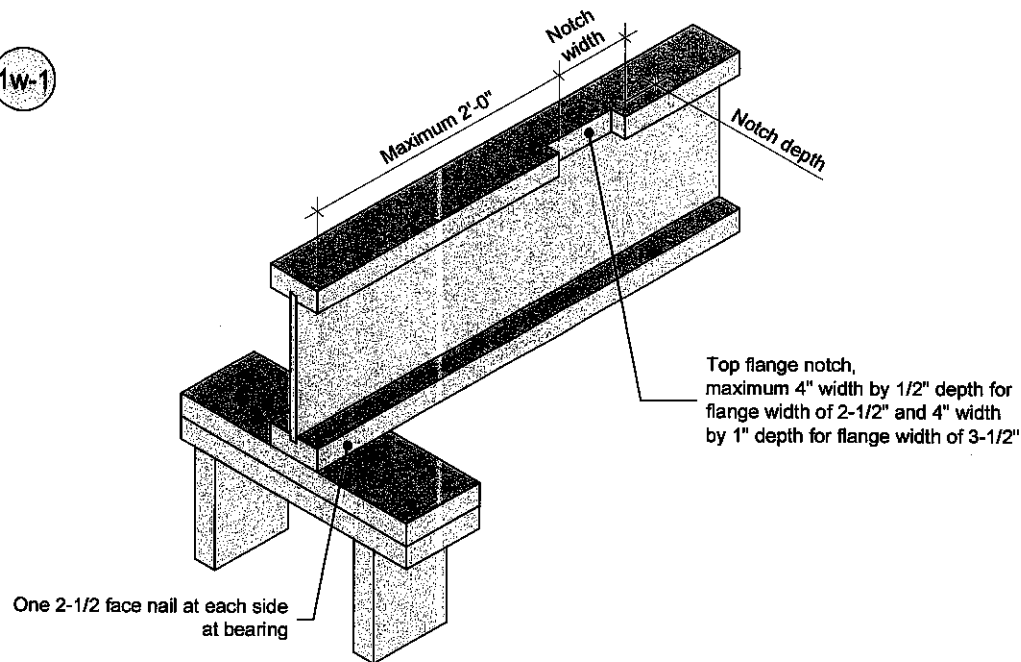
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

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



Revised April 12, 2012

1w-1



**Notes:**

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

This document supersedes all previous versions. If the document has been in effect for more than one year, consult [nordic.ca](http://nordic.ca) or contact Nordic Structures.

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

**NORDIC  
STRUCTURES**

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1 866 817-3418

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**TITLE**

Notch in I-joist for Heat Register

**CATEGORY**

I-joist - Typical Floor Framing and Construction Details

**DOCUMENT**

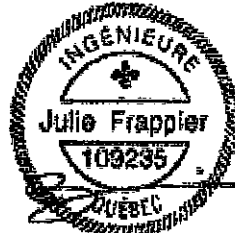
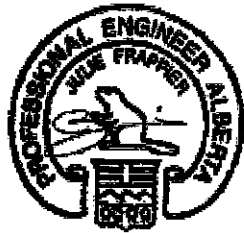
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**DATE**

2018-04-10

**NUMBER**

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## Maximum Floor Spans

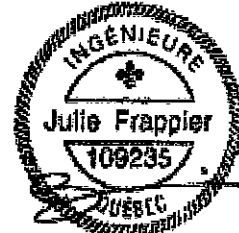
Live Load = 40 psf, Dead Load = 30 psf  
Simple Spans, L/480 Deflection Limit  
3/4" OSB G&N Sheathing

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

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

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



## Maximum Floor Spans

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

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

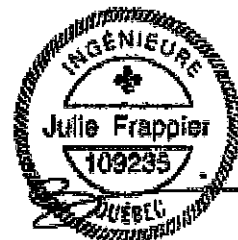
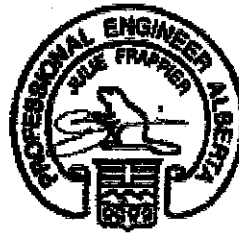
  

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
	NI-60	18'-2"	17'-1"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

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

## Maximum Floor Spans

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



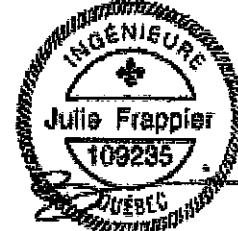
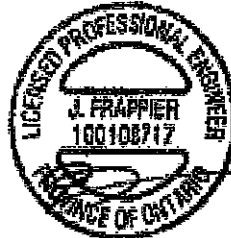
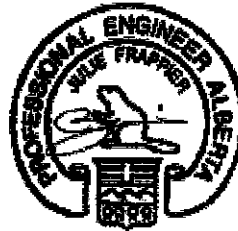
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.





## Maximum Floor Spans

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

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

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

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