

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	2		HUC310
H3	1		HUS1.81/10
H4	6		LSSR2.56Z
H5	2		LSSR410Z
H6	71		LT251188

**DESIGN LOADING:**  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

RIMBOARD  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6

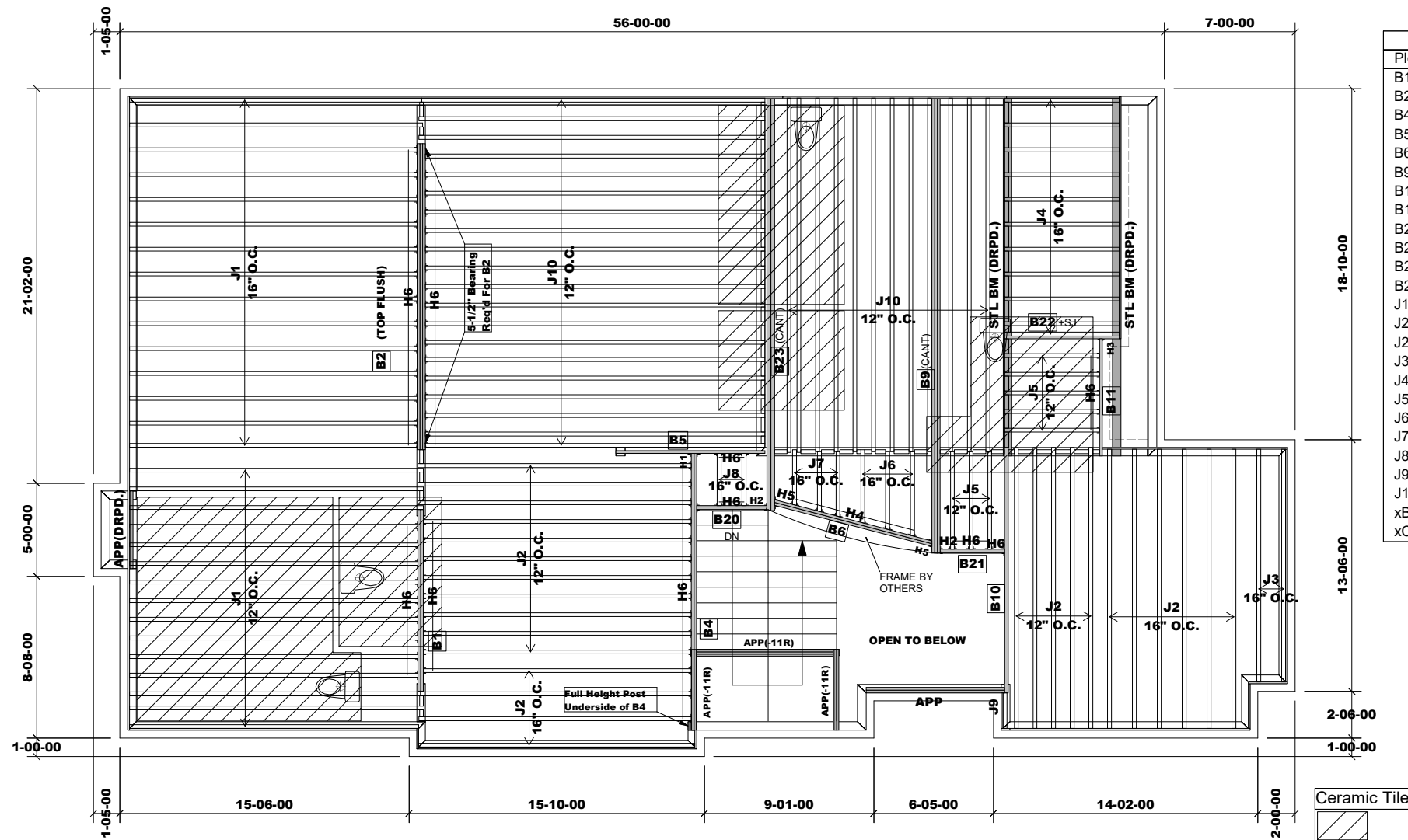
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

**SE007556 - SE007574**  
**SE039724 - SE039731**  
*SE047003 - SE047006*

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: Oct. 15, 2021  
REVISION: April 29, 2022





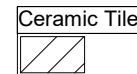
Products				
PlotID	Length	Product	Plies	Net Qty
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	17-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3
B4	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	25-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B10	14-00-00	11 7/8" NI-20	1	1
B11	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B20	4-00-00	11 7/8" NI-20	1	1
B21	4-00-00	11 7/8" NI-20	1	1
B22	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B23	23-00-00	11 7/8" NI-20	2	2
J1	16-00-00	11 7/8" NI-20	1	30
J2	15-00-00	11 7/8" NI-20	1	21
J2	16-00-00	11 7/8" NI-20	1	5
J3	13-00-00	11 7/8" NI-20	1	2
J4	7-00-00	11 7/8" NI-20	1	11
J5	6-00-00	11 7/8" NI-20	1	8
J6	5-00-00	11 7/8" NI-20	1	3
J7	4-00-00	11 7/8" NI-20	1	3
J8	3-00-00	11 7/8" NI-20	1	2
J9	2-00-00	11 7/8" NI-20	1	1
J10	19-00-00	11 7/8" NI-40x	1	32
xBk1	46-00-00	11 7/8" NI-20	1	1
xCa1	175-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	2		HUC310
H3	1		HUS1.81/10
H4	6		LSSR2.56Z
H5	2		LSSR410Z
H6	76		LT251188

DESIGN LOADING:  
  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

RIMBOARD  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6  
  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.



MODEL: 4204 - EL.A  
W/OPT. 5-BEDRM

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: Oct. 15, 2021  
REVISION: April 30, 2022

## Second Floor Framing

Do not scale - refer to architectural plans for dimensions

JT/PL: 45147/ 116458

Builder: Gold Park

Location: Vaughan

Designer: NL / JC

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: (290680)343861\*

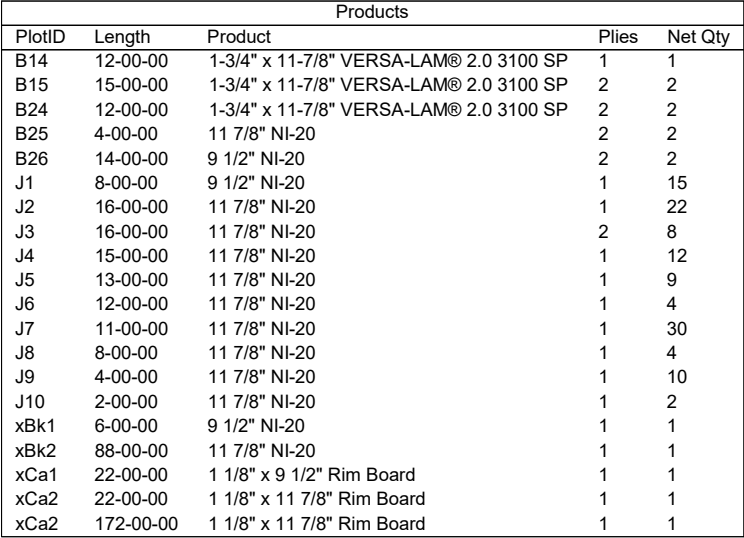
Project: Pine Valley PH.2

Date: November 23, 2017

Sheet: 3 of 18

Maple, Ontario

Home Lumber



Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUS1.81/10
H3	22		LT251188
H4	15		LT259

**DESIGN LOADING:**

LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

## RIMBOARD

1- 1/8" X 9 1/2" O.S.B.  
1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED\*

APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6

Blocking panels are required over all interior supports.  
Squash blocks are required under concentrated loads.

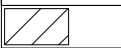
**MODEL: 4204 - EL.A  
W/SUNKEN MUDRM  
+ W.O.D. CONDITION**

# First Floor Framing

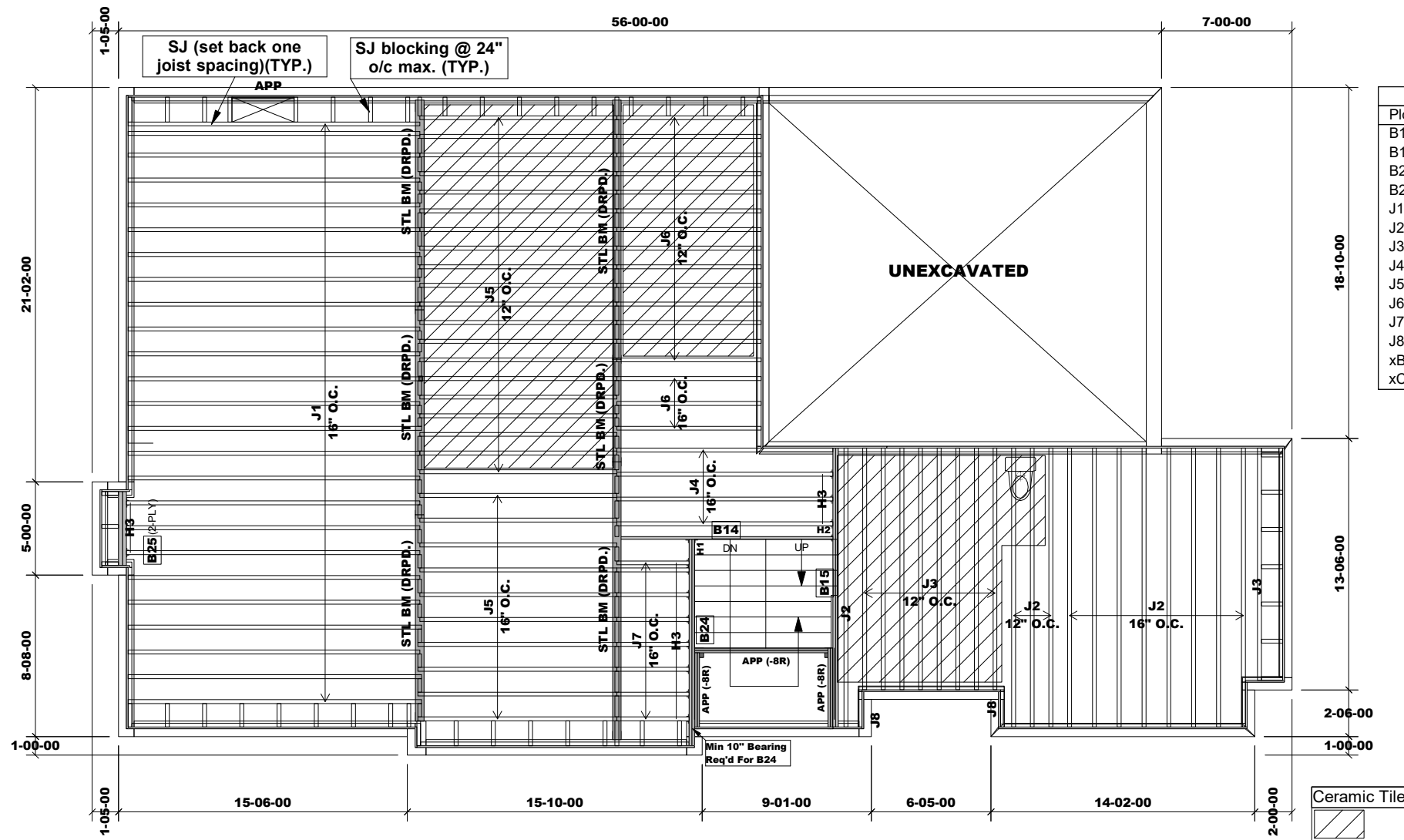
Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: Oct. 15, 2021

Ceramic Tile







Products				
PlotID	Length	Product	Plies	Net Qty
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B24	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	4-00-00	11 7/8" NI-20	2	2
J1	16-00-00	11 7/8" NI-20	1	25
J2	15-00-00	11 7/8" NI-20	1	12
J3	13-00-00	11 7/8" NI-20	1	9
J4	12-00-00	11 7/8" NI-20	1	4
J5	11-00-00	11 7/8" NI-20	1	30
J6	8-00-00	11 7/8" NI-20	1	17
J7	4-00-00	11 7/8" NI-20	1	8
J8	2-00-00	11 7/8" NI-20	1	2
xBk1	102-00-00	11 7/8" NI-20	1	1
xCa1	200-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUS1.81/10
H3	14		LT251188

RIMBOARD  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

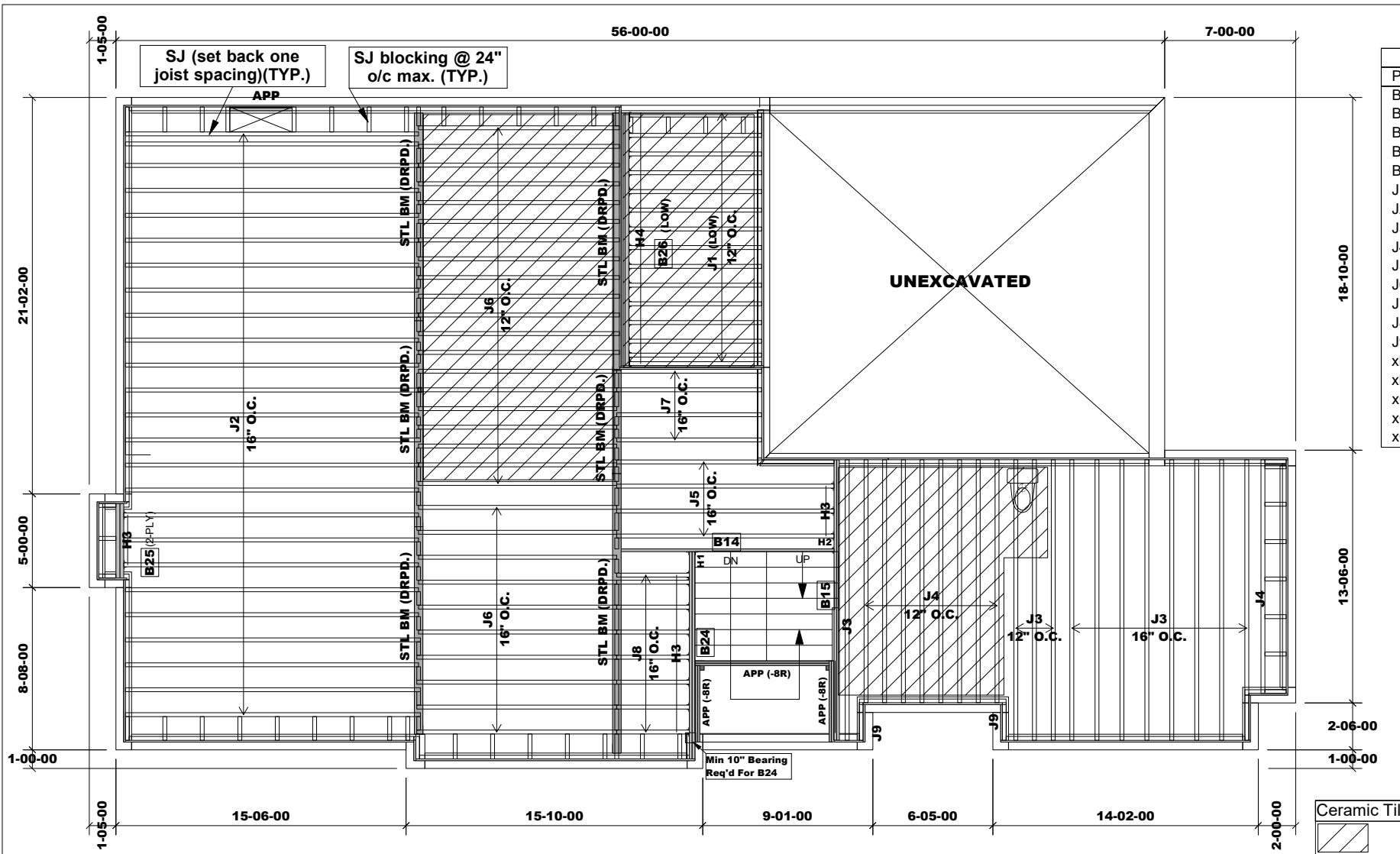
DESIGN LOADING:  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: 4204 - EL.A  
W/L.O.D. & W.O.B. COND.

First Floor Framing  
Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: Oct. 15, 2021



Products					
PlotID	Length	Product	Plies	Net Qty	
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	2
B24	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	2
B25	4-00-00	11 7/8" NI-20	2	2	2
B26	14-00-00	9 1/2" NI-20	2	2	2
J1	8-00-00	9 1/2" NI-20	1	15	
J2	16-00-00	11 7/8" NI-20	1	25	
J3	15-00-00	11 7/8" NI-20	1	12	
J4	13-00-00	11 7/8" NI-20	1	9	
J5	12-00-00	11 7/8" NI-20	1	4	
J6	11-00-00	11 7/8" NI-20	1	30	
J7	8-00-00	11 7/8" NI-20	1	4	
J8	4-00-00	11 7/8" NI-20	1	8	
J9	2-00-00	11 7/8" NI-20	1	2	
xBk1	6-00-00	9 1/2" NI-20	1	1	
xBk2	86-00-00	11 7/8" NI-20	1	1	
xCa1	22-00-00	1 1/8" x 9 1/2" Rim Board	1	1	
xCa2	22-00-00	1 1/8" x 11 7/8" Rim Board	1	1	
xCa2	172-00-00	1 1/8" x 11 7/8" Rim Board	1	1	

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUS1.81/10
H3	14		LT251188
H4	15		LT259

**DESIGN LOADING:**  
  
**LIVE LOAD = 40 PSF**  
**DEAD LOAD = 15 PSF**  
**DEAD LOAD @TILE = 20 PSF**

**RIMBOARD**  
  
1- 1/8" X 9 1/2" O.S.B.  
1- 1/8" X 11 7/8" O.S.B.  
  
SUBFLOOR - 3/4" NAILED & GLUED\*  
  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6  
  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

**MODEL: 4204 - EL.A**  
**W/L.O.D. & W.O.B. COND.**  
**(SUNKEN MUDRM)**

## First Floor Framing

Do not scale - refer to architectural plans for dimensions

**REVISION: July 3, 2018**  
**REVISION: March 16, 2020**  
**REVISION: Oct. 15, 2021**

JT/PL: 45147/ 116458  
LI: (290680)343861\*

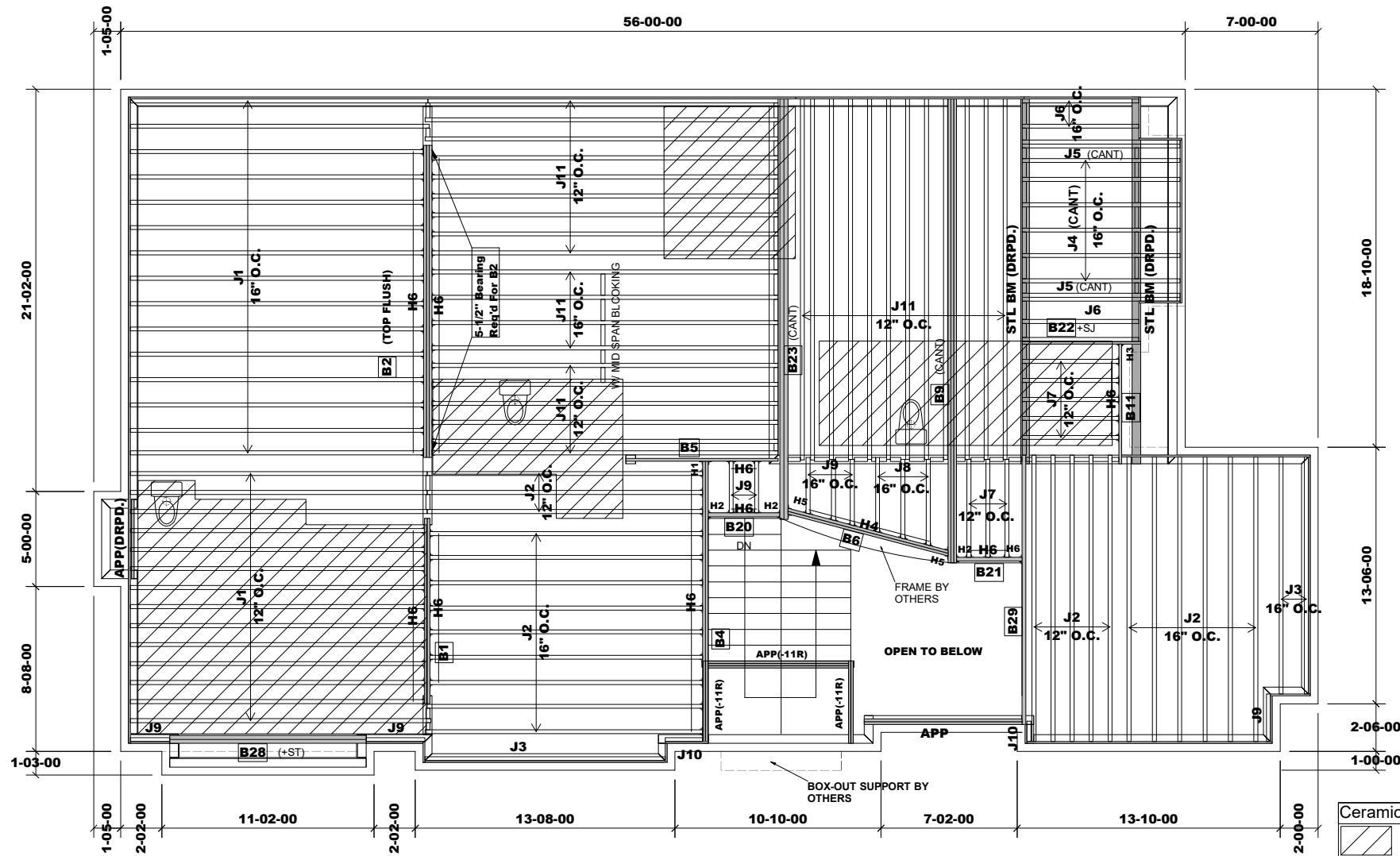
Builder: Gold Park  
Project: Pine Valley PH.2

Location: Vaughan  
Date: November 23, 2017

Designer: NL / JC  
Sheet: 6 of 18

Alpa Roof Trusses Inc.  
Maple, Ontario

Salesperson: Derek  
Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	17-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3
B4	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	25-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B11	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B20	4-00-00	11 7/8" NI-20	1	1
B21	4-00-00	11 7/8" NI-20	1	1
B22	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B23	23-00-00	11 7/8" NI-20	2	2
B28	11-00-00	11 7/8" NI-20	2	2
B29	15-00-00	11 7/8" NI-20	1	1
J1	16-00-00	11 7/8" NI-20	1	29
J2	15-00-00	11 7/8" NI-20	1	18
J2	16-00-00	11 7/8" NI-20	1	5
J3	13-00-00	11 7/8" NI-20	1	3
J4	9-00-00	11 7/8" NI-20	1	6
J5	9-00-00	11 7/8" NI-20	2	4
J6	7-00-00	11 7/8" NI-20	1	4
J7	6-00-00	11 7/8" NI-20	1	8
J8	5-00-00	11 7/8" NI-20	1	3
J9	4-00-00	11 7/8" NI-20	1	8
J10	2-00-00	11 7/8" NI-20	1	2
J11	19-00-00	11 7/8" NI-40x	1	31
xBk1	58-00-00	11 7/8" NI-20	1	1
xCa1	16-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa1	152-00-00	1 1/8" x 11 7/8" Rim Board	1	1

RIMBOARD  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	3		HUC310
H3	1		HUS1.81/10
H4	6		LSSR2.56Z
H5	2		LSSR410Z
H6	71		LT251188

DESIGN LOADING:

LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

Ceramic tile application as per O.B.C. 9.30.6

Provide I-Joist blocking between cantilevered joists (along bearing) and rimboard closure at ends.

Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.



MODEL: 4204 - EL.B

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: April 30, 2022

JT/PL: 45147/ 116458  
LI: (290680)343861\*

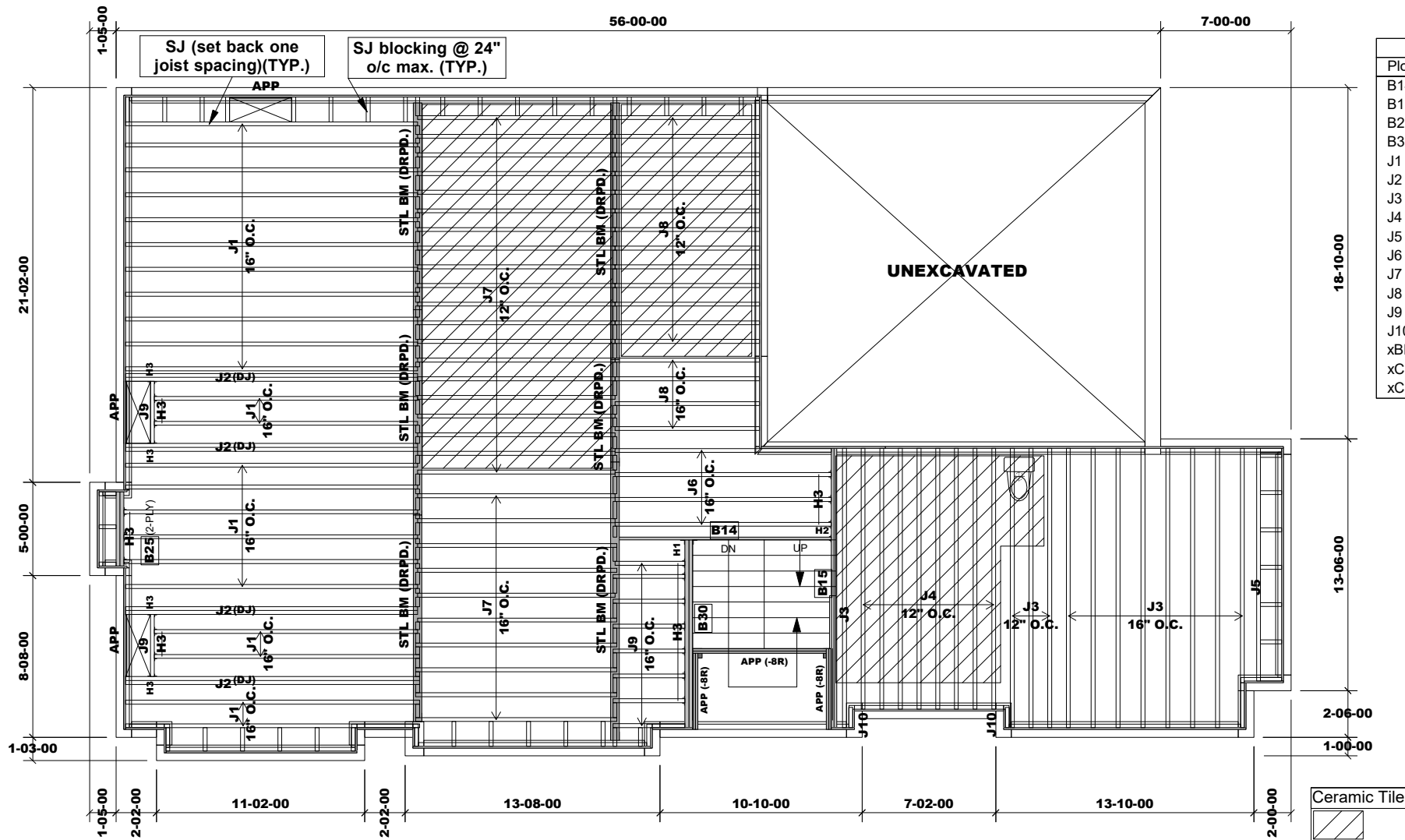
Builder: Gold Park  
Project: Pine Valley PH.2

Location: Vaughan  
Date: November 23, 2017

Designer: NL / JC  
Sheet: 7 of 18

Alpa Roof Trusses Inc.  
Maple, Ontario

Salesperson: Derek  
Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	4-00-00	11 7/8" NI-20	2	2
B30	11-00-00	11 7/8" NI-20	2	2
J1	16-00-00	11 7/8" NI-20	1	23
J2	16-00-00	11 7/8" NI-20	2	8
J3	15-00-00	11 7/8" NI-20	1	12
J4	14-00-00	11 7/8" NI-20	1	8
J5	13-00-00	11 7/8" NI-20	1	1
J6	12-00-00	11 7/8" NI-20	1	4
J7	11-00-00	11 7/8" NI-20	1	30
J8	8-00-00	11 7/8" NI-20	1	17
J9	4-00-00	11 7/8" NI-20	1	10
J10	2-00-00	11 7/8" NI-20	1	2
xBk1	94-00-00	11 7/8" NI-20	1	1
xCa1	17-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa1	178-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HU310-2
H2	1		HUS1.81/10
H3	21		LT251188

RIMBOARD  
1- 1/8" X 9 1/2" O.S.B.  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

DESIGN LOADING:  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

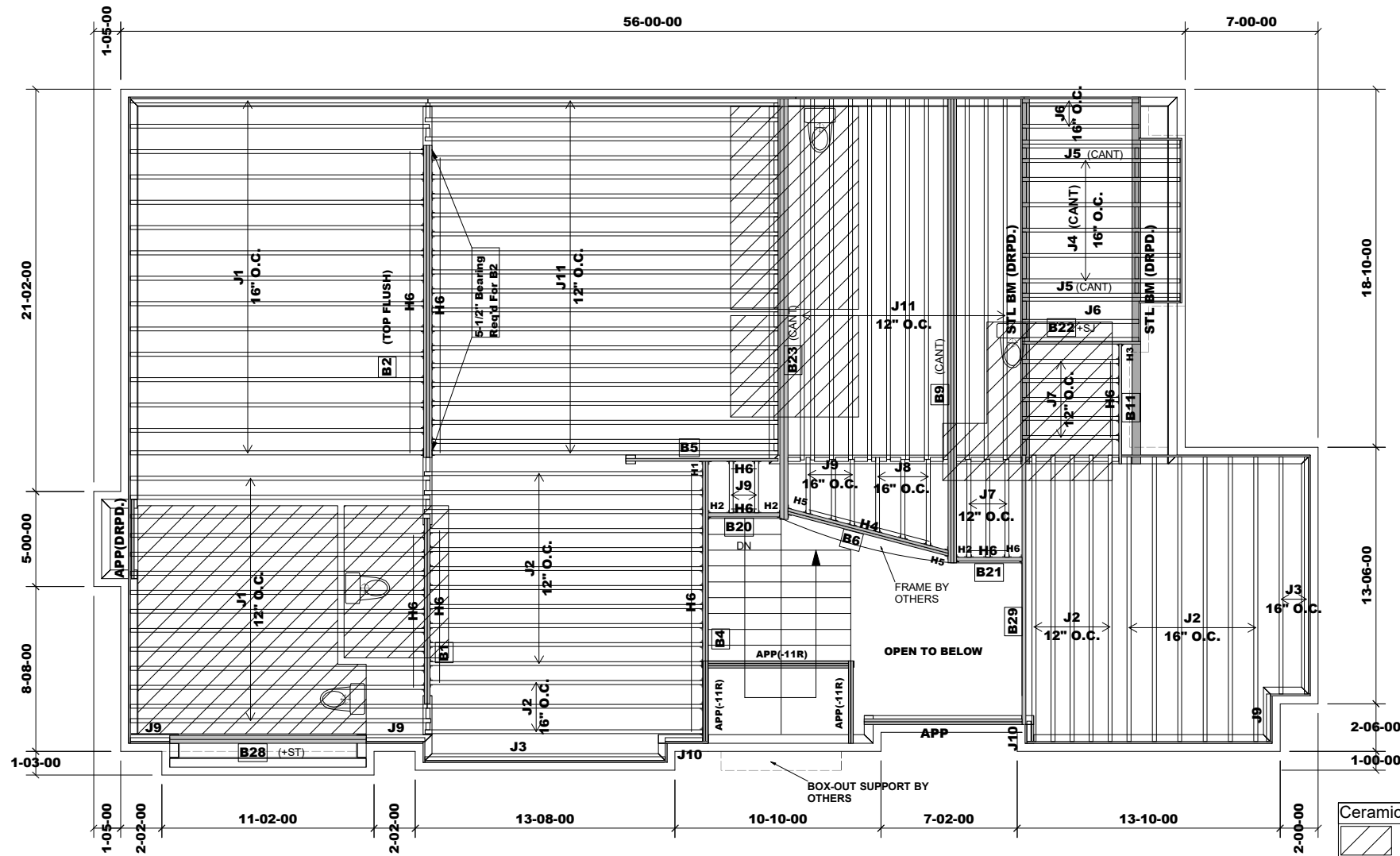
Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: 4204 - EL.B  
+ W.O.D. CONDITION

First Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: April 30, 2022



Products				
PlotID	Length	Product	Plies	Net Qty
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	17-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3
B4	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	25-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B11	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B20	4-00-00	11 7/8" NI-20	1	1
B21	4-00-00	11 7/8" NI-20	1	1
B22	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B23	23-00-00	11 7/8" NI-20	2	2
B28	11-00-00	11 7/8" NI-20	2	2
B29	15-00-00	11 7/8" NI-20	1	1
J1	16-00-00	11 7/8" NI-20	1	29
J2	15-00-00	11 7/8" NI-20	1	20
J2	16-00-00	11 7/8" NI-20	1	5
J3	13-00-00	11 7/8" NI-20	1	3
J4	9-00-00	11 7/8" NI-20	1	6
J5	9-00-00	11 7/8" NI-20	2	4
J6	7-00-00	11 7/8" NI-20	1	4
J7	6-00-00	11 7/8" NI-20	1	8
J8	5-00-00	11 7/8" NI-20	1	3
J9	4-00-00	11 7/8" NI-20	1	8
J10	2-00-00	11 7/8" NI-20	1	2
J11	19-00-00	11 7/8" NI-40x	1	32
xBk1	52-00-00	11 7/8" NI-20	1	1
xCa1	16-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa1	152-00-00	1 1/8" x 11 7/8" Rim Board	1	1

RIMBOARD

1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED\*

APP - AS PER PLAN

BBO - BEAM BY OTHERS

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	3		HUC310
H3	1		HUS1.81/10
H4	6		LSSR2.56Z
H5	2		LSSR410Z
H6	75		LT251188

DESIGN LOADING:

LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

Ceramic tile application as per O.B.C. 9.30.6

Provide I-Joist blocking between cantilevered joists (along bearing) and rimboard closure at ends.

Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.



MODEL: 4204 - EL.B  
W/OPT. 5-BEDRM

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: April 30, 2022

JT/PL: 45147/ 116458  
LI: (290680)343861\*

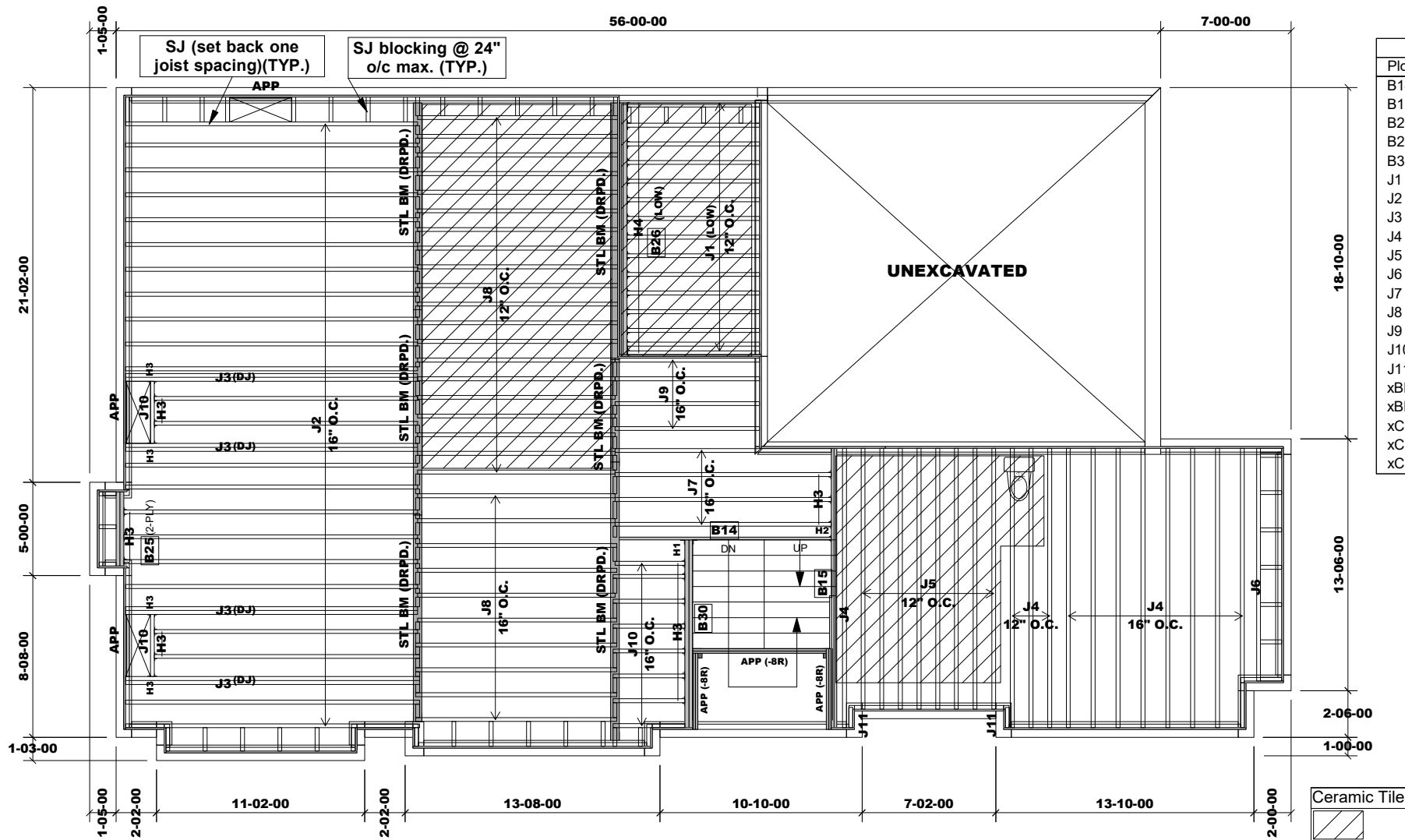
Builder: Gold Park  
Project: Pine Valley PH.2

Location: Vaughan  
Date: November 23, 2017

Designer: NL / JC  
Sheet: 9 of 18

Alpa Roof Trusses Inc.  
Maple, Ontario

Salesperson: Derek  
Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	4-00-00	11 7/8" NI-20	2	2
B26	14-00-00	9 1/2" NI-20	2	2
B30	11-00-00	11 7/8" NI-20	2	2
J1	8-00-00	9 1/2" NI-20	1	15
J2	16-00-00	11 7/8" NI-20	1	23
J3	16-00-00	11 7/8" NI-20	2	8
J4	15-00-00	11 7/8" NI-20	1	12
J5	14-00-00	11 7/8" NI-20	1	8
J6	13-00-00	11 7/8" NI-20	1	1
J7	12-00-00	11 7/8" NI-20	1	4
J8	11-00-00	11 7/8" NI-20	1	30
J9	8-00-00	11 7/8" NI-20	1	4
J10	4-00-00	11 7/8" NI-20	1	10
J11	2-00-00	11 7/8" NI-20	1	2
xBk1	6-00-00	9 1/2" NI-20	1	1
xBk2	80-00-00	11 7/8" NI-20	1	1
xCa1	22-00-00	1 1/8" x 9 1/2" Rim Board	1	1
xCa2	38-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa2	157-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HU310-2
H2	1		HUS1.81/10
H3	21		LT251188
H4	15		LT259

DESIGN LOADING:  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

RIMBOARD  
1- 1/8" X 9 1/2" O.S.B.  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

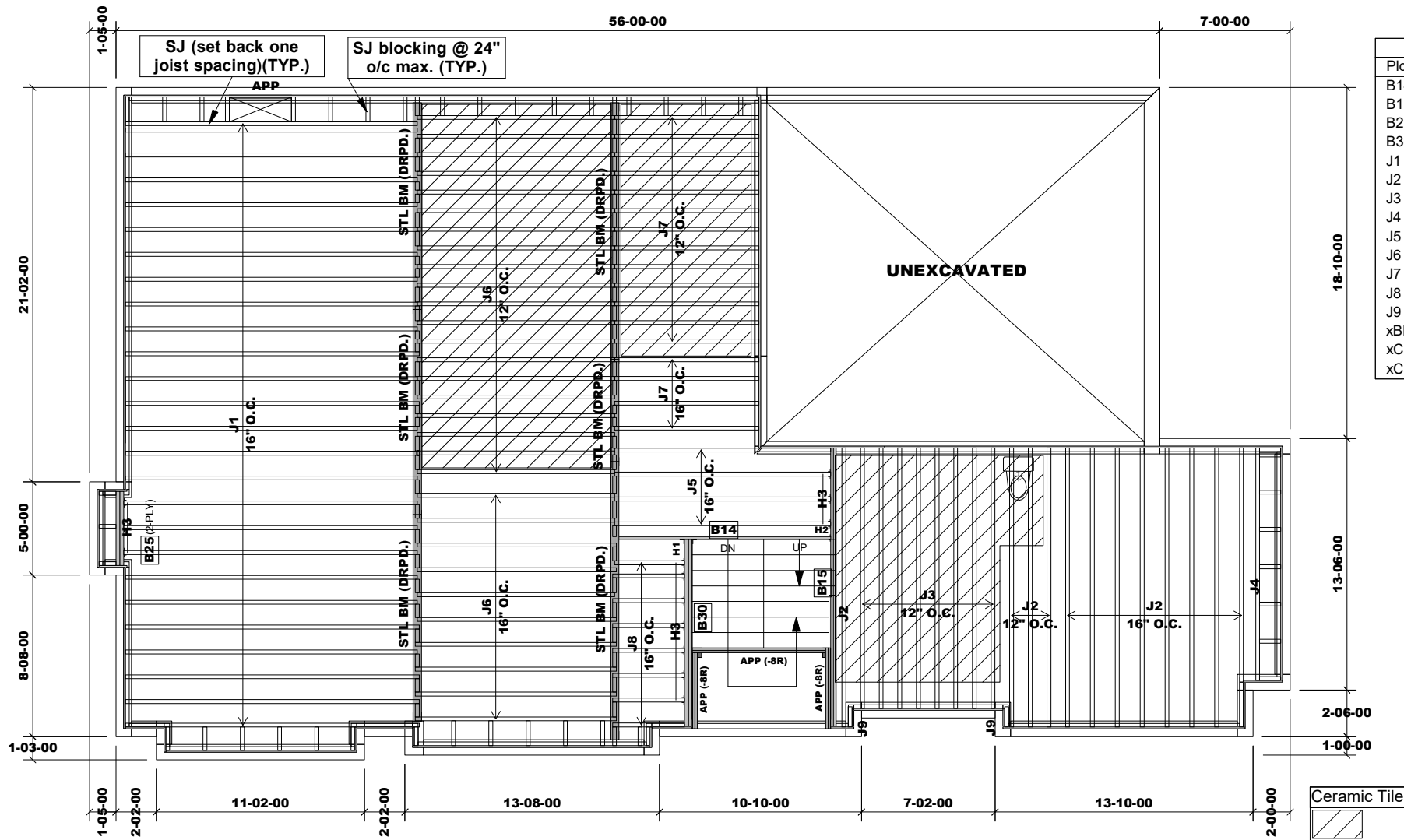
Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: 4204 - EL.B  
W/SUNKEN MUDRM  
+ W.O.D. CONDITION

First Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: April 30, 2022



Products				
PlotID	Length	Product	Plies	Net Qty
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	4-00-00	11 7/8" NI-20	2	2
B30	11-00-00	11 7/8" NI-20	2	2
J1	16-00-00	11 7/8" NI-20	1	26
J2	15-00-00	11 7/8" NI-20	1	12
J3	14-00-00	11 7/8" NI-20	1	8
J4	13-00-00	11 7/8" NI-20	1	1
J5	12-00-00	11 7/8" NI-20	1	4
J6	11-00-00	11 7/8" NI-20	1	30
J7	8-00-00	11 7/8" NI-20	1	17
J8	4-00-00	11 7/8" NI-20	1	8
J9	2-00-00	11 7/8" NI-20	1	2
xBk1	94-00-00	11 7/8" NI-20	1	1
xCa1	17-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa1	178-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HU310-2
H2	1		HUS1.81/10
H3	13		LT251188

RIMBOARD  
1- 1/8" X 9 1/2" O.S.B.  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

DESIGN LOADING:  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: 4204 - EL.B  
W/L.O.D. & W.O.B. COND.

First Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: April 30, 2022

JT/PL: 45147/ 116458  
LI: (290680)343861\*

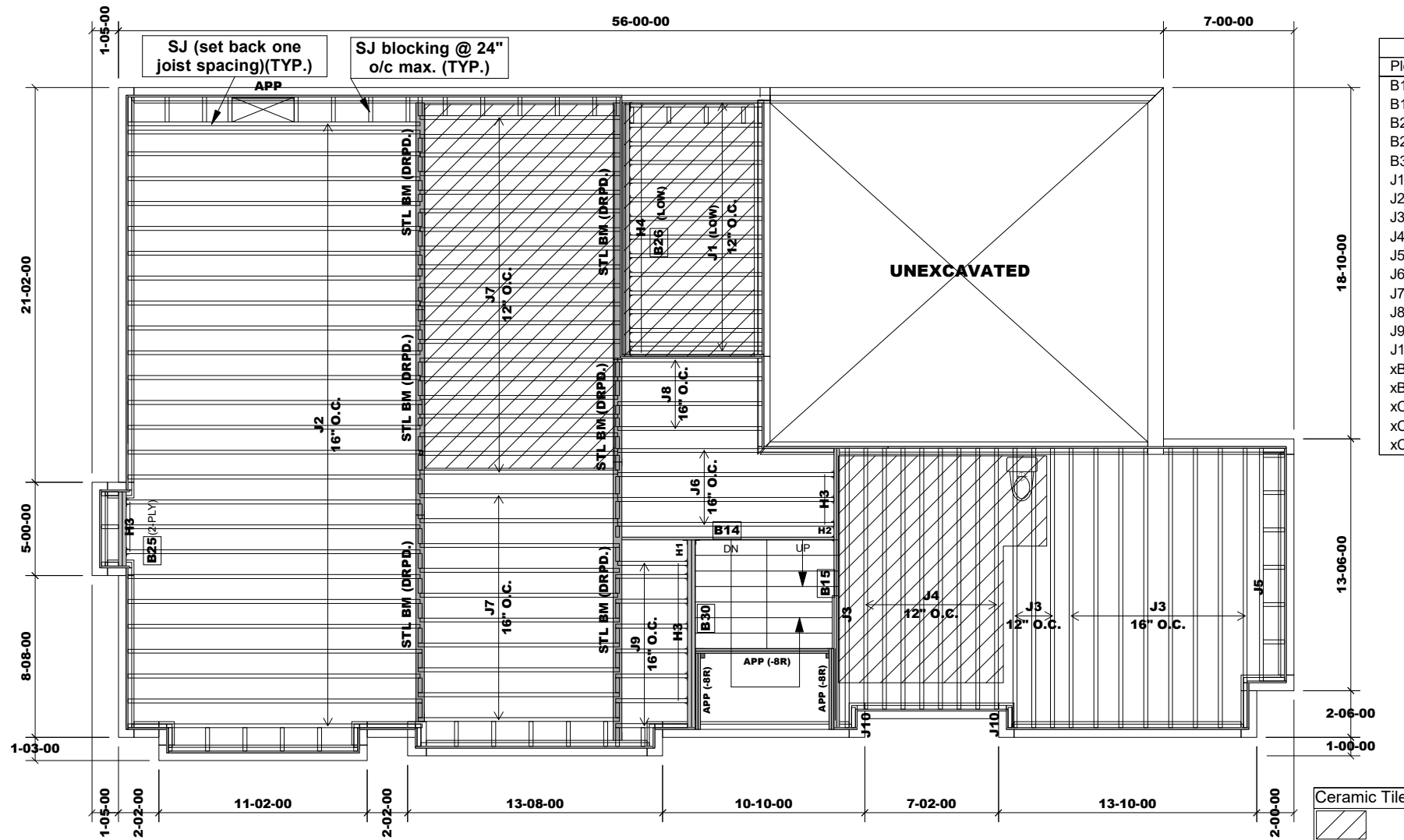
Builder: Gold Park  
Project: Pine Valley PH.2

Location: Vaughan  
Date: November 23, 2017

Designer: NL / JC  
Sheet: 11 of 18

Alpa Roof Trusses Inc.  
Maple, Ontario

Salesperson: Derek  
Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	4-00-00	11 7/8" NI-20	2	2
B26	14-00-00	9 1/2" NI-20	2	2
B30	11-00-00	11 7/8" NI-20	2	2
J1	8-00-00	9 1/2" NI-20	1	15
J2	16-00-00	11 7/8" NI-20	1	26
J3	15-00-00	11 7/8" NI-20	1	12
J4	14-00-00	11 7/8" NI-20	1	8
J5	13-00-00	11 7/8" NI-20	1	1
J6	12-00-00	11 7/8" NI-20	1	4
J7	11-00-00	11 7/8" NI-20	1	30
J8	8-00-00	11 7/8" NI-20	1	4
J9	4-00-00	11 7/8" NI-20	1	8
J10	2-00-00	11 7/8" NI-20	1	2
xBk1	6-00-00	9 1/2" NI-20	1	1
xBk2	78-00-00	11 7/8" NI-20	1	1
xCa1	22-00-00	1 1/8" x 9 1/2" Rim Board	1	1
xCa2	38-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa2	157-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HU310-2
H2	1		HUS1.81/10
H3	13		LT251188
H4	15		LT259

DESIGN LOADING:  
  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

RIMBOARD  
  
1- 1/8" X 9 1/2" O.S.B.  
1- 1/8" X 11 7/8" O.S.B.  
  
SUBFLOOR - 3/4" NAILED & GLUED\*  
  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6  
  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

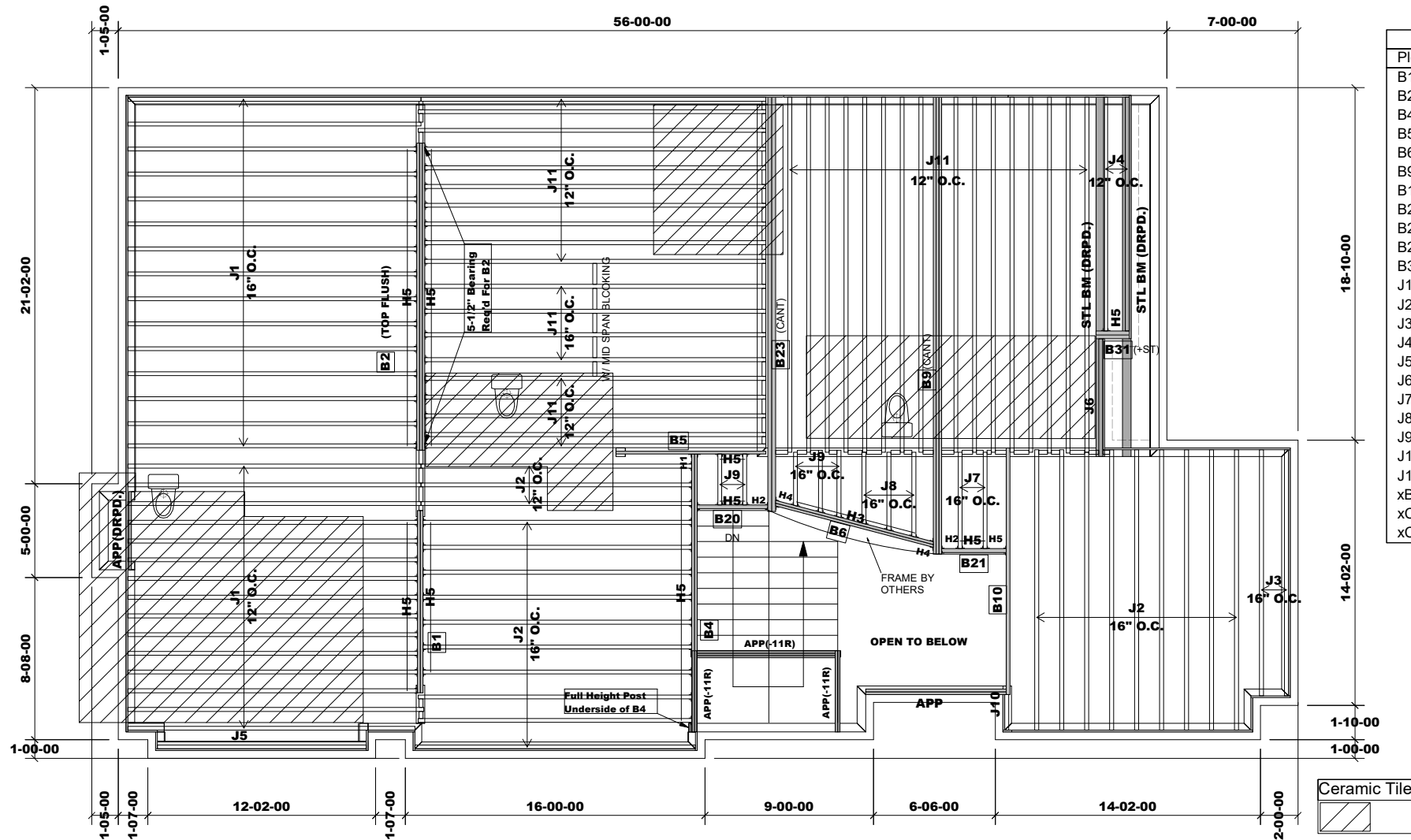
MODEL: 4204 - EL.B  
W/L.O.D. & W.O.B. COND.  
(SUNKEN MUDRM)

First Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018  
REVISION: March 16, 2020  
REVISION: April 30, 2022





Products				
PlotID	Length	Product	Plies	Net Qty
B1	10'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	17'-00"-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3
B4	15'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	9'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	25'-00"-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B10	14'-00"-00	11 7/8" NI-20	1	1
B20	4'-00"-00	11 7/8" NI-20	1	1
B21	4'-00"-00	11 7/8" NI-20	1	1
B23	23'-00"-00	11 7/8" NI-20	2	2
B31	2'-00"-00	11 7/8" NI-20	2	2
J1	16'-00"-00	11 7/8" NI-20	1	30
J2	15'-00"-00	11 7/8" NI-20	1	22
J3	14'-00"-00	11 7/8" NI-20	1	2
J4	13'-00"-00	11 7/8" NI-20	1	2
J5	12'-00"-00	11 7/8" NI-20	1	1
J6	7'-00"-00	11 7/8" NI-20	1	1
J7	6'-00"-00	11 7/8" NI-20	1	2
J8	5'-00"-00	11 7/8" NI-20	1	3
J9	4'-00"-00	11 7/8" NI-20	1	5
J10	2'-00"-00	11 7/8" NI-20	1	1
J11	19'-00"-00	11 7/8" NI-40x	1	35
xBk1	36'-00"-00	11 7/8" NI-20	1	1
xCa1	21'-00"-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa1	163'-00"-00	1 1/8" x 11 7/8" Rim Board	1	1

DESIGN LOADING:  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	2		HUC310
H3	6		LSSR2.56Z
H4	2		LSSR410Z
H5	67		LT251188

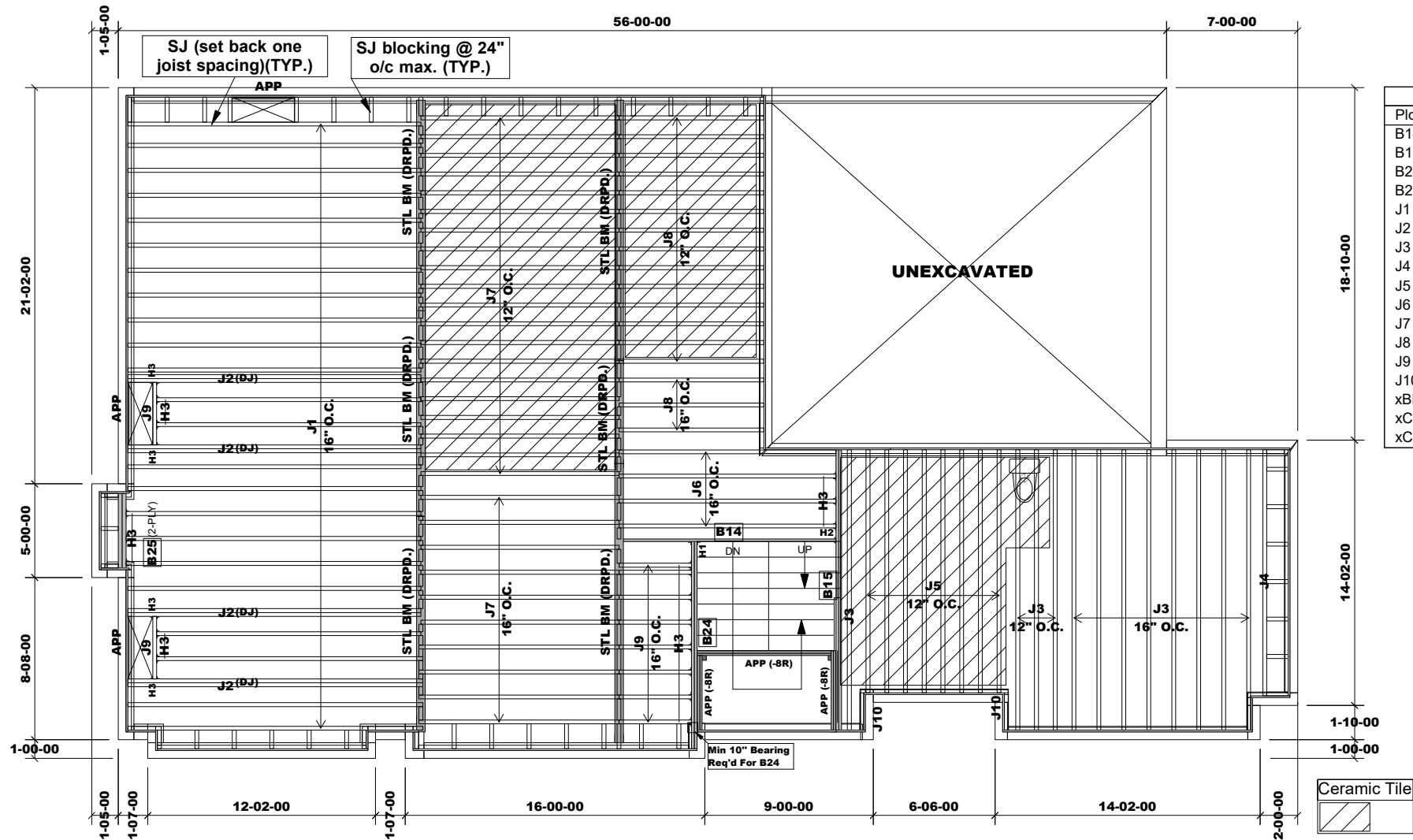
RIMBOARD  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: 4204 - EL.C

Second Floor Framing

Do not scale - refer to architectural plans for dimensions



Products				
PlotID	Length	Product	Plies	Net Qty
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B24	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	4-00-00	11 7/8" NI-20	2	2
J1	16-00-00	11 7/8" NI-20	1	23
J2	16-00-00	11 7/8" NI-20	2	8
J3	15-00-00	11 7/8" NI-20	1	12
J4	14-00-00	11 7/8" NI-20	1	1
J5	13-00-00	11 7/8" NI-20	1	8
J6	12-00-00	11 7/8" NI-20	1	4
J7	11-00-00	11 7/8" NI-20	1	30
J8	8-00-00	11 7/8" NI-20	1	17
J9	4-00-00	11 7/8" NI-20	1	10
J10	2-00-00	11 7/8" NI-20	1	2
xBk1	98-00-00	11 7/8" NI-20	1	1
xCa1	14-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa1	189-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUS1.81/10
H3	22		LT251188

RIMBOARD  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

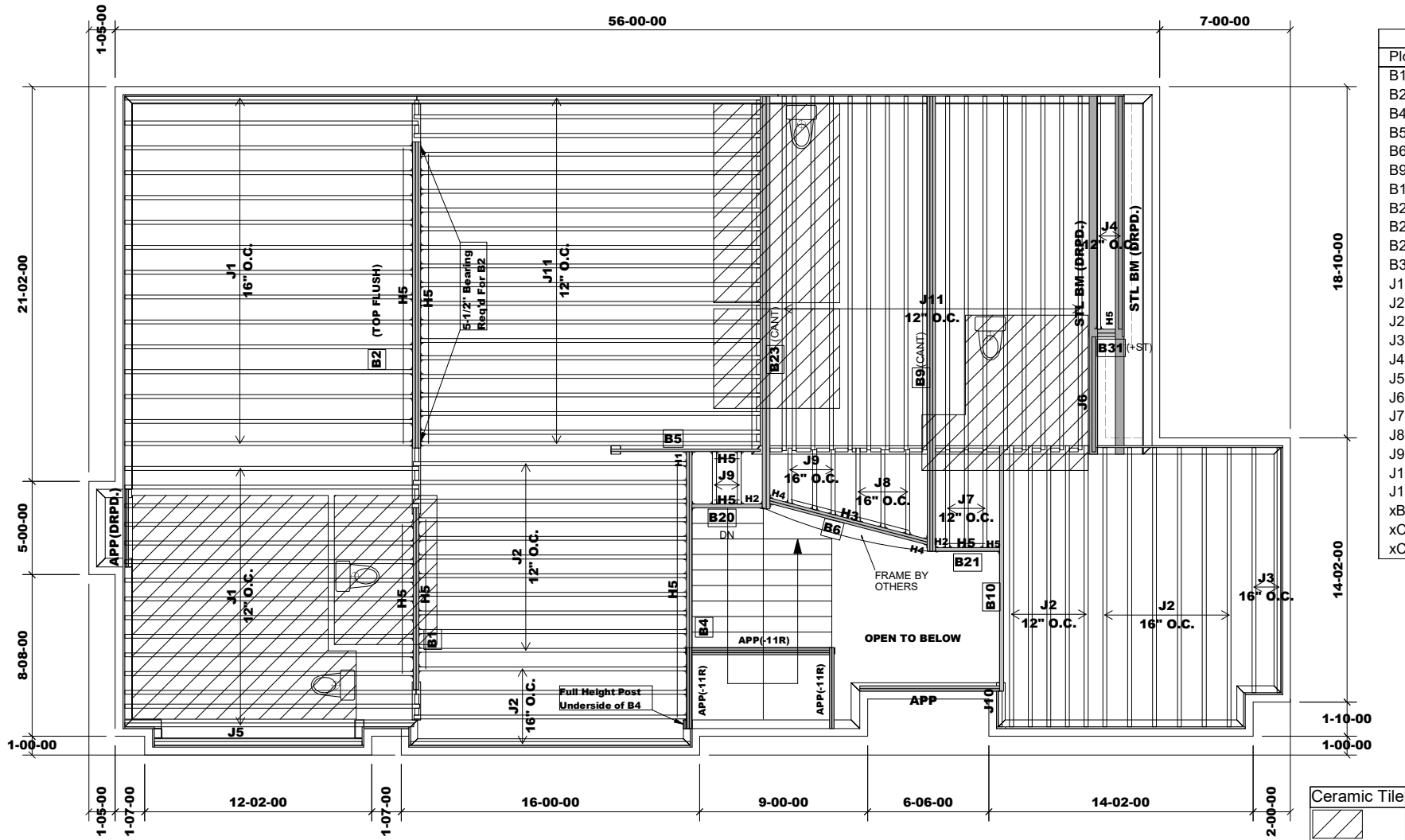
DESIGN LOADING:  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: 4204 - EL.C  
+ W.O.D. CONDITION

First Floor Framing

Do not scale - refer to architectural plans for dimensions



MODEL: 4204 - EL.C  
W/OPT. 5-BEDRM

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

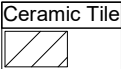
Products				
PlotID	Length	Product	Plies	Net Qty
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	17-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3
B4	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	25-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B10	14-00-00	11 7/8" NI-20	1	1
B20	4-00-00	11 7/8" NI-20	1	1
B21	4-00-00	11 7/8" NI-20	1	1
B23	23-00-00	11 7/8" NI-20	2	2
B31	2-00-00	11 7/8" NI-20	2	2
J1	16-00-00	11 7/8" NI-20	1	30
J2	15-00-00	11 7/8" NI-20	1	21
J2	16-00-00	11 7/8" NI-20	1	5
J3	14-00-00	11 7/8" NI-20	1	2
J4	13-00-00	11 7/8" NI-20	1	2
J5	12-00-00	11 7/8" NI-20	1	1
J6	7-00-00	11 7/8" NI-20	1	1
J7	6-00-00	11 7/8" NI-20	1	3
J8	5-00-00	11 7/8" NI-20	1	3
J9	4-00-00	11 7/8" NI-20	1	5
J10	2-00-00	11 7/8" NI-20	1	1
J11	19-00-00	11 7/8" NI-40x	1	37
xBk1	30-00-00	11 7/8" NI-20	1	1
xCa1	15-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa1	169-00-00	1 1/8" x 11 7/8" Rim Board	1	1

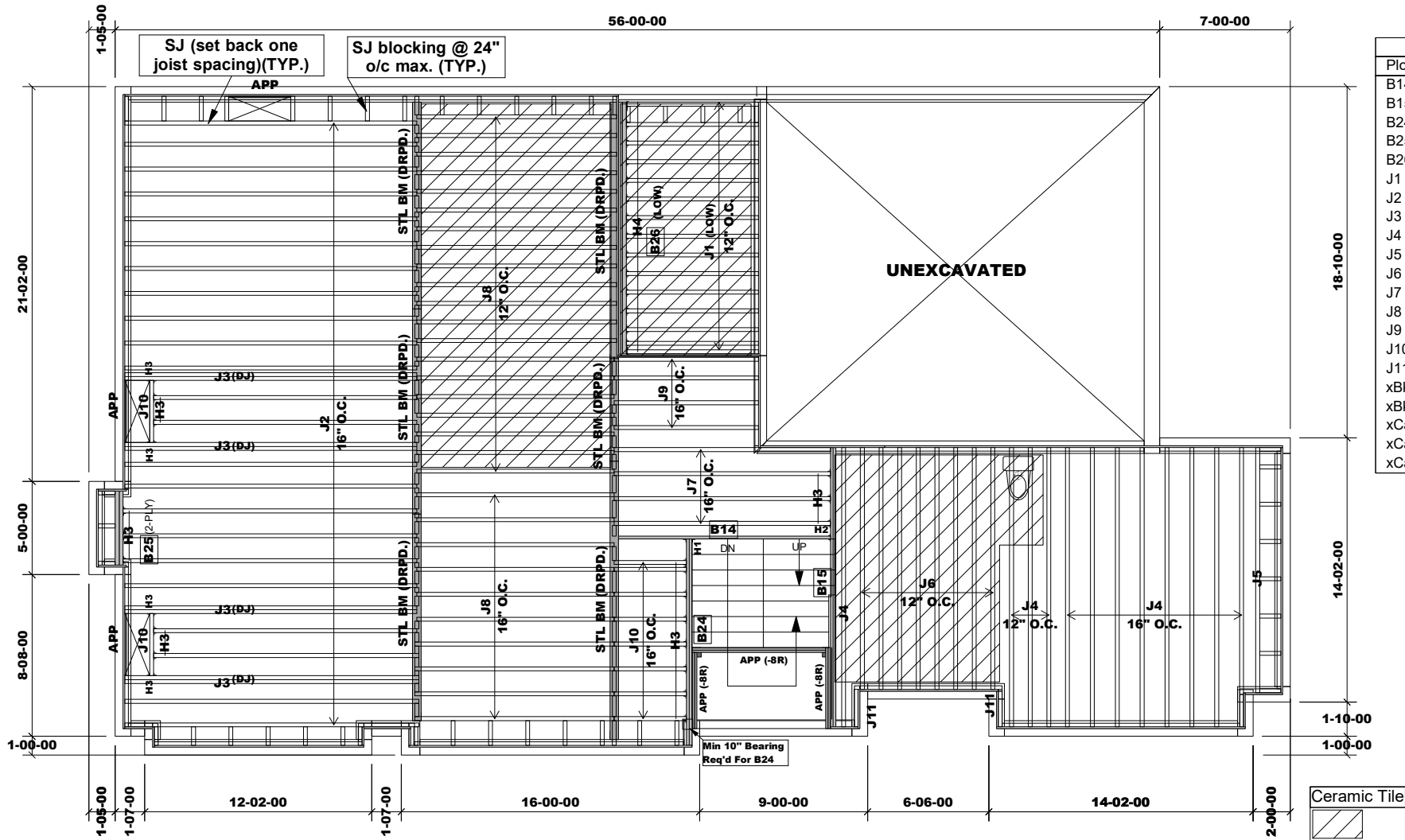
DESIGN LOADING:  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	2		HUC310
H3	6		LSSR2.56Z
H4	2		LSSR410Z
H5	72		LT251188

RIMBOARD  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.





Products				
PlotID	Length	Product	Plies	Net Qty
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B24	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	4-00-00	11 7/8" NI-20	2	2
B26	14-00-00	9 1/2" NI-20	2	2
J1	8-00-00	9 1/2" NI-20	1	15
J2	16-00-00	11 7/8" NI-20	1	23
J3	16-00-00	11 7/8" NI-20	2	8
J4	15-00-00	11 7/8" NI-20	1	12
J5	14-00-00	11 7/8" NI-20	1	1
J6	13-00-00	11 7/8" NI-20	1	8
J7	12-00-00	11 7/8" NI-20	1	4
J8	11-00-00	11 7/8" NI-20	1	30
J9	8-00-00	11 7/8" NI-20	1	4
J10	4-00-00	11 7/8" NI-20	1	10
J11	2-00-00	11 7/8" NI-20	1	2
xBk1	6-00-00	9 1/2" NI-20	1	1
xBk2	82-00-00	11 7/8" NI-20	1	1
xCa1	22-00-00	1 1/8" x 9 1/2" Rim Board	1	1
xCa2	35-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa2	160-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUS1.81/10
H3	22		LT251188
H4	15		LT259

DESIGN LOADING:  
  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

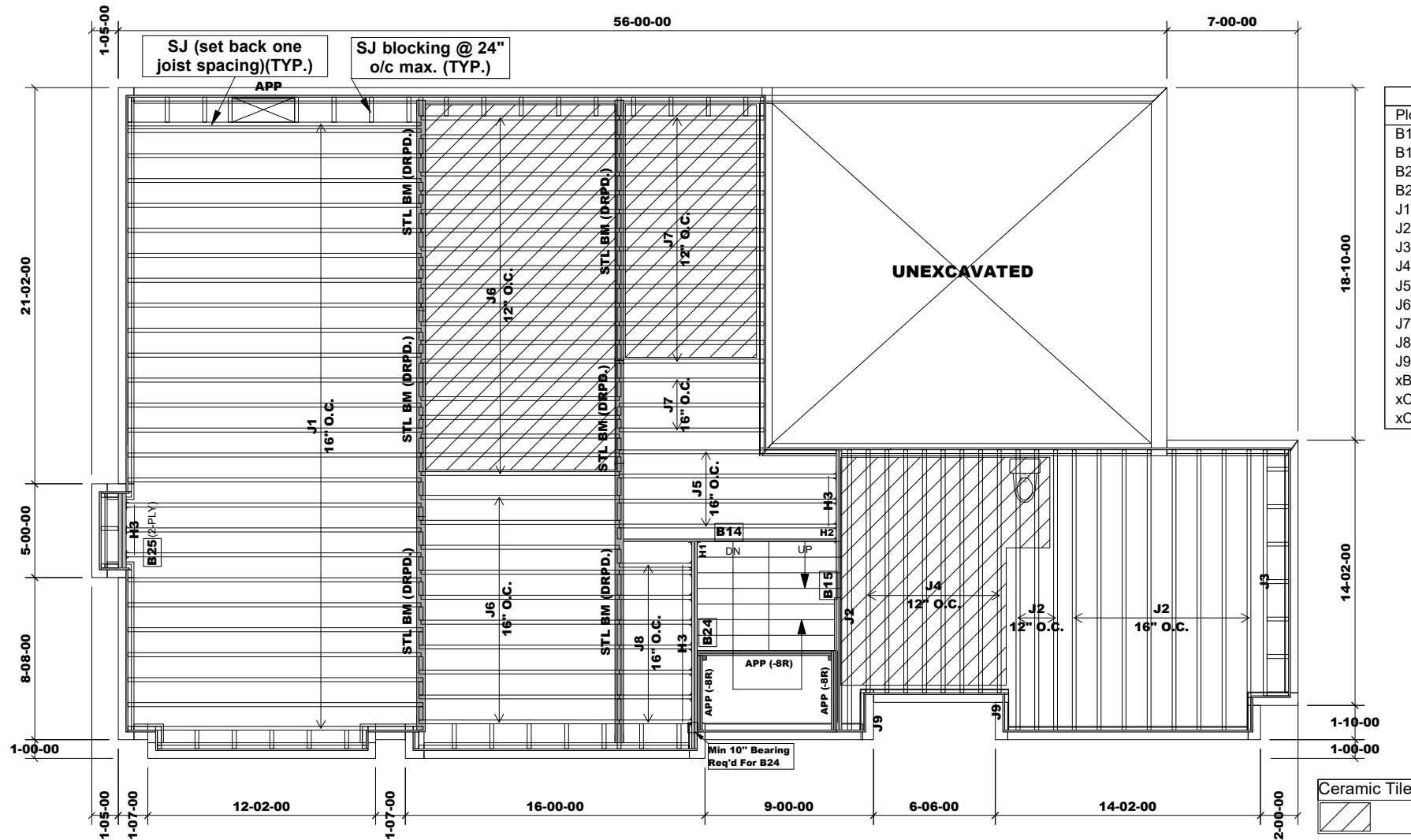
RIMBOARD  
  
1- 1/8" X 9 1/2" O.S.B.  
1- 1/8" X 11 7/8" O.S.B.  
  
SUBFLOOR - 3/4" NAILED & GLUED\*  
  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6  
  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: 4204 - EL.C  
W/SUNKEN MUDRM  
+ W.O.D. CONDITION

First Floor Framing

Do not scale - refer to architectural plans for dimensions



Products				
PlotID	Length	Product	Plies	Net Qty
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B24	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	4-00-00	11 7/8" NI-20	2	2
J1	16-00-00	11 7/8" NI-20	1	26
J2	15-00-00	11 7/8" NI-20	1	12
J3	14-00-00	11 7/8" NI-20	1	1
J4	13-00-00	11 7/8" NI-20	1	8
J5	12-00-00	11 7/8" NI-20	1	4
J6	11-00-00	11 7/8" NI-20	1	30
J7	8-00-00	11 7/8" NI-20	1	17
J8	4-00-00	11 7/8" NI-20	1	8
J9	2-00-00	11 7/8" NI-20	1	2
xBk1	96-00-00	11 7/8" NI-20	1	1
xCa1	14-00-00	1 1/8" x 11 7/8" Rim Board	1	1
xCa1	189-00-00	1 1/8" x 11 7/8" Rim Board	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	1		HUS1.81/10
H3	14		LT251188

RIMBOARD  
1- 1/8" X 11 7/8" O.S.B.  
SUBFLOOR - 3/4" NAILED & GLUED\*  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

DESIGN LOADING:  
LIVE LOAD = 40 PSF  
DEAD LOAD = 15 PSF  
DEAD LOAD @TILE = 20 PSF

Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: 4204 - EL.C  
W/L.O.D. & W.O.B. COND.

First Floor Framing

Do not scale - refer to architectural plans for dimensions

JT/PL: 45147/ 116458  
LI: (290680)343861\*

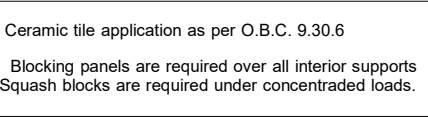
Builder: Gold Park  
Project: Pine Valley PH.2

Location: Vaughan  
Date: April 30, 2022

Designer: NL / JC  
Sheet: 17 of 18

Alpa Roof Trusses Inc.  
Maple, Ontario

Salesperson: Derek  
Home Lumber



## First Floor Framing

Do not scale - refer to architectural plans for dimensions

BC CALC® Member Report  
Build 7555

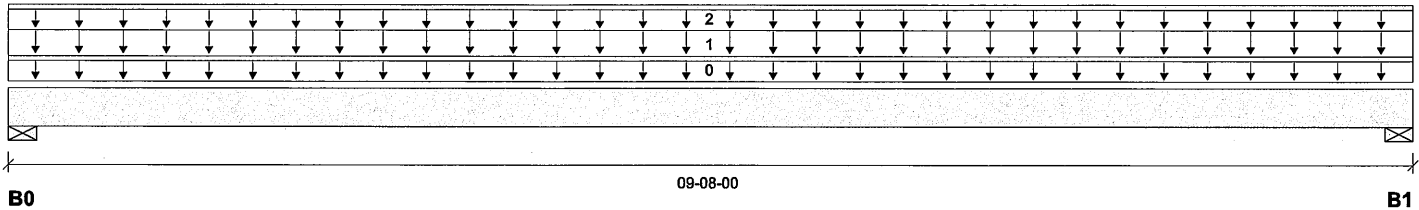
**B01 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 14:06:05

Job name: 45147 (4204)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290680  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses


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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	3093 / 0	1895 / 0		
B1, 3-1/2"	3093 / 0	1895 / 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	09-08-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-08-00	Top	40	20			16-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-08-00	Top		60			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	15369 ft-lbs	35392 ft-lbs	43.4%	1	04-10-00
End Shear	5151 lbs	14464 lbs	35.6%	1	01-03-06
Total Load Deflection	L/647 (0.171")	n/a	37.1%	4	04-10-00
Live Load Deflection	L/999 (0.106")	n/a	n/a	5	04-10-00
Max Defl.	0.171"	n/a	17.1%	4	04-10-00
Span / Depth	9.3				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	7009 lbs	93.0%	46.9%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	7009 lbs	93.0%	46.9%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 10" O/C,  
STAGGERED IN 2 ROWS



BC CALC® Member Report  
Build 7555

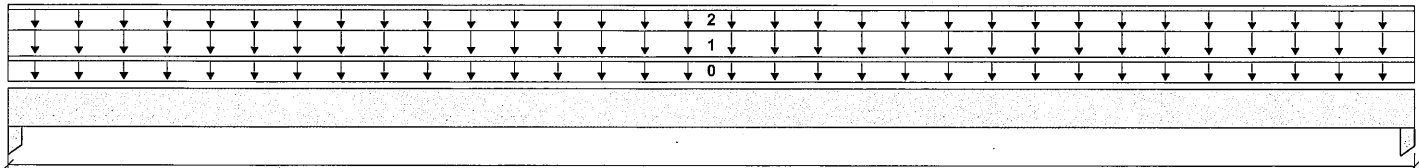
**B02 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 14:06:05

Job name: 45147 (4204)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290680  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpha Roof Trusses



B0

16-02-00

B1

Total Horizontal Product Length = 16-02-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	5497 / 0	3405 / 0		
B1, 3-1/2"	5497 / 0	3405 / 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	16-02-00	Top		21			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	16-02-00	Top	40	20			17-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	16-02-00	Top		60			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	47703 ft-lbs	75349 ft-lbs	63.3%	1	08-01-00
End Shear	10246 lbs	25578 lbs	40.1%	1	01-05-08
Total Load Deflection	L/300 (0.628")	n/a	80.0%	4	08-01-00
Live Load Deflection	L/486 (0.388")	n/a	74.1%	5	08-01-00
Max Defl.	0.628"	n/a	62.8%	4	08-01-00
Span / Depth	13.5				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Column 3-1/2" x 5-1/4"	12502 lbs	39.2%	55.8%	Spruce-Pine-Fir
B1	Column 3-1/2" x 5-1/4"	12502 lbs	39.2%	55.8%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 6" O/C,  
STAGGERED IN 2 ROWS







Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****B04 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 14:06:05

BC CALC® Member Report

Build 7555

Job name: 45147 (4204)

File name: 290680

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

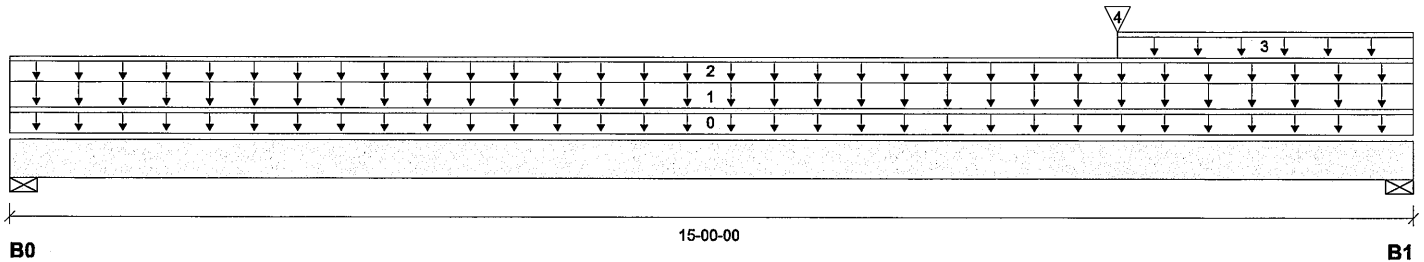
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 15-00-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2355 / 0	1708 / 0		
B1, 3-1/2"	2711 / 0	1859 / 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	15-00-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	15-00-00	Top	40	20			07-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	15-00-00	Top		60			n/a
3		Unf. Lin. (lb/ft)	L	11-10-00	15-00-00	Top	27	14			n/a
4		Conc. Pt. (lbs)	L	11-10-00	11-10-00	Top	480	192			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	20794 ft-lbs	35392 ft-lbs	58.8%	1	07-08-09
End Shear	5383 lbs	14464 lbs	37.2%	1	13-08-10
Total Load Deflection	L/298 (0.585")	n/a	80.5%	4	07-06-09
Live Load Deflection	L/509 (0.343")	n/a	70.7%	5	07-06-09
Max Defl.	0.585"	n/a	58.5%	4	07-06-09
Span / Depth	14.7				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	5668 lbs	75.2%	37.9%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	6389 lbs	84.8%	42.8%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Design meets User specified (1") Maximum Total load deflection criteria.  
 Calculations assume member is fully braced.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 4

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 10" O/C,  
 STAGGERED IN 2 ROWS

SE007559

BC CALC® Member Report  
Build 7555

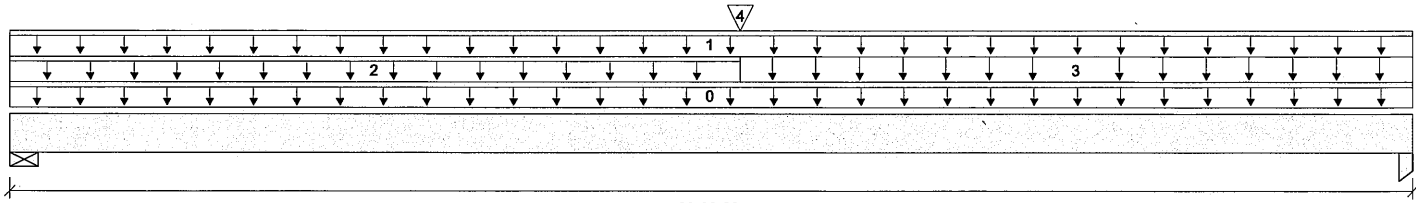
**B05 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 14:06:05

Job name: 45147 (4204)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290680  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



B0

08-00-00

B1

Total Horizontal Product Length = 08-00-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1537 / 0	1031 / 0		
B1, 3-1/2"	1719 / 0	1128 / 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	08-00-00	Top		6			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	08-00-00	Top	27	14			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	04-02-00	Top	27	14			n/a
3		Unf. Area (lb/ft²)	L	04-02-00	08-00-00	Top	40	15			01-05-00
4		Conc. Pt. (lbs)	L	04-02-00	04-02-00	Top	2711	1859			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	13082 ft-lbs	17696 ft-lbs	73.9%	1	04-02-00
End Shear	3762 lbs	7232 lbs	52.0%	1	06-08-10
Total Load Deflection	L/566 (0.16")	n/a	42.4%	4	04-00-15
Live Load Deflection	L/999 (0.096")	n/a	n/a	5	04-00-15
Max Defl.	0.16"	n/a	16.0%	4	04-00-15
Span / Depth	7.6				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	3595 lbs	95.4%	48.1%	Spruce-Pine-Fir
B1	Column 3-1/2" x 1-3/4"	3989 lbs	37.5%	53.4%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4


**Disclosure**

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

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

**SE007560**

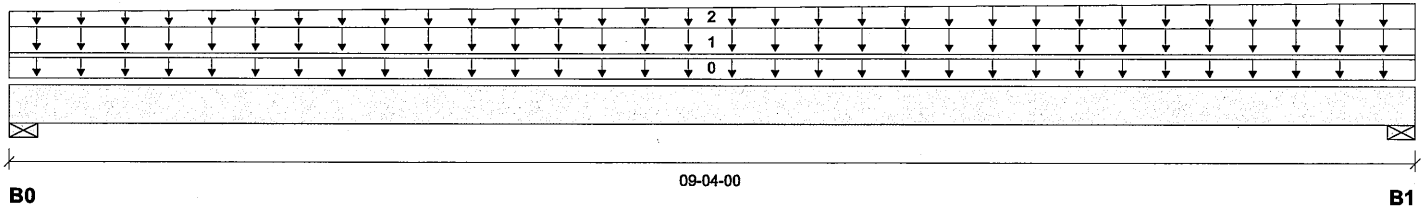
BC CALC® Member Report  
Build 7555

**B06 (Floor Beam)**  
Dry | 1 span | No cant.

March 16, 2020 14:06:05

Job name: 45147 (4204)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290680  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpha Roof Trusses



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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	527 / 0	256 / 0		
B1, 3-1/2"	593 / 0	281 / 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	09-04-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-04-00	Top	40	15			01-00-00
2		Trapezoidal (lb/ft)	L	00-00-00	09-04-00	Top	60	23			n/a
							100	38			

### Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2482 ft-lbs	35392 ft-lbs	7.0%	1	04-09-04
End Shear	1062 lbs	14464 lbs	7.3%	1	08-00-10
Total Load Deflection	L/999 (0.025")	n/a	n/a	4	04-08-00
Live Load Deflection	L/999 (0.017")	n/a	n/a	5	04-08-00
Max Defl.	0.025"	n/a	n/a	4	04-08-00
Span / Depth	9.0				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	1111 lbs	14.7%	7.4%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	1240 lbs	16.5%	8.3%	Spruce-Pine-Fir

### Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 12" O/C,  
STAGGERED IN 2 ROWS



**B09 (Floor Beam)**

BC CALC® Member Report

Dry | 2 spans | L cant.

March 16, 2020 14:06:05

Build 7555

Job name: 45147 (4204)

File name: 290680

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

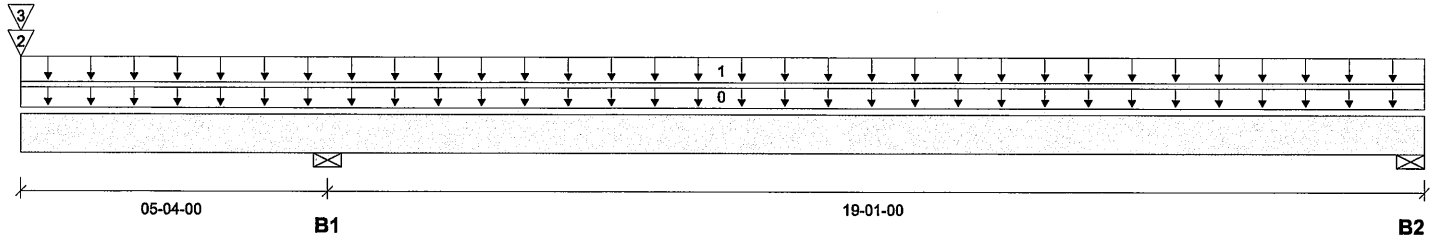
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 24-05-00

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1847 / 0	1062 / 0		
B2, 3-1/2"	515 / 265	235 / 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	24-05-00	Top		18			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	24-05-00	Top	40	15			01-04-00
2		Conc. Pt. (lbs)	L	00-00-00	00-00-00	Top	593	281			n/a
3		Conc. Pt. (lbs)	L	00-00-00	00-00-00	Top	202	87			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4212 ft-lbs	55212 ft-lbs	7.6%	3	16-01-04
Neg. Moment	-10627 ft-lbs	-55212 ft-lbs	19.2%	2	05-04-00
End Shear	902 lbs	21696 lbs	4.2%	3	23-01-10
Cont. Shear	2188 lbs	21696 lbs	10.1%	2	04-02-06
Total Load Deflection	2xL/413 (0.31")	n/a	58.1%	9	00-00-00
Live Load Deflection	2xL/509 (0.251")	n/a	70.7%	12	00-00-00
Total Neg. Defl.	L/1724 (-0.131")	n/a	13.9%	9	12-05-08
Max Defl.	-0.131"	n/a	13.1%	9	12-05-08
Cant. Max Defl.	0.31"	n/a	31.0%	9	00-00-00
Span / Depth	19.1				


**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	4099 lbs	36.3%	18.3%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 5-1/4"	1066 lbs	9.4%	4.8%	Spruce-Pine-Fir
B2	Uplift	186 lbs			

**Cautions**

Uplift of 186 lbs found at bearing B2.

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 12" O/C,  
STAGGERED IN 2 ROWS

BC CALC® Member Report  
Build 7555

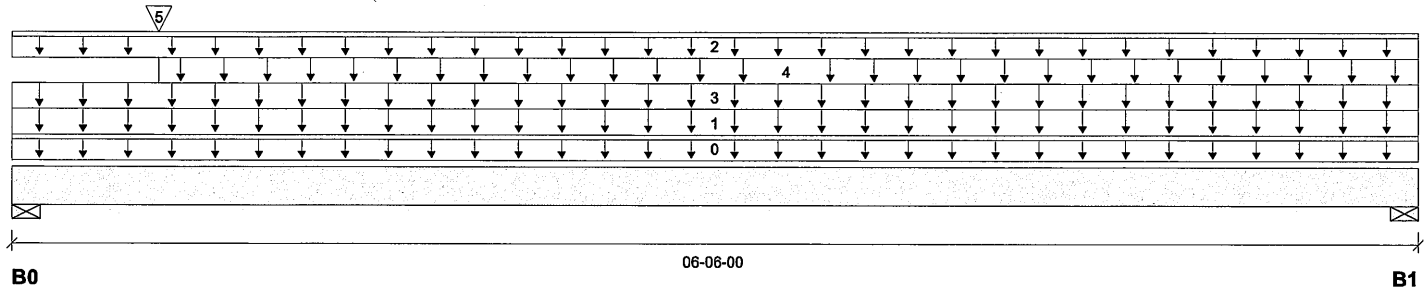
**B11 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 14:06:05

Job name: 45147 (4204)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290680  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



Total Horizontal Product Length = 06-06-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	357 / 0	1027 / 0	788 / 0	
B1, 3-1/2"	357 / 0	785 / 0	410 / 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	06-06-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	06-06-00	Top	40	20			02-09-00
2		Unf. Lin. (lb/ft)	L	00-00-00	06-06-00	Top		100			n/a
3		Unf. Area (lb/ft²)	L	00-00-00	06-06-00	Top		13	21		01-06-00
4		Unf. Area (lb/ft²)	L	00-08-00	06-06-00	Top		13	21		04-00-00
5		Conc. Pt. (lbs)	L	00-08-00	00-08-00	Top		322	504		n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2880 ft-lbs	17696 ft-lbs	16.3%	5	03-01-08
End Shear	1612 lbs	7232 lbs	22.3%	5	01-03-06
Total Load Deflection	L/999 (0.03")	n/a	n/a	11	03-02-04
Live Load Deflection	L/999 (0.015")	n/a	n/a	15	03-02-04
Max Defl.	0.03"	n/a	n/a	11	03-02-04
Span / Depth	6.1				


**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	2824 lbs	74.9%	37.8%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	1955 lbs	51.9%	26.2%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4

SE007566

**B14 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 14:06:05

BC CALC® Member Report

Build 7555

Job name: 45147 (4204)

File name: 290680

Address: Pine Valley

Description: First Floor Framing

City, Province, Postal Code: Vaughan, ON

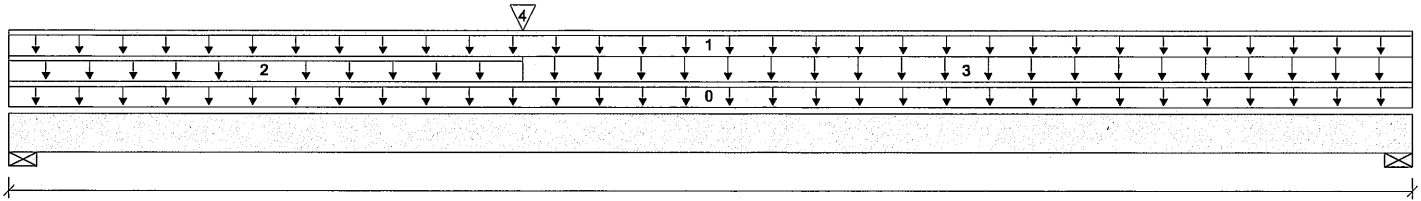
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



B0

11-10-00

B1

Total Horizontal Product Length = 11-10-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1166 / 0	724 / 0		
B1, 3-1/2"	1234 / 0	645 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-10-00	Top		6			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	11-10-00	Top	27	14			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	27	14			n/a
3		Unf. Area (lb/ft²)	L	04-04-00	11-10-00	Top	40	15			03-06-00
4		Conc. Pt. (lbs)	L	04-04-00	04-04-00	Top	914	678			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9738 ft-lbs	17696 ft-lbs	55.0%	1	04-04-00
End Shear	2496 lbs	7232 lbs	34.5%	1	01-03-06
Total Load Deflection	L/446 (0.306")	n/a	53.8%	4	05-09-08
Live Load Deflection	L/708 (0.193")	n/a	50.8%	5	05-09-08
Max Defl.	0.306"	n/a	30.6%	4	05-09-08
Span / Depth	11.5				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	2655 lbs	70.4%	35.5%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	2658 lbs	70.5%	35.6%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Design meets User specified (1") Maximum Total load deflection criteria.  
 Calculations assume member is fully braced.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 4


**Disclosure**

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

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

**SE007569**

BC CALC® Member Report  
Build 7555

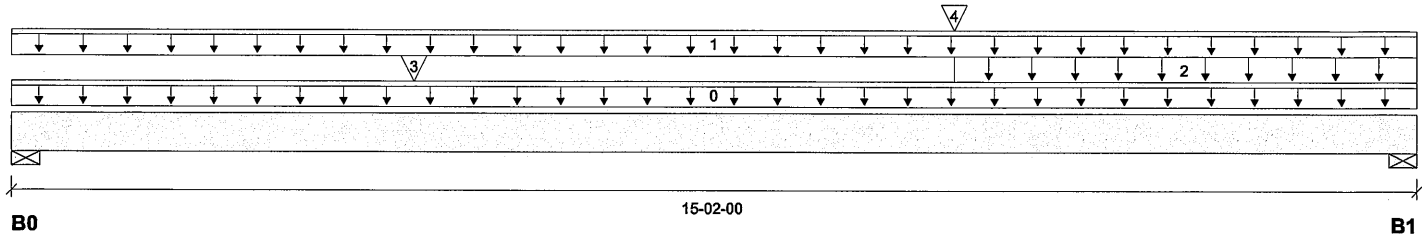
**B15 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 14:06:05

Job name: 45147 (4204)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290680  
Description: First Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



Total Horizontal Product Length = 15-02-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1598 / 0	1234 / 0		
B1, 3-1/2"	2365 / 0	1586 / 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	15-02-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	15-02-00	Top	27	74			n/a
2		Unf. Area (lb/ft²)	L	10-02-00	15-02-00	Top	40	15			06-00-00
3		Conc. Pt. (lbs)	L	04-04-00	04-04-00	Top	1120	420			n/a
4		Conc. Pt. (lbs)	L	10-02-00	10-02-00	Top	1234	645			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	18643 ft-lbs	35392 ft-lbs	52.7%	1	10-02-00
End Shear	4735 lbs	14464 lbs	32.7%	1	13-10-10
Total Load Deflection	L/336 (0.526")	n/a	71.5%	4	07-09-09
Live Load Deflection	L/570 (0.31")	n/a	63.2%	5	07-09-09
Max Defl.	0.526"	n/a	52.6%	4	07-09-09
Span / Depth	14.9				


**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	3940 lbs	52.3%	26.4%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	5530 lbs	73.4%	37.0%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 12" O/C,  
STAGGERED IN 2 ROWS



Customer: **Gold Park**  
Job Address: **Pine Valley**  
City: **Vaughan**  
Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **337558-A**  
Level: **2nd Floor**  
Label: **B10 - i33887**  
Type: **Beam**

**1 Ply Member**

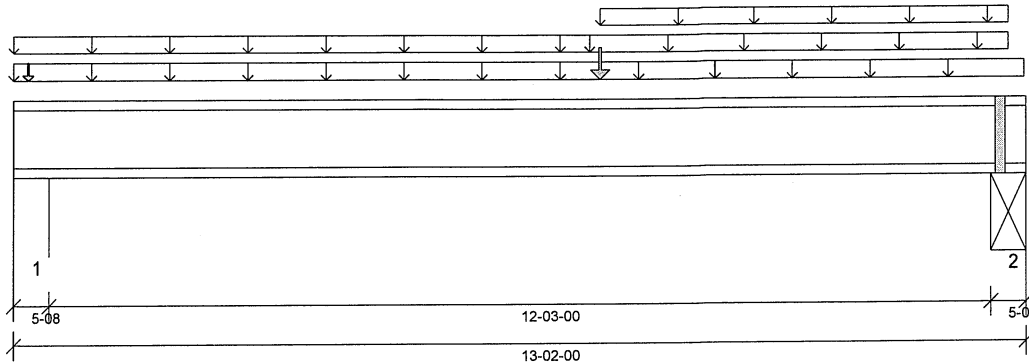
**11 7/8" NI-20**

Status:  
**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure version  
R 4 2 286 11 Date: 9/13

Report Version: 2020.06.20 12/20/2021 16:13



### DESIGN INFORMATION

Building Code: NBCC 2015, Part 9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360, 0.75" (absolute)

TL Deflection Limit: L/240, 1.00" (absolute)

#### Lateral Restraint Requirements:

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

Top: 0' Bottom: 7'-2 1/2"

#### Factored Resistance of Support Material:

- 615 psi Wall @ 0'-4 1/2"
- 769 psi Beam @ 12'-9 1/2"



### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	7'-7 1/4"	1.25D + 1.5L	0.89	3858 lb ft	4973 lb ft	Passed - 78%
Factored Shear:	12'-8 7/16"	1.25D + 1.5L	0.89	1214 lb	1996 lb	Passed - 61%
Live Load (LL) Pos. Defl.:	6'-9 1/4"	L		0.142"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	6'-8 5/16"	D + L		0.346"	L/240	Passed - L/424
Permanent Deflection:	6'-7 5/8"			-	L/360	Passed - L/820

### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5'-08	1.25D + 1.5L	0.89	1154 lb		1996 lb	7538 lb	Passed - 58%
2	5'-08	1.25D + 1.5L	0.89	1274 lb		1996 lb	9423 lb	Passed - 64%

### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	13'-2"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	13'-1 11/16"	User Load	Top	60 lb/ft	-	-	-
Uniform	-0'	7'-5 5/8"	FC1 Floor Decking (Plan View Fill)	Top	12 lb/ft	33 lb/ft	-	-
Uniform	7'-5 5/8"	12'-11 1/4"	FC1 Floor Decking (Plan View Fill)	Top	11 lb/ft	31 lb/ft	-	-
Uniform	7'-7 1/4"	12'-11 1/4"	FC1 Floor Decking (Plan View Fill)	Top	9 lb/ft	25 lb/ft	-	-
Point	7'-7 1/4"	7'-7 1/4"	B21 (i34016)	Back	57 lb	138 lb	-	-
Point	0'-2 1/4"	0'-2 1/4"	E28 (i16626)	Top	38 lb	-	-	-

### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'-5 1/2"	E13 (i16469)	567 lb	297 lb	-	-
2	12'-8 1/2"	13'-2"	STL BM (DRPD.)()	558 lb	384 lb	-	-

### DESIGN NOTES

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

SE039724





Customer: **Gold Park**  
 Job Address: **Pine Valley**  
 City: **Vaughan**  
 Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **337558-A**  
 Level: **2nd Floor**  
 Label: **B20 - i33655**  
 Type: **Beam**

**1 Ply Member**

**11 7/8" NI-20**

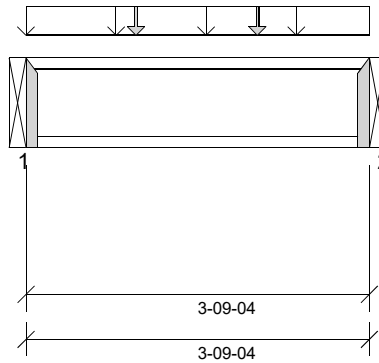
Status:

**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure version  
 8.4.2.2861 Updated 9.13

Report Version: 2020.06.20 10/15/2021 11:51



### DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)  
 Design Methodology: LSD  
 Service Condition: Dry  
 LL Deflection Limit: L/360, 0.75" (absolute)  
 TL Deflection Limit: L/240, 1.00" (absolute)

#### Lateral Restraint Requirements:

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

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

#### Factored Resistance of Support Material:

- 769 psi Beam @ 0'
- 769 psi Beam @ 3'- 9 1/4"



### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 10 11/16"	1.25D + 1.5L	1.00	743 lb ft	5580 lb ft	Passed - 13%
Factored Shear:	0'- 1/16"	1.25D + 1.5L	1.00	737 lb	2240 lb	Passed - 33%
Live Load (LL) Pos. Defl.:	1'- 10 5/8"	L		0.010"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	1'- 10 5/8"	D + L		0.013"	L/240	Passed - L/999

### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-12	1.25D + 1.5L	1.00	738 lb		1970 lb	-	Passed - 37%
2	1-12	1.25D + 1.5L	1.00	738 lb		1970 lb	-	Passed - 37%

### CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	LT251188		-	-	-	Connector manually specified by the user.
2	HUC312		-	-	-	Connector manually specified by the user.

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

### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 9 1/4"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	3'- 9 1/4"	User Load	Top	57 lb/ft	150 lb/ft	-	-
Point	1'- 2 1/2"	1'- 2 1/2"	J8(i33608)	Back	32 lb	87 lb	-	-
Point	2'- 6 1/2"	2'- 6 1/2"	J8(i33419)	Back	33 lb	89 lb	-	-

### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B4(i33710)	145 lb	371 lb	-	-
2	3'- 9 1/4"	3'- 9 1/4"	B23(i34047)	145 lb	371 lb	-	-

### DESIGN NOTES

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

SE039725



Customer: **Gold Park**  
 Job Address: **Pine Valley**  
 City: **Vaughan**  
 Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **337558-A**  
 Level: **2nd Floor**  
 Label: **B21 - i34016**  
 Type: **Beam**

**1 Ply Member**

**11 7/8" NI-20**

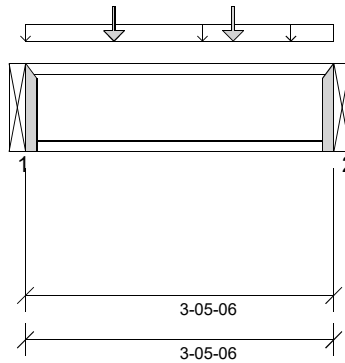
Status:

**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in Mitek® Structure version  
 R 4 2 286 1 Undated 9 13

Report Version: 2020.06.20 10/15/2021 11:51



### DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360, 0.75" (absolute)

TL Deflection Limit: L/240, 1.00" (absolute)

#### Lateral Restraint Requirements:

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

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

#### Factored Resistance of Support Material:

- 769 psi Beam @ 0'
- 769 psi Beam @ 3'- 5 3/8"



### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 3 7/8"	1.25D + 1.5L	1.00	305 lb ft	5580 lb ft	Passed - 5%
Factored Shear:	0'- 1/16"	1.25D + 1.5L	1.00	298 lb	2240 lb	Passed - 13%

### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-12	1.25D + 1.5L	1.00	300 lb		1970 lb	-	Passed - 15%
2	1-12	1.25D + 1.5L	1.00	279 lb		1970 lb	-	Passed - 14%

### CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HUC312		-	-	-	Connector manually specified by the user.
2	LT251188		-	-	-	Connector manually specified by the user.

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

### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 5 3/8"	Self Weight	Top	3 lb/ft	-	-	-
Tapered	0'	3'- 5 3/8"	FC1 Floor Decking (Plan View Fill)	Top	2 To 2 lb/ft	5 To 5 lb/ft	-	-
Point	0'- 11 7/8"	0'- 11 7/8"	J5(i33892)	Back	50 lb	134 lb	-	-
Point	2'- 3 7/8"	2'- 3 7/8"	J5(i34004)	Back	51 lb	135 lb	-	-

### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B9(i33995)	61 lb	149 lb	-	-
2	3'- 5 3/8"	3'- 5 3/8"	B10(i33887)	57 lb	138 lb	-	-

### DESIGN NOTES

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

SE039726

**2nd Floor\Flush Beams\B22(i34086) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

October 15, 2021 11:53:27

Build 7773

Job name: 45147-UNIT 4204 (290680) 337558

File name: 337558-A.mmdl

Address: Pine Valley

Description: 2nd Floor\Flush Beams\B22(i34086)

City, Province, Postal Code: Vaughan, ON

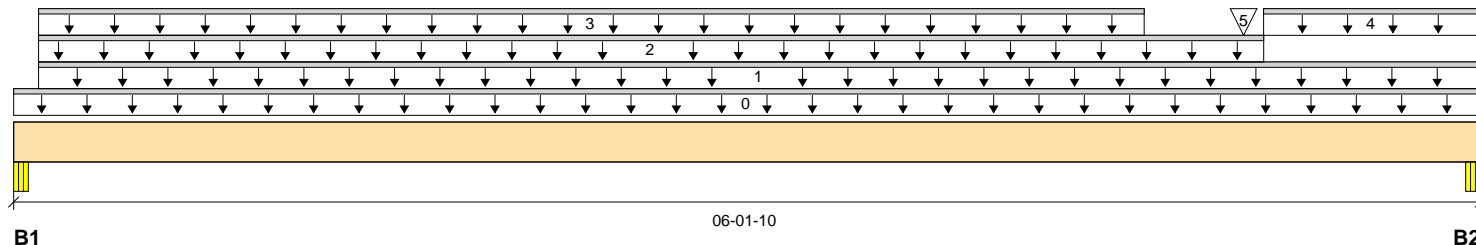
Specifier:

Customer: Gold Park

Designer: JC

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 06-01-10

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

Bearing	Live	Dead	Snow	Wind
B1, 4-1/2"	100 / 0	190 / 0	110 / 0	
B2, 4-3/8"	283 / 0	1076 / 0	772 / 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	06-01-10	Top		6			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-01-04	06-01-10	Top	4				n/a
2	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-01-04	05-02-12	Top	20	7			n/a
3	Tile	Unf. Lin. (lb/ft)	L	00-01-04	04-08-12	Top		3			n/a
4	E37(i16617)	Unf. Lin. (lb/ft)	L	05-02-12	06-01-10	Top		101			n/a
5	-	Conc. Pt. (lbs)	L	05-01-12	05-01-12	Top	259	1078	882		n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1826 ft-lbs	17696 ft-lbs	10.3%	13	05-01-14
End Shear	1645 lbs	7232 lbs	22.8%	13	04-09-06
Total Load Deflection	L/999 (0.012")	n/a	n/a	35	03-05-00
Live Load Deflection	L/999 (0.006")	n/a	n/a	51	03-05-00
Max Defl.	0.012"	n/a	n/a	35	03-05-00
Span / Depth	5.6				


**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 4-1/2" x 1-3/4"	503 lbs	8.3%	5.2%	Unspecified
B2	Beam 4-3/8" x 1-3/4"	2786 lbs	47.3%	29.8%	Unspecified

**Notes**

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

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

Design meets User specified (1") Maximum Total load deflection criteria.

Design meets User specified (0.75") Maximum 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: 04-08-08.



Customer: **Gold Park**  
Job Address: **Pine Valley**  
City: **Vaughan**  
Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **337558-A**  
Level: **2nd Floor**  
Label: **B23 - i34047**  
Type: **Beam**

**2 Ply Member**

**11 7/8" NI-20**

Status:

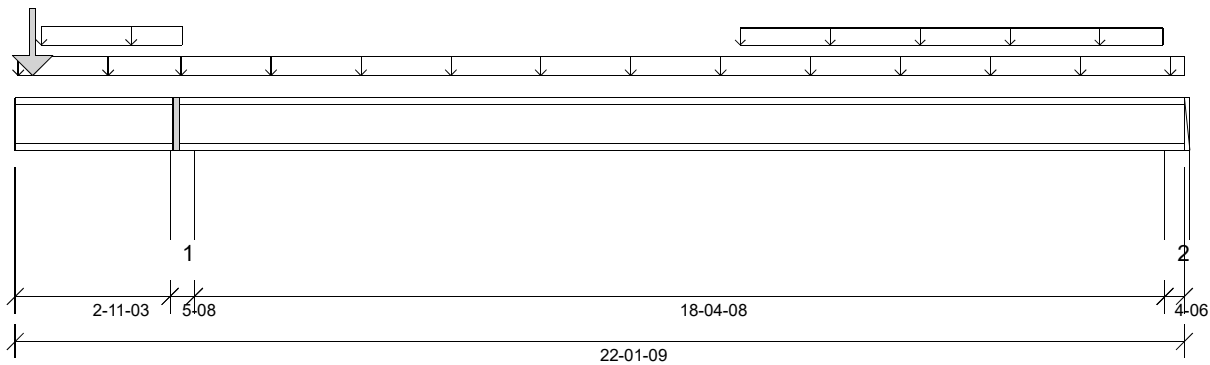
**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure version  
8.4.2.2861 Updated 9.13

Report Version: 2020.06.20

10/15/2021 11:54



#### DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)  
Design Methodology: LSD  
Service Condition: Dry  
LL Deflection Limit: L/360, 0.75" (absolute)  
TL Deflection Limit: L/240, 1.00" (absolute)

#### Lateral Restraint Requirements:

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

Top: 0'- 1/2" Bottom: 18'- 4 1/2"

#### Factored Resistance of Support Material:

- 615 psi Wall @ 3'- 1 15/16"
- 615 psi Wall @ 21'- 10 3/16"



#### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	13'- 9 3/8"	1.25D + 1.5L	0.93	2417 lb ft	10392 lb ft	Passed - 23%
Factored Neg. Moment:	3'- 1 15/16"	1.25D + 1.5L	1.00	5654 lb ft	11160 lb ft	Passed - 51%
Factored Shear:	2'- 11 1/8"	1.25D + 1.5L	1.00	2129 lb	4480 lb	Passed - 48%
Live Load (LL) Neg. Defl.:	11'- 11/16"	L		0.220"	L/360	Passed - L/999
Total Load (TL) Neg. Defl.:	10'- 3 5/16"	D + L		0.212"	L/240	Passed - L/999

#### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L	1.00	3118 lb		10140 lb	16918 lb	Passed - 31%
2	4-06	1.25D + 1.5L	0.93	625 lb		4172 lb	12531 lb	Passed - 15%
2	4-06	0.9D + 1.5L	1.00		-105 lb	-	-	

#### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	22'- 1 9/16"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'- 11/16"	3'- 1 11/16"	FC1 Floor Decking (Plan View Fill)	Top	11 lb/ft	29 lb/ft	-	-
Uniform	0'- 5 7/8"	3'- 1 15/16"	FC1 Floor Decking (Plan View Fill)	Top	10 lb/ft	25 lb/ft	-	-
Uniform	3'- 1 11/16"	22'- 1 9/16"	FC1 Floor Decking (Plan View Fill)	Top	12 lb/ft	32 lb/ft	-	-
Uniform	13'- 8 11/16"	21'- 8 11/16"	FC1 Floor Decking (Plan View Fill)	Top	4 lb/ft	-	-	-
Point	0'- 3 15/16"	0'- 3 15/16"	-	Front	392 lb	888 lb	-	-

#### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	2'- 11 3/16"	3'- 4 11/16"	5(i16488)	706 lb	1492 lb	-	-
2	21'- 9 3/16"	22'- 1 9/16"	E6(i16441)	128 lb	310/-149 lb	-	-

#### DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- The deflection at the cantilever for either live and/or total loads is less than 3/8" and therefore has been excluded from the deflection ratio considerations.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

#### PLY TO PLY CONNECTION

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

SE039728

**1st Floor\Flush Beams\B24(i33592) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

October 15, 2021 11:54:17

Build 7773

Job name: 45147-UNIT 4204 (290680) 337558

File name: 337558-A.mmdl

Address: Pine Valley

Description: 1st Floor\Flush Beams\B24(i33592)

City, Province, Postal Code: Vaughan, ON

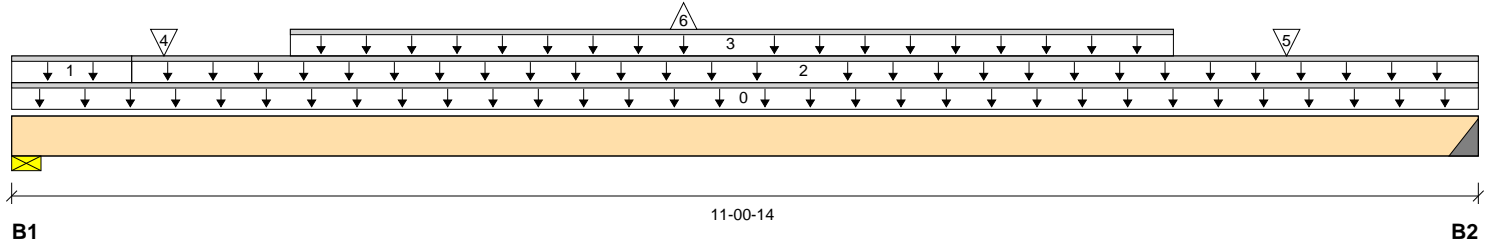
Specifier:

Customer: Gold Park

Designer: JC

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 11-00-14

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

Bearing	Live	Dead	Snow	Wind
B1, 12-9/16"	3756 / 0	6170 / 0	6142 / 333	
B2, 2"	634 / 0	498 / 0	0 / 231	

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-00-14	Top		12			00-00-00
1	E17(i16464)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-14	Top		202			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-10-14	11-00-14	Top		60			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	02-01-04	08-09-04	Top	86	32			n/a
4	-	Conc. Pt. (lbs)	L	01-01-13	01-01-13	Top	3031	5480	6142		n/a
5	-	Conc. Pt. (lbs)	L	09-07-08	09-07-08	Top	148				n/a
6	PBO3(i16361)	Conc. Pt. (lbs)	L	05-00-14	05-00-14	Top	608	-33	-564		n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5171 ft-lbs	35392 ft-lbs	14.6%	5	05-00-14
Neg. Moment	-993 ft-lbs	-35392 ft-lbs	2.8%	53	05-00-14
End Shear	1547 lbs	14464 lbs	10.7%	5	02-00-07
Total Load Deflection	L/999 (0.063")	n/a	n/a	69	05-11-04
Live Load Deflection	L/999 (0.04")	n/a	n/a	100	05-09-04
Max Defl.	0.063"	n/a	n/a	69	05-11-04
Span / Depth	10.1				


**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 12-9/16" x 3-1/2"	20681 lbs	76.3%	38.5%	Spruce-Pine-Fir
B2	Hanger 2" x 3-1/2"	1573 lbs	n/a	18.4%	HGUS410

**Cautions**

Header for the hanger HGUS410 is a Single 1-3/4" x 11-7/8" LVL Beam.  
 Hanger model HGUS410 and seat length were input by the user.

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 12" O/C,  
 STAGGERED IN 2 ROWS



Customer: **Gold Park**  
Job Address: **Pine Valley**  
City: **Vaughan**  
Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **337558-A**  
Level: **1st Floor**  
Label: **B25 - i33921**  
Type: **Beam**

**2 Ply Member**

**11 7/8" NI-20**

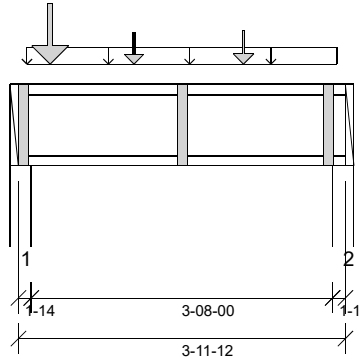
Status:

**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure version  
8.4.2.2861 Updated 9.13

Report Version: 2020.06.20 10/15/2021 11:54



#### DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)  
Design Methodology: LSD  
Service Condition: Dry  
LL Deflection Limit: L/360, 0.75" (absolute)  
TL Deflection Limit: L/240, 1.00" (absolute)

#### Lateral Restraint Requirements:

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

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

#### Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 7/8"
- 615 psi Wall @ 3'- 10 7/8"

#### Reinforcement Accessories Required

- Critical Load Web Stiffener @ 0'- 4 5/8"



#### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 4 7/8"	1.25D + 1.5L	1.00	1479 lb ft	11160 lb ft	Passed - 13%
Factored Shear:	0'- 1 15/16"	1.25D + 1.5L	1.00	2653 lb	4480 lb	Passed - 59%
Total Load (TL) Pos. Defl.:	1'- 11 3/16"	D + L		0.014"	L/240	Passed - L/999

#### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1'- 14"	1.25D + 1.5L	1.00	2661 lb		3970 lb	5768 lb	Passed - 67%
2	1'- 14"	1.25D + 1.5L	1.00	1119 lb		3970 lb	5768 lb	Passed - 28%

#### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 11 3/4"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'- 1 1/4"	3'- 10 1/2"	FC2 Floor Decking (Plan View Fill)	Top	9 lb/ft	24 lb/ft	-	-
Point	0'- 4 5/8"	0'- 4 5/8"	J1(i34020)	Front	594 lb	819 lb	-	-
Point	1'- 4 7/8"	1'- 4 7/8"	J1(i33416)	Front	141 lb	377 lb	-	-
Point	2'- 8 7/8"	2'- 8 7/8"	J1(i33780)	Front	158 lb	422 lb	-	-

#### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 1 7/8"	W2(i16860)	700 lb	1150 lb	-	-
2	3'- 9 7/8"	3'- 11 3/4"	W4(i16750)	255 lb	575 lb	-	-

#### DESIGN NOTES

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

#### PLY TO PLY CONNECTION

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

SE039730





Customer: **Gold Park**  
Job Address: **Pine Valley**  
City: **Vaughan**  
Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **337558-A-SUNKEN**  
Level: **1st Floor**  
Label: **B26 - i34798**  
Type: **Beam**

**2 Ply Member**

**9 1/2" NI-20**

Status:

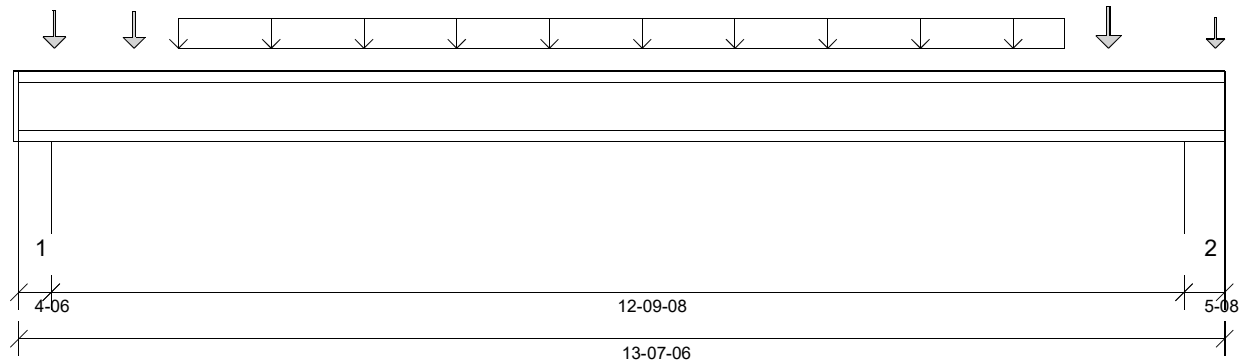
**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in Mitek® Structure version  
8.4.2.2861 Updated 9.13

Report Version: 2020.06.20

10/15/2021 10:32



#### DESIGN INFORMATION

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

#### Lateral Restraint Requirements:

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

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

#### Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3 3/8"
- 615 psi Wall @ 13'- 2 7/8"



#### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 3 5/8"	1.25D + 1.5L	1.00	6549 lb ft	8620 lb ft	Passed - 76%
Factored Neg. Moment:	13'- 2 7/8"	1.25D + 1.5L	1.00	53 lb ft	8620 lb ft	Passed - 1%
Factored Shear:	0'- 4 7/16"	1.25D + 1.5L	1.00	2020 lb	3540 lb	Passed - 57%
Live Load (LL) Pos. Defl.:	6'- 9 1/8"	L		0.371"	L/360	Passed - L/414
Total Load (TL) Pos. Defl.:	6'- 9 1/8"	D + L		0.523"	L/240	Passed - L/293

#### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-06	1.25D + 1.5L	1.00	2152 lb		3540 lb	13457 lb	Passed - 61%
2	5-08	1.25D + 1.5L	1.00	2152 lb		3540 lb	16918 lb	Passed - 61%

#### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	13'- 7 3/8"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	1'- 9 5/8"	11'- 9 5/8"	Smoothed Load	Front	59 lb/ft	156 lb/ft	-	-
Point	0'- 4 13/16"	0'- 4 13/16"	-	Front	54 lb	145 lb	-	-
Point	1'- 3 5/8"	1'- 3 5/8"	J1(i34818)	Front	51 lb	136 lb	-	-
Point	12'- 3 5/8"	12'- 3 5/8"	J1(i34805)	Front	65 lb	173 lb	-	-
Point	13'- 6 1/8"	13'- 6 1/8"	J1(i34799)	Front	37 lb	96 lb	-	-

#### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	8(i34753)	440 lb	1075 lb	-	-
2	13'- 1 7/8"	13'- 7 3/8"	7(i34751)	438 lb	1064 lb	-	-

#### DESIGN NOTES

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

#### PLY TO PLY CONNECTION

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

SE039731



Customer: **Gold Park**  
Job Address: **Pine Valley**  
City: **Vaughan**  
Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **343861-B-OPT2**  
Level: **2nd Floor**  
Label: **B28 - i40422**  
Type: **Beam**

**2 Ply Member**

**11 7/8" NI-20**

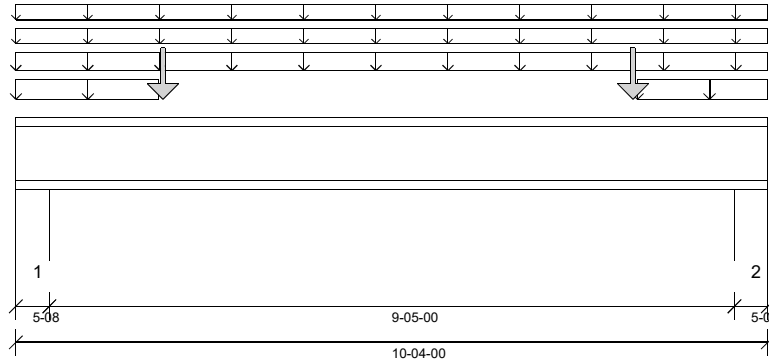
Status:

**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

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

Report Version: 2021.03.26 04/30/2022 10:30



### DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

#### Lateral Restraint Requirements:

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

Top: 0' Bottom: 9'- 10 1/2"

#### Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 4 1/2"
- 615 psi Wall @ 9'- 11 1/2"



### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 1 5/16"	1.25D + 1.5L + S	0.80	3495 lb ft	8965 lb ft	Passed - 39%
Factored Shear:	9'- 10 7/16"	1.25D + 1.5L + S	0.80	1777 lb	3599 lb	Passed - 49%
Live Load (LL) Pos. Defl.:	5'- 1 3/4"	S + 0.5L		0.039"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 1 7/8"	D + S + 0.5L		0.116"	L/240	Passed - L/973

### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L + S	0.80	1949 lb		3599 lb	13590 lb	Passed - 54%
2	5-08	1.25D + 1.5L + S	0.80	1950 lb		3599 lb	13590 lb	Passed - 54%

### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 4"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	-0'	10'- 4"	E35(i16627)	Top	101 lb/ft	-	-	-
Uniform	-0'	10'- 4"	User Load	Top	14 lb/ft	-	21 lb/ft	-
Uniform	-0'	10'- 4"	FC1 Floor Decking (Plan View Fill)	Top	9 lb/ft	24 lb/ft	-	-
Uniform	-0'	1'- 11 1/2"	E35(i16627)	Top	56 lb/ft	-	84 lb/ft	-
Uniform	8'- 6 1/2"	10'- 4"	E35(i16627)	Top	56 lb/ft	-	84 lb/ft	-
Point	2'- 1/4"	2'- 1/4"	E35(i16627)	Top	196 lb	-	276 lb	-
Point	8'- 5 3/4"	8'- 5 3/4"	E35(i16627)	Top	196 lb	-	277 lb	-

### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	E45(i39584)	976 lb	124 lb	540 lb	-
2	9'- 10 1/2"	10'- 4"	E42(i39583)	979 lb	124 lb	545 lb	-

### DESIGN NOTES

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

### PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

SE047003





Customer: **Gold Park**  
Job Address: **Pine Valley**  
City: **Vaughan**  
Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **343861-B-OPT2**  
Level: **2nd Floor**  
Label: **B29 - i40519**  
Type: **Beam**

**1 Ply Member**

**11 7/8" NI-20**

Status:

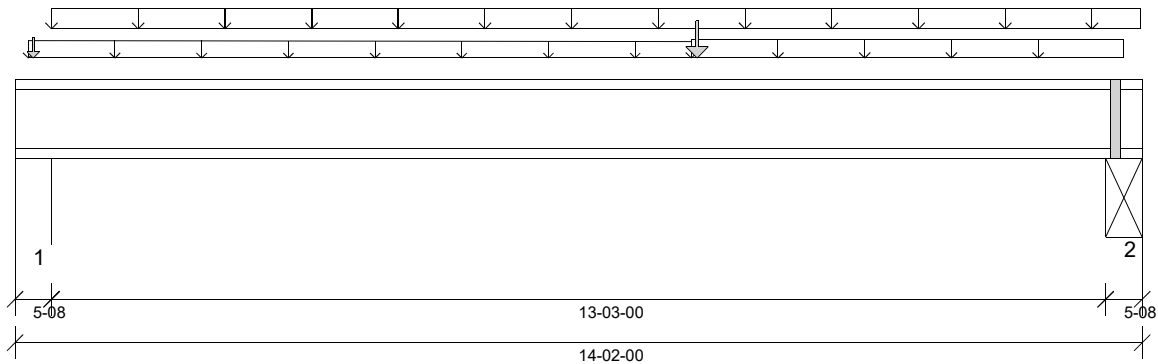
**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

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

Report Version: 2021.03.26

04/30/2022 10:30



#### DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360, 0.75" (absolute)

TL Deflection Limit: L/240, 1.00" (absolute)

#### Lateral Restraint Requirements:

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

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

#### Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 4 1/2"
- 769 psi Beam @ 13'- 9 1/2"



#### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	8'- 6 1/8"	1.25D + 1.5L	0.83	3790 lb ft	4644 lb ft	Passed - 82%
Factored Shear:	13'- 8 7/16"	1.25D + 1.5L	0.83	1124 lb	1864 lb	Passed - 60%
Live Load (LL) Pos. Defl.:	7'- 4 7/16"	L		0.136"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	7'- 2 11/16"	D + L		0.396"	L/240	Passed - L/401
Permanent Deflection:	7'- 1 3/4"			-	L/360	Passed - L/684

#### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L	0.83	1015 lb		1864 lb	7041 lb	Passed - 54%
2	5-08	1.25D + 1.5L	0.83	1182 lb		1864 lb	8801 lb	Passed - 63%

#### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	14'- 2"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'- 5 1/2"	14'- 1 11/16"	User Load	Top	65 lb/ft	10 lb/ft	-	-
Uniform	8'- 6"	13'- 11 1/4"	FC1 Floor Decking (Plan View Fill)	Top	11 lb/ft	29 lb/ft	-	-
Tapered	0'- 2"	8'- 6"	FC1 Floor Decking (Plan View Fill)	Top	6 To 2 lb/ft	15 To 4 lb/ft	-	-
Point	8'- 6 7/8"	8'- 6 7/8"	B8(i40349)	Back	67 lb	151 lb	-	-
Point	0'- 2 3/4"	0'- 2 3/4"	E29(i16632)	Top	42 lb	-	-	-

#### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	E14(i16455)	556 lb	217 lb	-	-
2	13'- 8 1/2"	14'- 2"	STL BM (DRPD.)()	575 lb	306 lb	-	-

#### DESIGN NOTES

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

SE047004



Customer: **Gold Park**  
Job Address: **Pine Valley**  
City: **Vaughan**  
Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **343861-B-OPT2**  
Level: **1st Floor**  
Label: **B30 - i41420**  
Type: **Beam**

**2 Ply Member**

**11 7/8" NI-20**

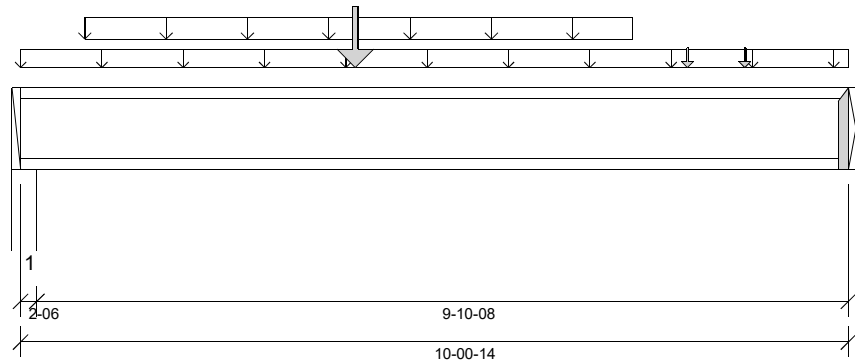
Status:

**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

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

Report Version: 2021.03.26 04/30/2022 11:24



### DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360, 0.75" (absolute)

TL Deflection Limit: L/240, 1.00" (absolute)

#### Lateral Restraint Requirements:

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

Top: 0' Bottom: 1'- 1 7/8"

#### Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 1 3/8"
- 769 psi Beam @ 10'- 7/8"

#### Reinforcement Accessories Required

- Critical Load Web Stiffener @ 4'- 1 1/8"



### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 7/8"	1.25D + 1.5L	1.00	7423 lb ft	11160 lb ft	Passed - 67%
Factored Shear:	0'- 2 7/16"	1.25D + 1.5L	1.00	2260 lb	4480 lb	Passed - 50%
Live Load (LL) Pos. Defl.:	4'- 10 15/16"	L		0.119"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 11 1/4"	D + L		0.209"	L/240	Passed - L/567

### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	1.00	2277 lb		4090 lb	7306 lb	Passed - 56%
2	1-12	1.25D + 1.5L	1.00	1903 lb		3940 lb	-	Passed - 48%

### CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories		
			Top	Face	Member			
2	HU310-2	-	-	-	-	Connector manually specified by the user.		

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

### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 7/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	10'- 7/8"	User Load	Top	60 lb/ft	-	-	-
Uniform	0'- 9 3/8"	7'- 5 3/8"	Smoothed Load	Back	33 lb/ft	89 lb/ft	-	-
Point	8'- 1 3/8"	8'- 1 3/8"	J10(i41736)	Back	34 lb	90 lb	-	-
Point	8'- 9 3/4"	8'- 9 3/4"	J10(i41845)	Back	34 lb	90 lb	-	-
Point	4'- 7/8"	4'- 7/8"	PBO3(i16361)	Top	450 lb	850 lb	-	-

### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	W16(i16872)	747 lb	891 lb	-	-
2	10'- 7/8"	10'- 7/8"	B14(i41414)	653 lb	729 lb	-	-

### DESIGN NOTES

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

### PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

SE047005



Customer: **Gold Park**  
Job Address: **Pine Valley**  
City: **Vaughan**  
Job Track: **45147-UNIT 4204 (290680) 3375...**

Job Name: **343861-C**  
Level: **2nd Floor**  
Label: **B31 - i38367**  
Type: **Beam**

**2 Ply Member**

**11 7/8" NI-20**

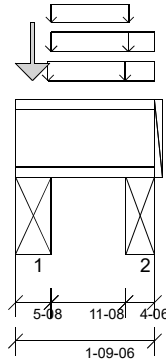
Status:

**Design  
Passed**

Illustration Not to Scale. Pitch: 0/12

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

Report Version: 2021.03.26 04/30/2022 13:16



### DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360, 0.75" (absolute)

TL Deflection Limit: L/240, 1.00" (absolute)

#### Lateral Restraint Requirements:

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

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

#### Factored Resistance of Support Material:

- 769 psi Beam @ 0'- 4 1/2"
- 769 psi Beam @ 1'- 6"



### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 1"	0.9D + 1.5L	0.80	8 lb ft	8977 lb ft	Passed - 0%
Factored Neg. Moment:	0'- 4 1/2"	1.25D + 1.5S	0.96	338 lb ft	10729 lb ft	Passed - 3%
Factored Shear:	0'- 5 9/16"	1.25D + 1.5L + S	0.96	856 lb	4292 lb	Passed - 20%

### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5'-08"	1.25D + 1.5S + L	1.00	1991 lb		4480 lb	21148 lb	Passed - 44%
2	4'-06"	1.25D + 1.5L	0.80	116 lb		3604 lb	13531 lb	Passed - 3%
2	4'-06"	0.9D + 1.5S	0.96		-2 lb	-	-	

### SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	1'- 9 3/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'- 5"	1'- 9 3/8"	E37(i16617)	Top	101 lb/ft	-	-	-
Uniform	0'- 5 1/2"	1'- 9 3/8"	FC1 Floor Decking (Plan View Fill)	Top	23 lb/ft	8 lb/ft	77 lb/ft	-
Uniform	0'- 5 1/2"	1'- 5 1/2"	E37(i16617)	Top	28 lb/ft	-	42 lb/ft	-
Point	0'- 2 5/8"	0'- 2 5/8"	-	Back	495 lb	272 lb	444 lb	-

### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	STL BM (DRPD.)()	693 lb	278 lb	632 lb	-
2	1'- 5"	1'- 9 3/8"	STL BM (DRPD.)()	9 lb	8 lb	-44 lb	-

### DESIGN NOTES

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

### PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

SE047006

## Maximum Floor Spans – M3.1, L/360

### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/360 under live load and L/240 under total load
Sheathing:	23/32 in. nailed-glued oriented strand board (OSB) sheathing



### Maximum Floor Spans

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

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	17'-1"	15'-5"	14'-6"	13'-5"	17'-1"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-6"	17'-5"	16'-7"	14'-11"	19'-0"	17'-8"	16'-7"	14'-11"
	NI-60	18'-9"	17'-7"	16'-10"	15'-7"	19'-2"	17'-11"	16'-10"	15'-7"
	NI-80	20'-0"	18'-7"	17'-10"	17'-1"	20'-6"	19'-1"	18'-2"	17'-5"
11-7/8"	NI-20	20'-1"	18'-8"	17'-6"	16'-1"	20'-7"	18'-8"	17'-6"	16'-1"
	NI-40x	21'-8"	20'-2"	19'-0"	17'-0"	22'-3"	20'-9"	19'-0"	17'-0"
	NI-60	21'-11"	20'-5"	19'-6"	18'-6"	22'-6"	21'-0"	20'-1"	18'-8"
	NI-80	23'-5"	21'-9"	20'-9"	19'-8"	23'-11"	22'-3"	21'-3"	20'-2"
	NI-90	23'-11"	22'-2"	21'-1"	20'-0"	24'-4"	22'-8"	21'-8"	20'-6"
14"	NI-40x	24'-3"	22'-7"	20'-11"	18'-8"	24'-11"	22'-11"	20'-11"	18'-8"
	NI-60	24'-8"	22'-11"	21'-10"	20'-8"	25'-3"	23'-7"	22'-7"	21'-4"
	NI-80	26'-3"	24'-5"	23'-3"	22'-0"	26'-10"	25'-0"	23'-10"	22'-7"
	NI-90	26'-9"	24'-10"	23'-8"	22'-5"	27'-4"	25'-5"	24'-3"	22'-11"
16"	NI-60	27'-1"	25'-2"	24'-0"	22'-9"	27'-9"	26'-0"	24'-10"	23'-1"
	NI-80	28'-10"	26'-10"	25'-6"	24'-2"	29'-6"	27'-6"	26'-3"	24'-10"
	NI-90	29'-5"	27'-3"	26'-0"	24'-6"	30'-0"	27'-11"	26'-8"	25'-2"

### Notes:

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

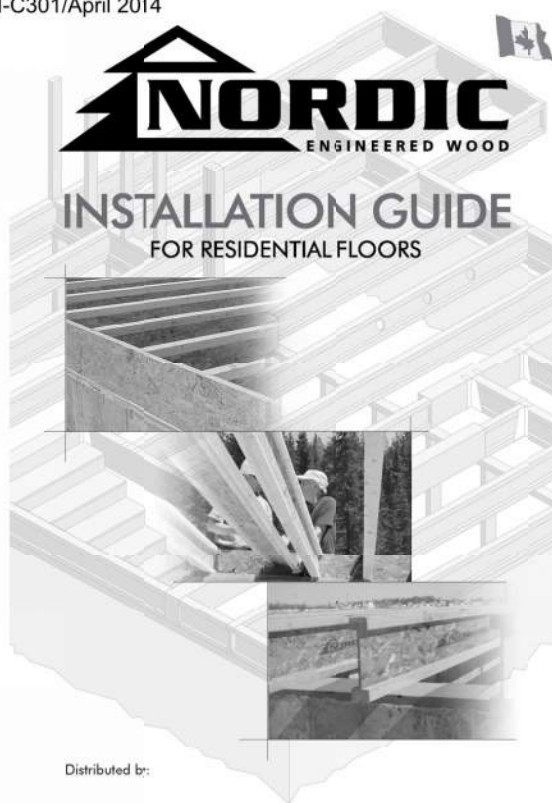


The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.



Distributed by:



## SAFETY AND CONSTRUCTION PRECAUTIONS

### WARNING

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

### Avoid Accidents by Following these Important Guidelines:



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



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

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-briding 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 flange 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 1 foot 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 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-briding.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

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

## STORAGE AND HANDLING GUIDELINES

1. Bundle wrap on the shipping end. Avoid cutting unbraced 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 CRUTY TO REPAIR A DAMAGED I-JOIST.

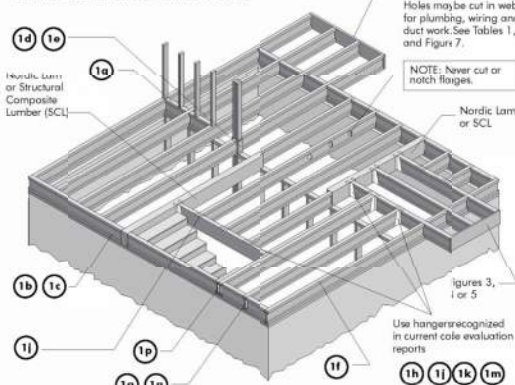


## INSTALLING NORDIC I-JOISTS

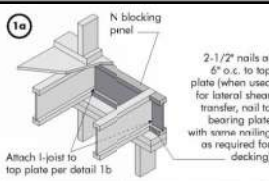
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists 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 load 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 squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge **must 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, support 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: Spacing 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

Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.

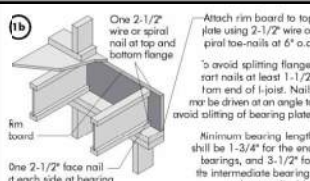


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted or 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



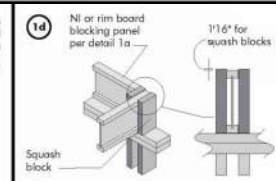
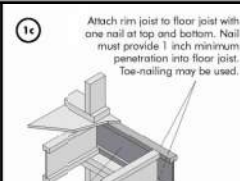
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
Ni Joists	3,300

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



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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



Pair of Squash Blocks	Maximum Factored Uniform Vertical Load* (plf)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,300

Provide lateral bracing per detail 1a, 1b or 1c.

The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

## MAXIMUM FLOOR SPANS

- 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.
- 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.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA C86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm  
1 foot = 0.305 m

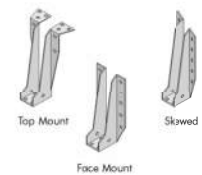
## MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	Ni-20	15-1"	14-2"	13-5"	13-5"	16-3"	15-4"	14-10"	14-7"
	Ni-40	14-1"	13-2"	12-5"	12-5"	15-6"	14-6"	13-10"	13-5"
	Ni-60	16-3"	15-4"	14-10"	14-11"	17-7"	16-7"	16-0"	16-6"
	Ni-70	17-1"	16-1"	15-6"	15-7"	18-7"	17-4"	16-9"	17-2"
11-7/8"	Ni-20	17-3"	16-3"	15-8"	15-9"	18-10"	17-6"	16-11"	17-5"
	Ni-40x	16-11"	15-0"	13-5"	13-6"	18-4"	17-3"	16-8"	16-7"
	Ni-60	18-11"	17-0"	16-5"	16-6"	20-0"	18-6"	17-9"	17-7"
	Ni-70	19-4"	18-0"	17-4"	17-5"	21-6"	19-11"	19-0"	19-8"
14"	Ni-20	19-9"	18-3"	17-6"	17-7"	21-9"	20-2"	19-3"	19-11"
	Ni-40	20-2"	18-7"	17-10"	17-11"	22-3"	20-7"	19-8"	19-9"
	Ni-60x	20-4"	18-9"	17-11"	17-12"	22-5"	20-8"	19-10"	20-4"
	Ni-70	20-5"	19-11"	18-1"	18-2"	22-7"	20-11"	20-0"	20-10"
16"	Ni-20	21-7"	20-0"	19-1"	19-2"	23-10"	22-1"	21-1"	21-10"
	Ni-40	21-11"	20-3"	19-4"	19-5"	24-3"	22-5"	21-5"	22-2"
	Ni-60	22-5"	20-8"	19-9"	19-9"	24-9"	22-10"	21-10"	21-10"
	Ni-70x	22-7"	21-11"	19-11"	20-0"	25-0"	23-1"	22-0"	22-9"
18"	Ni-20	22-9"	21-2"	20-2"	20-3"	25-2"	23-2"	22-1"	22-9"
	Ni-40	23-6"	21-9"	20-9"	20-10"	26-0"	24-0"	22-11"	23-9"
	Ni-60	23-11"	22-1"	21-1"	21-2"	26-5"	24-5"	23-3"	24-1"
	Ni-70	24-5"	22-6"	21-5"	21-6"	26-11"	24-10"	23-9"	23-9"
20"	Ni-20x	24-8"	22-9"	21-9"	21-10"	27-3"	25-2"	24-0"	24-10"
	Ni-40x								

CCAC EVALUATION REPORT 13032-R

## I-JOIST HANGERS

- Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- All nailing must meet the hanger manufacturer's recommendations.
- Hangers should be selected based on the joist depth, flange width, and load capacity based on the maximum spans.
- Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.



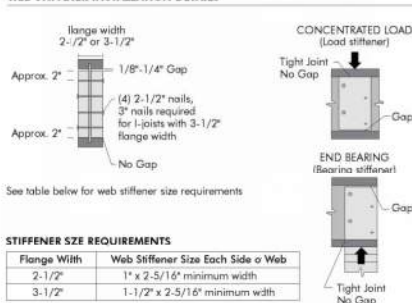
## WEB STIFFENER

### RECOMMENDATIONS:

- A **bearing stiffener** is required in all engineered applications with factored reactions greater than those 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 hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and the 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 4 WEB STIFFENER INSTALLATION DETAILS



### 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

## NORDIC I-JOIST SERIES

Ni-20	Ni-40x	Ni-60	Ni-70	Ni-80	Ni-90	Ni-90x
5'-8" No. 2	1950L MSR	2100L MSR	1950L MSR	2100L MSR	2400L MSR	NFC Lumber
33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	2 pieces per unit

Chantiers Chibougamau 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 forest 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.

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

**11** Use single I-joist for load up to 3,300 plf, double I-joists for loads up to 1,600 plf (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.

Provide backer for siding attachment unless nailable sheathing is used.

Wall sheathing, as required.

Rim board may be used in lieu of I-joists. Backer is not required when rim board is used. Tracing per code shall be carried to the foundation.

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

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

Joist attachment per detail 1b.

2-1/2" nails at 6" o.c. top plate.

Ni blocking panel per detail 1a.

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

Double I-joist header.

Top- or face-mount hanger.

Filler block per detail 1p.

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

Backer block required (both sides for face-mount hangers).

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

**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-PF No. 2 or better for solid saw lumber and wood structural panels conforming to CAN/CSA-O337 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".

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

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

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

**15** 2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

Top-mount hanger installed per manufacturer's recommendations.

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

**16** Multiple I-joist reader with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

Filler block per detail 1p.

Install hanger per manufacturer's recommendations.

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

Maximum support capacity = 1,620 lbs.

**17** Do not level-cut joist beyond inside face of wall.

Attach I-joist per detail 1b.

Note: Blocking required at bearing for lateral resistance to rot forces for clarity.

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

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

**19** One 2-1/2" nails at top and bottom flange. Two 2-1/2" nails from each web to lumber piece. 2x4 min. (1/8" gap minimum).

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

I-joist blocking panel.

One 2-1/2" nails one side only.

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

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

All nails are common spiral in this detail.

**20** Notes:

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

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

Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	21/8" x 6"
	11-7/8"	21/8" x 8"
	14"	21/8" x 10"
	16"	21/8" x 12"
2-1/2" x 1-1/2"	9-1/2"	3" x 6"
	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"





The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

## WEB HOLES

### RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the edges of the hole or duct chase opening and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a continuous 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.)														Span adjustment Factor
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	
9-1/2"	N120	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N140	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N160	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N180	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
11-7/8"	N120	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N140	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N160	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N180	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
14"	N120	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N140	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N160	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N180	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
16"	N120	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N140	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N160	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"
	N180	0-7"	1-0"	1-10"	1-4"	1-6"	1-7"	1-8"	1-9"	1-10"	1-11"	1-12"	1-13"	1-14"	1-15"	1-16"

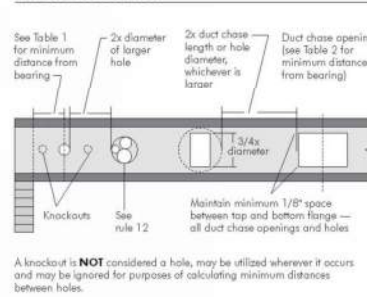
- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.

### OPTIONAL:

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

- Where:
- $D_{reduced} = D \times \frac{S_{actual}}{S_{max}}$  = Distance from the inside face of any support to centre of hole, reduced for less than maximum span applications [8]. The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.
  - $S_{actual}$  = The actual measured span distance between the inside faces of supports [8].
  - $S_{max}$  = Span Adjustment Factor given in this table.
  - $D$  = The minimum distance from the inside face of any support to centre of hole from this table.
- If  $\frac{S_{actual}}{S_{max}}$  is greater than 1, use 1 in the above calculation for  $\frac{S_{actual}}{S_{max}}$ .

FIGURE 7  
FIELD-CUT HOLE LOCATOR



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

**Never** drill, cut or notch the flange, or over-cut the web. Holes in webs should be cut with a sharp saw.

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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft.-in.)													
		8	10	12	14	16	18	20	22	24	26	28	30	32	34
9-1/2"	N120	4-1"	4-5"	4-10"	4-5"	5-0"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"
	N140	5-0"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"
	N160	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"
	N180	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"
11-7/8"	N120	4-1"	4-5"	4-10"	4-5"	5-0"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"
	N140	5-0"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"
	N160	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"
	N180	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"
14"	N120	4-1"	4-5"	4-10"	4-5"	5-0"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"
	N140	5-0"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"
	N160	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"
	N180	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"
16"	N120	4-1"	4-5"	4-10"	4-5"	5-0"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"
	N140	5-0"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"
	N160	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"
	N180	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"

- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Duct chase opening location distance is measured from inside face of supports to centre of opening.
- The above table is based on simple-span joist 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. For other applications, contact your local distributor.

## INSTALLING THE GLUED FLOOR SYSTEM

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

### FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Nail Size and Type			Maximum Spacing of Fasteners	
		Common Wire or Spiral Nails	Ring Thread Nails or Screws	Staples	Edges	Interiors
16	5/8	2"	1-3/4"	2"	6"	12"
20	5/8	2"	1-3/4"	2"	6"	12"
24	3/4	2"	1-3/4"	2"	6"	12"

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

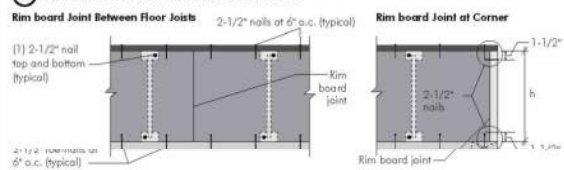
Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

### IMPORTANT NOTE:

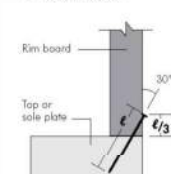
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

## RIM BOARD INSTALLATION DETAILS

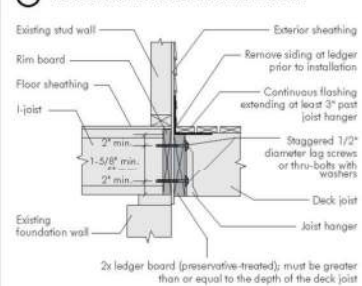
### 80 ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



### 86 TOE-NAIL CONNECTION AT RIM BOARD



### 86 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



### PRODUCT WARRANTY

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

Furthermore, Chertex Chivoguard 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.





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

### WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for 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"	5-3"	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"	7-3"	7-5"	---	---	---	---	---	---	---	---
	NI-80	2-0"	3-4"	4-8"	6-2"	8-1"	8-4"	---	---	---	---	---	---	---	---
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-3"	4-0"	5-0"	6-6"	7-9"	---	---	---	---	---
	NI-40x	0-7"	0-8"	1-3"	2-8"	4-3"	4-4"	5-5"	7-0"	8-4"	---	---	---	---	---
	NI-60	0-7"	1-8"	3-0"	4-3"	5-2"	6-0"	7-3"	8-10"	10-0"	---	---	---	---	---
	NI-70	1-3"	2-6"	4-0"	5-4"	6-2"	7-2"	8-4"	10-0"	11-2"	---	---	---	---	---
14"	NI-80	1-6"	2-10"	4-2"	5-6"	7-3"	7-5"	8-6"	10-3"	11-4"	---	---	---	---	---
	NI-90	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---	---	---	---
	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"	---	---
16"	NI-70	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"	13-5"	---	---
	NI-80	0-10"	2-0"	3-4"	4-9"	6-2"	6-5"	7-6"	9-0"	10-0"	10-8"	12-4"	13-9"	---	---
	NI-90	0-7"	0-8"	0-8"	2-0"	3-2"	4-2"	5-5"	7-3"	8-5"	9-2"	---	---	---	---
	NI-60	0-7"	0-8"	0-8"	1-6"	2-10"	3-2"	4-2"	5-6"	6-4"	7-0"	8-5"	9-8"	10-2"	12-2"
18"	NI-70	0-7"	1-0"	2-3	3-6	4-10	3-3	6-3	7-8	8-6	9-2	10-8	12-0	12-4	14-0
	NI-80	0-7"	1-3"	2-6"	3-10"	5-3"	5-6"	6-6"	8-0"	9-0"	9-8"	11-0"	12-3"	12-9"	14-5"
	NI-90	0-7"	0-8"	0-9"	2-0"	3-5"	4-0"	5-0"	6-9"	7-9"	8-4"	10-2"	11-6"	12-0"	---
	NI-60	0-7"	0-8"	0-8"	1-6"	2-10"	3-2"	4-2"	5-6"	6-4"	7-0"	8-5"	9-8"	10-2"	12-2"

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

TABLE 2

### DUCT CHASE OPENING SIZES AND LOCATIONS

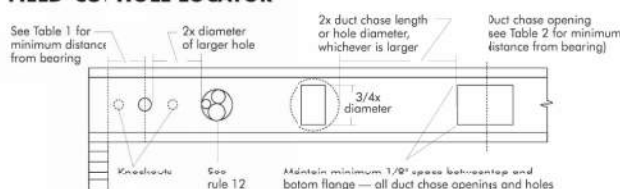
Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft - in.)													
		Duct Chase Length (in.)													
		8	10	12	14	16	18	20	22	24	26	28	30	32	34
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-80	6-1"	6-6"	6-10"	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"	---	---	---	---	---
14"	NI-80	7-2"	7-7"	8-0"	8-5"	8-10"	9-4"	9-8"	10-2"	10-8"	---	---	---	---	---
	NI-90	7-7"	8-1"	8-5"	8-10"	9-4"	9-8"	10-2"	10-8"	11-2"	---	---	---	---	---
	NI-40x	8-1"	8-7"	9-0"	9-6"	10-1"	10-7"	11-2"	12-0"	12-8"	---	---	---	---	---
	NI-60	8-9"	9-3"	9-8"	10-1"	10-6"	11-1"	11-6"	12-3"	13-0"	---	---	---	---	---
16"	NI-70	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-3"	---	---	---	---	---
	NI-80	9-0"	9-3"	9-9"	10-1"	10-7"	11-1"	11-6"	12-1"	12-6"	---	---	---	---	---
	NI-90	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"	---	---	---	---	---
18"	NI-70	10-1"	10-5"	11-0"	11-4"	11-10"	12-3"	12-8"	13-2"	14-0"	---	---	---	---	---
	NI-80	10-4"	10-9"	11-3"	11-9"	12-1"	12-7"	13-1"	13-6"	14-4"	---	---	---	---	---
	NI-90	11-1"	11-5"	11-10"	12-4"	12-10"	13-2"	13-9"	14-4"	15-2"	---	---	---	---	---
	NI-60	11-1"	11-5"	11-10"	12-4"	12-10"	13-2"	13-9"	14-4"	15-2"	---	---	---	---	---

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

FIGURE 7

### FIELD-CUT HOLE LOCATOR



Knockouts are 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-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

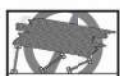
Holes in webs should be cut with a sharp saw.

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

### SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

#### AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-briding at joist ends. When I-joists are installed 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, when called out, 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-briding.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

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

The construction details for residential designs are prone to changes.

Details released after September 2013 supersedes N-303

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.





**1a** NI blocking panel

Attach I-joist to top plate per detail 1b

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

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
N Joists	3,300

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

**1b** Rim board

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

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

\*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based 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" wire or spiral nail at top and bottom flange

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

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

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

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

Squash block

Pair of Squash Blocks

Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)
2x Lumber	5,500
1-1/8" Kim Board Plus	4,300

3-1/2" wide  
5-1/2" wide

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

2-1/2" nails at 6" o.c. to top plate

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-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

Backer block required (both sides for face-mount hangers)

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

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

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

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

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

Attach I-joist per detail 1b

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

**1r** Lumber 2x4 min., extend blocks 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 incl 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

Offset nails from opposite face by 6"

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

NOTES:

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

I-joist blocking panel

One 2-1/2" nail one side only

NOTES:

- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking
- All nails are common spiral in this detail

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" 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-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A **bearing stiffener** is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A **load stiffener** is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2

## WEB STIFFENER INSTALLATION DETAILS

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

Approx. 2"

1/8" - 1/4" Gap

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

No Gap

CONCENTRATED LOAD (Load stiffener)

Tight Joint No Gap

Gap

END BEARING (Bearing stiffener)

Gap

Tight Joint No Gap

**STIFFENER SIZE REQUIREMENTS**

Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/8" 6" minimum width
3-1/2"	1-1/2" x 2-1/8" 6" minimum width

See the adjacent table for web stiffener size requirements

## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

### Method 1 — SHEATHING REINFORCEMENT ONE SIDE

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

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

Attach I-joist to plate per detail 1b

2-1/2" nails

3-1/2" min. bearing required

### Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

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

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

## RIM BOARD INSTALLATION DETAILS

### 8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

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

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

Rim board joint

Rim Board Joint at Corner

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

1-1/2"

2-1/2" nails

h

1-1/2"

### 8b TOE-NAIL CONNECTION AT RIMBOARD

Rim board

Top or sole plate

30°

1/3

The construction details for residential designs are prone to changes.

Details released after September 2013 supersedes N-303

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

