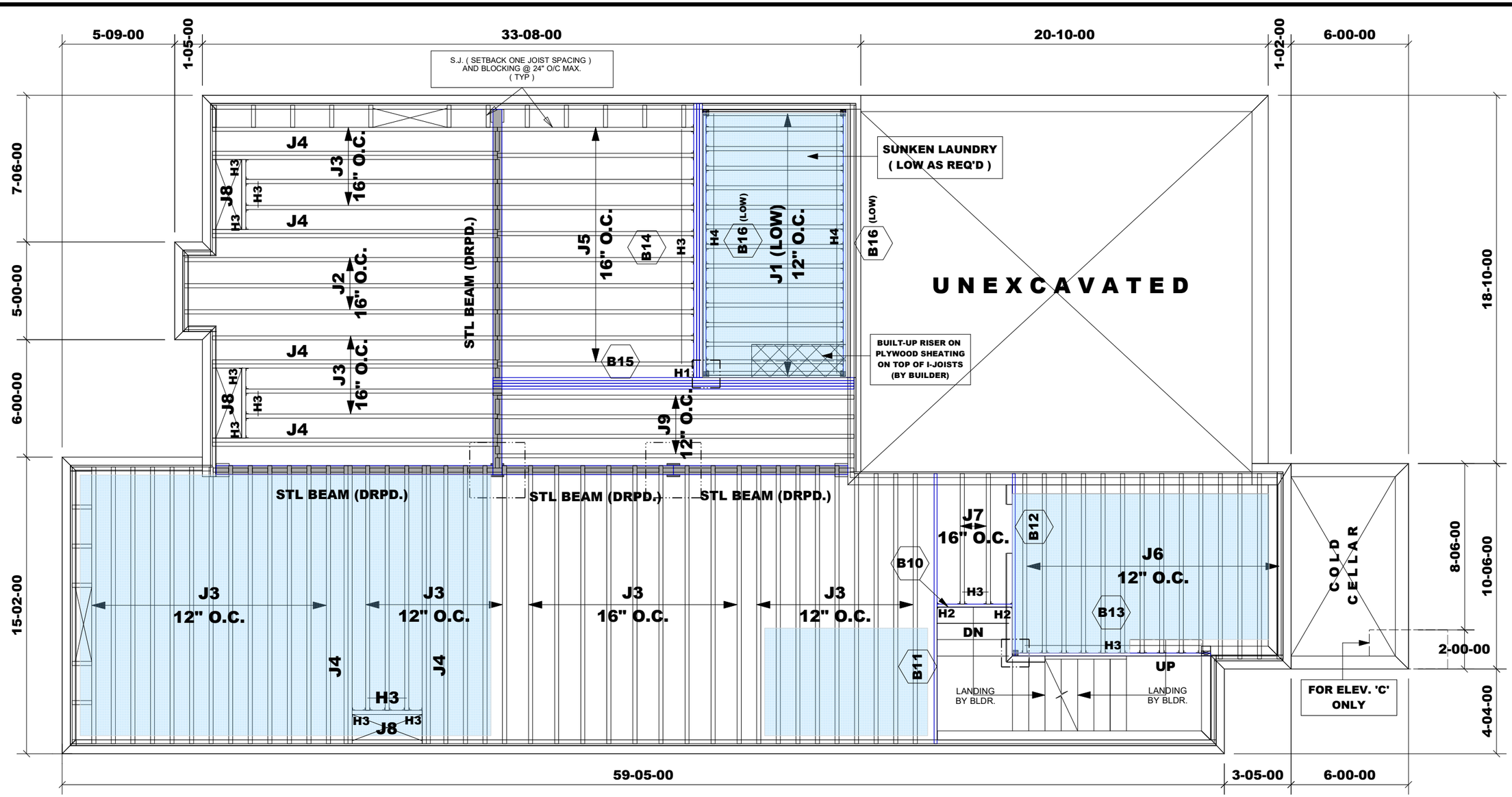


FIRST FLOOR FRAMING

UNIT : 4205 (BROADVIEW) ELEV. " A, B & C "

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND

CERAMIC TILES

Products				
PlotID	Length	Product	Plies	Net Qty
B10	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B15	19-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	4	4
B16	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	2
J1	8-00-00	9 1/2" NI-20	1	15
J2	16-00-00	11 7/8" NI-20	1	3
J3	15-00-00	11 7/8" NI-20	1	44
J4	15-00-00	11 7/8" NI-20	2	12
J5	11-00-00	11 7/8" NI-20	1	10
J6	10-00-00	11 7/8" NI-20	1	14
J7	7-00-00	11 7/8" NI-20	1	2
J8	4-00-00	11 7/8" NI-20	1	3
J9	19-00-00	11 7/8" NI-40x	1	4
xBk1	60-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 9 1/2" Rim Board	1	2
xCa2	12-00-00	1 1/8" x 11 7/8" Rim Board	1	16

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

Squash blocks are required under concentrated load.

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

SUBFLOOR - 3/4" NAILED & GLUED *

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

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS5.50/10
H2	2		HUS1.81/10
H3	35		LT251188
H4	30		LT259

SE020574 - SE020594

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

ALPA ROOF TRUSSES INC.

Gold Park

4205 (Broadview)

Pine Valley

LOCATION:
Vaughan

DESIGNER : FC

REVISIONS:

1	20210121
2	#2
3	#3
4	#4

LEGEND:

BBO	Beam By Others
APP	As Per Plan
PL(G)	Point Load from Girder
PL(W)	Point Load from Lintel
S.B.	Solid Bearing

DESIGN INFO:

JT/PL:
45147/106927

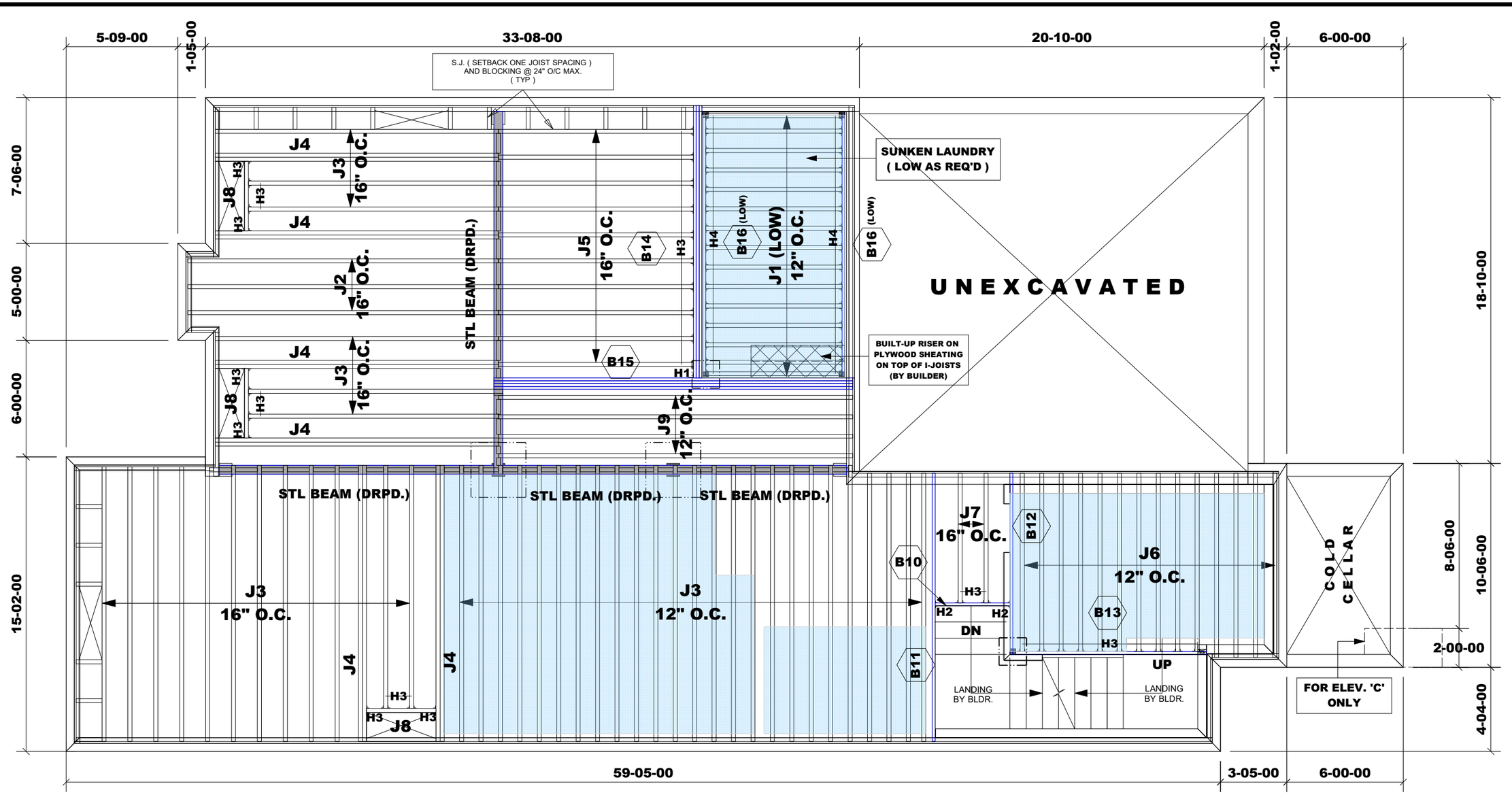
Layout ID:
(321527)328366

LOADING

Live:	40.0 lb/ft²
Dead:	20.0 lb/ft²

DEFLECTION CRITERIA

Live:	360.000
Total	240.000



FIRST FLOOR FRAMING

UNIT : 4205 (BROADVIEW) ELEV. " A, B & C " (OPTION)

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND

CERAMIC TILES

Products				
PlotID	Length	Product	Plies	Net Qty
B10	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B15	19-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	4	4
B16	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	2
J1	8-00-00	9 1/2" NI-20	1	15
J2	16-00-00	11 7/8" NI-20	1	3
J3	15-00-00	11 7/8" NI-20	1	43
J4	15-00-00	11 7/8" NI-20	2	12
J5	11-00-00	11 7/8" NI-20	1	10
J6	10-00-00	11 7/8" NI-20	1	14
J7	7-00-00	11 7/8" NI-20	1	2
J8	4-00-00	11 7/8" NI-20	1	3
J9	19-00-00	11 7/8" NI-40x	1	4
xBk1	62-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 9 1/2" Rim Board	1	2
xCa2	12-00-00	1 1/8" x 11 7/8" Rim Board	1	16

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

Squash blocks are required under concentrated load.

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

SUBFLOOR - 3/4" NAILED & GLUED *

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

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS5.50/10
H2	2		HUS1.81/10
H3	34		LT251188
H4	30		LT259

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

ALPA ROOF TRUSSES INC.

Gold Park

4205 (Broadview)

Pine Valley

LOCATION:
Vaughan

DESIGNER : FC

REVISIONS:

1	20210121
2	#2
3	#3
4	#4

LEGEND:

BBO	Beam By Others
APP	As Per Plan
PL(G)	Point Load from Girder
PL(W)	Point Load from Lintel
S.B.	Solid Bearing

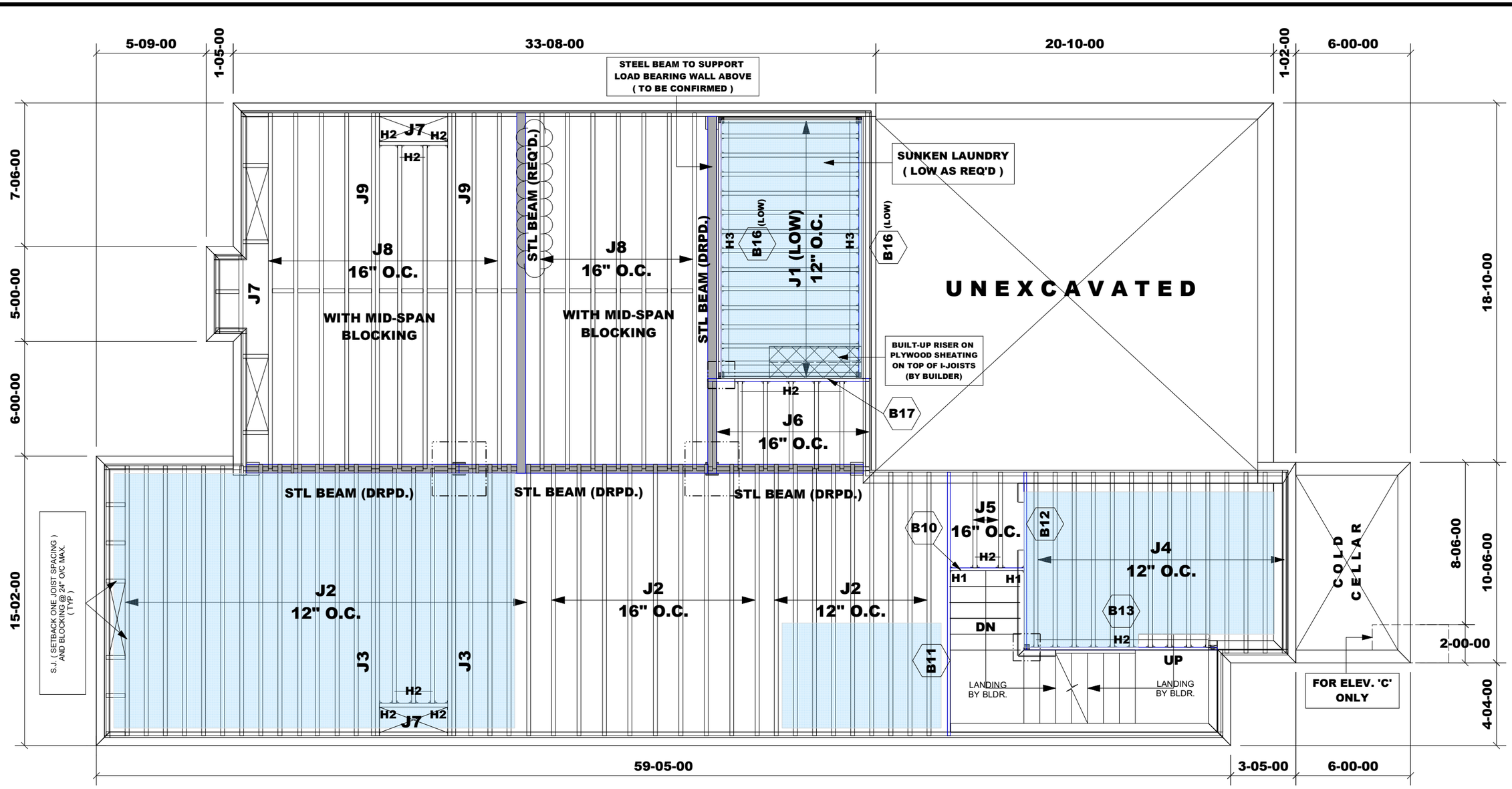
DESIGN INFO:

JT/PL:
45147/106927
Layout ID:
(321527)328366

LOADING

Live:	40.0 lb/ft²
Dead:	20.0 lb/ft²

DEFLECTION CRITERIA	
Live:	360.000
Total	240.000



FIRST FLOOR FRAMING

UNIT : 4205 (BROADVIEW)
ELEV. " A, B & C "
OPT. 9' BASEMENT

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND

CERAMIC TILES

Products				
PlotID	Length	Product	Plies	Net Qty
B10	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	2
B17	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	8-00-00	9 1/2" NI-20	1	15
J2	15-00-00	11 7/8" NI-20	1	38
J3	14-00-00	11 7/8" NI-20	2	4
J4	10-00-00	11 7/8" NI-20	1	14
J5	6-00-00	11 7/8" NI-20	1	2
J6	5-00-00	11 7/8" NI-20	1	7
J7	4-00-00	11 7/8" NI-20	1	3
J8	19-00-00	11 7/8" NI-40x	1	15
J9	19-00-00	11 7/8" NI-40x	2	4
xBk1	57-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 9 1/2" Rim Board	1	2
xCa2	12-00-00	1 1/8" x 11 7/8" Rim Board	1	17

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

Squash blocks are required under concentrated load.

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

SUBFLOOR - 3/4" NAILED & GLUED *

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

Connector Summary			
PlotID	Qty	Manuf	Product
H1	2		HUS1.81/10
H2	26		LT251188
H3	30		LT259

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

ALPA ROOF TRUSSES INC.

Gold Park

4205 (Broadview)

Pine Valley

LOCATION:
Vaughan

DESIGNER : FC

REVISIONS:

1	20210121
2	#2
3	#3
4	#4

LEGEND:

BBO	Beam By Others
APP	As Per Plan
PL(G)	Point Load from Girder
PL(W)	Point Load from Lintel
S.B.	Solid Bearing

DESIGN INFO:

JT/PL:

45147/106927

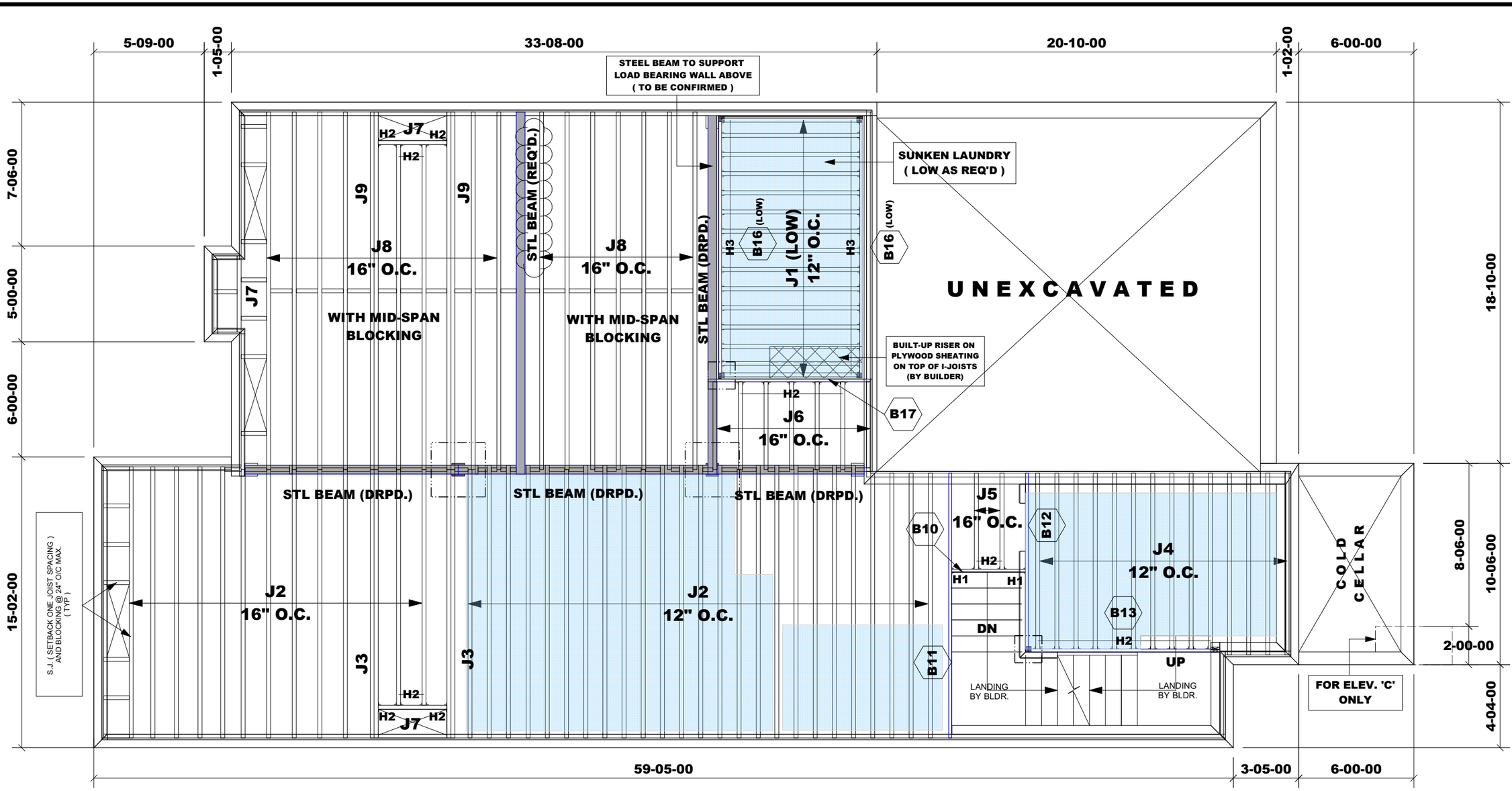
Layout ID:

(321527)328366

LOADING

Live:	40.0 lb/ft²
Dead:	20.0 lb/ft²

DEFLECTION CRITERIA	
Live:	360.000
Total	240.000



FIRST FLOOR FRAMING

UNIT : 4205 (BROADVIEW)
ELEV. " A, B & C " (OPTION)
OPT. 9' BASEMENT

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND	
	CERAMIC TILES

Products

PlotID	Length	Product	Plies	Net Qty
B10	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	2
B17	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	8-00-00	9 1/2" NI-20	1	15
J2	15-00-00	11 7/8" NI-20	1	37
J3	14-00-00	11 7/8" NI-20	2	4
J4	10-00-00	11 7/8" NI-20	1	14
J5	6-00-00	11 7/8" NI-20	1	2
J6	5-00-00	11 7/8" NI-20	1	7
J7	4-00-00	11 7/8" NI-20	1	3
J8	19-00-00	11 7/8" NI-40x	1	15
J9	19-00-00	11 7/8" NI-40x	2	4
xBk1	65-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 9 1/2" Rim Board	1	2
xCa2	12-00-00	1 1/8" x 11 7/8" Rim Board	1	17

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

Squash blocks are required under concentrated load.

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

SUBFLOOR - 3/4" NAILED & GLUED *

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

Connector Summary

PlotID	Qty	Manuf	Product
H1	2		HUS1.81/10
H2	25		LT251188
H3	30		LT259

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

ALPA ROOF TRUSSES INC.

Gold Park

4205 (Broadview)

Pine Valley

LOCATION:
Vaughan

DESIGNER : FC

REVISIONS:

1	20210121
2	#2
3	#3
4	#4

LEGEND:

BBO	Beam By Others
APP	As Per Plan
PL(G)	Point Load from Girder
PL(W)	Point Load from Lintel
S.B.	Solid Bearing

DESIGN INFO:

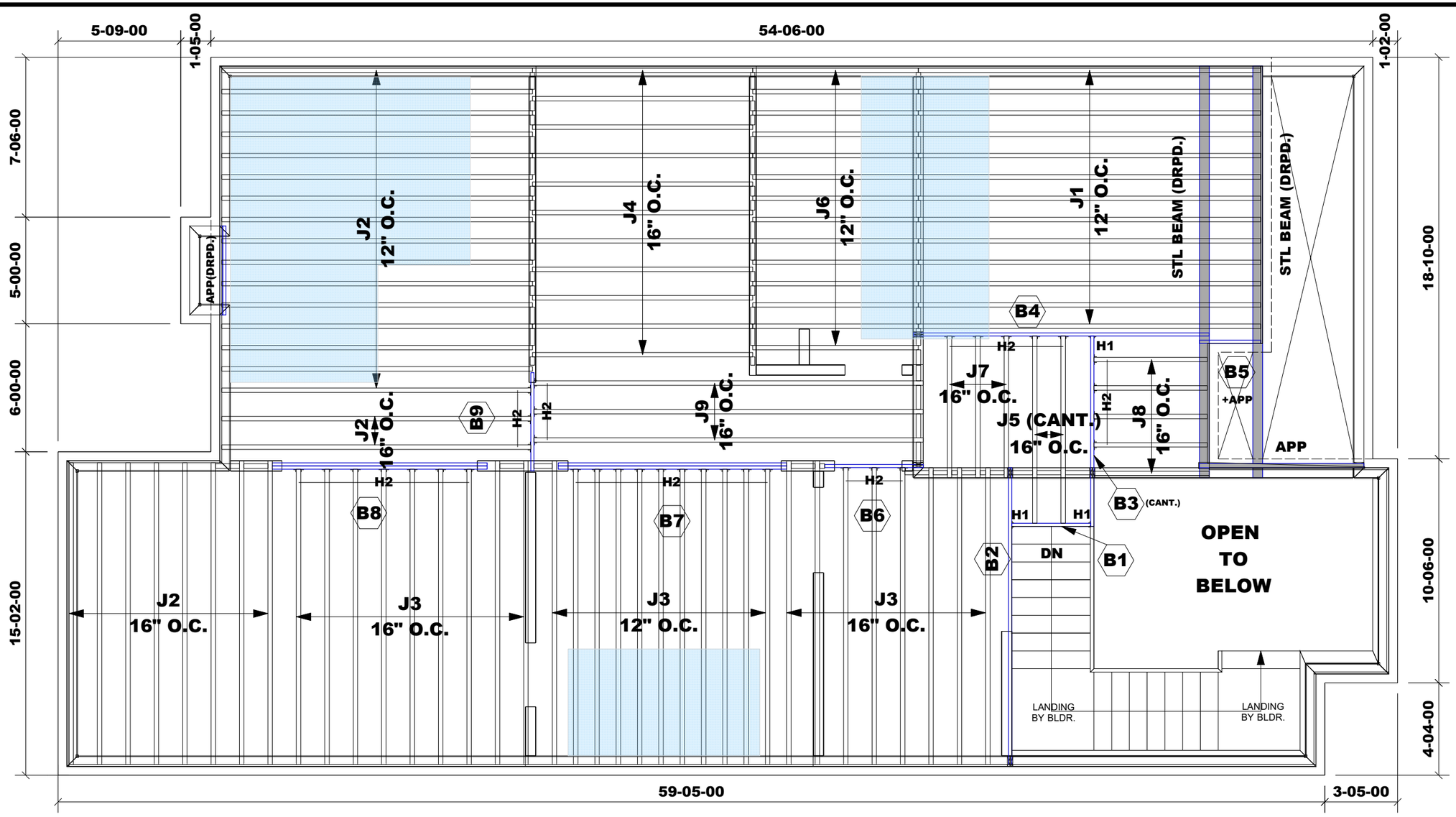
JT/PL:
45147/106927
Layout ID:
(321527)328366

LOADING

Live:	40.0 lb/ft²
Dead:	20.0 lb/ft²

DEFLECTION CRITERIA

Live:	360.000
Total	240.000



SECOND FLOOR FRAMING

UNIT : 4205 (BROADVIEW) ELEV. " A "

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND	
	CERAMIC TILES

Products				
PlotID	Length	Product	Plies	Net Qty
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	3-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	17-00-00	11 7/8" NI-20	1	13
J2	15-00-00	11 7/8" NI-20	1	26
J3	14-00-00	11 7/8" NI-20	1	28
J4	11-00-00	11 7/8" NI-20	1	11
J5	9-00-00	11 7/8" NI-20	1	2
J6	8-00-00	11 7/8" NI-20	1	14
J7	7-00-00	11 7/8" NI-20	1	3
J8	6-00-00	11 7/8" NI-20	1	5
J9	19-00-00	11 7/8" NI-40x	1	3
xBk1	45-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 11 7/8" Rim Board	1	17

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

Squash blocks are required under concentrated load.

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

SUBFLOOR - 3/4" NAILED & GLUED *

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

Connector Summary			
PlotID	Qty	Manuf	Product
H1	3		HUS1.81/10
H2	35		LT251188

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

ALPA ROOF TRUSSES INC.

Gold Park

4205 (Broadview)

Pine Valley

LOCATION:
Vaughan

DESIGNER : FC

REVISIONS:

1	20210121
2	#2
3	#3
4	#4

LEGEND:

BBO	Beam By Others
APP	As Per Plan
PL(G)	Point Load from Girder
PL(W)	Point Load from Lintel
S.B.	Solid Bearing

DESIGN INFO:

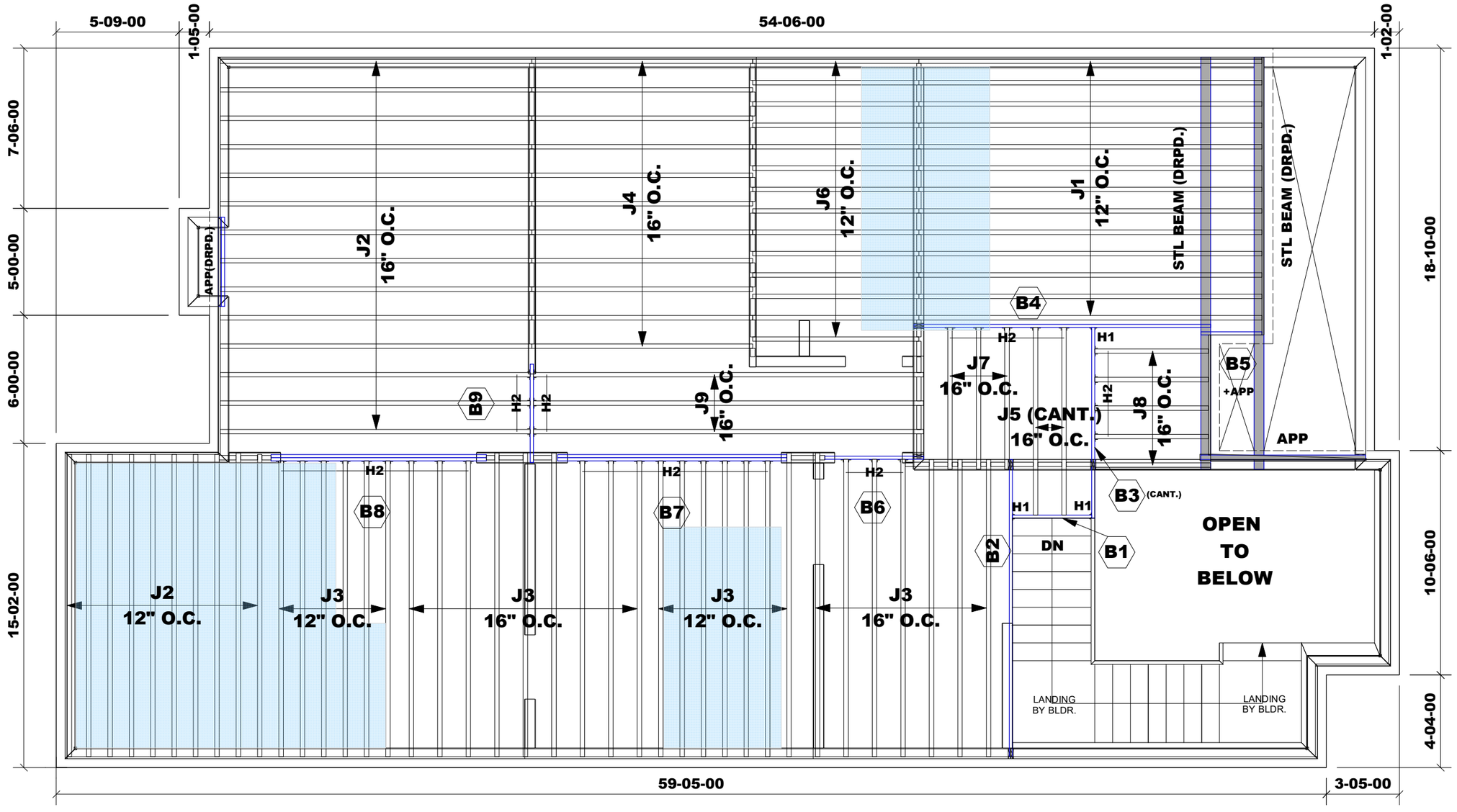
JT/PL:
45147/106927
Layout ID:
(321527)328366

LOADING

Live:	40.0 lb/ft²
Dead:	20.0 lb/ft²

DEFLECTION CRITERIA

Live:	360.000
Total	240.000



SECOND FLOOR FRAMING

UNIT : 4205 (BROADVIEW)
ELEV. " A "
ALT. 5 - BEDROOM

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND	
	CERAMIC TILES

Products				
PlotID	Length	Product	Plies	Net Qty
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	3-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	17-00-00	11 7/8" NI-20	1	13
J2	15-00-00	11 7/8" NI-20	1	24
J3	14-00-00	11 7/8" NI-20	1	29
J4	11-00-00	11 7/8" NI-20	1	11
J5	9-00-00	11 7/8" NI-20	1	2
J6	8-00-00	11 7/8" NI-20	1	14
J7	7-00-00	11 7/8" NI-20	1	3
J8	6-00-00	11 7/8" NI-20	1	5
J9	19-00-00	11 7/8" NI-40x	1	3
xBk1	48-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 11 7/8" Rim Board	1	17

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

Squash blocks are required under concentrated load.

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

SUBFLOOR - 3/4" NAILED & GLUED *

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

Connector Summary			
PlotID	Qty	Manuf	Product
H1	3		HUS1.81/10
H2	36		LT251188

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

ALPA ROOF TRUSSES INC.

Gold Park

4205 (Broadview)

Pine Valley

LOCATION:
Vaughan

DESIGNER : FC

REVISIONS:

1	20210121
2	#2
3	#3
4	#4

LEGEND:

BBO	Beam By Others
APP	As Per Plan
PL(G)	Point Load from Girder
PL(W)	Point Load from Lintel
S.B.	Solid Bearing

DESIGN INFO:

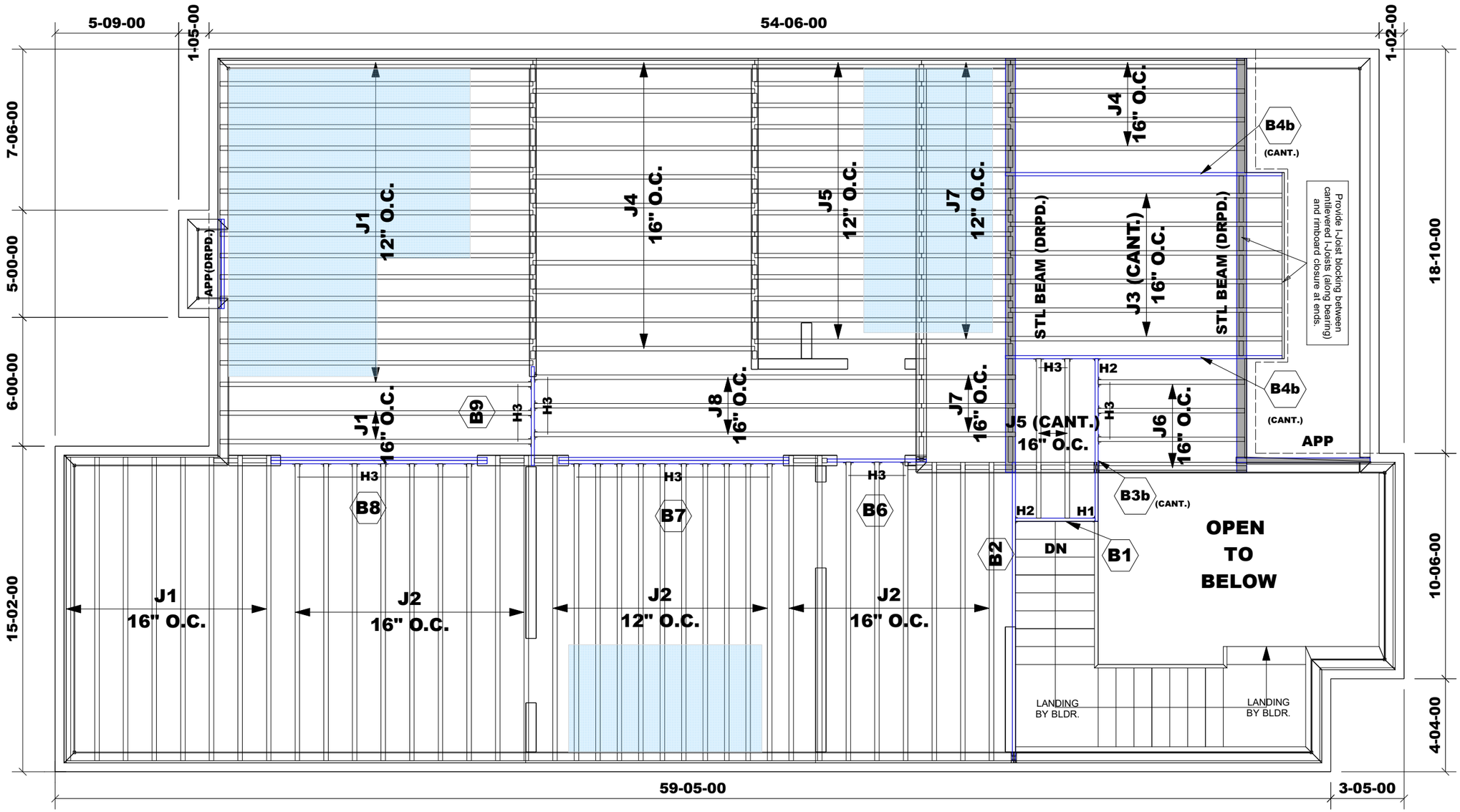
JT/PL:
45147/106927
Layout ID:
(321527)328366

LOADING

Live:	40.0 lb/ft²
Dead:	20.0 lb/ft²

DEFLECTION CRITERIA

Live:	360.000
Total	240.000



SECOND FLOOR FRAMING

UNIT : 4205 (BROADVIEW) ELEV. " B "

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND

CERAMIC TILES

Products				
PlotID	Length	Product	Plies	Net Qty
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3b	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4b	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	2
B6	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	15-00-00	11 7/8" NI-20	1	26
J2	14-00-00	11 7/8" NI-20	1	28
J3	13-00-00	11 7/8" NI-20	1	6
J4	11-00-00	11 7/8" NI-20	1	15
J5	8-00-00	11 7/8" NI-20	1	16
J6	7-00-00	11 7/8" NI-20	1	4
J7	5-00-00	11 7/8" NI-20	1	17
J8	19-00-00	11 7/8" NI-40x	1	3
xBk1	66-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 11 7/8" Rim Board	1	17

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

Squash blocks are required under concentrated load.

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

SUBFLOOR - 3/4" NAILED & GLUED *

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

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HU9X(oOne flange concealed)
H2	2		HUS1.81/10
H3	31		LT251188

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

ALPA ROOF TRUSSES INC.

Gold Park

4205 (Broadview)

Pine Valley

LOCATION:
Vaughan

DESIGNER : FC

REVISIONS:

1	20210121
2	#2
3	#3
4	#4

LEGEND:

BBO	Beam By Others
APP	As Per Plan
PL(G)	Point Load from Girder
PL(W)	Point Load from Lintel
S.B.	Solid Bearing

DESIGN INFO:

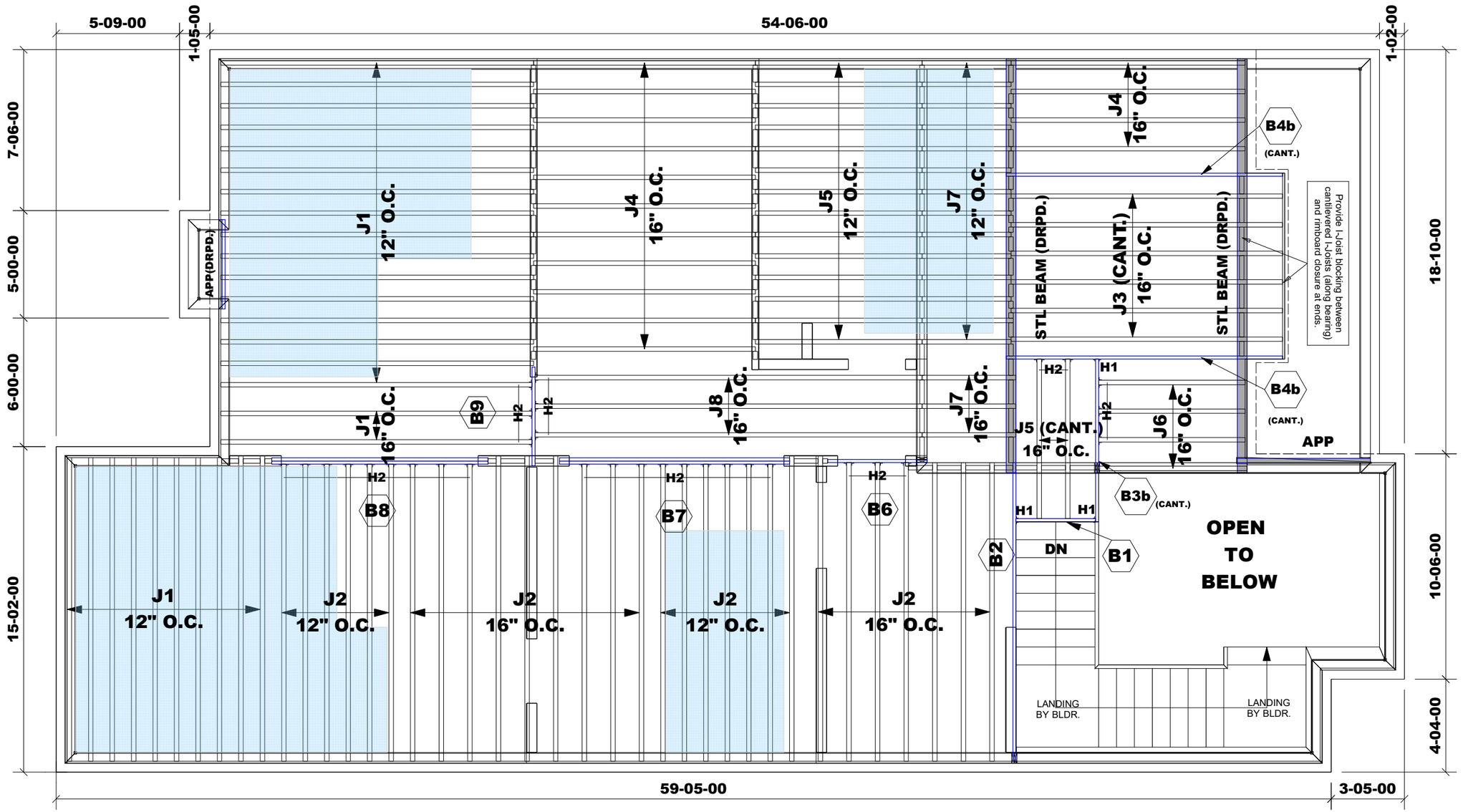
JT/PL:
45147/106927
Layout ID:
(321527)328366

LOADING

Live:	40.0 lb/ft²
Dead:	20.0 lb/ft²

DEFLECTION CRITERIA

Live:	360.000
Total	240.000



SECOND FLOOR FRAMING

UNIT : 4205 (BROADVIEW)
ELEV. " B "
ALT. 5 - BEDROOM

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND	
	CERAMIC TILES

Products				
PlotID	Length	Product	Plies	Net Qty
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3b	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4b	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	2
B6	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	15-00-00	11 7/8" NI-20	1	28
J2	14-00-00	11 7/8" NI-20	1	29
J3	13-00-00	11 7/8" NI-20	1	6
J4	11-00-00	11 7/8" NI-20	1	15
J5	8-00-00	11 7/8" NI-20	1	16
J6	7-00-00	11 7/8" NI-20	1	4
J7	5-00-00	11 7/8" NI-20	1	17
J8	19-00-00	11 7/8" NI-40x	1	3
xBk1	66-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 11 7/8" Rim Board	1	17

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

Squash blocks are required under concentrated load.

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

SUBFLOOR - 3/4" NAILED & GLUED *

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

Connector Summary			
PlotID	Qty	Manuf	Product
H1	3		HUS1.81/10
H2	32		LT251188

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

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(321527)328366

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Dead:	20.0 lb/ft²

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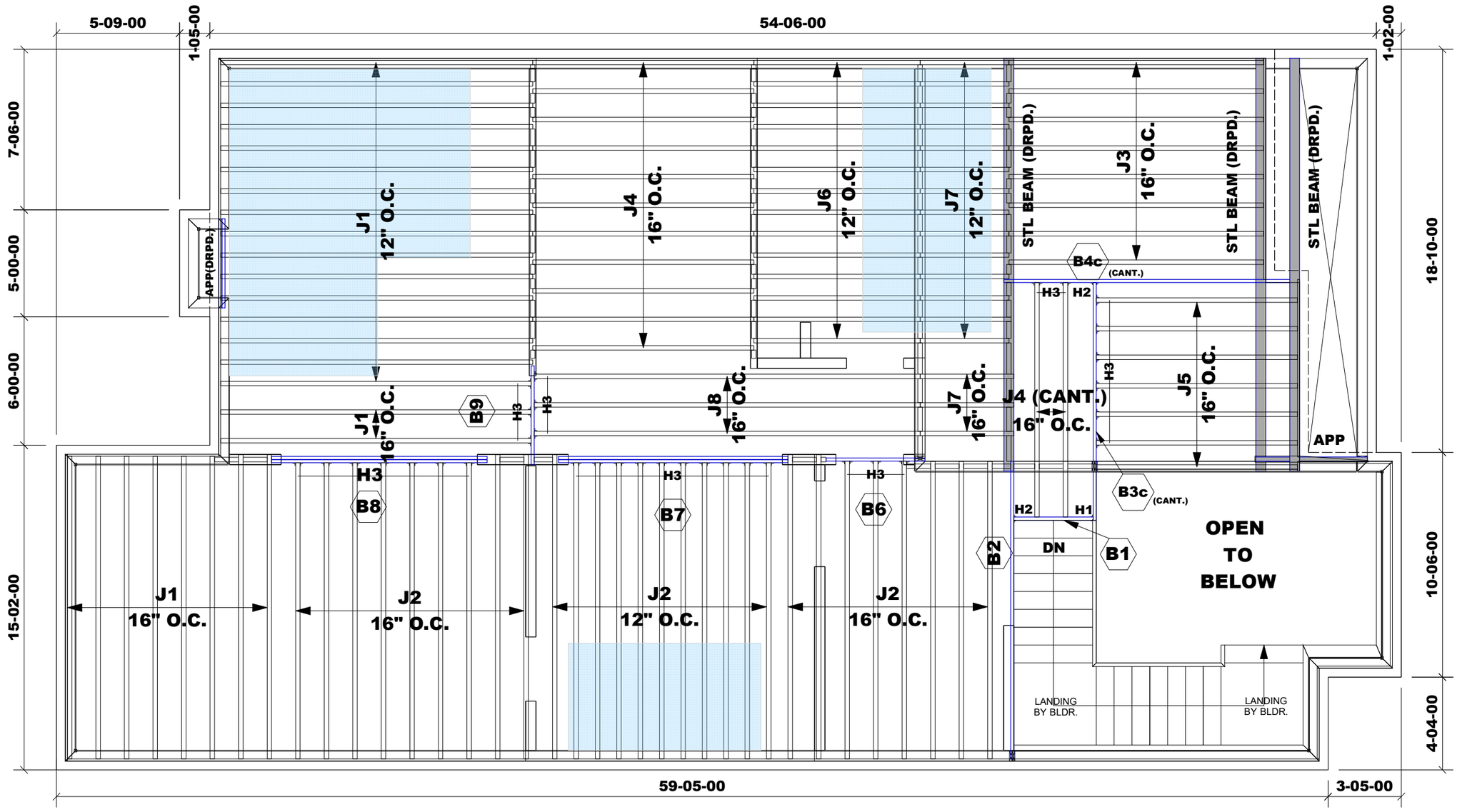
Total	240.000



SECOND FLOOR FRAMING

UNIT : 4205 (BROADVIEW) ELEV. " C "

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND	
	CERAMIC TILES

Products				
PlotID	Length	Product	Plies	Net Qty
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3c	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4c	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	15-00-00	11 7/8" NI-20	1	26
J2	14-00-00	11 7/8" NI-20	1	28
J3	12-00-00	11 7/8" NI-20	1	8
J4	11-00-00	11 7/8" NI-20	1	13
J5	10-00-00	11 7/8" NI-20	1	7
J6	8-00-00	11 7/8" NI-20	1	14
J7	5-00-00	11 7/8" NI-20	1	17
J8	19-00-00	11 7/8" NI-40x	1	3
xBk1	59-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 11 7/8" Rim Board	1	17

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

Squash blocks are required under concentrated load.

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

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

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HU9X(oOne flange concealed)
H2	2		HUS1.81/10
H3	34		LT251188

PL:109955

Yard:
Home Lumber

Contact:
Derek Frankfort

Date: June 20, 2020

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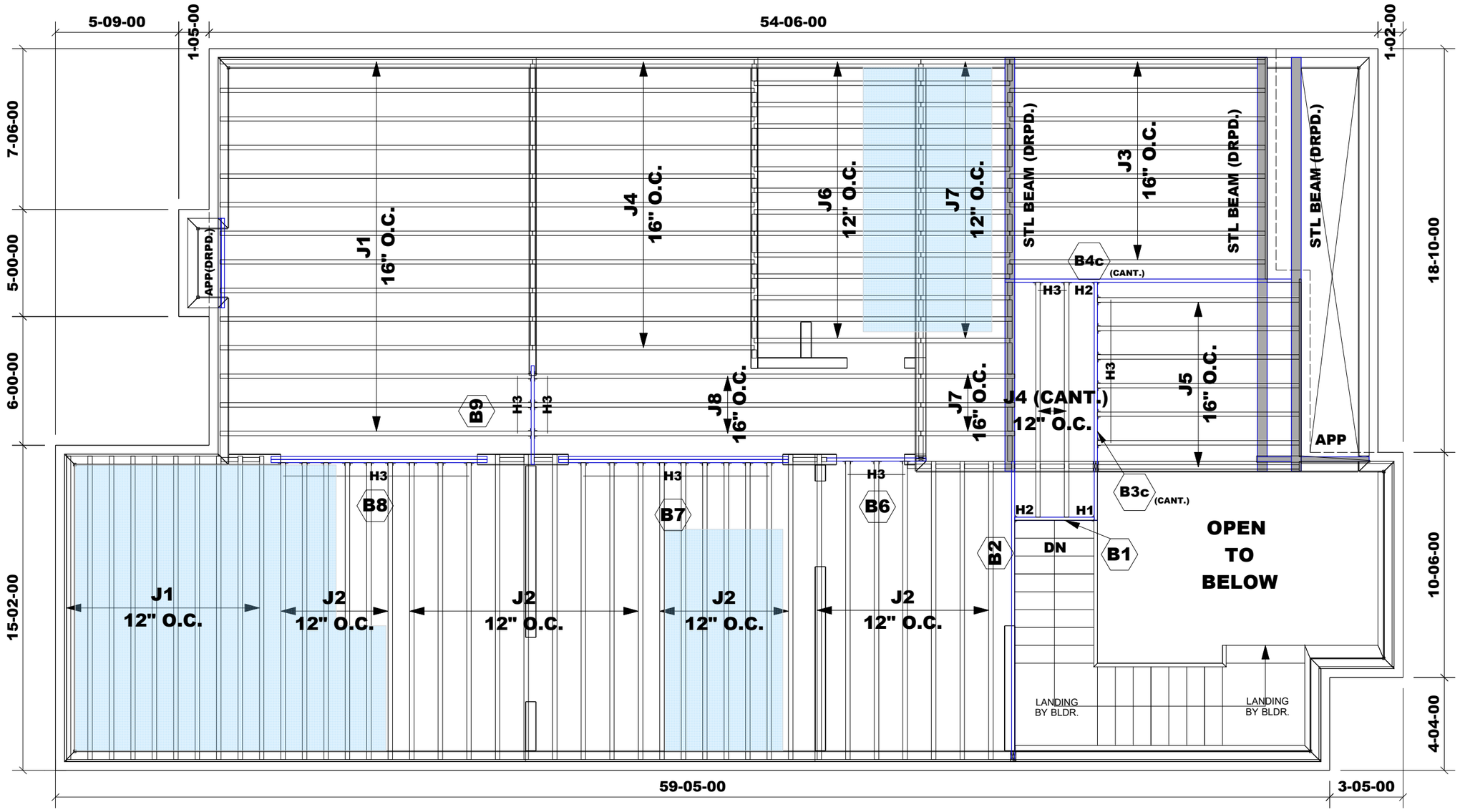
Live:	360.000
Total	240.000



SECOND FLOOR FRAMING

UNIT : 4205 (BROADVIEW)
ELEV. " C "
ALT. 5 - BEDROOM

Do not scale - refer to architectural plans for dimensions

HATCH LEGEND	
	CERAMIC TILES

Products				
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B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3c	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4c	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	11-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	15-00-00	11 7/8" NI-20	1	24
J2	14-00-00	11 7/8" NI-20	1	29
J3	12-00-00	11 7/8" NI-20	1	8
J4	11-00-00	11 7/8" NI-20	1	13
J5	10-00-00	11 7/8" NI-20	1	7
J6	8-00-00	11 7/8" NI-20	1	14
J7	5-00-00	11 7/8" NI-20	1	17
J8	19-00-00	11 7/8" NI-40x	1	3
xBk1	61-00-00	11 7/8" NI-20	1	1
xCa1	12-00-00	1 1/8" x 11 7/8" Rim Board	1	17

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PlotID	Qty	Manuf	Product
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H2	2		HUS1.81/10
H3	35		LT251188

PL:109955

Yard:
Home Lumber

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Derek Frankfort

Date: June 20, 2020

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Dead:	20.0 lb/ft²

DEFLECTION CRITERIA	
Live:	360.000
Total	240.000

Boise Cascade

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

PASSED

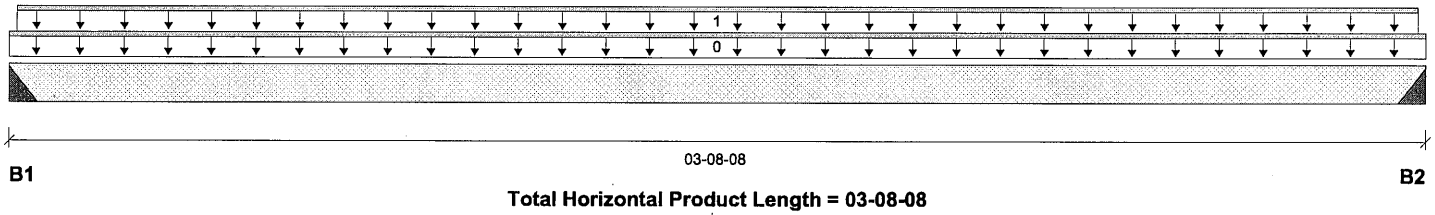
2nd Floor - Supply/BOM\Flush Beams\B1(i26112) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 12:20:46

Build 7493

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

File name: 4205 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B1(i26112)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 03-08-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	513 / 0	213 / 0		
B2, 2"	513 / 0	213 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-08-08	Top		6			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-00-04	03-08-04	Top	280	110			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	865 ft-lbs	17696 ft-lbs	4.9%	1	01-10-04
End Shear	394 lbs	7232 lbs	5.5%	1	01-01-14
Total Load Deflection	L/999 (0.003")	n\a	n\a	4	01-10-04
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	01-10-04
Max Defl.	0.003"	n\a	n\a	4	01-10-04
Span / Depth	3.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 1-3/4"	1036 lbs	n\a	24.3%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	1036 lbs	n\a	24.3%	HUS1.81/10

REGISTERED PROFESSIONAL ENGINEER
11/07/2020
EDWIN C. FOK
PROVINCE OF ONTARIO

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user.

Notes

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

Disclosure

SG020574

Boise Cascade

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

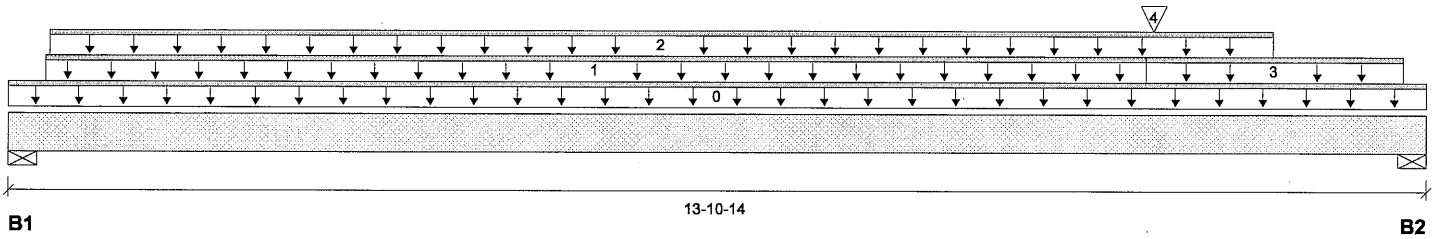
PASSED

2nd Floor - Supply/BOM\Flush Beams\B2(i26031) (Flush Beam)

BC CALC® Member Report
Build 7493
Dry | 1 span | No cant.
June 20, 2020 12:20:46

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

File name: 4205 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B2(i26031)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 13-10-14

Reaction Summary (Down / Uplift) (lbs)

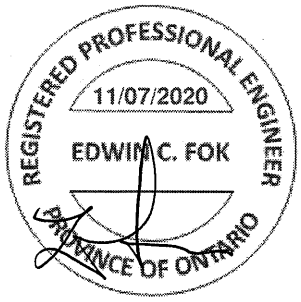
Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	240 / 0	807 / 0		
B2, 5-1/2"	625 / 0	880 / 0		

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	13-10-14	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-04-06	11-01-14	Top	22	11			n\a
2	13(i21016)	Unf. Lin. (lb/ft)	L	00-04-14	12-04-14	Top		101			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	11-01-14	13-08-02	Top	44	22			n\a
4	B1(i26112)	Conc. Pt. (lbs)	L	11-02-12	11-02-12	Top	513	213			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3938 ft-lbs	11502 ft-lbs	34.2%	0	07-02-01
End Shear	1913 lbs	7232 lbs	26.5%	1	12-05-08
Total Load Deflection	L/610 (0.26")	n\a	39.3%	4	07-02-01
Live Load Deflection	L/999 (0.077")	n\a	n\a	5	07-05-12
Max Defl.	0.26"	n\a	n\a	4	07-02-01
Span / Depth	13.3				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 1-3/4"	1130 lbs	36.9%	18.6%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 1-3/4"	2038 lbs	34.4%	17.4%	Spruce-Pine-Fir

Notes

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

Disclosure

SG020575

Boise Cascade

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

PASSED

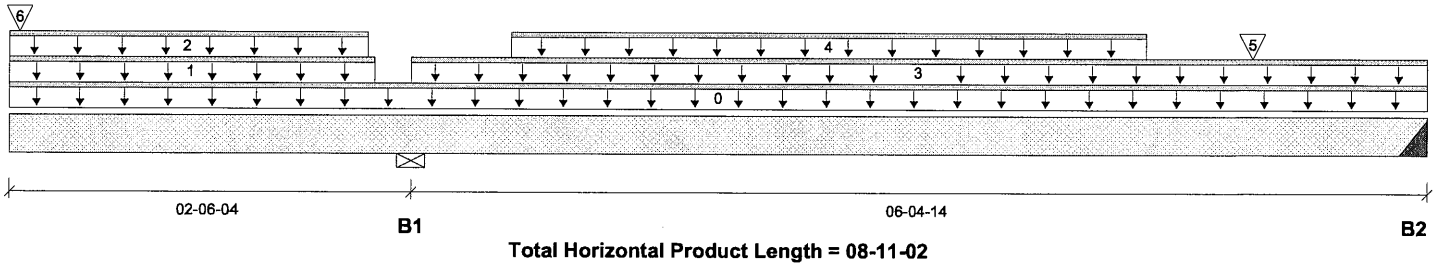
2nd Floor - Supply/BOM\Flush Beams\B3(i26045) (Flush Beam)

BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 2 spans | L cant.

June 20, 2020 12:20:46

File name: 4205 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B3(i26045)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 08-11-02

Reaction Summary (Down / Uplift) (lbs)

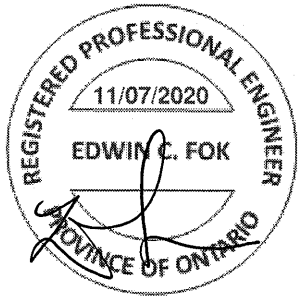
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1140 / 0	874 / 0		
B2, 2"	370 / 214	29 / 0		

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	08-11-02	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-03-08	Top	29	14			n\a
2	W5(i21018)	Unf. Lin. (lb/ft)	L	00-00-00	02-03-00	Top		26			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-06-04	08-11-02	Top	27	14			n\a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	03-01-14	07-01-14	Top	104	52			n\a
5	J8(i26504)	Conc. Pt. (lbs)	L	07-09-14	07-09-14	Top	129	65			n\a
6	-	Conc. Pt. (lbs)	L	00-00-12	00-00-12	Top	513	390			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	847 ft-lbs	17696 ft-lbs	4.8%	6	06-05-14
Neg. Moment	-3409 ft-lbs	-17696 ft-lbs	19.3%	1	02-06-04
End Shear	501 lbs	7232 lbs	6.9%	3	07-09-04
Cont. Shear	1420 lbs	7232 lbs	19.6%	1	01-03-10
Total Load Deflection	2xL/1998 (0.057")	n\a	n\a	9	00-00-00
Live Load Deflection	2xL/1998 (0.035")	n\a	n\a	12	00-00-00
Total Neg. Defl.	L/999 (-0.017")	n\a	n\a	9	05-00-14
Max Defl.	-0.017"	n\a	n\a	9	05-00-14
Span / Depth	6.4				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	2802 lbs	47.3%	23.9%	Spruce-Pine-Fir
B2	Hanger	2" x 1-3/4"	592 lbs	n\a	13.9%	HUS1.81/10
B2	Uplift		295 lbs			

Cautions

Uplift of 294 lbs found at bearing B2.
Hanger B2 cannot handle uplift of -294 lbs.
Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. I

Long Cantilever: Sheathing required on bottom flange and adjacent back span or bracing designed by the design professional of record. Design professional of record must address uplift at supports.

SE020576

Boise Cascade

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

PASSED

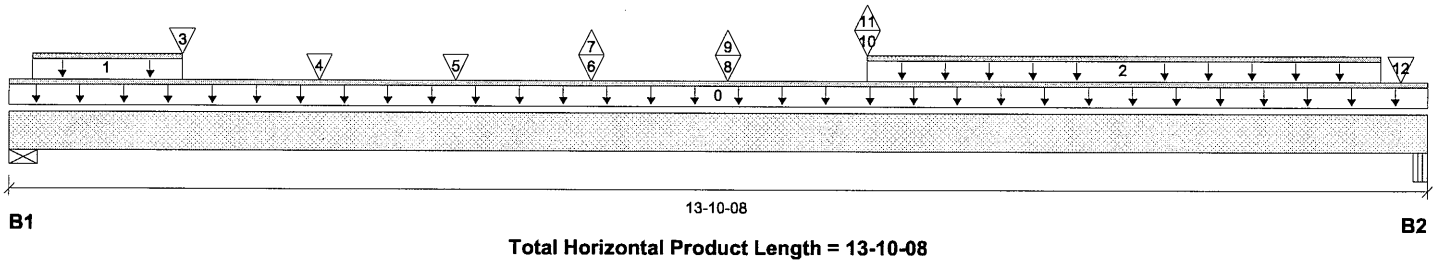
2nd Floor - Supply/BOM\Flush Beams\B4(i26077) (Flush Beam)

BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

June 20, 2020 12:20:46

File name: 4205 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B4(i26077)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 13-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	799 / 111	366 / 0		
B2, 5-1/2"	585 / 155	266 / 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	13-10-08	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	01-08-04	Top	25	12			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	08-04-10	13-05-00	Top	24	12			n\a
3	J7(i26386)	Conc. Pt. (lbs)	L	01-08-04	01-08-04	Top	161	81			n\a
4	J7(i26615)	Conc. Pt. (lbs)	L	03-00-04	03-00-04	Top	175	87			n\a
5	J7(i26200)	Conc. Pt. (lbs)	L	04-04-04	04-04-04	Top	175	87			n\a
6	J5(i26038)	Conc. Pt. (lbs)	L	05-08-04	05-08-04	Top	175	75			n\a
7	J5(i26038)	Conc. Pt. (lbs)	L	05-08-04	05-08-04	Top	-25				n\a
8	J5(i26061)	Conc. Pt. (lbs)	L	07-00-04	07-00-04	Top	177	75			n\a
9	J5(i26061)	Conc. Pt. (lbs)	L	07-00-04	07-00-04	Top	-26				n\a
10	B3(i26045)	Conc. Pt. (lbs)	L	08-04-10	08-04-10	Top	366	28			n\a
11	B3(i26045)	Conc. Pt. (lbs)	L	08-04-10	08-04-10	Top	-215				n\a
12	-	Conc. Pt. (lbs)	L	13-07-06	13-07-06	Top		39			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5549 ft-lbs	17696 ft-lbs	31.4%	1	07-00-04
Neg. Moment	-354 ft-lbs	-17696 ft-lbs	2.0%	4	08-04-10
End Shear	1582 lbs	7232 lbs	21.9%	1	01-05-06
Total Load Deflection	L/662 (0.237")	n\a	36.2%	6	06-10-04
Live Load Deflection	L/916 (0.171")	n\a	39.3%	8	06-10-04
Max Defl.	0.237"	n\a	n\a	6	06-10-04
Span / Depth	13.2				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	1656 lbs	28.0%	14.1%	Spruce-Pine-Fir
B2	Beam	5-1/2" x 1-3/4"	1210 lbs	20.4%	10.3%	Unspecified

SG020577

Boise Cascade

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

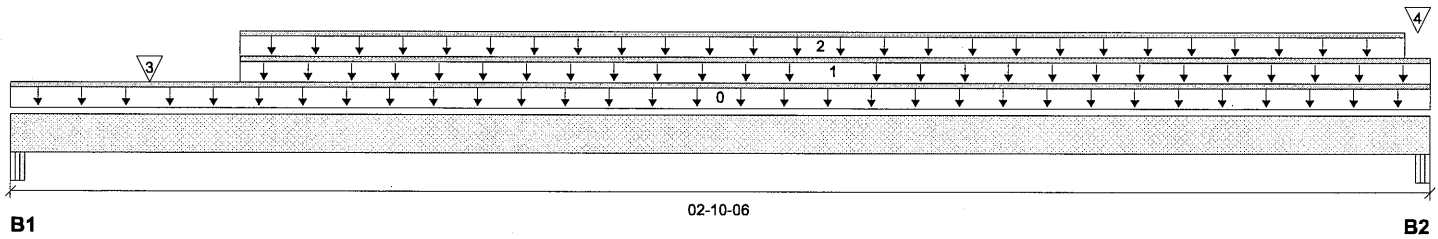
PASSED

2nd Floor - Supply/BOM\Flush Beams\B5(i26644) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 12:20:46

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	2nd Floor - Supply/BOM\Flush Beams\B5(i26644)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 02-10-06

Reaction Summary (Down / Uplift) (lbs)

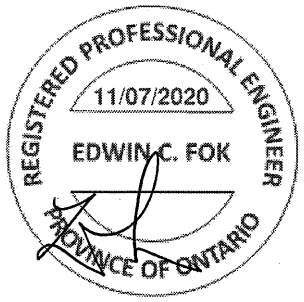
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	3 / 0	252 / 0	182 / 0	
B2, 4-3/8"	4 / 0	308 / 0	247 / 0	

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	02-10-06	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-05-08	02-10-06	Top	3				n\a
2	6(i21003)	Unf. Lin. (lb/ft)	L	00-05-08	02-09-12	Top		215	178		n\a
3	-	Conc. Pt. (lbs)	L	00-03-06	00-03-06	Top		22			n\a
4	6(i21003)	Conc. Pt. (lbs)	L	02-10-01	02-10-01	Top		11	9		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	322 ft-lbs	17696 ft-lbs	1.8%	13	01-05-12
End Shear	18 lbs	7232 lbs	0.2%	13	01-05-06
Total Load Deflection	L/999 (0")	n\a	n\a	35	01-05-12
Live Load Deflection	L/999 (0")	n\a	n\a	51	01-05-12
Max Defl.	0"	n\a	n\a	35	01-05-12
Span / Depth	2.2				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/2" x 1-3/4"	592 lbs	10.0%	5.0%	Unspecified
B2	Beam	4-3/8" x 1-3/4"	760 lbs	16.1%	8.1%	Unspecified

Notes

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

Disclosure

SG020578

Boise Cascade

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

PASSED

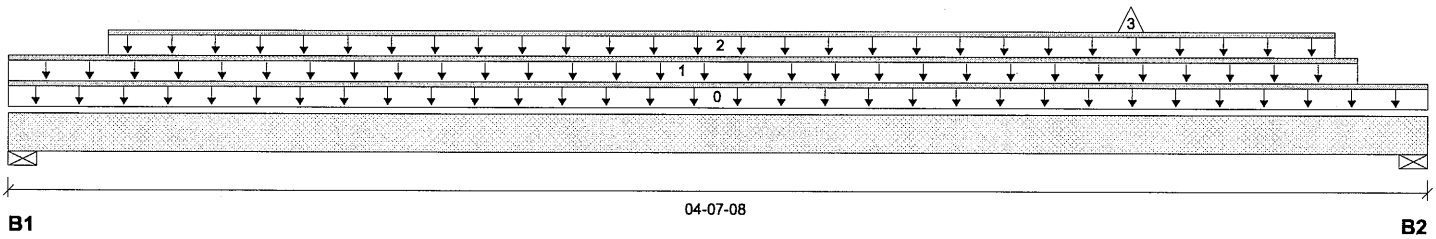
2nd Floor - Supply/BOM\Flush Beams\B6(i26153) (Flush Beam)

BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

June 20, 2020 12:20:46

File name: 4205 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B6(i26153)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 04-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	603 / 0	316 / 0		
B2, 5-1/2"	600 / 2	313 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-07-08	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-04-12	Top	24	12			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-14	04-03-14	Top	274	137			n\a
3	J3(i26394)	Conc. Pt. (lbs)	L	03-07-14	03-07-14	Top	-2				n\a

Controls Summary

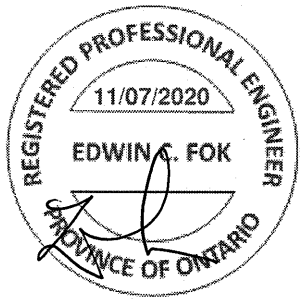
	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1308 ft-lbs	17696 ft-lbs	7.4%	1	02-03-14
End Shear	852 lbs	7232 lbs	11.8%	1	01-05-06
Total Load Deflection	L/999 (0.005")	n\a	n\a	6	02-03-14
Live Load Deflection	L/999 (0.003")	n\a	n\a	8	02-03-14
Max Defl.	0.005"	n\a	n\a	6	02-03-14
Span / Depth	3.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	1300 lbs	22.0%	11.1%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 1-3/4"	1292 lbs	21.8%	11.0%	Spruce-Pine-Fir

Notes

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



Disclosure

SG020579

Boise Cascade

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

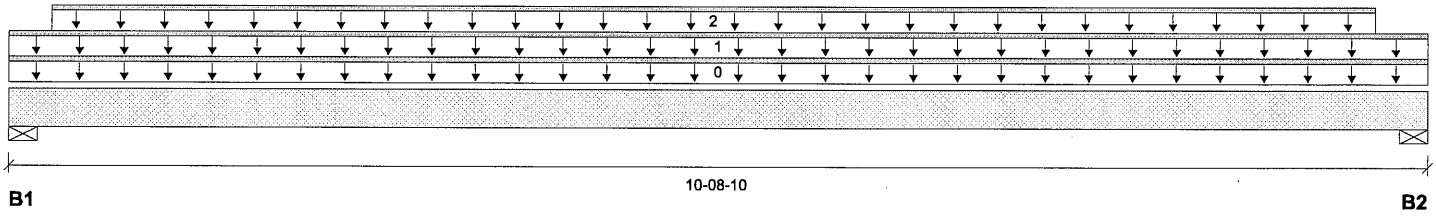
PASSED

2nd Floor - Supply/BOM\Flush Beams\B7(i26442) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 12:20:46

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	2nd Floor - Supply/BOM\Flush Beams\B7(i26442)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 10-08-10

Reaction Summary (Down / Uplift) (lbs)

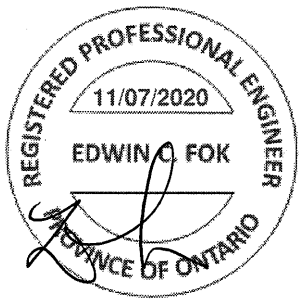
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1555 / 0	841 / 0		
B2, 3-1/8"	1476 / 0	799 / 0		

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	10-08-10	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-08-10	Top	24	12			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-14	10-03-14	Top	277	138			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8414 ft-lbs	35392 ft-lbs	23.8%	1	05-09-14
End Shear	2919 lbs	14464 lbs	20.2%	1	09-05-10
Total Load Deflection	L/999 (0.113")	n\a	n\a	4	05-05-06
Live Load Deflection	L/999 (0.073")	n\a	n\a	5	05-05-06
Max Defl.	0.113"	n\a	n\a	4	05-05-06
Span / Depth	10.2				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	3383 lbs	28.6%	14.4%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/8" x 3-1/2"	3213 lbs	47.8%	24.1%	Spruce-Pine-Fir

Notes

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

Nail one ply to another with
3 ½" spiral nails @ 10"
o.c, staggered in 2 rows

SG020580

Boise Cascade

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

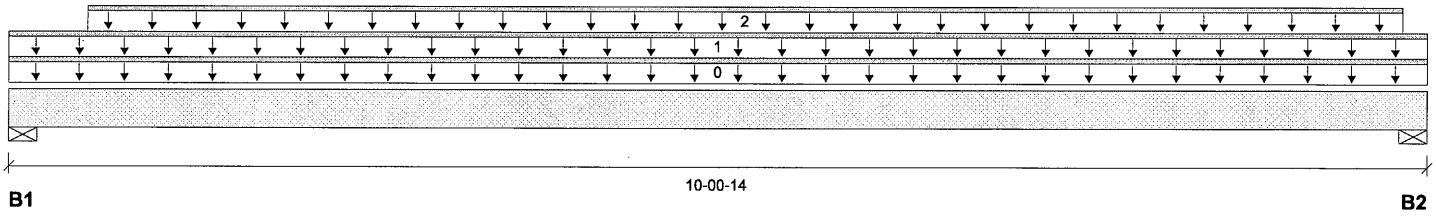
PASSED

2nd Floor - Supply/BOM\Flush Beams\B8(i26161) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 12:20:46

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	2nd Floor - Supply/BOM\Flush Beams\B8(i26161)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 10-00-14

Reaction Summary (Down / Uplift) (lbs)

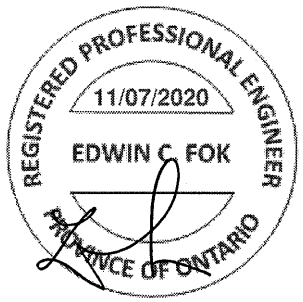
Bearing	Live	Dead	Snow	Wind
B1, 5-3/8"	1326 / 0	725 / 0		
B2, 5-1/2"	1436 / 0	780 / 0		

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	10-00-14	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-00-14	Top	18	9			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-12	09-10-12	Top	277	139			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7027 ft-lbs	35392 ft-lbs	19.9%	1	05-02-12
End Shear	2654 lbs	14464 lbs	18.3%	1	01-05-04
Total Load Deflection	L/999 (0.078")	n\a	n\a	4	05-00-12
Live Load Deflection	L/999 (0.051")	n\a	n\a	5	05-00-12
Max Defl.	0.078"	n\a	n\a	4	05-00-12
Span / Depth	9.4				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-3/8" x 3-1/2"	2895 lbs	25.0%	12.6%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	3129 lbs	26.4%	13.3%	Spruce-Pine-Fir

Notes

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

Nail one ply to another with
3 ½" spiral nails @ 10"
o.c, staggered in 2 rows

SB02058 |

Boise Cascade

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

PASSED

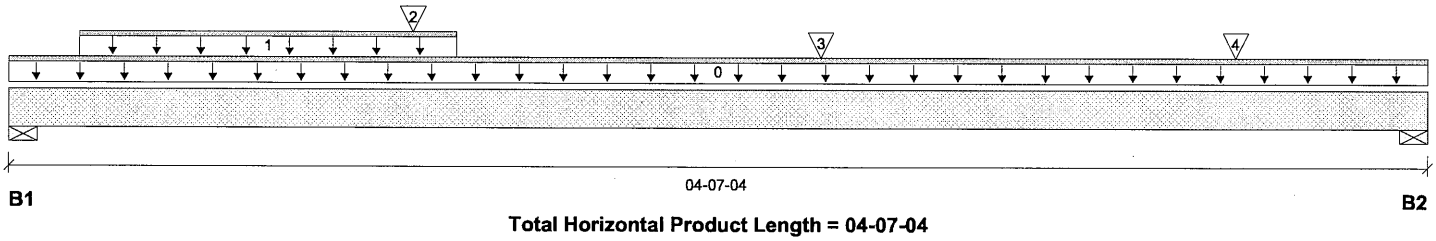
2nd Floor - Supply/BOM\Flush Beams\B9(i26493) (Flush Beam)

BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

June 20, 2020 12:20:46

File name: 4205 EL. A.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B9(i26493)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 04-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1020 / 0	523 / 0		
B2, 5-1/2"	1489 / 0	757 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-07-04	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	01-05-06	Top	41	21			n\a
2	-	Conc. Pt. (lbs)	L	01-03-11	01-03-11	Top	762	380			n\a
3	-	Conc. Pt. (lbs)	L	02-07-10	02-07-10	Top	868	433			n\a
4	-	Conc. Pt. (lbs)	L	03-11-12	03-11-12	Top	829	414			n\a

Controls Summary

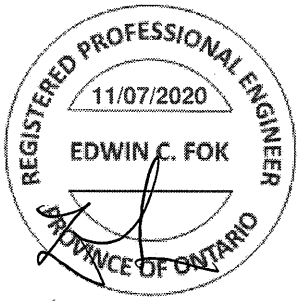
	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2442 ft-lbs	17696 ft-lbs	13.8%	1	02-05-06
End Shear	1923 lbs	7232 lbs	26.6%	1	01-05-06
Total Load Deflection	L/999 (0.009")	n\a	n\a	4	02-03-14
Live Load Deflection	L/999 (0.006")	n\a	n\a	5	02-03-14
Max Defl.	0.009"	n\a	n\a	4	02-03-14
Span / Depth	3.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	2183 lbs	36.9%	18.6%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 1-3/4"	3180 lbs	53.7%	27.1%	Spruce-Pine-Fir

Notes

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



Disclosure

SG020582

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

PASSED

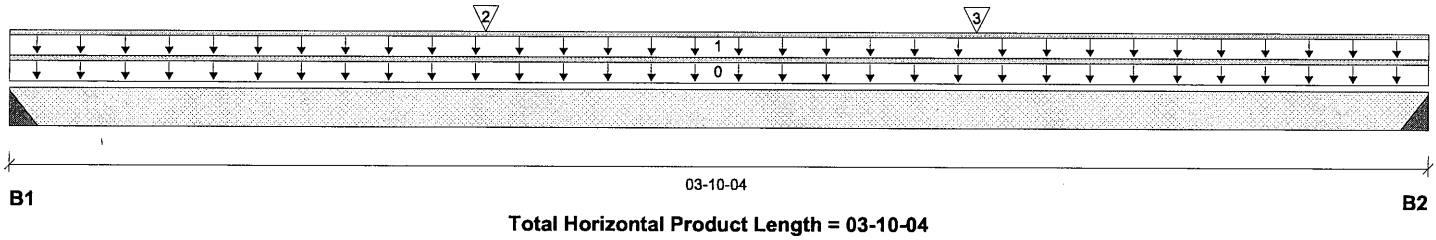
Ground Floor - Supply/BOM\Flush Beams\B10(i27774) (Flush Beam)

BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

June 20, 2020 12:28:05

File name: 4205 EL. A.mmdl
Description: Ground Floor - Supply/BOM\Flush Beams\B10(i27774)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 03-10-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	643 / 0	278 / 0		
B2, 2"	648 / 0	287 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-10-04	Top		6			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	03-10-04	Top	240	90			n\a
2	J7(i28061)	Conc. Pt. (lbs)	L	01-03-08	01-03-08	Top	185	92			n\a
3	J7(i28062)	Conc. Pt. (lbs)	L	02-07-08	02-07-08	Top	181	99			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1253 ft-lbs	17696 ft-lbs	7.1%	1	01-11-00
End Shear	771 lbs	7232 lbs	10.7%	1	02-08-06
Total Load Deflection	L/999 (0.004")	n\a	n\a	4	01-11-00
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	01-11-00
Max Defl.	0.004"	n\a	n\a	4	01-11-00
Span / Depth	3.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 1-3/4"	1312 lbs	n\a	30.7%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	1331 lbs	n\a	31.2%	HUS1.81/10

REGISTERED PROFESSIONAL ENGINEER
11/07/2020
EDWIN C. FOK
PROVINCE OF ONTARIO

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user.

Notes

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

Disclosure

SE0205883

Boise Cascade

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

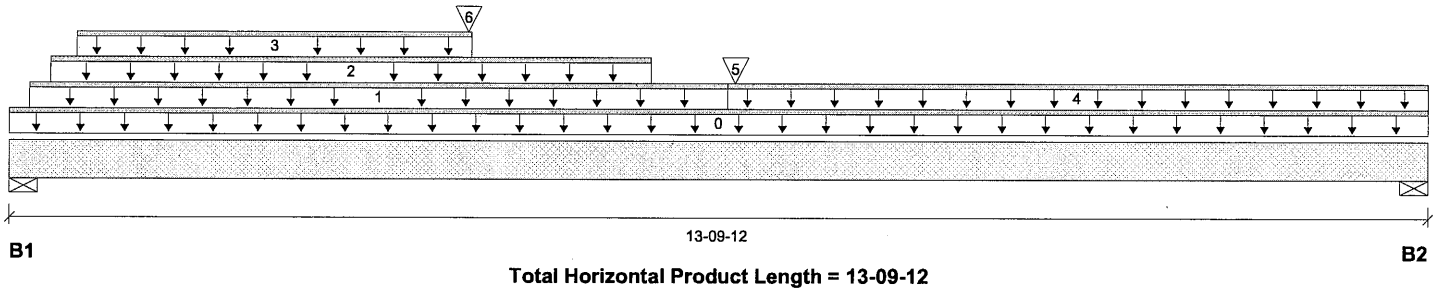
PASSED

Ground Floor - Supply/BOM\Flush Beams\B11(i28146) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — June 20, 2020 12:28:05

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	Ground Floor - Supply/BOM\Flush Beams\B11(i28146)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 13-09-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	989 / 0	761 / 0		
B2, 2-3/8"	788 / 0	486 / 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	13-09-12	Top		6			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-06	06-11-14	Top	22	11			n\a
2	17(i21048)	Unf. Lin. (lb/ft)	L	00-04-14	06-02-14	Top		68			n\a
3	User Load	Unf. Lin. (lb/ft)	L	00-07-14	04-05-14	Top	70	27			n\a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	06-11-14	13-09-12	Top	48	24			n\a
5	B10(i27774)	Conc. Pt. (lbs)	L	07-00-12	07-00-12	Top	643	278			n\a
6	User Load	Conc. Pt. (lbs)	L	04-05-08	04-05-08	Top	385	145			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9335 ft-lbs	17696 ft-lbs	52.8%	1	07-00-12
End Shear	2378 lbs	7232 lbs	32.9%	1	01-02-04
Total Load Deflection	L/389 (0.418")	n\a	61.8%	4	06-09-10
Live Load Deflection	L/638 (0.255")	n\a	56.5%	5	06-09-10
Max Defl.	0.418"	n\a	n\a	4	06-09-10
Span / Depth	13.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/8" x 1-3/4"	2435 lbs	95.2%	48.0%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/8" x 1-3/4"	1789 lbs	70.0%	35.3%	Spruce-Pine-Fir

Notes

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

REGISTERED PROFESSIONAL ENGINEER
11/07/2020
EDWIN C. FOK
PROVINCE OF ONTARIO

SE020584

Boise Cascade

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

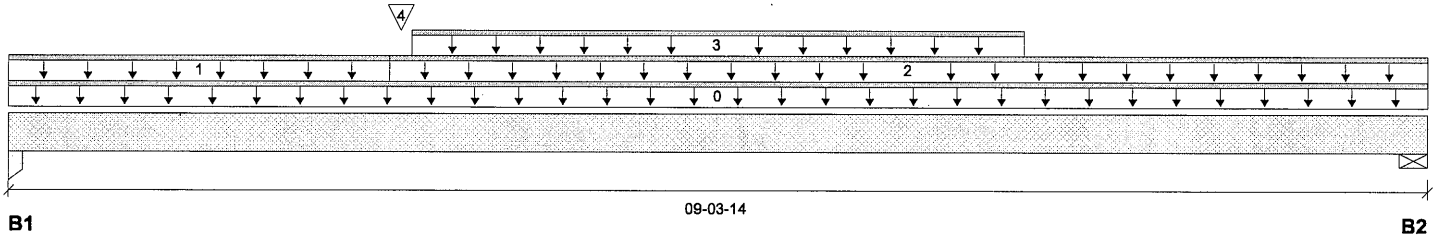
PASSED

Ground Floor - Supply/BOM\Flush Beams\B12(i28187) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — June 20, 2020 12:28:05

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	Ground Floor - Supply/BOM\Flush Beams\B12(i28187)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 09-03-14

Reaction Summary (Down / Uplift) (lbs)

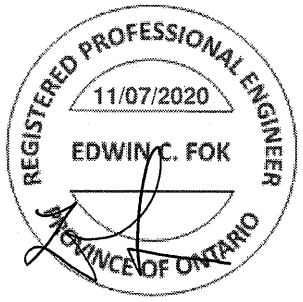
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	600 / 0	348 / 0		
B2, 2-3/8"	334 / 0	231 / 0		

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	09-03-14	Top		6			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-06-00	Top	13	6			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	02-06-00	09-03-14	Top	37	19			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	02-07-12	06-08-00	Top		23			n\a
4	B10(i27774)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	648	287			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3012 ft-lbs	17696 ft-lbs	17.0%	1	02-06-14
End Shear	1290 lbs	7232 lbs	17.8%	1	01-03-06
Total Load Deflection	L/999 (0.057")	n\a	n\a	4	04-04-14
Live Load Deflection	L/999 (0.035")	n\a	n\a	5	04-04-14
Max Defl.	0.057"	n\a	n\a	4	04-04-14
Span / Depth	9.1				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	1334 lbs	20.9%	17.9%	Unspecified
B2	Wall/Plate	2-3/8" x 1-3/4"	791 lbs	30.9%	15.6%	Spruce-Pine-Fir

Notes

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

Disclosure

SG020585

Boise Cascade

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

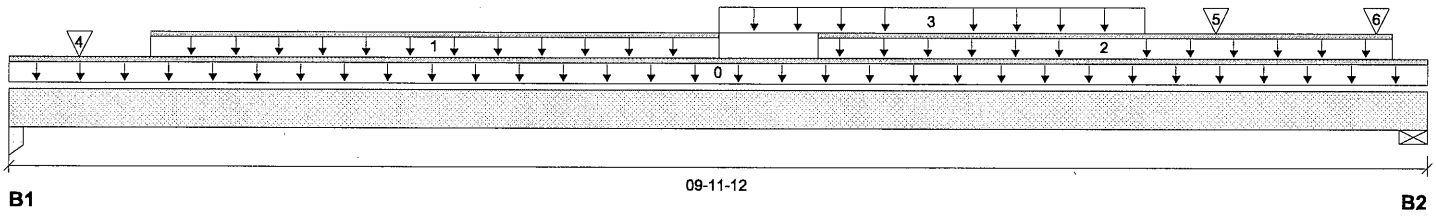
PASSED

Ground Floor - Supply/BOM\Flush Beams\B13(i27933) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 12:28:05

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	Ground Floor - Supply/BOM\Flush Beams\B13(i27933)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 09-11-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	1058 / 0	545 / 0		
B2, 5-1/2"	1783 / 0	1502 / 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	09-11-12	Top		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-14	04-11-14	Top	187	94			n\a
2	User Load	Unf. Lin. (lb/ft)	L	05-08-04	09-08-12	Top	240	90			n\a
3	Smoothed Load	Trapezoidal (lb/ft)	L	04-11-14		Top	187	108			n\a
					07-11-14		187	90			
4	J6(i28075)	Conc. Pt. (lbs)	L	00-05-14	00-05-14	Top	149	75			n\a
5	J6(i28067)	Conc. Pt. (lbs)	L	08-05-14	08-05-14	Top	187	94			n\a
6	-	Conc. Pt. (lbs)	L	09-07-06	09-07-06	Top	226	775			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6578 ft-lbs	17696 ft-lbs	37.2%	1	05-05-14
End Shear	2667 lbs	7232 lbs	36.9%	1	08-06-06
Total Load Deflection	L/748 (0.152")	n\a	32.1%	4	04-11-14
Live Load Deflection	L/999 (0.102")	n\a	n\a	5	04-11-14
Max Defl.	0.152"	n\a	n\a	4	04-11-14
Span / Depth	9.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 1-3/4"	2267 lbs	70.9%	60.7%	Unspecified
B2	Wall/Plate	5-1/2" x 1-3/4"	4552 lbs	76.9%	38.8%	Spruce-Pine-Fir

Notes

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

REGISTERED PROFESSIONAL ENGINEER
11/07/2020
EDWIN C. FOK
PROVINCE OF ONTARIO

SG020586

Boise Cascade

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

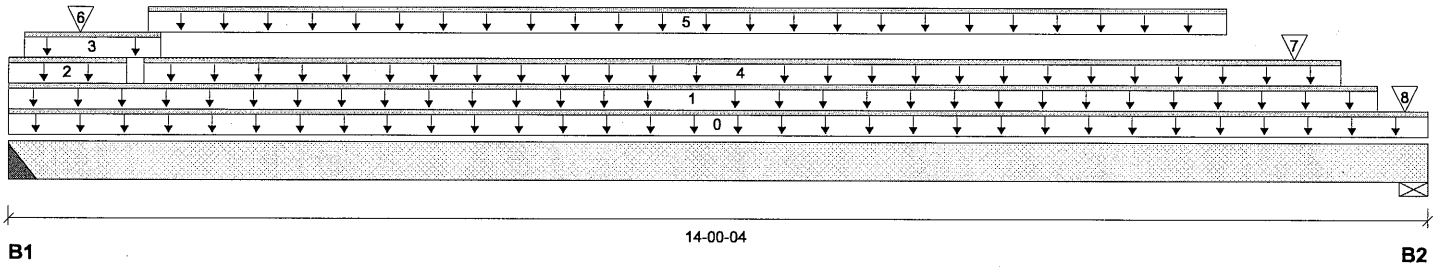
PASSED

Ground Floor - Supply/BOM\Flush Beams\B14(i27565) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 12:28:05

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	Ground Floor - Supply/BOM\Flush Beams\B14(i27565)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 14-00-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	3946 / 0	2572 / 0		
B2, 3-1/2"	3683 / 0	2514 / 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	14-00-04	Top		18			00-00-00
1	19(i21055)	Unf. Lin. (lb/ft)	L	00-00-00	13-06-04	Top		68			n\a
2	19(i21055)	Unf. Lin. (lb/ft)	L	00-00-00	01-01-14	Top	207	104			n\a
3	19(i21055)	Unf. Lin. (lb/ft)	L	00-01-14	01-05-14	Top	154	76			n\a
4	19(i21055)	Unf. Lin. (lb/ft)	L	01-03-14	13-01-14	Top	366	183			n\a
5	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-06	12-00-06	Top	214	108			n\a
6	J5(i27967)	Conc. Pt. (lbs)	L	00-08-06	00-08-06	Top	248	124			n\a
7	J5(i27968)	Conc. Pt. (lbs)	L	12-08-06	12-08-06	Top	268	132			n\a
8	E8(i21023)	Conc. Pt. (lbs)	L	13-09-08	13-09-08	Top		112			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	31302 ft-lbs	55212 ft-lbs	56.7%	1	07-00-06
End Shear	8418 lbs	21696 lbs	38.8%	1	12-08-14
Total Load Deflection	L/320 (0.514")	n\a	75.1%	4	06-10-06
Live Load Deflection	L/527 (0.312")	n\a	68.3%	5	06-10-06
Max Defl.	0.514"	n\a	n\a	4	06-10-06
Span / Depth	13.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 5-1/4"	9134 lbs	n\a	71.3%	HGUS5.50/10
B2	Wall/Plate	3-1/2" x 5-1/4"	8667 lbs	76.7%	38.7%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS5.50/10 is a Quadruple 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS5.50/10 and seat length were input by the user.

Nail one ply to another with 3 ½" spiral nails @ 10" o.c, staggered in 2 rows

SG020587

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

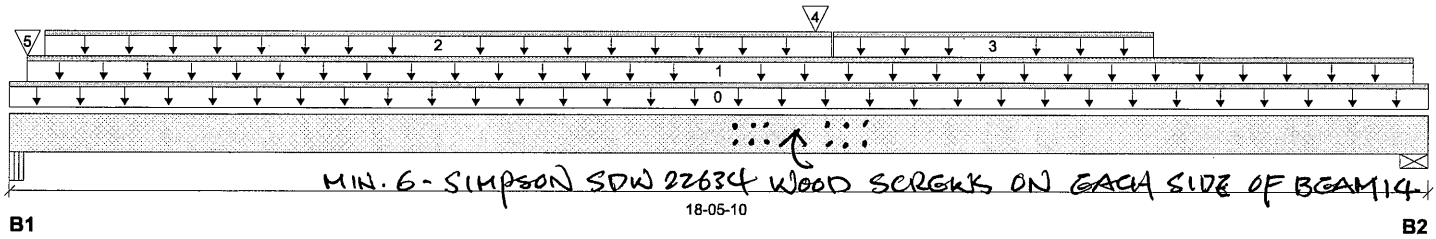
PASSED

Ground Floor - Supply/BOM\Flush Beams\B15(i27536) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 12:28:05

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	Ground Floor - Supply/BOM\Flush Beams\B15(i27536)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 18-05-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2580 / 0	1929 / 0		
B2, 2-3/8"	2485 / 0	2045 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-05-10	Top		24			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	18-03-04	Top	20	10			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-05-08	10-08-08	Top	14	7			n\a
3	20(i21056)	Unf. Lin. (lb/ft)	L	10-08-12	14-10-12	Top		68			n\a
4	-	Conc. Pt. (lbs)	L	10-05-14	10-05-14	Top	4021	2638			n\a
5	18(i21054)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	536	319			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	45845 ft-lbs	73615 ft-lbs	62.3%	1	10-05-14
End Shear	6201 lbs	28927 lbs	21.4%	1	17-03-06
Total Load Deflection	L/270 (0.798")	n\a	88.9%	4	09-07-11
Live Load Deflection	L/475 (0.453")	n\a	75.7%	5	09-07-11
Max Defl.	0.798"	n\a	n\a	4	09-07-11
Span / Depth	18.1				

REGISTERED PROFESSIONAL ENGINEER
11/07/2020
EDWIN C. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/2" x 7"	6281 lbs	26.5%	13.4%	Unspecified
B2	Wall/Plate	2-3/8" x 7"	6283 lbs	61.4%	31.0%	Spruce-Pine-Fir

Notes

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

Nail one ply to another with
3 ½" spiral nails @ 12"
o.c, staggered in 2 rows, PLUS ½" ϕ BOLTS,
NUTS & WASHERS @ 4'-0" O.C.,
STAGGERED IN 2 ROWS

SEO20588

Boise Cascade

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

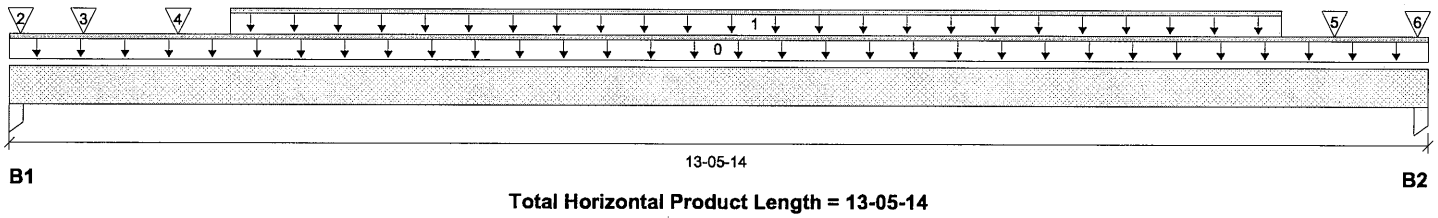
PASSED

Ground Floor - Supply/BOM\Flush Beams\B16(i28134) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 12:28:05

Build 7493

Job name:		File name:	4205 EL. A.mmdl
Address:		Description:	Ground Floor - Supply/BOM\Flush Beams\B16(i28134)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 13-05-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	985 / 0	524 / 0		
B2, 2-3/8"	984 / 0	525 / 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	13-05-14	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-01-02	12-01-02	Top	146	73			n\a
2	J1(i28124)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	58	29			n\a
3	J1(i28121)	Conc. Pt. (lbs)	L	00-08-06	00-08-06	Top	109	54			n\a
4	J1(i28120)	Conc. Pt. (lbs)	L	01-07-02	01-07-02	Top	139	69			n\a
5	J1(i28109)	Conc. Pt. (lbs)	L	12-07-02	12-07-02	Top	131	66			n\a
6	J1(i28108)	Conc. Pt. (lbs)	L	13-04-10	13-04-10	Top	72	36			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6909 ft-lbs	11610 ft-lbs	59.5%	1	06-07-02
End Shear	1940 lbs	5785 lbs	33.5%	1	12-06-00
Total Load Deflection	L/259 (0.612")	n\a	92.7%	4	06-10-02
Live Load Deflection	L/397 (0.4")	n\a	90.7%	5	06-10-02
Max Defl.	0.612"	n\a	n\a	4	06-10-02
Span / Depth	16.7				

REGISTERED PROFESSIONAL ENGINEER
11/07/2020
EDWIN C. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	2-3/8" x 1-3/4"	2133 lbs	49.1%	42.1%	Unspecified
B2	Column	2-3/8" x 1-3/4"	2132 lbs	49.1%	42.0%	Unspecified

Notes

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

Disclosure

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

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

SG 020589

Boise Cascade

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

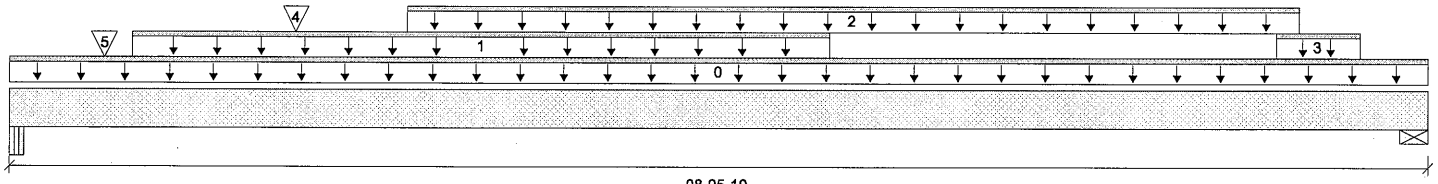
PASSED

Ground Floor - Supply/BOM\Flush Beams\B17(i33656) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | June 20, 2020 14:58:19

Build 7493

Job name:		File name:	4205 EL. A - OPT. 9' BSMT.mmdl
Address:		Description:	Ground Floor - Supply/BOM\Flush Beams\B17(i33656)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 08-05-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	345 / 0	410 / 0		
B2, 2-3/8"	315 / 0	301 / 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	08-05-10	Top		6			00-00-00
1	20(i21056)	Unf. Lin. (lb/ft)	L	00-08-12	04-10-12	Top		68			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	02-04-06	07-08-06	Top	93	46			n\a
3	21(i21057)	Unf. Lin. (lb/ft)	L	07-06-12	08-00-12	Top		68			n\a
4	J6(i33655)	Conc. Pt. (lbs)	L	01-08-06	01-08-06	Top	124	65			n\a
5	19(i21055)	Conc. Pt. (lbs)	L	00-06-12	00-06-12	Top	30	25			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2051 ft-lbs	17696 ft-lbs	11.6%	1	04-04-06
End Shear	934 lbs	7232 lbs	12.9%	1	01-05-06
Total Load Deflection	L/999 (0.034")	n\a	n\a	4	04-03-06
Live Load Deflection	L/999 (0.017")	n\a	n\a	5	04-04-06
Max Defl.	0.034"	n\a	n\a	4	04-03-06
Span / Depth	8.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/2" x 1-3/4"	1030 lbs	17.4%	8.8%	Unspecified
B2	Wall/Plate	2-3/8" x 1-3/4"	848 lbs	33.1%	16.7%	Spruce-Pine-Fir

Notes

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

REGISTERED PROFESSIONAL ENGINEER
11/07/2020
EDWIN C. FOK
PROVINCE OF ONTARIO

Disclosure

SG020590

Boise Cascade

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

PASSED

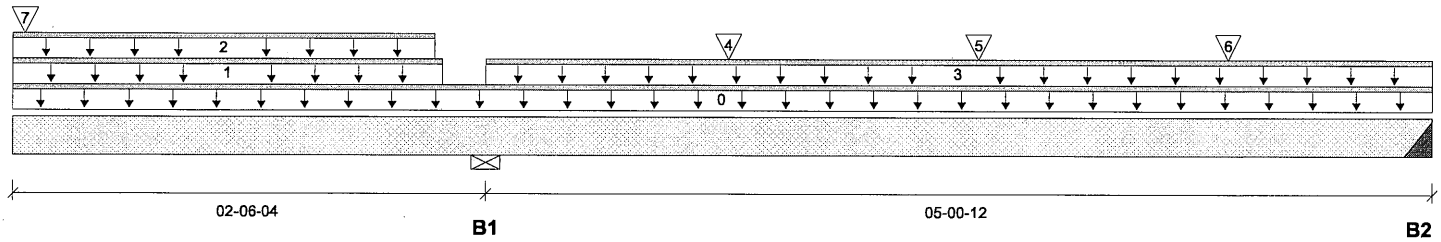
2nd Floor - Supply/BOM\Flush Beams\B3b(i31139) (Flush Beam)

BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 2 spans | L cant.

June 20, 2020 15:14:15

File name: 4205 EL. B.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B3b(i31139)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 07-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1166 / 0	902 / 0		
B2, 2"	345 / 272	0 / 36		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-07-00	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-03-08	Top	29	14			n\a
2	W5(i21018)	Unf. Lin. (lb/ft)	L	00-00-00	02-03-00	Top		26			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-06-04	07-07-00	Top	27	14			n\a
4	J6(i31592)	Conc. Pt. (lbs)	L	03-09-14	03-09-14	Top	177	89			n\a
5	J6(i31553)	Conc. Pt. (lbs)	L	05-01-14	05-01-14	Top	178	89			n\a
6	J6(i31395)	Conc. Pt. (lbs)	L	06-05-14	06-05-14	Top	167	83			n\a
7	-	Conc. Pt. (lbs)	L	00-00-12	00-00-12	Top	513	390			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	521 ft-lbs	17696 ft-lbs	2.9%	6	05-01-14
Neg. Moment	-3409 ft-lbs	-17696 ft-lbs	19.3%	1	02-06-04
End Shear	426 lbs	7232 lbs	5.9%	2	06-05-02
Cont. Shear	1420 lbs	7232 lbs	19.6%	1	01-03-10
Total Load Deflection	2xL/1998 (0.05")	n\a	n\a	9	00-00-00
Live Load Deflection	2xL/1998 (0.03")	n\a	n\a	12	00-00-00
Total Neg. Defl.	L/999 (-0.011")	n\a	n\a	9	04-06-06
Max Defl.	-0.011"	n\a	n\a	9	04-06-06
Span / Depth	5.0				

REGISTERED PROFESSIONAL ENGINEER
11/07/2020
EDWIN C. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	2876 lbs	48.6%	24.5%	Spruce-Pine-Fir
B2	Hanger	2" x 1-3/4"	485 lbs	n\a	11.4%	HUS1.81/10
B2	Uplift		453 lbs			

Cautions

Uplift of 453 lbs found at bearing B2. (HANGER)

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user.

Long Cantilever: Sheathing required on bottom flange and adjacent back span or bracing designed by the design professional of record. Design professional of record must address uplift at supports.

SG020591

Boise Cascade

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

PASSED

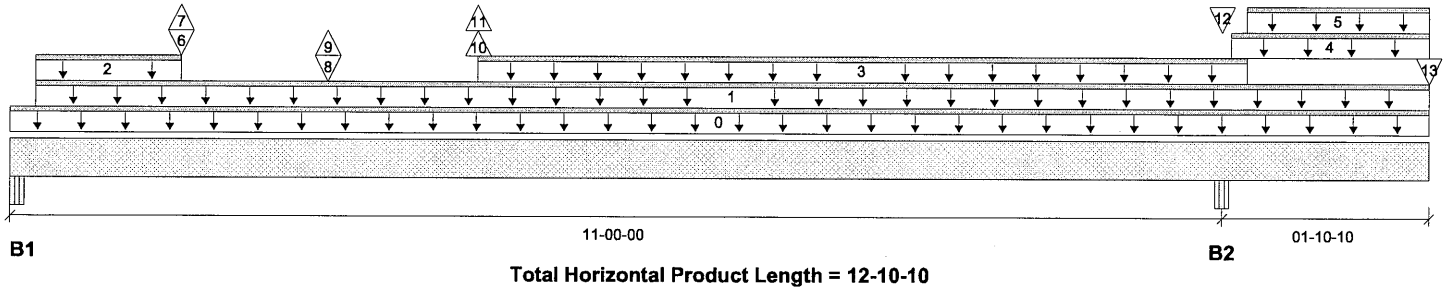
2nd Floor - Supply/BOM\Flush Beams\B4b(i31111) (Flush Beam)

BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 2 spans | R cant.

June 20, 2020 15:14:15

File name: 4205 EL. B.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B4b(i31111)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 12-10-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	617 / 230	152 / 0	0 / 22	
B2, 5-1/2"	415 / 110	531 / 0	229 / 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	12-10-10	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	12-10-10	Top	17	9			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	01-06-08	Top	38	19			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-02-14	11-02-12	Top	23	12			n\a
4	50(i28345)	Unf. Lin. (lb/ft)	L	11-01-00	12-10-10	Top		101			n\a
5	50(i28345)	Unf. Lin. (lb/ft)	L	11-02-12	12-10-10	Top		74	116		n\a
6	J5(i31082)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	Top	114	42			n\a
7	J5(i31082)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	Top	-31				n\a
8	J5(i31144)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	141	54			n\a
9	J5(i31144)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	-33				n\a
10	B3b(i31139)	Conc. Pt. (lbs)	L	04-02-14	04-02-14	Top	340	-36			n\a
11	B3b(i31139)	Conc. Pt. (lbs)	L	04-02-14	04-02-14	Top	-272				n\a
12	51(i28343)	Conc. Pt. (lbs)	L	11-00-00	11-00-00	Top		15			n\a
13	FC1 Floor Material	Conc. Pt. (lbs)	L	12-10-10	12-10-10	Top		10	15		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2596 ft-lbs	17696 ft-lbs	14.7%	43	04-02-14
Neg. Moment	-1042 ft-lbs	-17696 ft-lbs	5.9%	24	04-02-14
End Shear	963 lbs	7232 lbs	13.3%	43	01-05-06
Cont. Shear	679 lbs	7232 lbs	9.4%	1	09-09-06
Total Load Deflection	L/999 (0.065")	n\a	n\a	102	05-04-06
Live Load Deflection	L/999 (0.059")	n\a	n\a	151	05-05-07
Total Neg. Defl.	2xL/1998 (-0.03")	n\a	n\a	102	12-10-10
Max Defl.	0.065"	n\a	n\a	102	05-04-06
Span / Depth	10.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/2" x 1-3/4"	1115 lbs	15.1%	9.5%	Unspecified
B1	Uplift		230 lbs (1-H3 Anchor)			
B2	Beam	5-1/2" x 1-3/4"	1515 lbs	20.5%	12.9%	Unspecified

SE020592

Boise Cascade

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

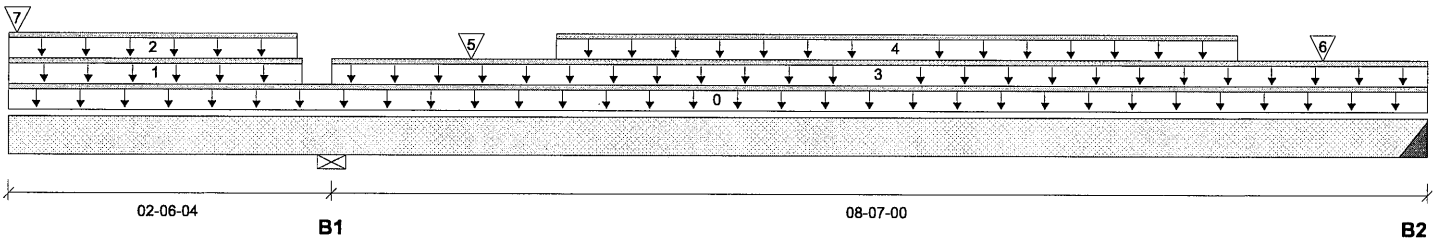
PASSED

2nd Floor - Supply/BOM\Flush Beams\B3c(i34744) (Flush Beam)

BC CALC® Member Report | Dry | 2 spans | L cant. | June 22, 2020 08:32:00

Build 7493

Job name:		File name:	4205 EL. C.mmdl
Address:		Description:	2nd Floor - Supply/BOM\Flush Beams\B3c(i34744)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 11-01-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1541 / 0	1062 / 0		
B2, 2"	847 / 159	317 / 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	11-01-04	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-03-08	Top	29	14			n\a
2	W5(i21018)	Unf. Lin. (lb/ft)	L	00-00-00	02-03-00	Top		26			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-06-04	11-01-04	Top	27	14			n\a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	04-03-06	09-07-06	Top	185	92			n\a
5	J5(i34832)	Conc. Pt. (lbs)	L	03-07-06	03-07-06	Top	227	113			n\a
6	J5(i34868)	Conc. Pt. (lbs)	L	10-03-06	10-03-06	Top	200	100			n\a
7	-	Conc. Pt. (lbs)	L	00-00-12	00-00-12	Top	513	390			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3412 ft-lbs	17696 ft-lbs	19.3%	3	07-07-06
Neg. Moment	-3409 ft-lbs	-17696 ft-lbs	19.3%	1	02-06-04
End Shear	1448 lbs	7232 lbs	20.0%	3	09-11-06
Cont. Shear	1997 lbs	7232 lbs	27.6%	1	03-08-14
Total Load Deflection	L/999 (0.059")	n\a	n\a	10	06-11-06
Live Load Deflection	L/999 (0.05")	n\a	n\a	13	06-09-06
Total Neg. Defl.	2xL/1998 (-0.036")	n\a	n\a	10	00-00-00
Max Defl.	0.059"	n\a	n\a	10	06-11-06
Span / Depth	8.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	3638 lbs	61.4%	31.0%	Spruce-Pine-Fir
B2	Hanger	2" x 1-3/4"	1667 lbs	n\a	39.0%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user.

SG020593

Boise Cascade

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

PASSED

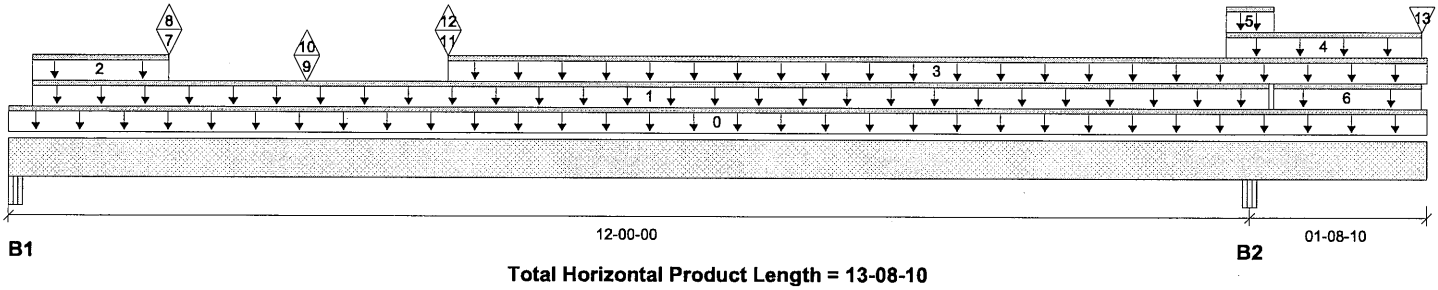
2nd Floor - Supply/BOM\Flush Beams\B4c(i34934) (Flush Beam)

BC CALC® Member Report
Build 7493
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 2 spans | R cant.

June 22, 2020 08:32:00

File name: 4205 EL. C.mmdl
Description: 2nd Floor - Supply/BOM\Flush Beams\B4c(i34934)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 13-08-10

Reaction Summary (Down / Uplift) (lbs)

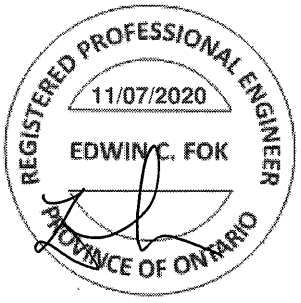
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1121 / 141	485 / 0	0 / 18	
B2, 5-1/2"	578 / 59	677 / 0	260 / 0	

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	13-08-10	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	12-02-03	Top	19	9			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	01-06-08	Top	29	14			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-02-14	13-08-10	Top	16	8			n\a
4	52(i32191)	Unf. Lin. (lb/ft)	L	11-09-04	13-08-00	Top		101			n\a
5	52(i32191)	Unf. Lin. (lb/ft)	L	11-09-04	12-02-12	Top		44	68		n\a
6	52(i32191)	Unf. Lin. (lb/ft)	L	12-02-12	13-08-00	Top		87	136		n\a
7	J4(i34725)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	Top	208	95			n\a
8	J4(i34725)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	Top	-18				n\a
9	J4(i34604)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	232	106			n\a
10	J4(i34604)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	-20				n\a
11	B3c(i34744)	Conc. Pt. (lbs)	L	04-02-14	04-02-14	Top	836	313			n\a
12	B3c(i34744)	Conc. Pt. (lbs)	L	04-02-14	04-02-14	Top	-160				n\a
13	52(i32191)	Conc. Pt. (lbs)	L	13-08-00	13-08-00	Top		18	14		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6318 ft-lbs	17696 ft-lbs	35.7%	59	04-02-14
Neg. Moment	-731 ft-lbs	-17696 ft-lbs	4.1%	65	12-00-00
End Shear	2153 lbs	7232 lbs	29.8%	59	01-05-06
Cont. Shear	1105 lbs	7232 lbs	15.3%	21	10-09-06
Total Load Deflection	L/759 (0.184")	n\a	31.6%	138	05-08-01
Live Load Deflection	L/1051 (0.133")	n\a	34.3%	205	05-09-05
Total Neg. Defl.	2xL/1998 (-0.073")	n\a	n\a	138	13-08-10
Max Defl.	0.184"	n\a	n\a	138	05-08-01
Span / Depth	11.7				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/2" x 1-3/4"	2287 lbs	38.6%	19.5%	Unspecified
B2	Beam	5-1/2" x 1-3/4"	1972 lbs	33.3%	16.8%	Unspecified

SE020594

NORDIC
STRUCTURES

Maximum Floor Spans – M4.1, L/360

2019-04-01

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:	3/4 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

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

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

Notes:

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

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/

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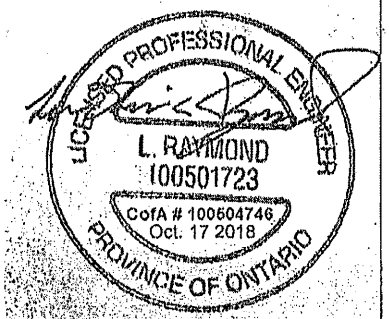
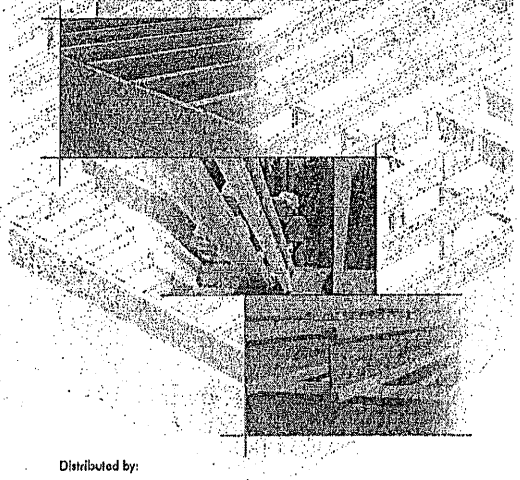
Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)



NORDIC ENGINEERED WOOD

INSTALLATION GUIDE
FOR RESIDENTIAL FLOORS



Distributed by:

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 unsheathed I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

WARNING

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

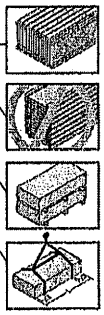
Avoid Accidents by Following these Important Guidelines!

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

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

STORAGE AND HANDLING GUIDELINES

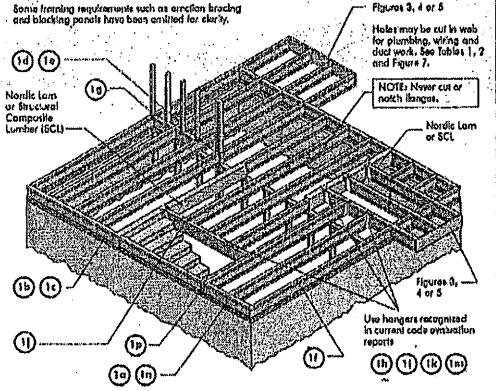
1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists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



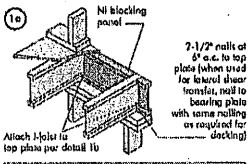
INSTALLING NORDIC I-JOISTS

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 length: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood 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 spacings: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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

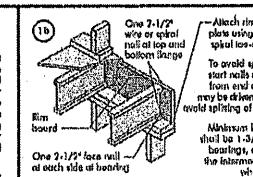


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



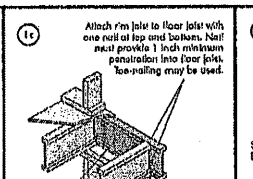
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

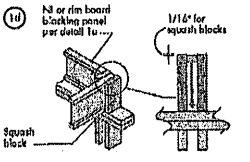
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



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 Vertical per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

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

The construction details for residential designs are prone to changes.

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LICENSED PROFESSIONAL ENGINEER
L. RAYMOND
100501723
CofA # 100504746
Oct. 17 2018
PROVINCE OF ONTARIO

MAXIMUM FLOOR SPANS

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

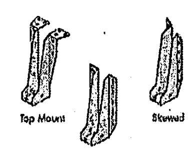
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS
SIMPLE AND MULTIPLE SPANS

9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	13'-5"	16'-3"	15'-4"	14'-10"	14'-7"
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-8"	16'-5"	15'-10"	15'-5"
	NI-60	16'-3"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	16'-4"
	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-9"	17'-2"
	NI-80	17'-3"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	17'-5"
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	15'-6"	18'-4"	17'-3"	16'-8"	16'-7"
	NI-40x	18'-1"	17'-0"	16'-5"	16'-6"	20'-0"	18'-6"	17'-9"	17'-7"
	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-9"
	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-8"
	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-11"
	NI-90	20'-2"	18'-7"	17'-10"	17'-11"	22'-3"	20'-7"	19'-8"	19'-9"
	NI-90x	20'-4"	18'-9"	17'-11"	18'-0"	22'-6"	20'-9"	19'-10"	20'-5"
14"	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-4"
	NI-60	20'-8"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-10"
	NI-70	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-10"
	NI-80	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5"	22'-3"
	NI-90	22'-3"	20'-6"	19'-9"	19'-9"	24'-9"	22'-10"	21'-10"	21'-10"
	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-9"
16"	NI-60	22'-3"	20'-8"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9"	22'-9"
	NI-70	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-7"
	NI-80	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	24'-1"
	NI-90	24'-5"	22'-5"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"
	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-3"	25'-2"	24'-0"	24'-10"

CCMC EVALUATION REPORT 13032-R

I-JOIST HANGERS

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



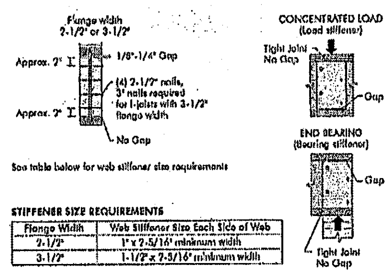
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

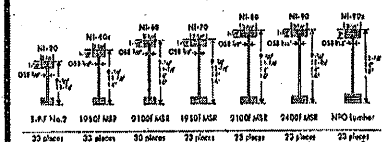


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

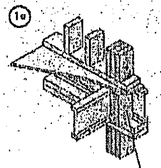
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

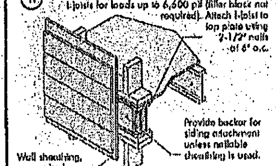
NORDIC I-JOIST SERIES

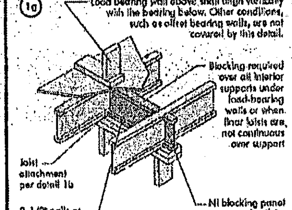


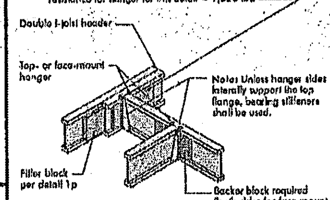
Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

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.




1f
Use single I-joist for loads up to 3,300 plf, double I-joists for loads up to 6,600 plf (filler block not required). Attach I-joist to 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. Bracing per code shall be carried to the foundation.


1g
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
Joist attachment per detail 1b
2-1/2" nails at 6" o.c. to top plate
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.
Double I-joist header
Top- or face-mount hanger
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
Filler block per detail 1p
Backer block required (both sides for face-mount hangers)

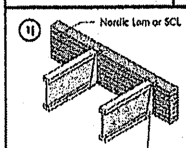
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

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"

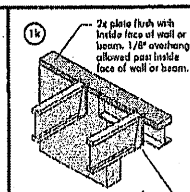
* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.

** For face-mount 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".

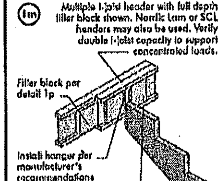


For nailing schedules for multiple beams, see the manufacturer's recommendations.

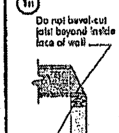
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



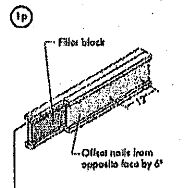
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.


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.
Filler block per detail 1p
Install hanger per manufacturer's recommendations
Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Maximum support capacity = 1,620 lbs.



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

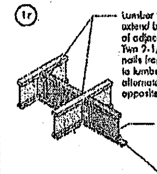


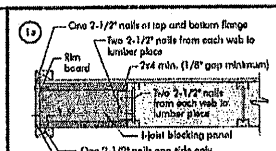
Notes:

1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. 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.
5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

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"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2" 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"


1r
Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.
NI blocking panel
Optional: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.



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.

The construction details for residential designs are prone to changes.

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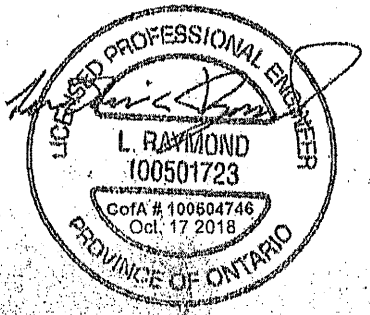
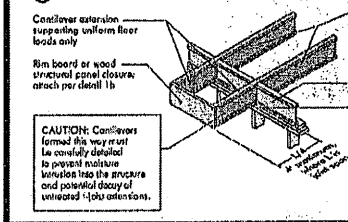
Installation must comply with latest documentation on I-Joist and other Nordic products from the http://nordic.ca/

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)

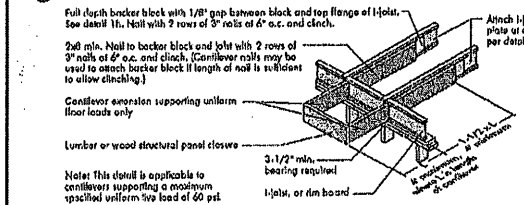


CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

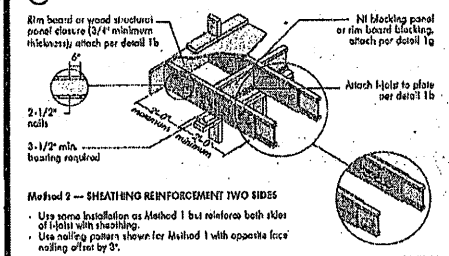


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

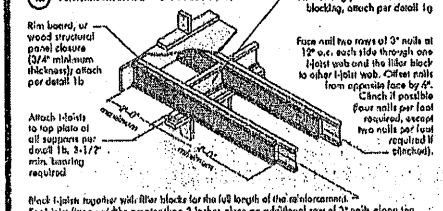


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
- Use nailing pattern shown for 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 or all supports per detail 1b. Verify reinforced I-joist capacity.

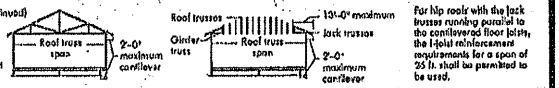
4b Alternate Method 2 — DOUBLE I-JOIST



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

FIGURE 4 (continued)

See table below for NI reinforcement requirements at cantilever.



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

CANTILEVER REINFORCEMENT METHODS ALLOWED

9-1/2	26	N	H	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	X	N	1	2	X	N	2	X	X
	30	N	1	2	X	N	2	X	X	1	2	X	X
	32	N	1	2	X	N	2	X	X	1	X	X	X
	34	N	1	2	X	N	2	X	X	1	X	X	X
	36	N	1	2	X	1	2	X	X	1	X	X	X
11-7/8	26	1	N	N	1	1	N	1	2	2	N	1	2
	28	1	N	N	1	2	N	1	2	2	1	2	X
	30	1	N	N	1	2	N	1	2	X	1	2	X
	32	1	N	1	1	2	N	1	2	X	1	2	X
	34	1	N	1	2	2	1	2	X	X	1	2	X
	36	2	N	1	2	X	1	2	X	X	1	2	X
	38	2	N	1	2	X	1	2	X	X	2	X	X
14	26	N	N	N	N	N	N	N	1	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	1	1
	30	N	N	N	N	N	N	N	1	N	N	1	2
	32	N	N	N	1	N	N	N	1	N	N	1	2
	34	N	N	N	1	N	N	1	1	N	N	1	2
	36	N	N	N	1	N	N	1	2	N	1	1	2
	38	N	N	N	1	N	N	1	2	N	1	1	X
	40	N	N	N	1	N	N	1	2	N	1	2	X
16	26	N	N	N	N	N	N	N	1	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	N	1
	30	N	N	N	N	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	1	2
	34	N	N	N	1	N	N	N	1	N	N	1	2
	36	N	N	N	1	N	N	1	1	N	N	1	2
	38	N	N	N	1	N	N	1	2	N	N	1	2
	40	N	N	N	1	N	N	1	2	N	1	1	2

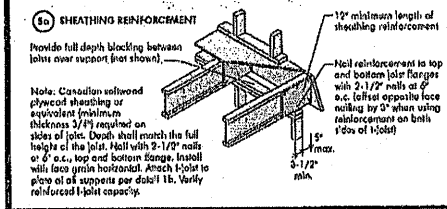
1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be 15 psf roof dead load, 55 psf floor total load, and 90 plf wall load. Wall load is based on 3'-0" maximum width window or door openings.

For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

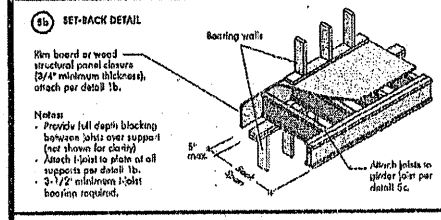
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

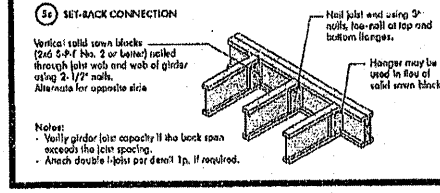
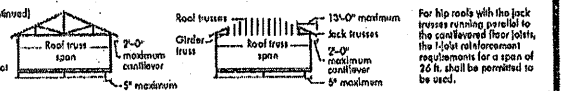


FIGURE 5 (continued)

See table below for NI reinforcement requirements at cantilever.



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

9-1/2	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	X	X	X	X
	32	2	X	X	X	2	X	X	X	X	X	X	X
	34	2	X	X	X	X	X	X	X	X	X	X	X
	36	2	X	X	X	X	X	X	X	X	X	X	X
11-7/8	26	2	X	X	X	X	X	X	X	X	X	X	X
	28	X	2	X	X	X	X	X	X	X	X	X	X
	30	X	2	X	X	X	X	X	X	X	X	X	X
	32	X	2	X	X	X	X	X	X	X	X	X	X
	34	X	X	X	X	X	X	X	X	X	X	X	X
	36	X	X	X	X	X	X	X	X	X	X	X	X
	38	X	X	X	X	X	X	X	X	X	X	X	X
14	26	N	2	X	X	1	X	X	X	2	X	X	X
	28	N	2	X	X	1	X	X	X	2	X	X	X
	30	1	2	X	X	1	X	X	X	2	X	X	X
	32	1	X	X	X	1	X	X	X	2	X	X	X
	34	1	X	X	X	2	X	X	X	2	X	X	X
	36	1	X	X	X	2	X	X	X	X	X	X	X
	38	1	X	X	X	2	X	X	X	X	X	X	X
	40	1	X	X	X	2	X	X	X	X	X	X	X
16	26	1	2	X	X	1	X	X	X	2	X	X	X
	28	1	2	X	X	1	X	X	X	2	X	X	X
	30	1	X	X	X	1	X	X	X	2	X	X	X
	32	1	X	X	X	2	X	X	X	2	X	X	X
	34	1	X	X	X	2	X	X	X	2	X	X	X
	36	1	X	X	X	2	X	X	X	X	X	X	X
	38	1	X	X	X	2	X	X	X	X	X	X	X
	40	2	X	X	X	2	X	X	X	X	X	X	X

1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be 15 psf roof dead load, 55 psf floor total load, and 90 plf wall load. Wall load is based on 3'-0" maximum width window or door openings.

For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

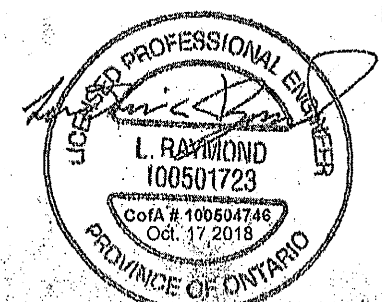
The construction details for residential designs are prone to changes.

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.

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)



WEB HOLES

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 or bottom of the hole or opening and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 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 shall be permitted anywhere in a cantilevered 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 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)	SAF
9-1/2"	[illegible]	[illegible]	[illegible]
11-7/8"	[illegible]	[illegible]	[illegible]
14"	[illegible]	[illegible]	[illegible]
16"	[illegible]	[illegible]	[illegible]

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.

OPTIONAL:

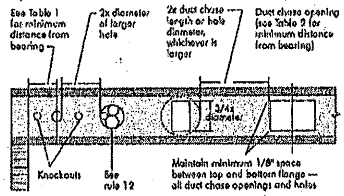
The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Floor Spans), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$D_{reduced} = \frac{L_{actual}}{SAF} \times D$

Where:
- $D_{reduced}$ = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft). The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.
- L_{actual} = The actual measured span distance between the inside faces of supports (ft).
- SAF = 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 $\frac{L_{actual}}{SAF}$ is greater than 1, use 1 in the above calculation for $\frac{L_{actual}}{SAF}$.

FIGURE 7
FIELD-CUT HOLE LOCATOR



A knockout is NOT considered a hole, may be utilized wherever it occurs and may be ignored for purposes of calculating minimum distances between holes.

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.

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)
9-1/2"	[illegible]	[illegible]
11-7/8"	[illegible]	[illegible]
14"	[illegible]	[illegible]
16"	[illegible]	[illegible]

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. For other applications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (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)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	5/8	2"	1-3/4"	2"	6"	12"
20	5/8	2"	1-3/4"	2"	6"	12"
24	3/4	2"	1-3/4"	2"	6"	12"

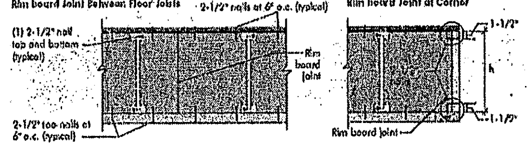
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions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

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

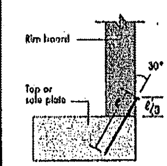
IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

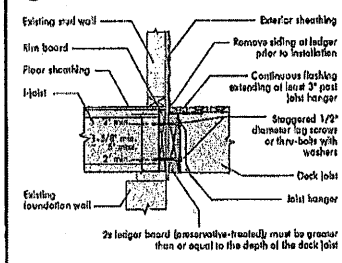
(8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

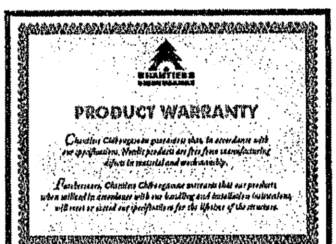


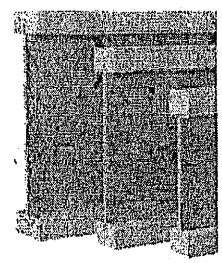
(8b) TOE-NAIL CONNECTION AT RIM BOARD



(8c) 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



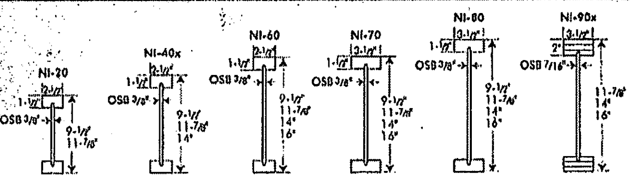




CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

NORDIC ENGINEERED WOOD

www.nordicewp.com



S-P-F No. 2	1950f MSR	2100f MSR	1950f MSR	2100f MSR	NPG Lumber
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit

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 or bottom of the hole or opening and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 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 cantilevered 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 a single round hole circumscribed around them.

TABLE 1

LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)														
		Round Hole Diameter (in.)														
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
9-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	---	---	---	---	---	---	---	---	---
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	---	---	---	---	---	---	---	---	---
	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	---	---	---	---	---	---	---	---	---
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---	---	---	---
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---	---	---	---
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	---	---	---	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---	---	---	---
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	---	---	---	---	---	---
	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	---	---	---	---
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"	---	---	---	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---	---	---	---
14"	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"	---	---	---
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"	---	---	---
	NI-70	0'-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-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	---	---	---	---	---
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"	10'-2"	12'-2"	13'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"	14'-0"	15'-6"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"	12'-9"	14'-5"	16'-0"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-0"	---	---

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

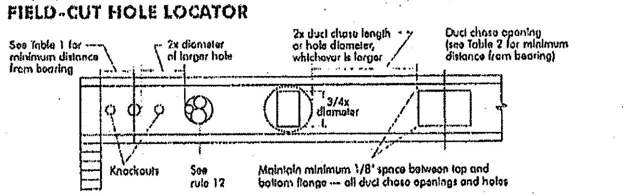
Simple Span Only

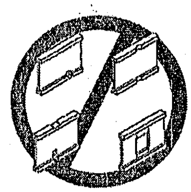
Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft - in.)								
		Duct Chase Length (in.)								
		8	10	12	14	16	18	20	22	24
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
11-7/8"	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
14"	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
	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-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"
16"	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10"
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	14'-0"
	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"
	NI-90x	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 unsheathed I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

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

CHANTIERS CHIBOUGAMAU

PRODUCT WARRANTY

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

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

LICENSED PROFESSIONAL ENGINEER
L. RAYMOND
100501723
CofA # 100504746
Oct. 17 2018
PROVINCE OF ONTARIO

The construction details for residential designs are prone to changes.

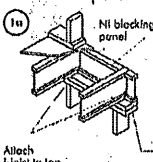
Details released after September 2013 supersedes N-303

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.

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)

1a

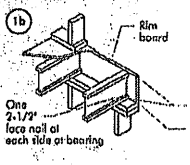


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load*-(plf)
NI Joists	3,300

*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.

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

1b



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.

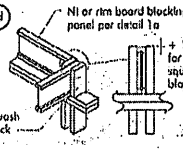
One 2-1/2" wire or spiral nail at top and bottom flange

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.

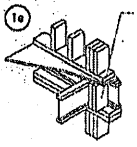
1d



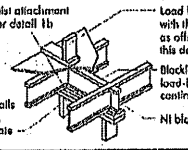
Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a or 1b

1e



1g



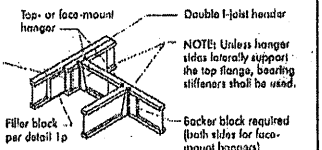
1h

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

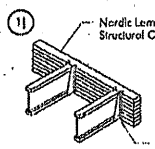
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

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



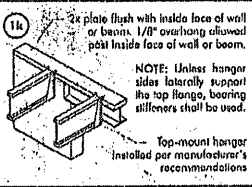
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

1i

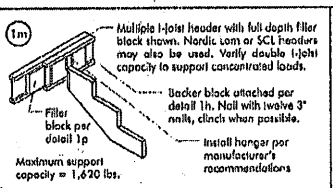


NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

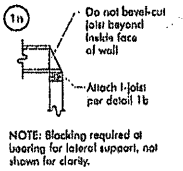
1k



1m

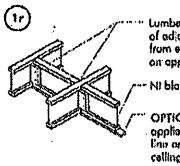


1n

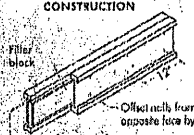


NOTE: Blocking required at bearing for lateral support, not shown for clarity.

1r



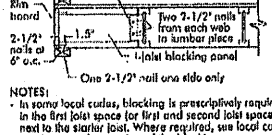
1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION



NOTES:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. 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.
5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbs/ft. Verify double I-joist capacity.

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

1s



NOTES:
- In some local codes, blocking is prescriptively required in the first joist space (for 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.

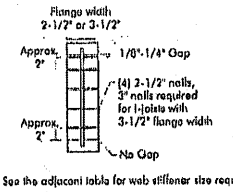
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.120" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

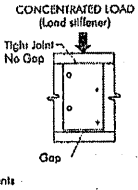
WEB STIFFENERS

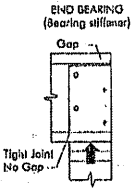
RECOMMENDATIONS:

- A *bearing stiffener* is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the *I-joist Construction Guide* (C101). The gap between the stiffener and the flange is at the top.
- A *bearing stiffener* is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A *load stiffener* is required at locations where a factored concentrated load greater than 2,370 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





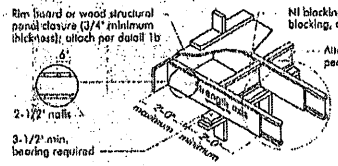


See the adjacent table for web stiffener size requirements

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

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

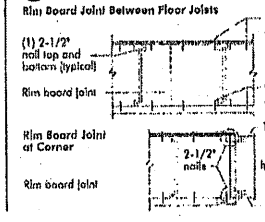
Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.

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.

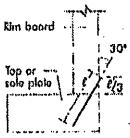
RIM BOARD INSTALLATION DETAILS

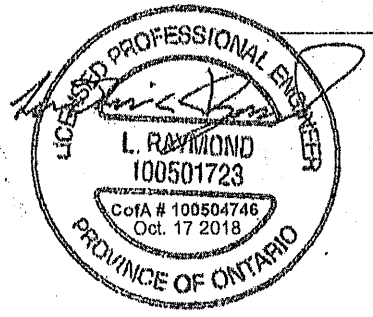
6a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists



6b TOE-NAIL CONNECTION AT RIM BOARD





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.

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)