

FROM PLAN DATED: MARCH 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA SHORES

MODEL: S 45-4C

ELEVATION: A

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
DESIGNER: AJ  
REVISION: -CZ

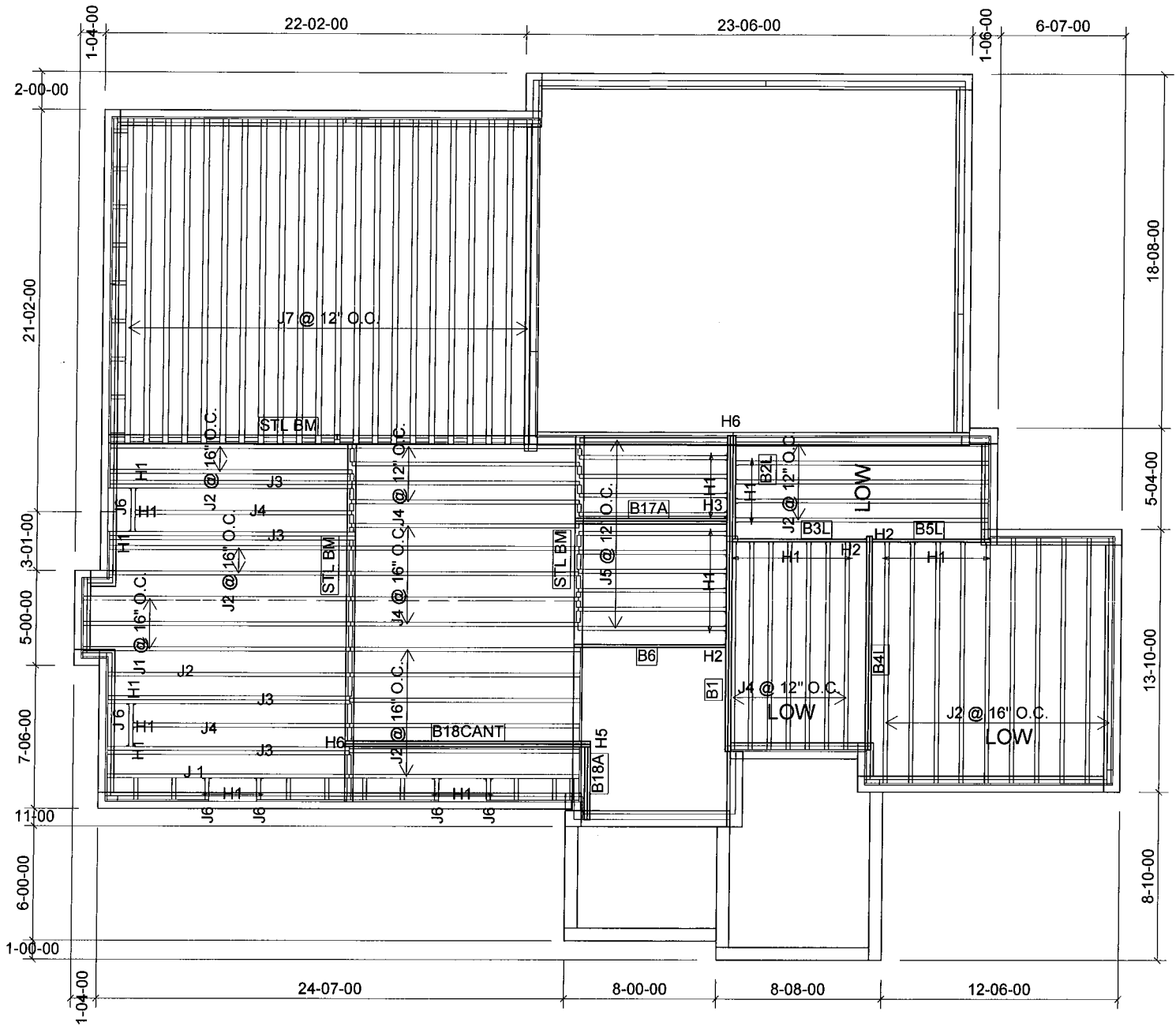
NOTES:  
CERAMIC TILE APPLICATION  
AS PER O.B.C. 9.30.6.  
SQUASH BLOCKS  
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER  
INTERIOR UNIFORM LOAD BEARING  
WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS.  
CANTILEVERED JOISTS  
REQUIRE I-JOIST BLOCKING ALONG  
BEARING AND RIMBOARD CLOSURE  
AT ENDS.  
REFER TO THE NORDIC  
INSTALLATION GUIDE FOR PROPER  
STORAGE AND INSTALLATION.

LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

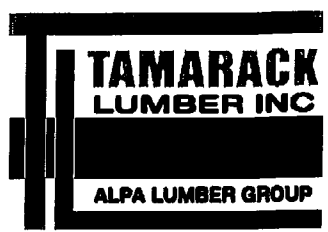
# 1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	3
J 1	14-00-00	9 1/2" NI-40x	1	1
J2	14-00-00	9 1/2" NI-40x	1	26
J3	14-00-00	9 1/2" NI-40x	2	8
J4	12-00-00	9 1/2" NI-40x	1	18
J5	8-00-00	9 1/2" NI-40x	1	11
J 6	4-00-00	9 1/2" NI-40x	1	1
J6	4-00-00	9 1/2" NI-40x	1	1
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	22
B1	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18CANT	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B18A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
16	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H3	HGUS410
1	H5	HUC410
2	H6	H2.5A*

Town of Innisfil Certified Model  
04/01/2018 9:32:38 AM kgervais



FROM PLAN DATED: MARCH 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA SHORES

MODEL: S45-4C

ELEVATION: A

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
DESIGNER: AJ  
REVISION: -CZ

NOTES:  
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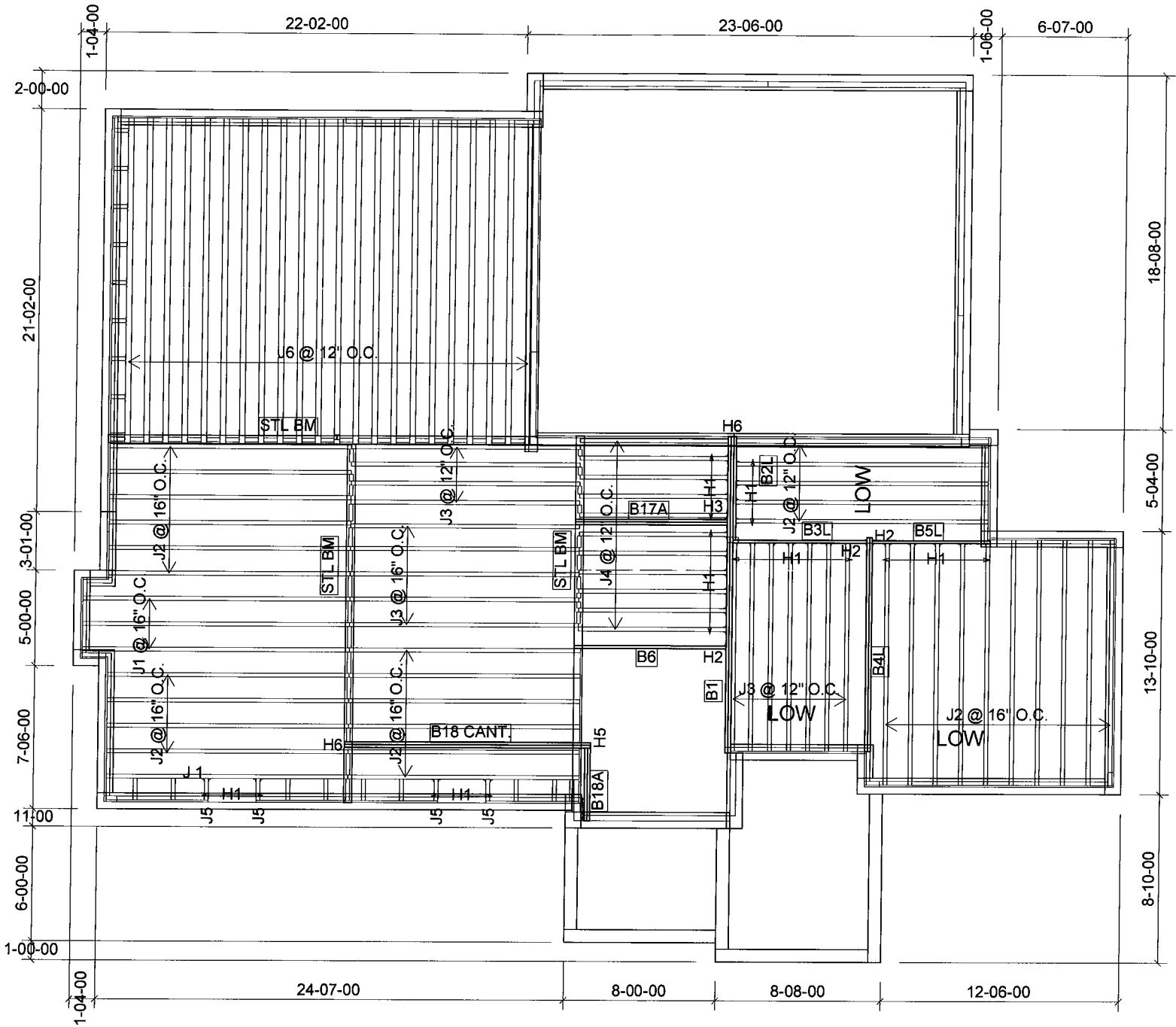
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

1st FLOOR

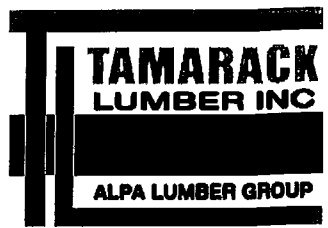
STANDARD WITH DECK CON.



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	3
J 1	14-00-00	9 1/2" NI-40x	1	1
J2	14-00-00	9 1/2" NI-40x	1	31
J3	12-00-00	9 1/2" NI-40x	1	16
J4	8-00-00	9 1/2" NI-40x	1	11
J5	2-00-00	9 1/2" NI-40x	1	4
J6	18-00-00	9 1/2" NI-80	1	22
B1	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18 CANT.	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B18A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
16	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
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1	H3	HGUS410
1	H5	HUC410
2	H6	H2.5A*

Town of Innisfil Certified Model  
04/01/2018 9:32:42 AM kgervais



FROM PLAN DATED: MARCH 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA SHORES

MODEL: S45-4C

ELEVATION: A

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
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NOTES:  
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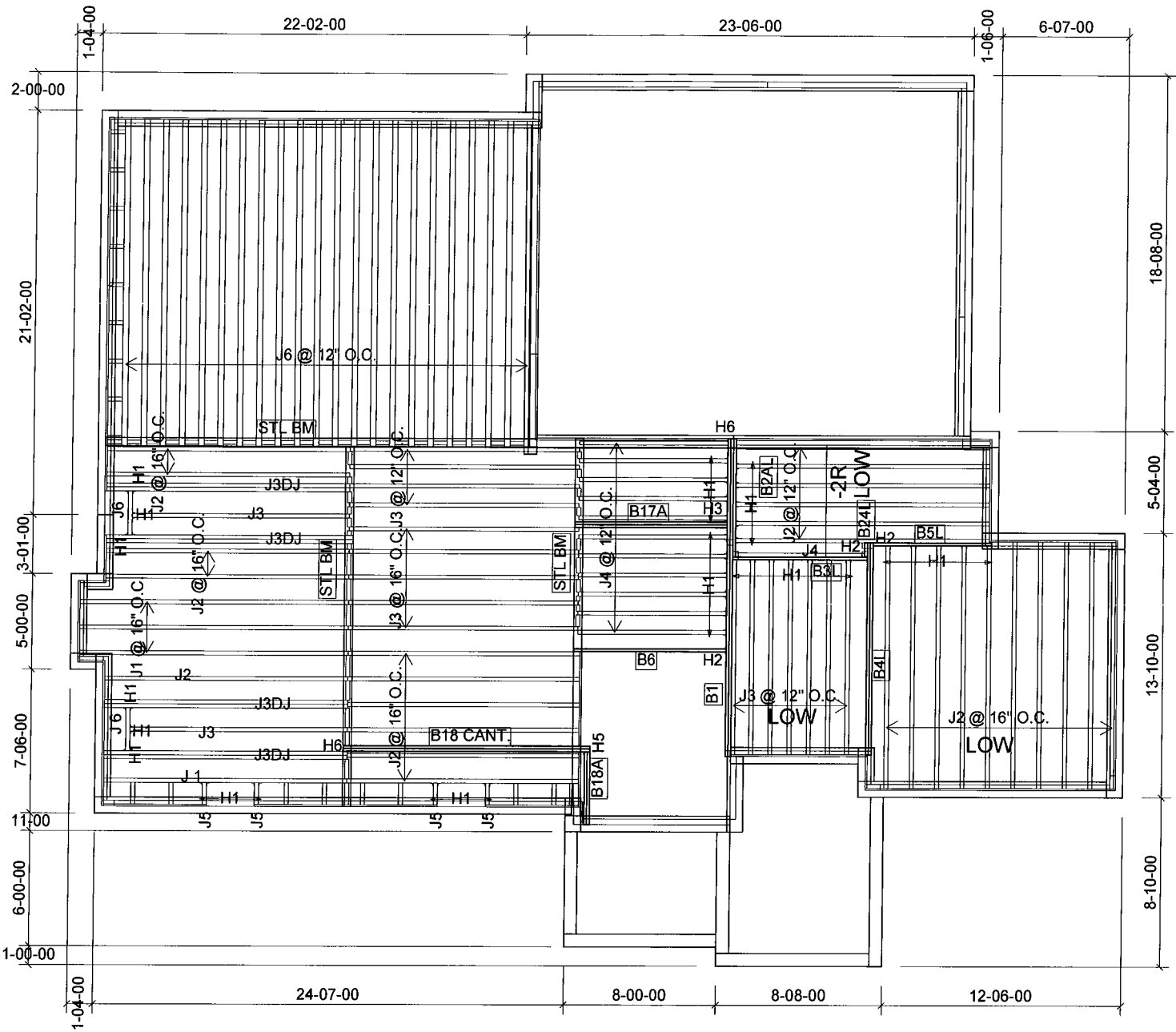
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
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SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

1st FLOOR

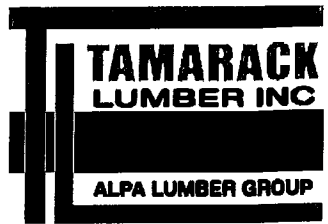
MUD RM OPT.



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J 1	14-00-00	9 1/2" NI-40x	1	1
J2	14-00-00	9 1/2" NI-40x	1	27
J3DJ	14-00-00	9 1/2" NI-40x	2	8
J3	12-00-00	9 1/2" NI-40x	1	18
J4	8-00-00	9 1/2" NI-40x	1	12
J 6	4-00-00	9 1/2" NI-40x	1	1
J6	4-00-00	9 1/2" NI-40x	1	1
J5	2-00-00	9 1/2" NI-40x	1	4
J6	18-00-00	9 1/2" NI-80	1	22
B1	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18 CANT.	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2AL	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B18A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B24L	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H3	HGUS410
1	H5	HUC410
2	H6	H2.5A*

Town of Innisfil Certified Model  
04/01/2018 9:32:43 AM kgervais



FROM PLAN DATED: MARCH 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA SHORES

MODEL: S45-4C

ELEVATION: A

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
DESIGNER: AJ  
REVISION: -CZ

NOTES:  
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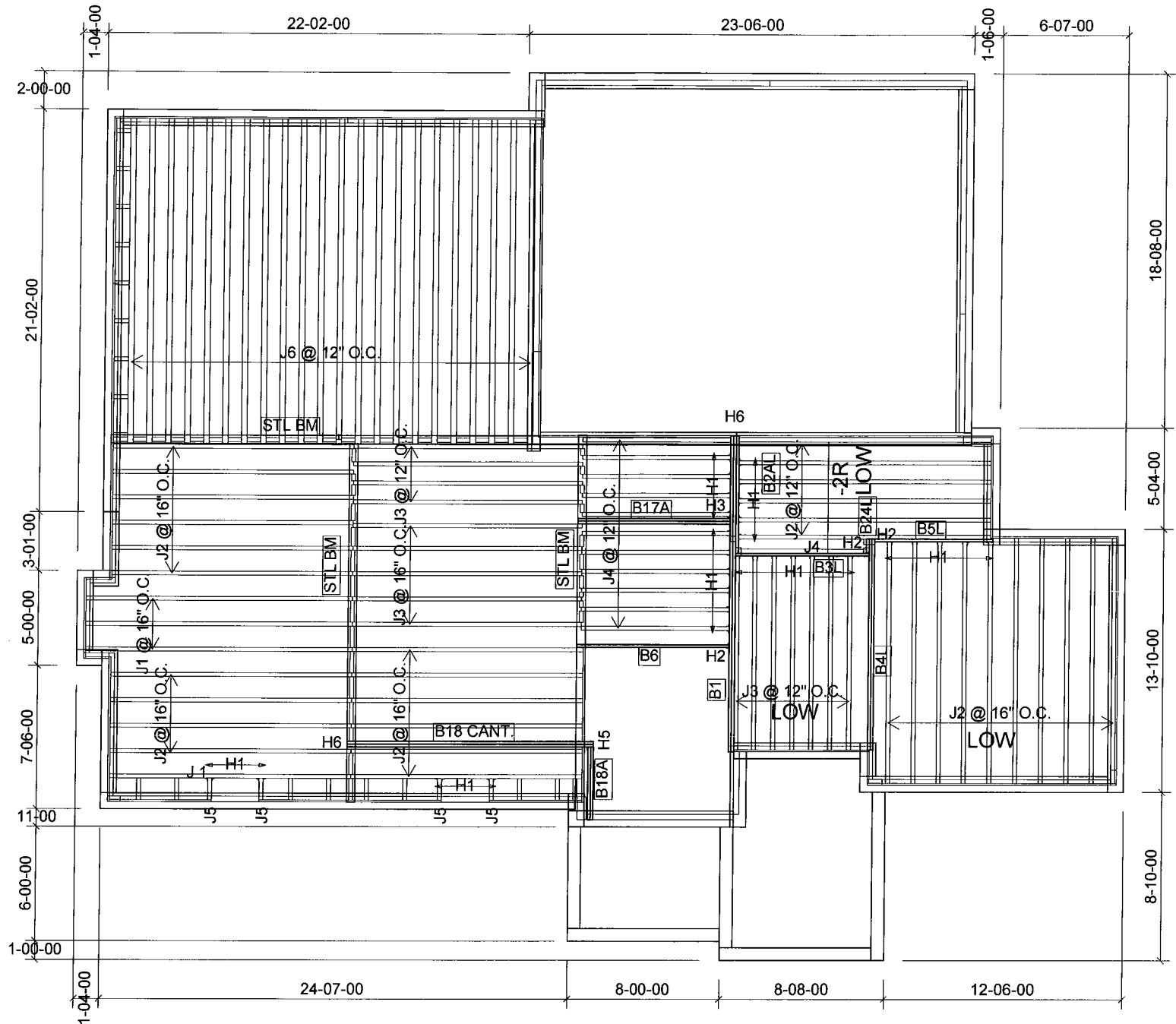
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

1st FLOOR

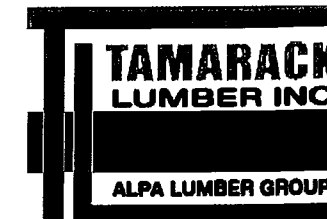
MUD RM OPT. WITH DECK



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	3
J 1	14-00-00	9 1/2" NI-40x	1	1
J2	14-00-00	9 1/2" NI-40x	1	32
J3	12-00-00	9 1/2" NI-40x	1	16
J4	8-00-00	9 1/2" NI-40x	1	12
J5	2-00-00	9 1/2" NI-40x	1	4
J6	18-00-00	9 1/2" NI-80	1	22
B1	18-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B18 CANT.	14-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B4L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B17A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B2AL	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B3L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B5L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B18A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B24L	2-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H3	HGUS410
1	H5	HUC410
2	H6	H2.5A*

Town of Innisfil Certified Model  
04/01/2018 9:32:44 AM kgervais



FROM PLAN DATED: MARCH 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA SHORES

MODEL: S 45-4C

ELEVATION: A

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
DESIGNER: AJ  
REVISION: -CZ

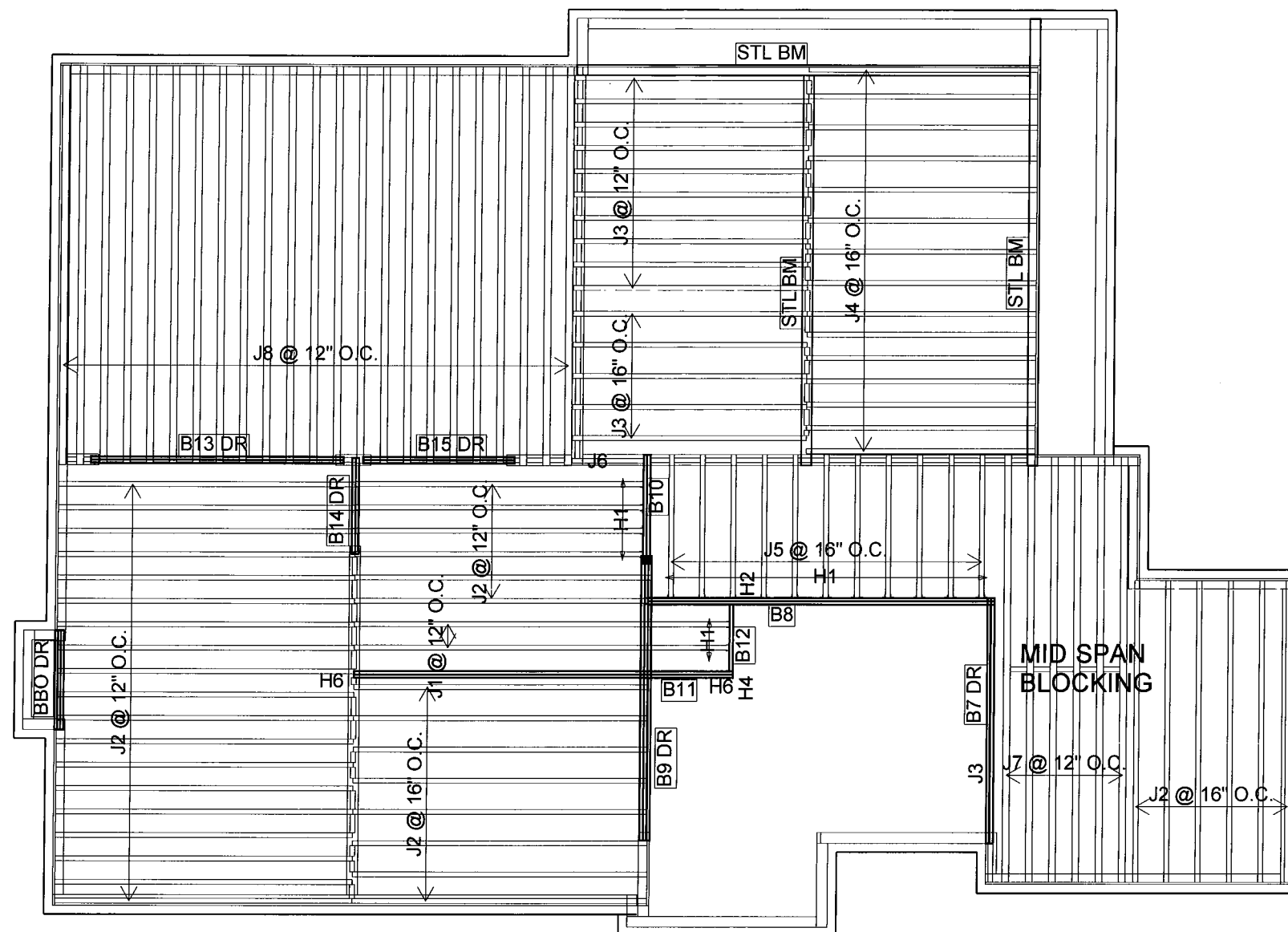
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LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

## 2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	2
J2	14-00-00	9 1/2" NI-40x	1	39
J3	12-00-00	9 1/2" NI-40x	1	16
J4	10-00-00	9 1/2" NI-40x	1	15
J5	8-00-00	9 1/2" NI-40x	1	11
J6	4-00-00	9 1/2" NI-40x	1	1
J7	20-00-00	9 1/2" NI-80	1	6
J8	18-00-00	9 1/2" NI-80	1	23
B11	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B13 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/9.5
15	H1	IUS2.56/9.5
1	H2	HUS1.81/10
1	H4	LS90
2	H6	H2.5A*

Town of Innisfil Certified Model  
04/01/2018 9:32:46 AM kgervais



FROM PLAN DATED: MARCH 2015

**BUILDER:**  
BAYVIEW WELLINGTON

**SITE:**  
**ALCONA SHORES**

**MODEL: S45-4C**

**ELEVATION: B**

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
DESIGNER: AJ  
REVISION: -CZ

**NOTES:**  
**CERAMIC TILE APPLICATION**  
**AS PER O.B.C. 9.30.6.**  
**SQUASH BLOCKS**  
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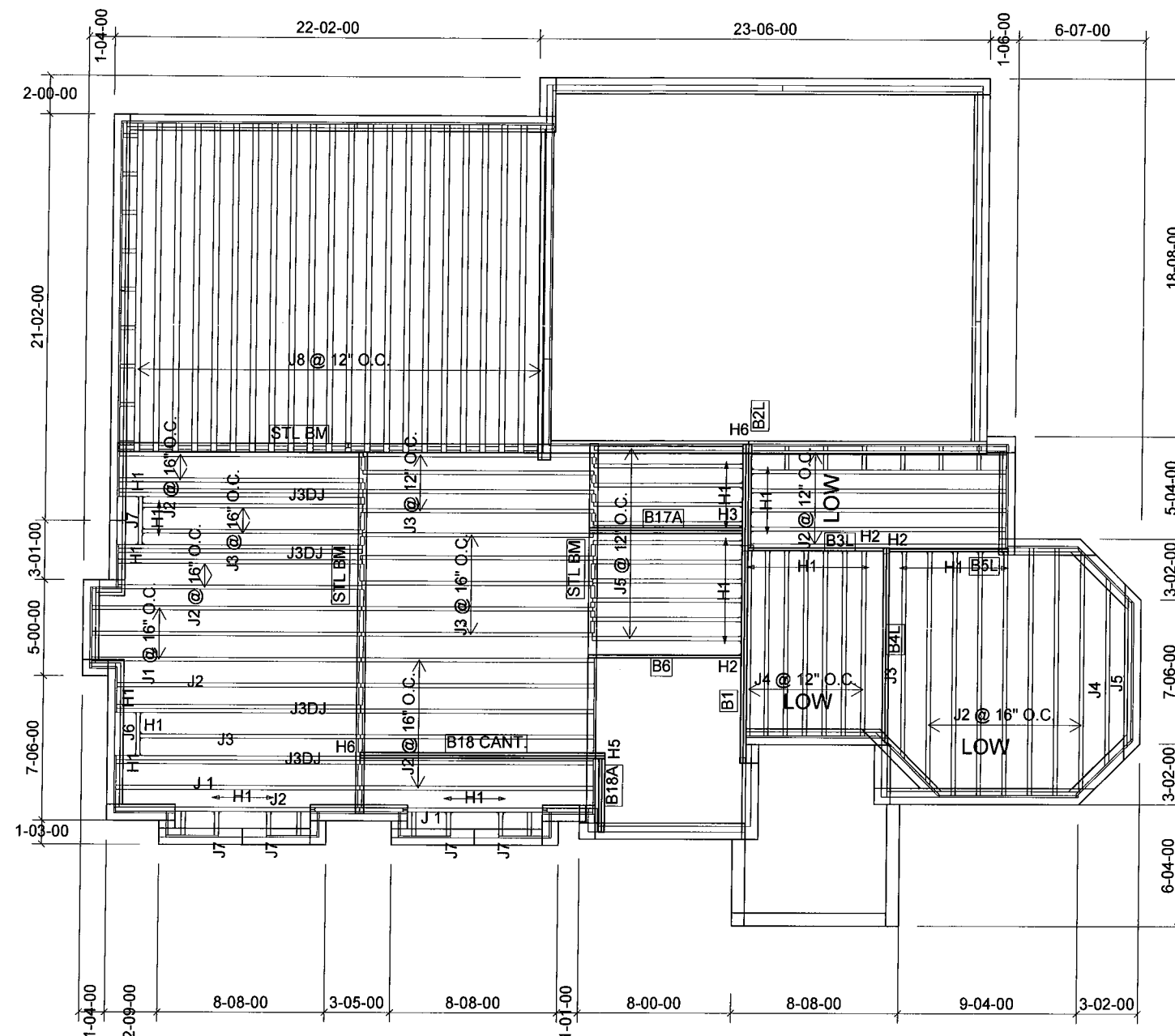
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**DEAD LOAD: 15.0 lb/ft**  
**TILED AREAS: 20 lb/ft**

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

DATE: 9/7/2017

## 1st FLOOR

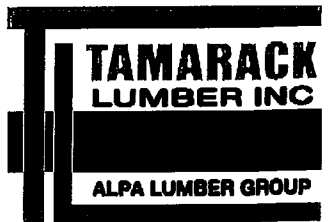
STANDARD



Products				
PlotID	Length	Product	Plies	Net Qty
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J3DJ	14-00-00	9 1/2" NI-40x	2	8
J3	12-00-00	9 1/2" NI-40x	1	13
J4	10-00-00	9 1/2" NI-40x	1	8
J5	8-00-00	9 1/2" NI-40x	1	12
J6	4-00-00	9 1/2" NI-40x	1	1
J7	4-00-00	9 1/2" NI-40x	1	1
J7	2-00-00	9 1/2" NI-40x	1	4
J8	18-00-00	9 1/2" NI-80	1	22
B1	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
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B4L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
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B3L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
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04/01/2018 9:32:47 AM kgervais



FROM PLAN DATED: MARCH 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA SHORES

MODEL: S45-4C

ELEVATION: B

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
DESIGNER: AJ  
REVISION: -CZ

NOTES:  
CERAMIC TILE APPLICATION  
AS PER O.B.C. 9.30.6.  
SQUASH BLOCKS  
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER  
INTERIOR UNIFORM LOAD BEARING  
WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
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CANTILEVERED JOISTS  
REQUIRE I-JOIST BLOCKING ALONG  
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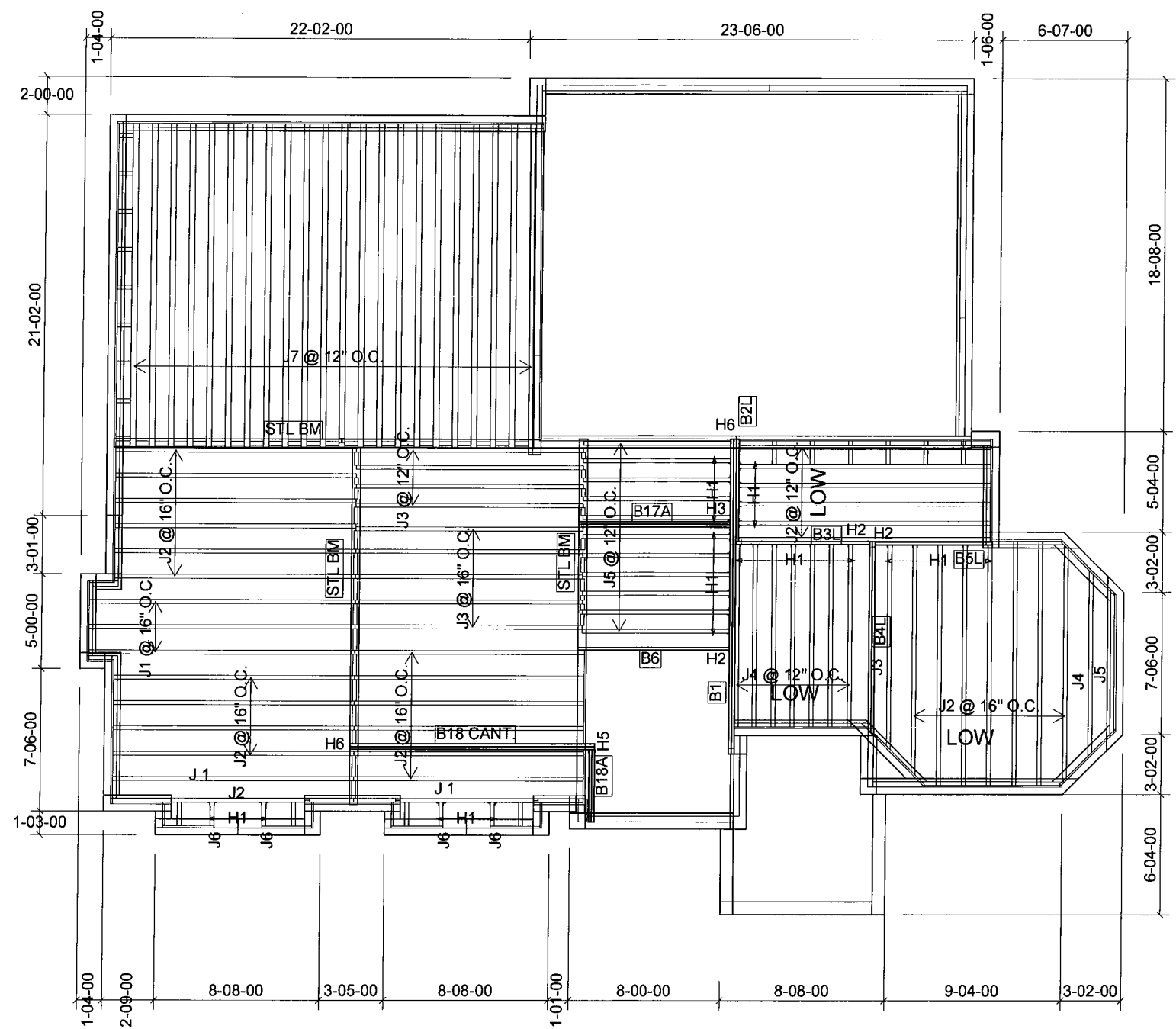
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

1st FLOOR

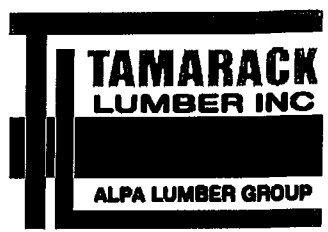
STANDARD WITH DECK



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	3
J 1	14-00-00	9 1/2" NI-40x	1	2
J2	14-00-00	9 1/2" NI-40x	1	30
J3	12-00-00	9 1/2" NI-40x	1	10
J4	10-00-00	9 1/2" NI-40x	1	8
J5	8-00-00	9 1/2" NI-40x	1	12
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	22
B1	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18 CANT.	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B18A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
16	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H3	HGUS410
1	H5	HUC410
2	H6	H2.5A*

Town of Innisfil Certified Model  
04/01/2018 9:32:49 AM kgervais



FROM PLAN DATED: MARCH 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA SHORES

MODEL: S45-4C

ELEVATION: B

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
DESIGNER: AJ  
REVISION: -CZ

NOTES:  
CERAMIC TILE APPLICATION  
AS PER O.B.C. 9.30.6.  
SQUASH BLOCKS  
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER  
INTERIOR UNIFORM LOAD BEARING  
WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS.  
CANTILEVERED JOISTS  
REQUIRE I-JOIST BLOCKING ALONG  
BEARING AND RIMBOARD CLOSURE  
AT ENDS.  
REFER TO THE NORDIC  
INSTALLATION GUIDE FOR PROPER  
STORAGE AND INSTALLATION.

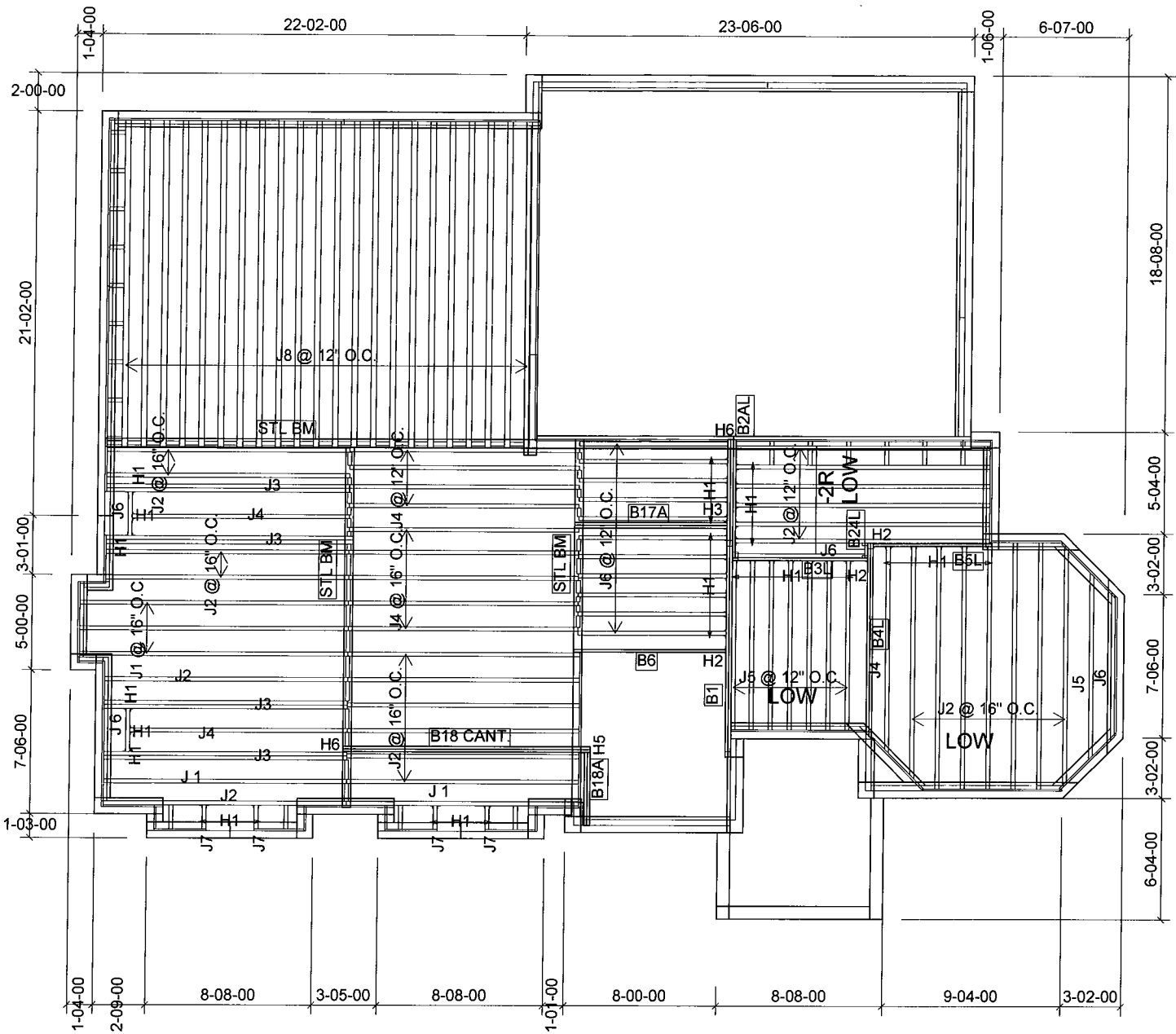
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

1st FLOOR

MUD RM OPT.

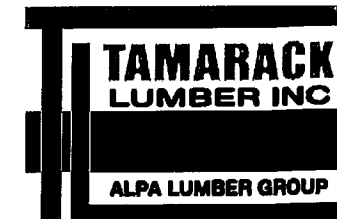


Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	3
J 1	14-00-00	9 1/2" NI-40x	1	2
J2	14-00-00	9 1/2" NI-40x	1	25
J3	14-00-00	9 1/2" NI-40x	2	8
J4	12-00-00	9 1/2" NI-40x	1	12
J5	10-00-00	9 1/2" NI-40x	1	8
J6	8-00-00	9 1/2" NI-40x	1	13
J 6	4-00-00	9 1/2" NI-40x	1	1
J6	4-00-00	9 1/2" NI-40x	1	1
J7	2-00-00	9 1/2" NI-40x	1	4
J8	18-00-00	9 1/2" NI-80	1	22
B1	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18 CANT.	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2AL	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B18A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B24L	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H3	HGUS410
1	H5	HUC410
2	H6	H2.5A*

Town of Innisfil Certified Model  
04/01/2018 9:32:50 AM kgervais





FROM PLAN DATED: MARCH 2015

BUILDER:  
BAYVIEW WELLINGTON

SITE:  
ALCONA SHORES

MODEL: S 45-4C

ELEVATION: B

LOT: -  
CITY: INNISFILL

SALESMAN: MARIO  
DESIGNER: AJ  
REVISION: -CZ

NOTES:  
CERAMIC TILE APPLICATION  
AS PER O.B.C. 9.30.6.  
SQUASH BLOCKS  
2x4 OR 2x6 #2 S.P.F. REQ'D UNDER  
INTERIOR UNIFORM LOAD BEARING  
WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS.  
CANTILEVERED JOISTS  
REQUIRE I-JOIST BLOCKING ALONG  
BEARING AND RIMBOARD CLOSURE  
AT ENDS.  
REFER TO THE NORDIC  
INSTALLATION GUIDE FOR PROPER  
STORAGE AND INSTALLATION.

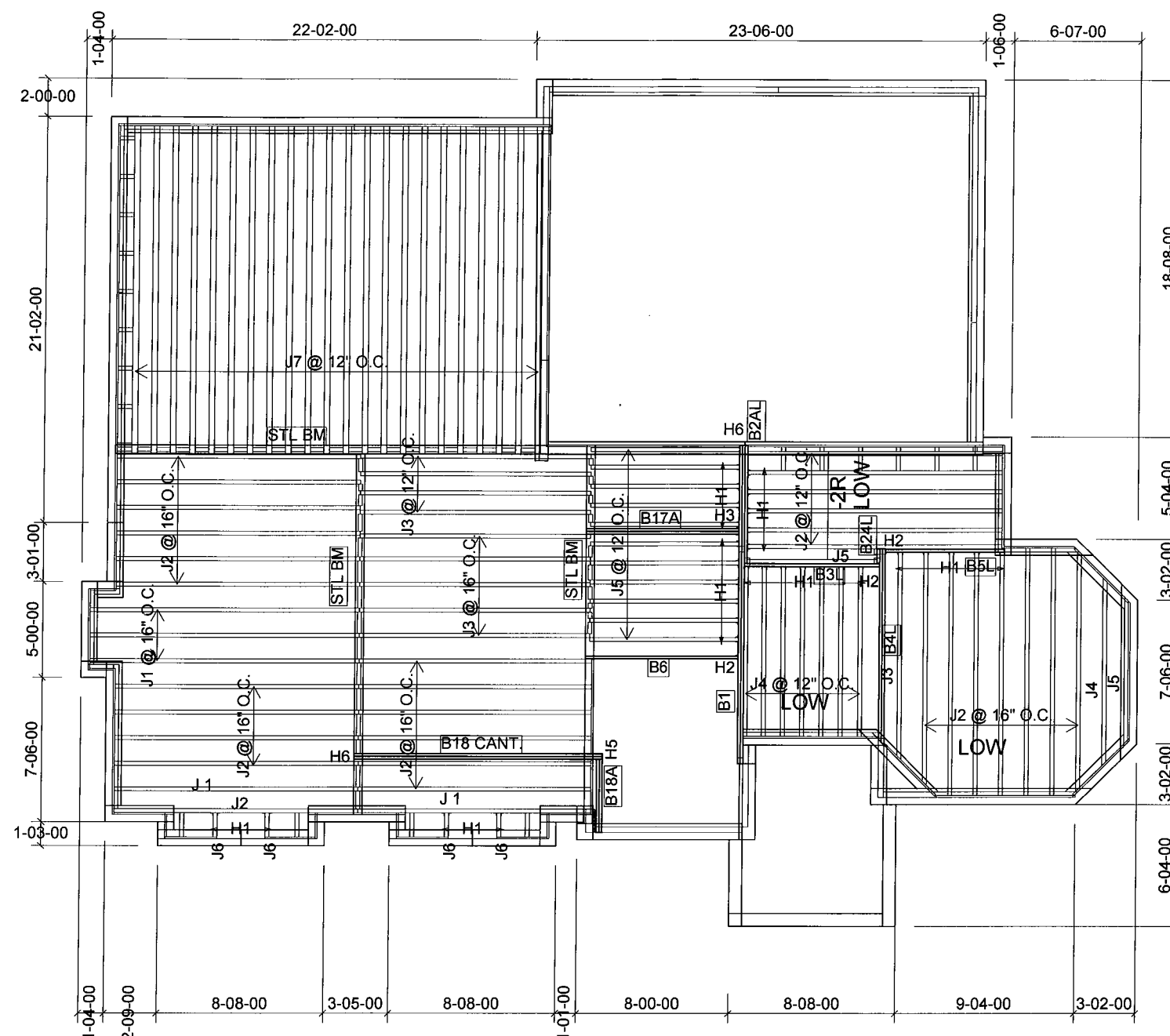
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 9/7/2017

1st FLOOR

MUD RM OPT. WITH DECK



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	3
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J2	14-00-00	9 1/2" NI-40x	1	30
J3	12-00-00	9 1/2" NI-40x	1	10
J4	10-00-00	9 1/2" NI-40x	1	8
J5	8-00-00	9 1/2" NI-40x	1	13
J6	2-00-00	9 1/2" NI-40x	1	4
J7	18-00-00	9 1/2" NI-80	1	22
B1	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18 CANT.	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2AL	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B18A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B24L	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H3	HGUS410
1	H5	HUC410
2	H6	H2.5A*

Town of Innisfil Certified Model  
04/01/2018 9:32:52 AM kgervais

**Town of Innisfil Certified Model**  
04/01/2018 9:32:54 AM kgervais

# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
Mar. 21, 2017 16:25

**PROJECT**  
J7-2ND FL.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 6.4

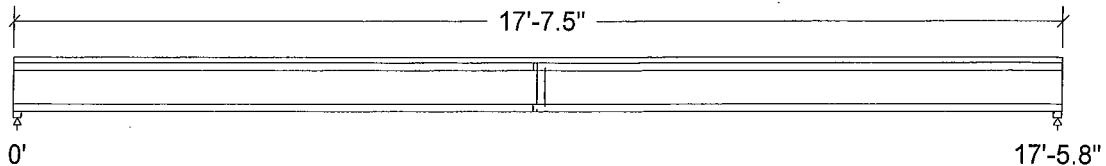
**Town of Innisfil Certified Model**

04/01/2018 9:32:58 AM kgervais

### Loads:

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

### Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	175		175
Live	350		350
Factored:			
Total	743		743
Bearing:			
Resistance			
Joist	1893		1893
Des ratio			
Joist	0.39		0.39
Load case	#2		#2
Length	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00

### Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c.

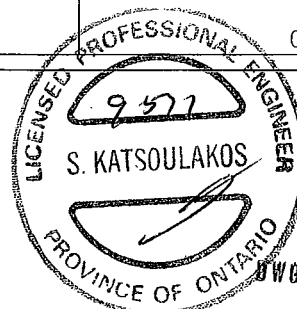
Supports: All - Non-wood

Total length: 17'-7.5"; 5/8" nailed and glued OSB sheathing with 1 row of blocking and 1/2" gypsum ceiling

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

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 743	Vr = 1895	lbs	Vf/Vr = 0.39
Moment(+)	Mf = 3247	Mr = 8958	lbs-ft	Mf/Mr = 0.36
Perm. Defl'n	0.13 = <L/999	0.58 = L/360	in	0.22
Live Defl'n	0.26 = L/811	0.44 = L/480	in	0.59
Total Defl'n	0.39 = L/540	0.87 = L/240	in	0.44
Bare Defl'n	0.29 = L/725	0.58 = L/360	in	0.50
Vibration	Lmax = 17'-6	Lv = 20'-1	ft	
Defl'n	= 0.026	= 0.036	in	0.72



OWNED BY TAM 44604-17  
STRUCTURAL  
COMPONENT ONLY

**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	8958	1.00	1.00	-	1.000	-	-	-	#2
EI	324.1 million	-	-	-	-	-	-	-	#2

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L  
 Moment(+) : LC #2 = 1.25D + 1.5L  
 Deflection: LC #1 = 1.0D (permanent)  
               LC #2 = 1.0D + 1.0L (live)  
               LC #2 = 1.0D + 1.0L (total)  
               LC #2 = 1.0D + 1.0L (bare joist)

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

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

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

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

**CALCULATIONS:**

Deflection: E<sub>I</sub>eff = 367e06 lb-in<sup>2</sup> K= 4.94e06 lbs

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

**Design Notes:**

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1. **CONFORMS TO DBC 2012**
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. TAM 44604-17  
 STRUCTURAL  
 COMPONENT ONLY

# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
Mar. 21, 2017 16:24

**PROJECT**  
J7-1ST FL.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 6.4

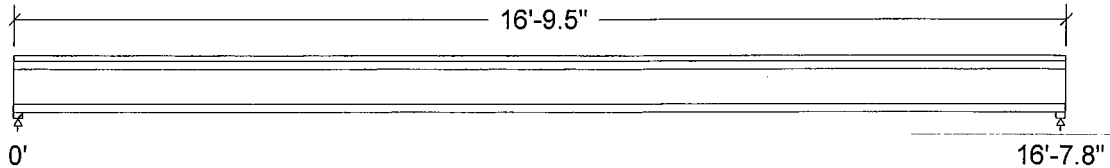
**Town of Innisfil Certified Model**

04/01/2018 9:33:00 AM kgervais

### Loads:

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

### Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	166		166
Live	333		333
Factored:			
Total	708		708
Bearing:			
Resistance			
Joist	1893		1893
Des ratio			
Joist	0.37		0.37
Load case	#2		#2
Length	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00

### Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c.

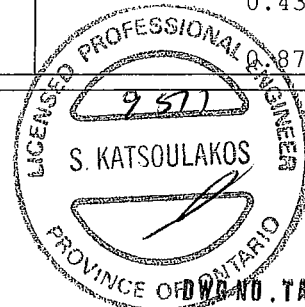
Supports: All - Non-wood

Total length: 16'-9.5"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 708	Vr = 1895	lbs	Vf/Vr = 0.37
Moment (+)	Mf = 2945	Mr = 8958	lbs-ft	Mf/Mr = 0.33
Perm. Defl'n	0.11 = <L/999	0.55 = L/360	in	0.19
Live Defl'n	0.22 = L/928	0.42 = L/480	in	0.52
Total Defl'n	0.32 = L/619	0.83 = L/240	in	0.39
Bare Defl'n	0.24 = L/831	0.55 = L/360	in	0.43
Vibration	Lmax = 16'-8	Lv = 17'-5	ft	
Defl'n	= 0.033	= 0.038	in	



NO. TAM 44605-17  
STRUCTURAL  
COMPONENT ONLY



**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	8958	1.00	1.00	-	1.000	-	-	-	#2
EI	324.1 million	-	-	-	-	-	-	-	#2

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

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

**CALCULATIONS:**Deflection: E<sub>I</sub>eff = 367e06 lb-in<sup>2</sup> K= 4.94e06 lbs

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

**Design Notes:**

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1. **CONFORMS TO OBC 2012**
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. TAM 44605-17  
 STRUCTURAL  
 COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i5065)

Dry | 2 spans | No cantilevers | 0/12 slope (deg)

September 1, 2017 10:41:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFIL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A-OPT MUDRM-DECK.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B1(i5065)

Specifier:

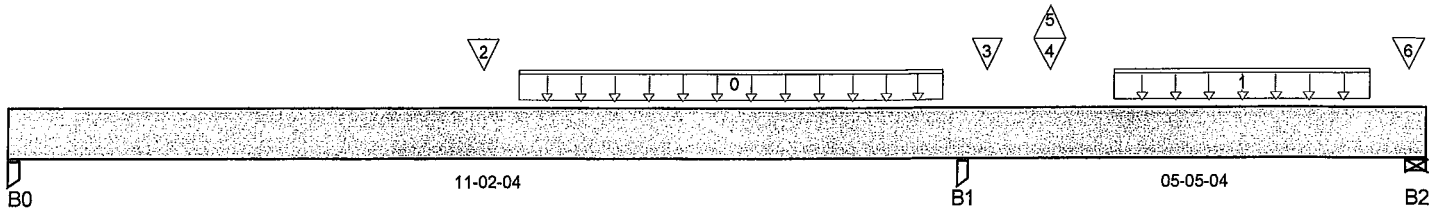
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:03 AM kgervais



Total Horizontal Product Length = 16-07-08

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	509 / 19	279 / 0		
B1, 3-1/2"	2,429 / 11	1,200 / 0		
B2, 5-1/2"	364 / 454	0 / 29		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	05-11-10	10-11-10	164	62			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	12-11-10	15-11-10	162	61			n/a
2	B6(i5224)	Conc. Pt. (lbs)	L	05-06-08	05-06-08	995	506			n/a
3	J4(i5062)	Conc. Pt. (lbs)	L	11-05-10	11-05-10	136	51			n/a
4	-	Conc. Pt. (lbs)	L	12-02-08	12-02-08	385	216			n/a
5	-	Conc. Pt. (lbs)	L	12-02-08	12-02-08	-12				n/a
6	9(i4586)	Conc. Pt. (lbs)	L	16-04-12	16-04-12		25			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,724 ft-lbs	22,808 ft-lbs	25.1%	3	05-06-08
Neg. Moment	-5,283 ft-lbs	-22,808 ft-lbs	23.2%	1	11-02-04
End Shear	1,099 lbs	11,571 lbs	9.5%	3	01-01-00
Cont. Shear	2,697 lbs	11,571 lbs	23.3%	1	10-03-00
Uplift	717 lbs	n/a	n/a	3	16-07-08
Total Load Defl.	L/1,049 (0.125")	0.548"	22.9%	12	05-04-13
Live Load Defl.	L/999 (0.085")	n/a	n/a	16	05-06-08
Total Neg. Defl.	L/999 (-0.017")	n/a	n/a	12	13-03-06
Max Defl.	0.125"	n/a	n/a	12	05-04-13
Span / Depth	13.8	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 3-1/2"	1,112 lbs	11.2%	7.4%	Unspecified
B1 Post	3-1/2" x 3-1/2"	5,144 lbs	51.7%	34.4%	Unspecified
B2 Wall/Plate	5-1/2" x 3-1/2"	717 lbs	7%	3.1%	Unspecified

## Cautions

Uplift of 717 lbs found at span 2 - Right. *C. Simpson 17-02-08 @ 11:24*



DWG NO. TAM44606-17  
STRUCTURAL  
COMPONENT ONLY



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP. Basement\Flush Beams\B1(i5065)**

Dry | 2 spans | No cantilevers | 0/12 slope (deg)

September 1, 2017 10:41:43

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A-OPT MUDRM-DECK.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B1(i506

Specifier:

Designer: AJ

Company:

Msc:

**Notes**

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

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

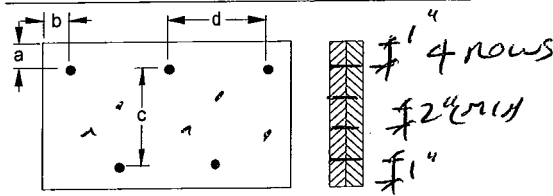
Calculations assume unbraced length of Top: 05-05-10, Bottom: 05-05-10.

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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO DBC 2012****Connection Diagram**

a minimum = 1" c = 1-1/2"  
 b minimum = 3" d = 6"

Calculated Side Load = 349.2 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 16d Nails

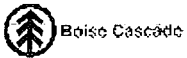
**3 1/2" ARDOX SPIRAL****Disclosure**

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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DWG NO. TAM 44606.17  
 STRUCTURAL  
 COMPONENT ONLY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2L(i5354)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:58

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-Ammdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2L(i5354

Specifier:

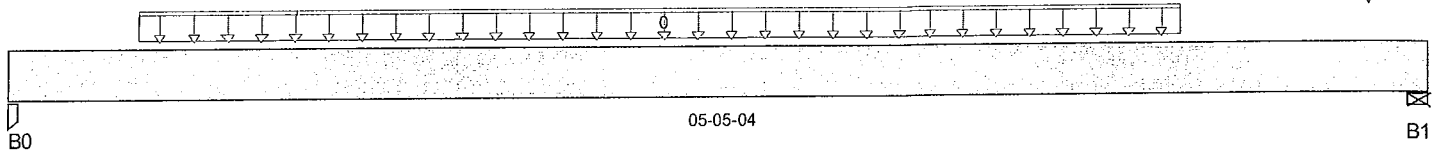
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:07 AM kgervais



Total Horizontal Product Length = 05-05-04

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

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	561 / 0	293 / 0		
B1, 5-1/2"	554 / 0	300 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-00	04-06-00	272	136			n/a
1	1(i930)	Conc. Pt. (lbs)	L	05-02-08	05-02-08	26	22			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,735 ft-lbs	12,704 ft-lbs	13.7%	1	03-00-00
End Shear	1,202 lbs	5,785 lbs	20.8%	1	00-11-04
Total Load Defl.	L/999 (0.022")	n/a	n/a	4	02-06-12
Live Load Defl.	L/999 (0.014")	n/a	n/a	5	02-06-12
Max Defl.	0.022"	n/a	n/a	4	02-06-12
Span / Depth	6.3	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	1,208 lbs	48.6%	32.3%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	1,206 lbs	23.5%	10.3%	Unspecified

## Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**CONFORMS TO OBC 2012**

## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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BWB NO. TAM 44607, 17

**STRUCTURAL COMPONENT ONLY**



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\...\B2AL(i5707)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 27, 2017 08:43:25

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-B-OPT MUDRM.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2AL(i570

Specifier:

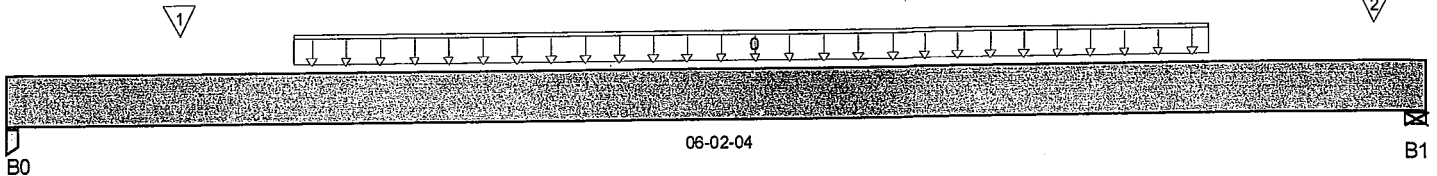
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:09 AM kgervais



Total Horizontal Product Length = 06-02-04

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

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	598 / 0	314 / 0		
B1, 5-1/2"	641 / 0	345 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-00	05-03-00	270	136			n/a
1	J6(i5708)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	131	66			n/a
2	1(i930)	Conc. Pt. (lbs)	L	05-11-08	05-11-08	26	22			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,278 ft-lbs	12,704 ft-lbs	17.9%	1	02-09-00
End Shear	1,319 lbs	5,785 lbs	22.8%	1	04-11-04
Total Load Defl.	L/999 (0.037")	n/a	n/a	4	02-11-04
Live Load Defl.	L/999 (0.024")	n/a	n/a	5	02-11-04
Max Defl.	0.037"	n/a	n/a	4	02-11-04
Span / Depth	7.2	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	1,289 lbs	51.8%	34.5%	Unspecified
B1 Wall/Plate	5-1/2" x 1-3/4"	1,393 lbs	27.1%	11.9%	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 2010 and CSA O86.

Design based on Dry Service Condition.

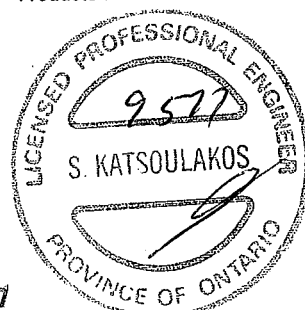
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

## Disclosure

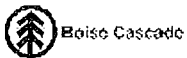
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

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DWG NO. TAM 44608.17  
STRUCTURAL  
COMPONENT ONLY





# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3L(i5215)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:59

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B3L(i5215

Specifier:

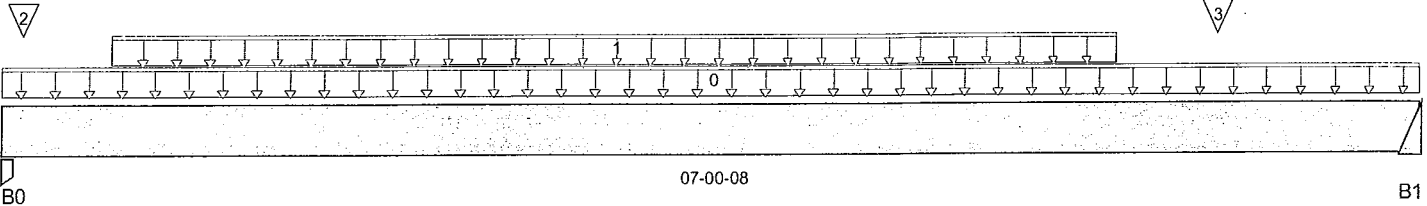
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:10 AM kgervais



Total Horizontal Product Length = 07-00-08

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	865 / 0	450 / 0		
B1	740 / 0	387 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-00-08	21	11			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-08	05-06-08	220	110			n/a
2	J4(i5209)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	114	57			n/a
3	J4(i5211)	Conc. Pt. (lbs)	L	06-00-08	06-00-08	236	118			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,913 ft-lbs	12,704 ft-lbs	22.9%	1	04-00-08
End Shear	1,545 lbs	5,785 lbs	26.7%	1	06-01-00
Total Load Defl.	L/999 (0.067")	n/a	n/a	4	03-06-08
Live Load Defl.	L/999 (0.044")	n/a	n/a	5	03-06-08
Max Defl.	0.067"	n/a	n/a	4	03-06-08
Span / Depth	8.5	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	1,859 lbs	37.4%	24.9%	Unspecified
B1 Hanger	2" x 1-3/4"	1,594 lbs	n/a	37.3%	HUS1.81/10

## 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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

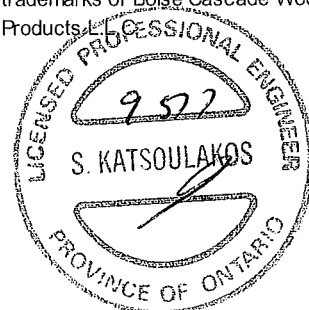
## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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CONFORMS TO OBC 2012

DWG NO. TAM 44609-17  
STRUCTURAL  
COMPONENT ONLY





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\...\B4L(i5217)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:59

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B4L(i5217

Specifier:

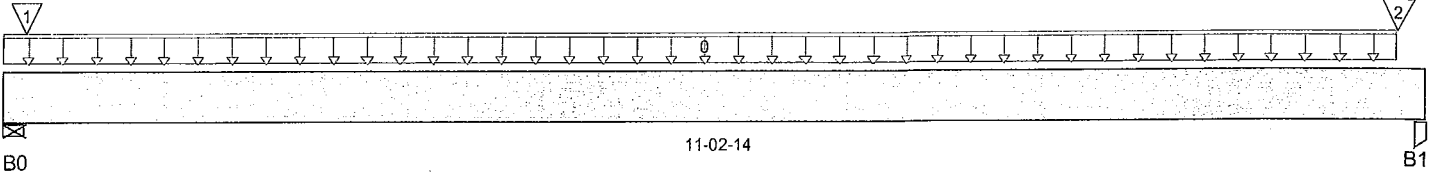
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:11 AM kgervais



Total Horizontal Product Length = 11-02-14

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

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	350 / 0	625 / 0		
B1, 3-1/2"	1,707 / 0	1,121 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-00-04	42	21			n/a
1	E15(i747)	Conc. Pt. (lbs)	L	00-02-03	00-02-03	117	456			n/a
2	-	Conc. Pt. (lbs)	L	11-00-04	11-00-04	1,480	951			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,504 ft-lbs	25,408 ft-lbs	5.9%	1	05-06-14
End Shear	464 lbs	11,571 lbs	4%	1	10-01-14
Total Load Defl.	L/999 (0.046")	n/a	n/a	4	05-06-14
Live Load Defl.	L/999 (0.026")	n/a	n/a	5	05-06-14
Max Defl.	0.046"	n/a	n/a	4	05-06-14
Span / Depth	13.7	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 3-1/2"	874 lbs	30.3%	13.3%	Unspecified
B1 Post	3-1/2" x 3-1/2"	3,962 lbs	39.8%	26.5%	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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO DBC 2012



BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:59

Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B4L(i52

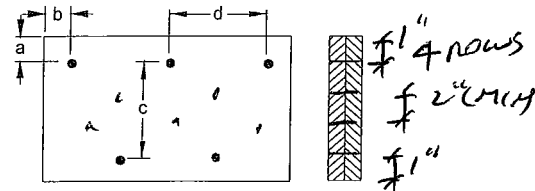
Specifier:

Designer: AJ

Company:

Msc:

### Connection Diagram



a minimum = 1" c = 1-1/2"  
b minimum = 3" d = 6"

Calculated Side Load = 163.2 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

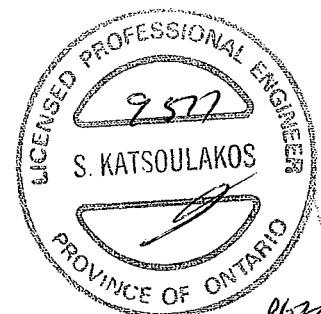
Connectors are: Nails

3 1/2" ARDOX SPIRAL

### Disclosure

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BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:58

Build 5033

File Name: S45-4C EL-A.mmdl

Job Name:

Description: Designs\Flush Beams\Basment\Flush Beams\B5L(i5349

Address:

Specifier:

City, Province, Postal Code:INNISFILL,

Designer: AJ

Customer:

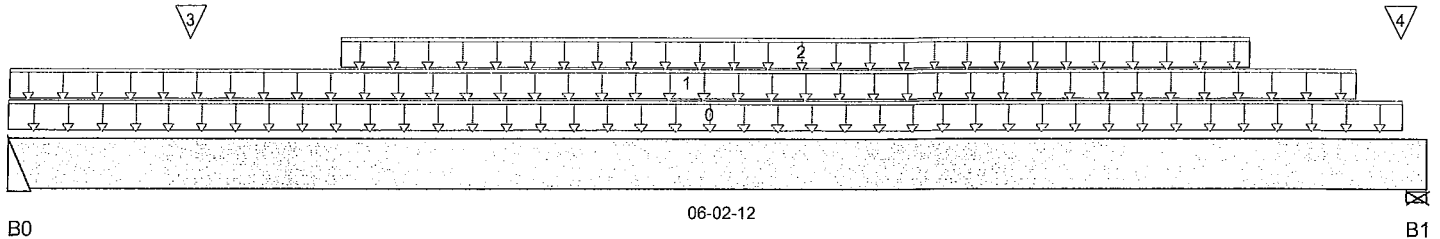
Company:

Code reports: CCMC 12472-R

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:14 AM kgervais



06-02-12

Total Horizontal Product Length = 06-02-12

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

Bearing	Live	Dead	Snow	Wind
B0	757 / 0	576 / 0		
B1, 3-3/4"	953 / 0	688 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-01-08	21	11			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-00-01	05-11-01		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-08	05-05-08	254	128			n/a
3	J2(i5326)	Conc. Pt. (lbs)	L	00-09-08	00-09-08	289	145			n/a
4	-	Conc. Pt. (lbs)	L	06-01-04	06-01-04	272	158			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,868 ft-lbs	12,704 ft-lbs	22.6%	1	03-05-08
End Shear	1,605 lbs	5,785 lbs	27.7%	1	00-11-08
Total Load Defl.	L/999 (0.051")	n/a	n/a	4	03-00-08
Live Load Defl.	L/999 (0.029")	n/a	n/a	5	03-00-08
Max Defl.	0.051"	n/a	n/a	4	03-00-08
Span / Depth	7.4	n/a	n/a		00-00-00

### Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	1,856 lbs	n/a	43.5%	HUS1.81/10
B1 Wall/Plate	3-3/4" x 1-3/4"	2,290 lbs	65.3%	28.6%	Unspecified

### Notes



P6112



Boise Cascade

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5L(i5349)**

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:58

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B5L(i53-

Specifier:

Designer: AJ

Company:

Misc:

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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**Disclosure**

Completeness and accuracy of input must be verified by anyone who would rely on

output as evidence of suitability for particular application. Output here based on building code-accepted design

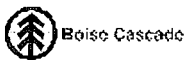
properties and analysis methods.

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 1-800-964-6999 before installation.

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**CONFORMS TO CBC 2012**





# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i5224)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:58

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-Ammdl

Description: Designs\Flush Beams\Basement\Flush Beams\B6(i5224)

Specifier:

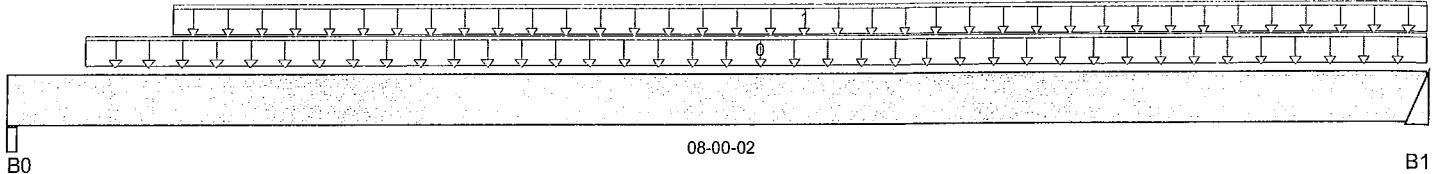
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:17 AM kgervais



Total Horizontal Product Length = 08-00-02

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	859 / 0	439 / 0		
B1	1,001 / 0	510 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	08-00-02	20	7			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-11-04	08-00-02	240	120			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,898 ft-lbs	12,704 ft-lbs	30.7%	1	04-01-11
End Shear	1,777 lbs	5,785 lbs	30.7%	1	01-02-12
Total Load Defl.	L/999 (0.112")	n/a	n/a	4	04-01-11
Live Load Defl.	L/999 (0.074")	n/a	n/a	5	04-01-11
Max Defl.	0.112"	n/a	n/a	4	04-01-11
Span / Depth	9.5	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 1-3/4"	1,837 lbs	37.4%	16.4%	Unspecified
B1 Hanger	2" x 1-3/4"	2,139 lbs	n/a	50.1%	HUS1.81/10

## 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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

## Disclosure

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CONFORMS TO OBC 2012



**BC CALC® Design Report**


Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B7 D

Specifier:

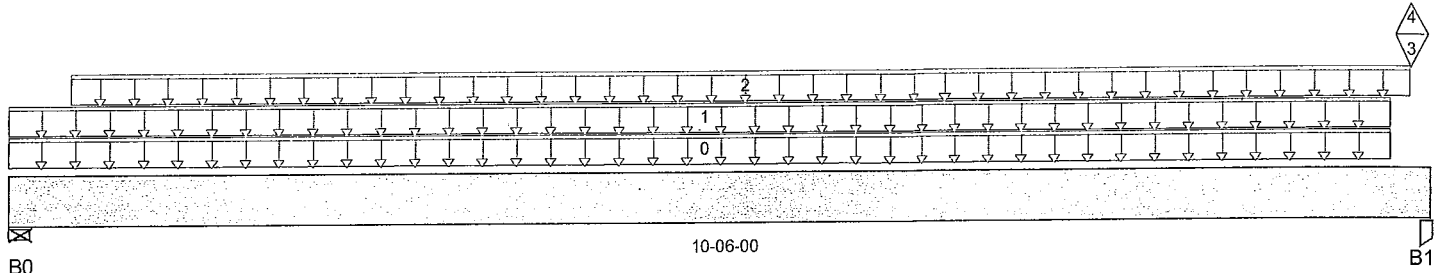
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:18 AM kgervais



Total Horizontal Product Length = 10-06-00

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	111 / 0	412 / 0		
B1, 3-1/2"	1,104 / 44	1,177 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J3(i5386)	Unf. Lin. (lb/ft)	L	00-00-00	10-02-08	17	9			n/a
1	R1(i5465)	Unf. Lin. (lb/ft)	L	00-00-00	10-02-08	4	4			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-05-08	10-04-04		60			n/a
3	B8(i5239)	Conc. Pt. (lbs)	L	10-04-04	10-04-04	1,000	763			n/a
4	B8(i5239)	Conc. Pt. (lbs)	L	10-04-04	10-04-04	-44				n/a

**Controls Summary**

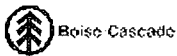
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,407 ft-lbs	16,515 ft-lbs	8.5%	0	05-04-00
End Shear	471 lbs	7,521 lbs	6.3%	0	01-03-00
Total Load Defl.	L/999 (0.044")	n/a	n/a	6	05-04-00
Live Load Defl.	L/999 (0.009")	n/a	n/a	8	05-04-00
Max Defl.	0.044"	n/a	n/a	6	05-04-00
Span / Depth	12.5	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	577 lbs	5.7%	3.8%	Unspecified
B1 Post	3-1/2" x 3-1/2"	3,127 lbs	31.4%	20.9%	Unspecified

**Notes**

 DWG NO. TAM44613-17  
 STRUCTURAL  
 COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B7 DR(i5237)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:58

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B7

Specifier:

Designer: AJ

Company:

Msc:

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.

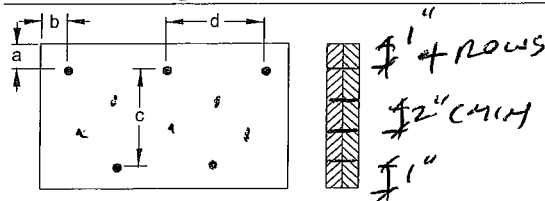
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**CONFORMS TO CBC 2012**

## Connection Diagram



a minimum = 1" c = 1-1/2"  
b minimum = 3" d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

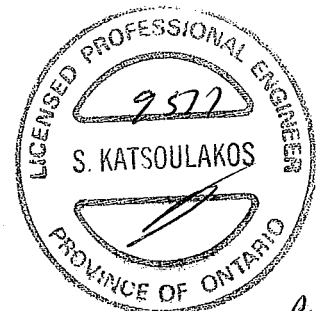
Connectors are: 16d Nails

**3 1/2" ARDOX SPIRAL**

## Disclosure

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DWG NO. TAM 44613.17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i5239)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALCO® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i5239)

Specifier:

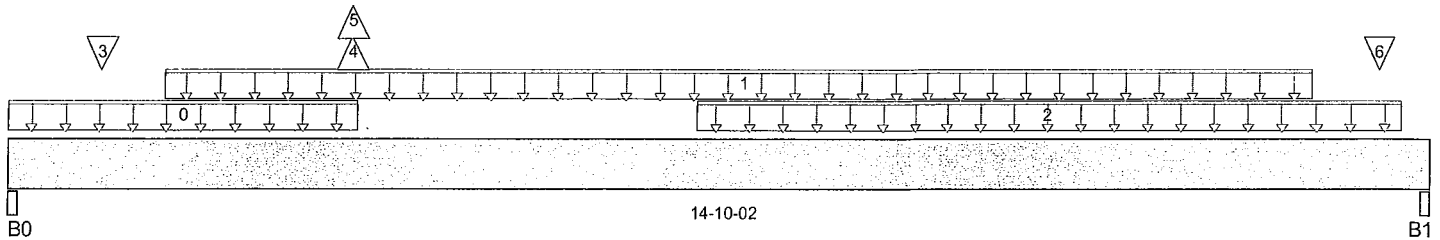
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:22 AM kgervais



Total Horizontal Product Length = 14-10-02

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

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	1,009 / 134	520 / 0		
B1, 3-1/2"	995 / 43	761 / 0		

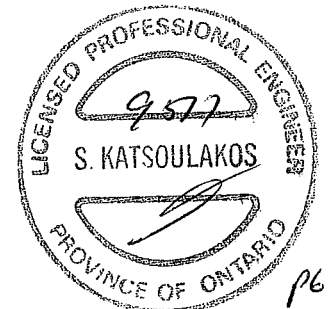
## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
						1.00	0.65	1.00	1.15	
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-07-12	20	8			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-07-10	13-07-10	128	48			n/a
2	User Load	Unf. Lin. (lb/ft)	L	07-01-12	14-06-10		60			n/a
3	J5(i5236)	Conc. Pt. (lbs)	L	00-11-10	00-11-10	155	58			n/a
4	B12(i5402)	Conc. Pt. (lbs)	L	03-06-14	03-06-14	78	-30			n/a
5	B12(i5402)	Conc. Pt. (lbs)	L	03-06-14	03-06-14	-177				n/a
6	J5(i5267)	Conc. Pt. (lbs)	L	14-03-08	14-03-08	154	58			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,365 ft-lbs	25,408 ft-lbs	32.9%	1	07-07-10
End Shear	2,165 lbs	11,571 lbs	18.7%	1	13-09-02
Total Load Defl.	L/386 (0.452")	0.727"	62.2%	6	07-04-11
Live Load Defl.	L/635 (0.275")	0.484"	56.7%	8	07-04-11
Max Defl.	0.452"	n/a	n/a	6	07-04-11
Span / Depth	18.4	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	1-3/4" x 3-1/2"	2,164 lbs	32.4%	29%	Unspecified
B1 Beam	3-1/2" x 3-1/2"	2,443 lbs	18.3%	16.3%	Unspecified

## Notes



P6/12

DWG NO. TAM 44614-17  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i5239

Specifier:

Designer: AJ

Company:

Msc:

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 2010 and CSA

O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

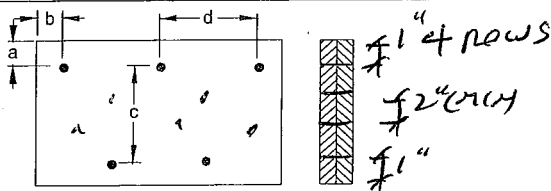
**CONFORMS TO OBC 2012**

**Disclosure**

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**Connection Diagram**



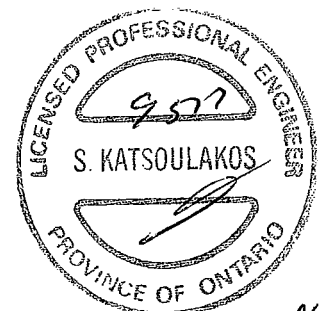
a minimum = 1" c = 1-1/2"  
b minimum = 3" d = 12"

Calculated Side Load = 257.0 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: Nails

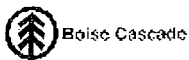
**3 1/2" ARDOX SPIRAL**



P62

DWG NO. TAM 44614-17  
STRUCTURAL  
COMPONENT ONLY





# Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B9 DR(i5230)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:58

BC CAL.C@ Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B9 D

Specifier:

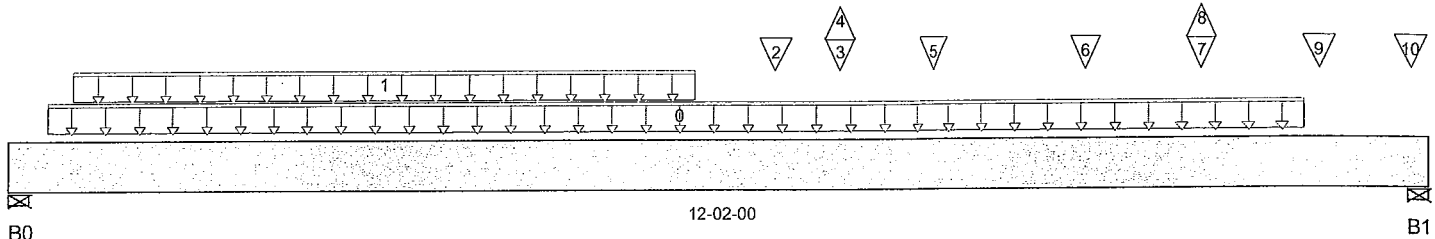
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:24 AM kgervais



Total Horizontal Product Length = 12-02-00

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	2,238 / 123	1,347 / 0		
B1, 3-7/8"	4,101 / 261	2,267 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-04-00	11-01-08		60			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-08	05-10-08	259	97			n/a
2	J2(i5380)	Conc. Pt. (lbs)	L	06-06-08	06-06-08	242	91			n/a
3	B11(i5452)	Conc. Pt. (lbs)	L	07-01-00	07-01-00	1,326	633			n/a
4	B11(i5452)	Conc. Pt. (lbs)	L	07-01-00	07-01-00	-251				n/a
5	J1(i5284)	Conc. Pt. (lbs)	L	07-10-12	07-10-12	581	218			n/a
6	J1(i5432)	Conc. Pt. (lbs)	L	09-02-12	09-02-12	627	235			n/a
7	-	Conc. Pt. (lbs)	L	10-02-12	10-02-12	1,258	613			n/a
8	-	Conc. Pt. (lbs)	L	10-02-12	10-02-12	-133				n/a
9	J2(i5401)	Conc. Pt. (lbs)	L	11-02-12	11-02-12	250	94			n/a
10	B10(i5233)	Conc. Pt. (lbs)	L	12-00-00	12-00-00	651	382			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	21,396 ft-lbs	39,636 ft-lbs	54%	1	07-01-00
End Shear	7,403 lbs	17,356 lbs	42.7%	1	11-00-10
Total Load Defl.	L/303 (0.46")	0.582"	79.1%	6	06-02-08
Live Load Defl.	L/474 (0.295")	0.388"	76%	8	06-02-08
Max Defl.	0.46"	n/a	n/a	6	06-02-08
Span / Depth	14.7	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 5-1/4"	5,040 lbs	29.6%	19.7%	Unspecified
B1 Wall/Plate	3-7/8" x 5-1/4"	8,986 lbs	54.8%	36.4%	Unspecified

## Notes



DWG NO. TAM44615.17  
STRUCTURAL  
COMPONENT ONLY



# Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B9 DR(i5230)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:58

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B9

Specifier:

Designer: AJ

Company:

Misc:

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: 00-06-02, Bottom: 00-06-02.

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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

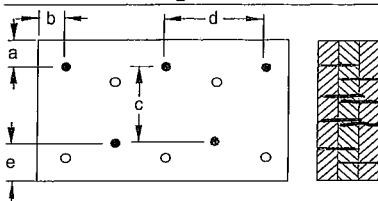
**CONFORMS TO OBC 2012**

## Disclosure

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## Connection Diagram



4 ROWS

a minimum = 2" c = 6 1/2"  
b minimum = 3" d = 6"  
e minimum = 2"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nailing schedule applies to both sides of the member.

Member has no side loads.

Connectors are: 16d ~~Common~~ Nails

3 1/2" ARDOX SPIRAL



P6 2/2

DWG NO. TAM 44615 17  
STRUCTURAL  
COMPONENT ONLY

**BC CALC® Design Report**


Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i5233)

Specifier:

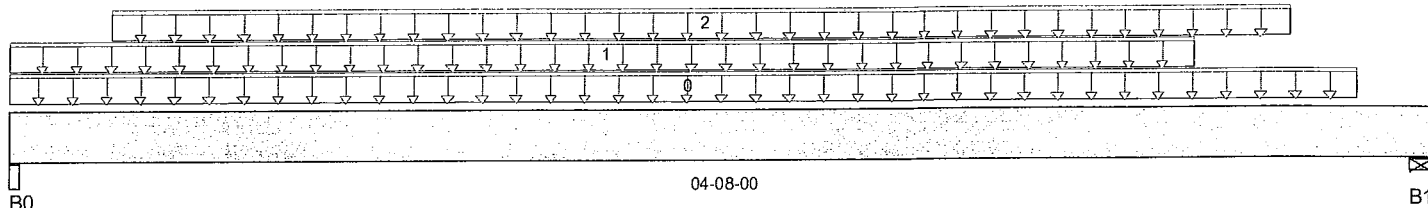
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:26 AM kgervais



Total Horizontal Product Length = 04-08-00

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	642 / 0	379 / 0		
B1, 5-1/2"	451 / 0	308 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-05-02	21	8			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	03-10-12	256	96			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-04-00	04-02-08		60			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,264 ft-lbs	25,408 ft-lbs	5%	1	02-04-12
End Shear	945 lbs	11,571 lbs	8.2%	1	03-05-00
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-03-04
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	02-03-04
Max Defl.	0.005"	n/a	n/a	4	02-03-04
Span / Depth	5.1	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	4" x 3-1/2"	1,437 lbs	9.4%	8.4%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	1,062 lbs	10.3%	4.5%	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 2010 and CSA O86.

**CONFORMS TO DBC 2012**

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



p6 1/2

 DWG NO. TAM 44616.17  
 STRUCTURAL  
 COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B10(i5233)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i5233)

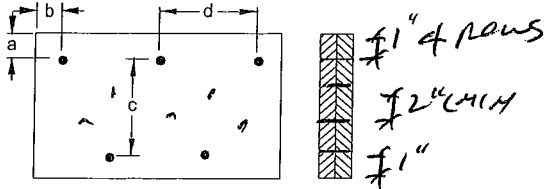
Specifier:

Designer: AJ

Company:

Misc:

## Connection Diagram



a minimum = 1" c = 1-1/2"  
b minimum = 3" d = 6"

Calculated Side Load = 421.9 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

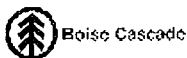
## Disclosure

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DWG NO. TAM 4461617  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11(i5452)

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

March 21, 2017 16:31:56

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports:

CCMC 12472-R

File Name: S45-4C EL-Ammdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i5452)

Specifier:

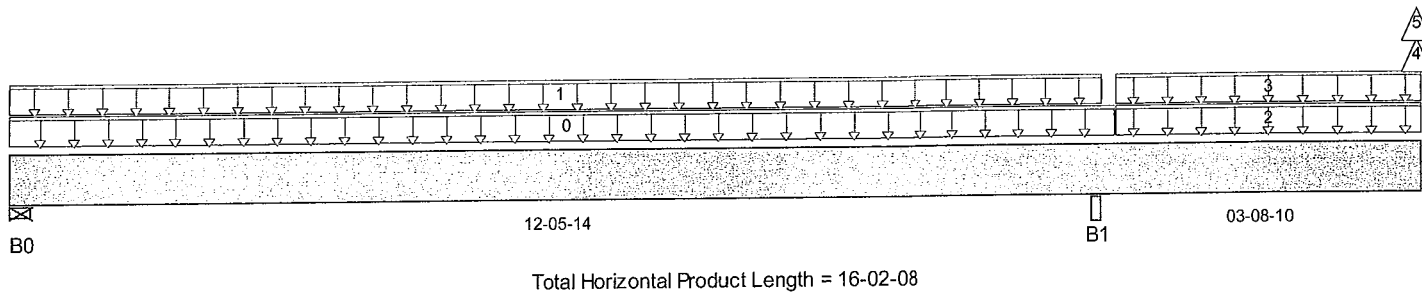
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:27 AM kgervais



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

Bearing	Live	Dead	Snow	Wind
B0, 2-3/4"	228 / 171	58 / 0		
B1, 5-1/4"	1,335 / 250	638 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-08-08	11	4			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-06-12	16	6			n/a
2	User Load	Unf. Lin. (lb/ft)	L	12-08-08	16-02-08	240	120			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	12-08-08	16-02-08	19	7			n/a
4	B12(i5402)	Conc. Pt. (lbs)	L	16-01-10	16-01-10	87	-33			n/a
5	B12(i5402)	Conc. Pt. (lbs)	L	16-01-10	16-01-10	-193				n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,272 ft-lbs	25,408 ft-lbs	5%	7	06-08-14
Neg. Moment	-4,183 ft-lbs	-25,408 ft-lbs	16.5%	1	12-05-14
End Shear	349 lbs	11,571 lbs	3%	3	01-00-04
Cont. Shear	1,605 lbs	11,571 lbs	13.9%	1	13-06-00
Uplift	203 lbs	n/a	n/a	8	00-00-00
Total Load Defl.	2xL/524 (0.17")	0.372"	45.8%	13	16-02-08
Live Load Defl.	2xL/650 (0.137")	0.248"	55.4%	17	16-02-08
Total Neg. Defl.	L/999 (-0.079")	n/a	n/a	13	07-06-11
Max Defl.	-0.079"	n/a	n/a	13	07-06-11
Span / Depth	15.6	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/4" x 3-1/2"	416 lbs	8.1%	3.5%	Unspecified
B1 Beam	5-1/4" x 3-1/2"	2,800 lbs	14%	12.5%	Unspecified

## Cautions

Uplift of 203 lbs found at span 1 - Left.

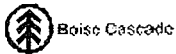
*CSIMPSON 1-12-5A @ 7-30*

## Notes



*p612*

DWG NO. TAM 44617-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...B11(i5452)

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

March 21, 2017 16:31:56

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i5452)

Specifier:

Designer: AJ

Company:

Misc:

Design meets User specified (2xL/240) Total load deflection criteria.

Design meets User specified (2xL/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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

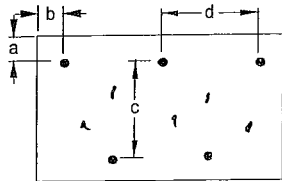
**CONFORMS TO OBC 2012**

## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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## Connection Diagram



*Handwritten notes:*  
 4 rows  
 2" min  
 1"

a minimum = 1" c = 1-1/2"  
 b minimum = 3" d = 2" B'

Calculated Side Load = 12.4 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: Nails

**3 1/2" ARDOX SPIRAL**



*Handwritten:* 10/2  
 DWG NO. TAM 44617-17  
 STRUCTURAL  
 COMPONENT ONLY





Boise Cascade

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B12(i5402)**

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i5402)

Specifier:

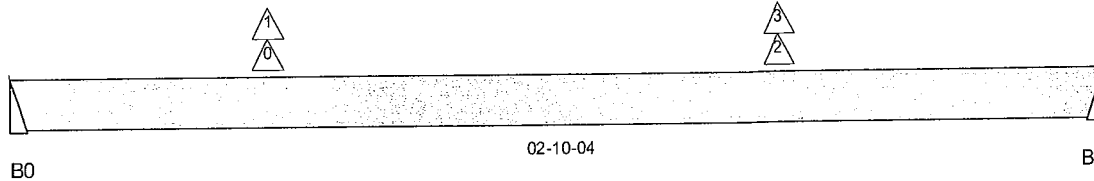
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:29 AM kgervais



Total Horizontal Product Length = 02-10-04

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

Bearing	Live	Dead	Snow	Wind
B0	88 / 194	0 / 33		
B1	77 / 176	0 / 30		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J1(i5284)	Conc. Pt. (lbs)	L	00-08-00	00-08-00	81	-36			n/a
1	J1(i5284)	Conc. Pt. (lbs)	L	00-08-00	00-08-00	-177				n/a
2	J1(i5432)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	84	-41			n/a
3	J1(i5432)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	-193				n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	65 ft-lbs	12,704 ft-lbs	0.5%	3	02-00-00
Neg. Moment	-228 ft-lbs	-12,704 ft-lbs	1.8%	2	02-00-00
End Shear	329 lbs	5,785 lbs	5.7%	2	00-11-08
Uplift	333 lbs	n/a	n/a	2	00-00-00
Total Load Defl.	L/999 (0")	n/a	n/a	6	01-05-02
Live Load Defl.	L/999 (-0.001")	n/a	n/a	9	01-05-08
Total Neg. Defl.	L/999 (-0.001")	n/a	n/a	7	01-05-08
Max Defl.	-0.001"	n/a	n/a	7	01-05-08
Span / Depth	3.3	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 1-3/4"	102 lbs	n/a	7.8%	LS90
B0 Hanger Uplift	2" x 1-3/4"	333 lbs	n/a	0.06	LS90
B1 Hanger	2" x 1-3/4"	89 lbs	n/a	7.1%	HUS1.81/10
B1 Hanger Uplift	2" x 1-3/4"	301 lbs	n/a	0.06	HUS1.81/10

**Cautions**

Uplift of 333 lbs found at span 1 - Left.  
Hanger B0 cannot handle uplift of -333 lbs.

(SIMPSON 1-LS90 @ B0-B1)  
F1-HL-54.

**Notes**

DWG NO. TAM 44618-17  
STRUCTURAL  
COMPONENT ONLY



Boise Cascade

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B12(i5402)**

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i5402)

Specifier:

Designer: AJ

Company:

Misc:

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 2010 and CSA O86.

Design based on Dry Service Condition.

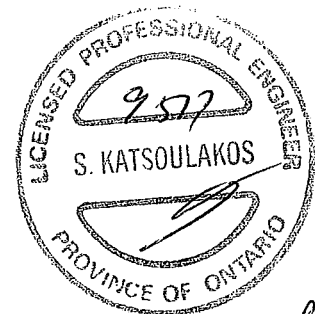
Importance Factor : Normal Part code : Part 9

**Disclosure**

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods.

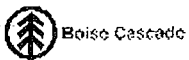
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**CONFORMS TO OBC 2012**

p62

DWG NO. TAM 4461B.17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B13 DR(i5417)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B13

Specifier:

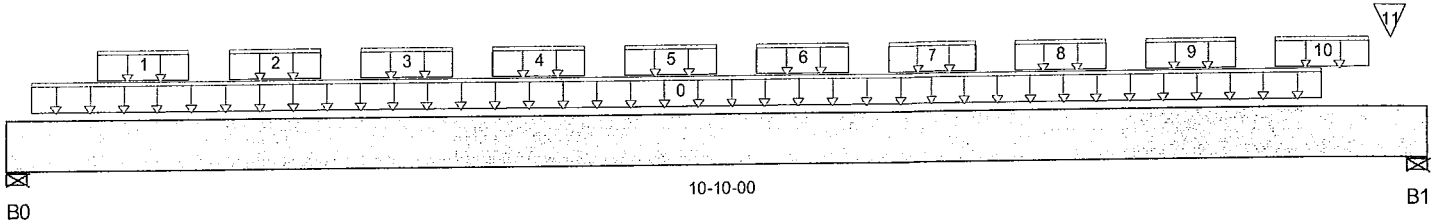
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:30 AM kgervais



Total Horizontal Product Length = 10'-10"

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,889 / 0	1,066 / 0		
B1, 4"	1,972 / 0	1,094 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-04	10-00-08	342	146			n/a
1	Bk1(i5447)	Unf. Lin. (lb/ft)	L	00-08-04	01-04-12		68			n/a
2	Bk1(i5415)	Unf. Lin. (lb/ft)	L	01-08-04	02-04-12		68			n/a
3	Bk1(i5286)	Unf. Lin. (lb/ft)	L	02-08-04	03-04-12		68			n/a
4	Bk1(i5337)	Unf. Lin. (lb/ft)	L	03-08-04	04-04-12		68			n/a
5	Bk1(i5296)	Unf. Lin. (lb/ft)	L	04-08-04	05-04-12		68			n/a
6	Bk1(i5314)	Unf. Lin. (lb/ft)	L	05-08-04	06-04-12		68			n/a
7	Bk1(i5393)	Unf. Lin. (lb/ft)	L	06-08-04	07-04-12		68			n/a
8	Bk1(i5362)	Unf. Lin. (lb/ft)	L	07-08-04	08-04-12		68			n/a
9	Bk1(i5444)	Unf. Lin. (lb/ft)	L	08-08-04	09-04-12		68			n/a
10	Bk1(i5360)	Unf. Lin. (lb/ft)	L	09-08-04	10-04-12		68			n/a
11	J8(i5317)	Conc. Pt. (lbs)	L	10-06-08	10-06-08	331	127			n/a

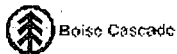
Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	10,355 ft-lbs	25,408 ft-lbs	40.8%	1	05-06-08
End Shear	4,252 lbs	11,571 lbs	36.7%	1	09-08-08
Total Load Defl.	L/443 (0.279")	0.515"	54.2%	4	05-04-12
Live Load Defl.	L/697 (0.177")	0.343"	51.6%	5	05-04-12
Max Defl.	0.279"	n/a	n/a	4	05-04-12
Span / Depth	13	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 3-1/2"	4,167 lbs	36.7%	24.4%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	4,325 lbs	38%	25.3%	Unspecified

## Notes



DRW NO. TAM44619.17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...B13 DR(i5417)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

Specifier:

Designer: AJ

Company:

Misc:

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: 00-01-03, Bottom: 00-01-03.

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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

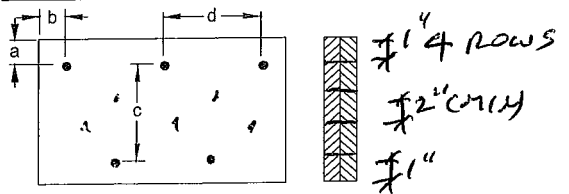
**CONFORMS TO OBC 2012**

## Disclosure

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## Connection Diagram



a minimum = 1" c = 1-1/2"  
b minimum = 3" d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d Nails

**3 1/2" ARDOX SPIRAL**



DWG NO. TAM 44619-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0-3100 SP 1st Floor\...\B14 DR(i5228)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-Ammdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B14

Specifier:

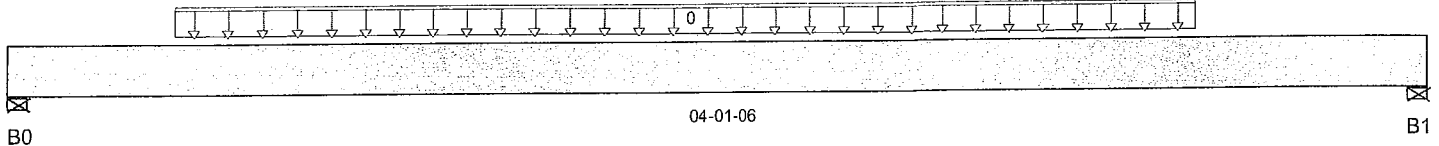
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:32 AM kgervais



Total Horizontal Product Length = 04-01-06

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	786 / 0	315 / 0		
B1, 4"	716 / 0	288 / 0		

## Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0 Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-13	03-05-07	506	190	1.00	1.15	n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,662 ft-lbs	25,408 ft-lbs	6.5%	1	01-11-12
End Shear	1,420 lbs	11,571 lbs	12.3%	1	02-11-14
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-00-08
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	02-00-08
Max Defl.	0.005"	n/a	n/a	4	02-00-08
Span / Depth	4.5	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 3-1/2"	1,572 lbs	13.8%	9.2%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	1,434 lbs	12.6%	8.4%	Unspecified

## 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: 00-09-00, Bottom: 00-09-00.

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 2010 and CSA

O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**CONFORMS TO OBC 2012**



P612

DWG NO. TAM 44620-17  
STRUCTURAL  
COMPONENT ONLY



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...\B14 DR(i5228)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

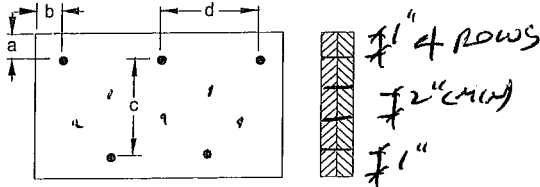
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

Specifier:

Designer: AJ

Company:

Misc:

**Connection Diagram**

a minimum = 8" c = 7-1/2"  
 b minimum = 3" d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d ~~Common~~ Nails

**3 1/2" ARDOX SPIRAL**

**Disclosure**

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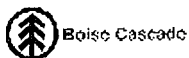


P62

DWG NO. TAM 44620-17

STRUCTURAL  
COMPONENT ONLY





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B15 DR(i5397)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B15

Specifier:

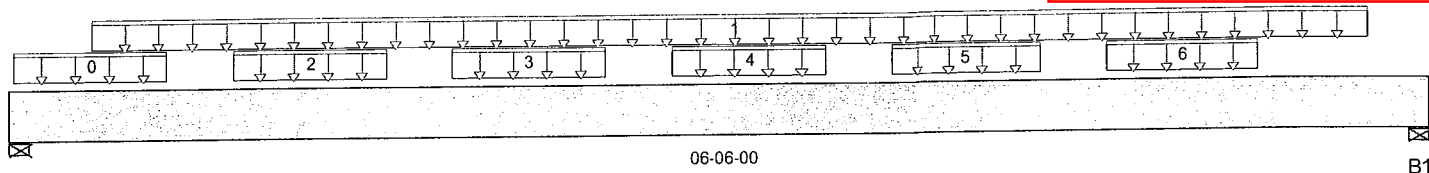
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:34 AM kgervais



Total Horizontal Product Length = 06-06-00

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,021 / 0	608 / 0		
B1, 4"	1,102 / 0	620 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
						1.00	0.65	1.00	1.15	
0	Bk1(i5442)	Unf. Lin. (lb/ft)	L	00-00-04	00-08-12		68			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-08	06-02-12	345	148			n/a
2	Bk1(i5436)	Unf. Lin. (lb/ft)	L	01-00-04	01-08-12		68			n/a
3	Bk1(i5434)	Unf. Lin. (lb/ft)	L	02-00-04	02-08-12		68			n/a
4	Bk1(i5466)	Unf. Lin. (lb/ft)	L	03-00-04	03-08-12		68			n/a
5	Bk1(i5316)	Unf. Lin. (lb/ft)	L	04-00-04	04-08-12		68			n/a
6	Bk1(i5408)	Unf. Lin. (lb/ft)	L	05-00-04	05-08-12		68			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,481 ft-lbs	25,408 ft-lbs	13.7%	1	02-10-08
End Shear	2,019 lbs	11,571 lbs	17.5%	1	01-01-08
Total Load Defl.	L/999 (0.032")	n/a	n/a	4	03-03-07
Live Load Defl.	L/999 (0.02")	n/a	n/a	5	03-03-07
Max Defl.	0.032"	n/a	n/a	4	03-03-07
Span / Depth	7.5	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 3-1/2"	2,291 lbs	20.2%	13.4%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	2,427 lbs	21.3%	14.2%	Unspecified

## 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: 00-01-10, Bottom: 00-01-10.

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 2010 and CSA

O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO DBC 2012



pg 1/2

DWG NO. TAM44621-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B15 DR(i5397)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:57

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

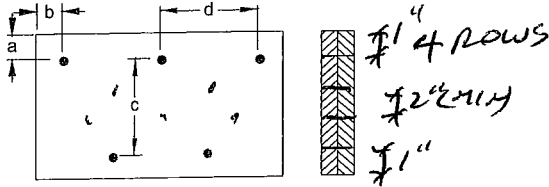
Specifier:

Designer: AJ

Company:

Msc:

## Connection Diagram



a minimum = 1" c = 1-1/2"  
b minimum = 3" d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.  
Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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9624

DWG NO. TAM 44621-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B17 DR(i5694)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 27, 2017 08:49:01

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-B-OPT MUDRM.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B17

Specifier:

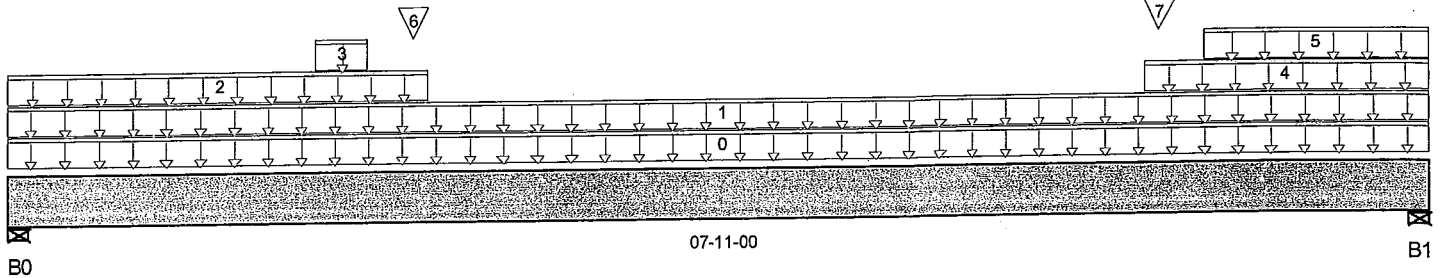
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:35 AM kgervais



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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	478 / 0	625 / 0	1,352 / 0	
B1, 5-1/2"	707 / 0	802 / 0	2,166 / 0	

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J2(i5342)	Unf. Lin. (lb/ft)	L	00-00-00	07-11-00	20	10			n/a
1	R1(i5244)	Unf. Lin. (lb/ft)	L	00-00-00	07-11-00	4	4			n/a
2	R1(i5244)	Unf. Lin. (lb/ft)	L	00-00-00	02-04-00		81			n/a
3	R1(i5244)	Unf. Lin. (lb/ft)	L	01-08-07	02-00-00	160	145	566		n/a
4	R1(i5244)	Unf. Lin. (lb/ft)	L	06-04-00	07-11-00		81			n/a
5	R1(i5244)	Unf. Lin. (lb/ft)	L	06-08-00	07-11-00	160	145	566		n/a
6	R1(i5244)	Conc. Pt. (lbs)	L	02-03-00	02-03-00	377	352	1,332		n/a
7	R1(i5244)	Conc. Pt. (lbs)	L	06-05-00	06-05-00	370	346	1,309		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,168 ft-lbs	25,408 ft-lbs	20.3%	13	02-03-00
End Shear	3,918 lbs	11,571 lbs	33.9%	13	06-08-00
Total Load Defl.	L/999 (0.069")	n/a	n/a	45	03-10-00
Live Load Defl.	L/999 (0.052")	n/a	n/a	61	03-10-00
Max Defl.	0.069"	n/a	n/a	45	03-10-00
Span / Depth	9	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	3,048 lbs	19.5%	13%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	4,605 lbs	29.5%	19.6%	Unspecified

## Notes



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-B-OPT MUDRM.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1

Specifier:

Designer: AJ

Company:

Misc:

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 2010 and CSA O86.

**CONFORMS TO OBC 2012**

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

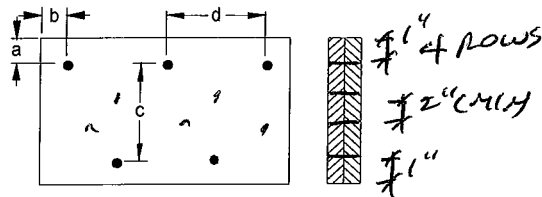
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**Disclosure**

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**Connection Diagram**



a minimum = 1" c = 1-1/2"  
b minimum = 3" d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d <sup>Since</sup> Nails

**3 1/2" ARDOX SPIRAL**

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DWG NO. TAM 44622-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\...\B17A(i5219)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:59

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-Ammdl

Description: Designs\Flush Beams\Basement\Flush Beams\B17A(i521

Specifier:

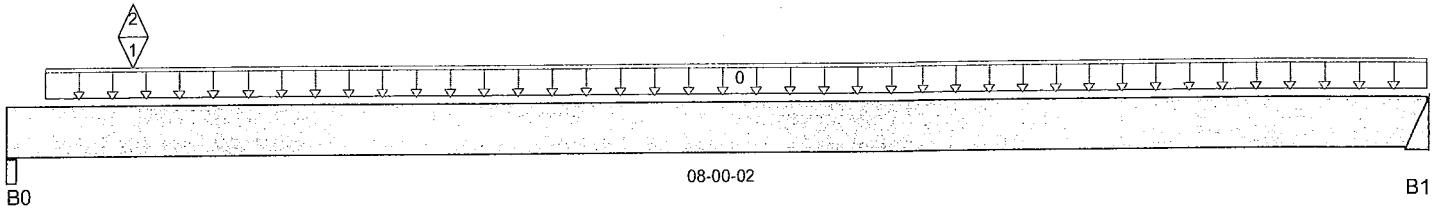
Designer: AJ

Company:

Msc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:37 AM kgervais



Total Horizontal Product Length = 08-00-02

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	4,028 / 253	2,273 / 0		
B1	261 / 12	169 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	08-00-02	20	8			n/a
1	H1(i941)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	4,132	2,306			n/a
2	H1(i941)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	-265				n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,961 ft-lbs	25,408 ft-lbs	11.7%	1	00-08-08
End Shear	2,853 lbs	11,571 lbs	24.7%	1	01-02-12
Total Load Defl.	L/999 (0.032")	n/a	n/a	6	03-08-04
Live Load Defl.	L/999 (0.02")	n/a	n/a	8	03-08-04
Max Defl.	0.032"	n/a	n/a	6	03-08-04
Span / Depth	9.5	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 3-1/2"	8,884 lbs	90.5%	39.6%	Unspecified
B1 Hanger	2" x 3-1/2"	602 lbs	n/a	7.1%	HGUS410

## 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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\...B17A(i5219)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 21, 2017 16:31:59

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B17A(i5

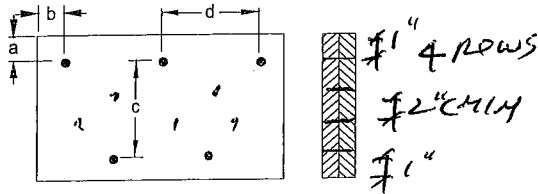
Specifier:

Designer: AJ

Company:

Msc:

## Connection Diagram



a minimum = 1" c = 1-1/2"  
b minimum = 3" d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d ~~16d~~ Nails

**3 1/2" ARDOX SPIRAL**

## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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DWG NO. TAM 4462317  
STRUCTURAL  
COMPONENT ONLY





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\...B18A(I5598)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 1, 2017 10:43:13

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A-OPT MUDRM-DECK.mmdl

Description: Designs\Dropped Beams\Basement\Dropped Beams\B18.

Specifier:

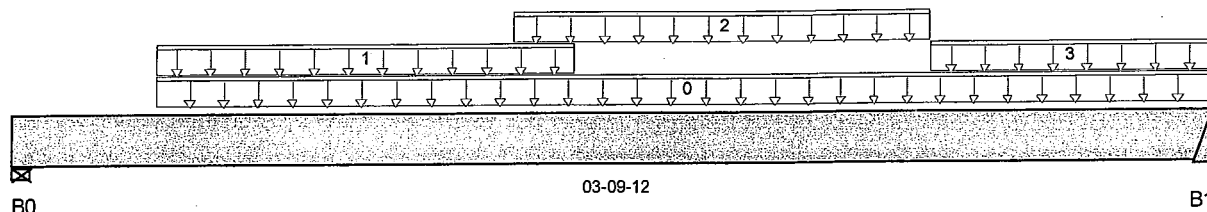
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:39 AM kgervais



Total Horizontal Product Length = 03-09-12

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	172 / 0	220 / 0		
B1	436 / 0	346 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	3(i932)	Unf. Lin. (lb/ft)	L	00-05-08	03-09-12		89			n/a
1	3(i932)	Unf. Lin. (lb/ft)	L	00-05-08	01-09-06	9	4			n/a
2	3(i932)	Unf. Lin. (lb/ft)	L	01-07-00	02-11-00	240	90			n/a
3	3(i932)	Unf. Lin. (lb/ft)	L	02-11-00	03-09-12	307	115			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	732 ft-lbs	25,408 ft-lbs	2.9%	1	02-02-03
End Shear	868 lbs	11,571 lbs	7.5%	1	02-10-04
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	02-00-03
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	02-00-10
Max Defl.	0.002"	n/a	n/a	4	02-00-03
Span / Depth	4.4	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	534 lbs	8.2%	3.6%	Unspecified
B1 Hanger	2" x 3-1/2"	1,087 lbs	n/a	12.7%	HUC410

## 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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



DWG NO. TAM 44624-17  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A-OPT MUDRM-DECK.mmdl

Description: Designs\Dropped Beams\Basement\Dropped Beams\B

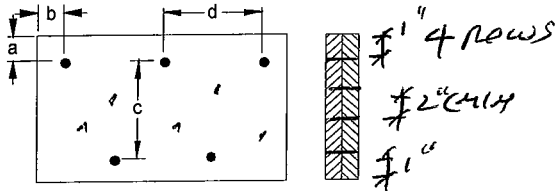
Specifier:

Designer: AJ

Company:

Misc:

### Connection Diagram



a minimum = 1" c = 3-1/2"  
b minimum = 3" d = 6"

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

### Disclosure

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DWG NO. TAM 44624-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\...\B18(i5597)

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

September 1, 2017 10:43:13

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A-OPT MUDRM-DECK.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B18(i5597

Specifier:

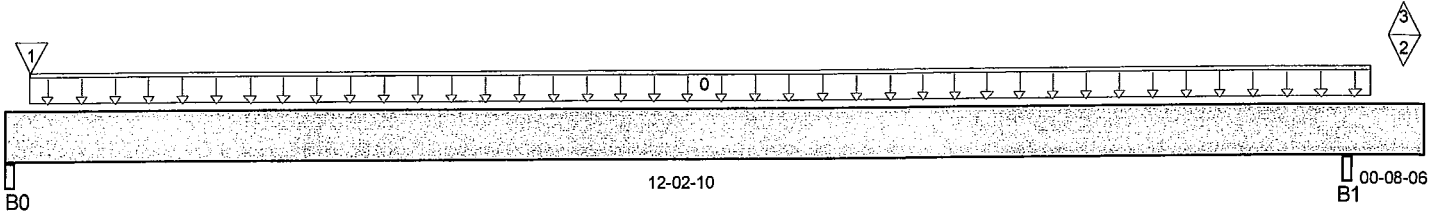
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:42 AM kgervais



Total Horizontal Product Length = 12-11-00

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	317 / 114	129 / 0		
B1, 5-1/4"	2,980 / 124	1,910 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	12-05-04	27	10			n/a
1	7(i939)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	150	80			n/a
2	-	Conc. Pt. (lbs)	L	12-08-10	12-08-10	2,702	1,712			n/a
3	-	Conc. Pt. (lbs)	L	12-08-10	12-08-10	-119				n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	696 ft-lbs	25,408 ft-lbs	2.7%	7	05-03-06
Neg. Moment	-3,101 ft-lbs	-25,408 ft-lbs	12.2%	1	12-02-10
End Shear	244 lbs	11,571 lbs	2.1%	3	01-02-12
Cont. Shear	2,211 lbs	11,571 lbs	19.1%	1	13-02-12
Uplift	55 lbs	n/a	n/a	8	00-00-00
Total Load Defl.	2xL/1,998 (0.019")	n/a	n/a	13	12-11-00
Live Load Defl.	L/999 (-0.042")	n/a	n/a	17	07-01-14
Total Neg. Defl.	L/999 (-0.052")	n/a	n/a	13	07-06-08
Max Defl.	-0.052"	n/a	n/a	13	07-06-08
Span / Depth	15	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	5-1/4" x 3-1/2"	636 lbs	6.5%	2.8%	Unspecified
B1 Beam	5-1/4" x 3-1/2"	6,857 lbs	69.9%	30.6%	Unspecified

## Cautions

Uplift of 55 lbs found at span 1 - Left. (SIMPSON 1-H25A @ B0)

## Notes



P614

DWG NO. TAM 44625.17  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-A-OPT MUDRM-DECK.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B18(i55

Specifier:

Designer: AJ

Company:

Msc:

Design meets User specified (2xL/240) Total load deflection criteria.

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

Calculations assume unbraced length of Top: 00-01-10, Bottom: 00-01-10.

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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

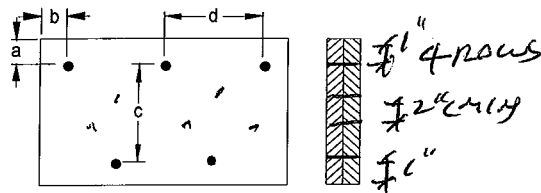
**CONFORMS TO OBC 2012**

### Disclosure

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### Connection Diagram



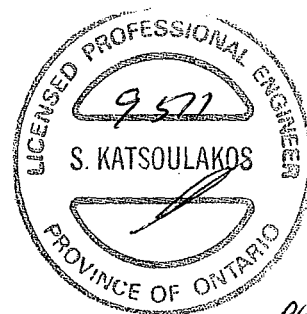
a minimum = 1" c = 3-1/2"  
b minimum = 3" d = 6"

Calculated Side Load = 81.6 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 3 1/2" ARDOX SPIRAL Nails

**3 1/2" ARDOX SPIRAL**



DWG NO. TAN 44625.17  
STRUCTURAL  
COMPONENT ONLY



# Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\...\B24L(i6701)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 29, 2017 15:32:07

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: INNISFILL,

Customer:

Code reports: CCMC 12472-R

File Name: S45-4C EL-B-OPT MUDRM.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B24L(i670

Specifier:

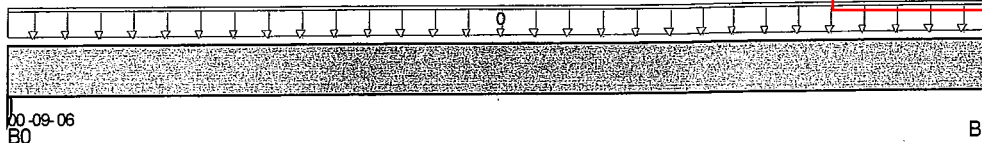
Designer: AJ

Company:

Misc:

**Town of Innisfil Certified Model**

04/01/2018 9:33:44 AM kgervais



Total Horizontal Product Length = 00-09-06

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

Bearing	Live	Dead	Snow	Wind
B0, 1-1/2"	2 / 0	3 / 0		
B1, 1-1/2"	2 / 0	3 / 0		

## Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-09-06	4	2	1.00	1.15	n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1 ft-lbs	n/a	n/a	1	00-04-11
End Shear	3 lbs	n/a	n/a	0	00-01-08
Span / Depth	0.8	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-1/2" x 1-3/4"	6 lbs	0.3%	0.2%	Unspecified
B1 Post	1-1/2" x 1-3/4"	6 lbs	0.3%	0.2%	Unspecified

## Notes

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO OBC 2012**

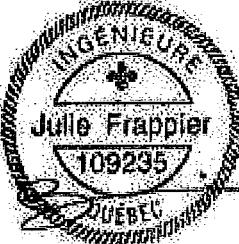
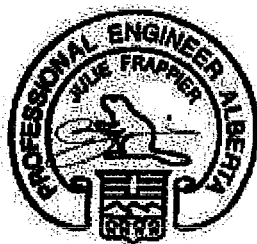
## Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



DWG NO. TAM 44626.17  
STRUCTURAL  
COMPONENT ONLY



## Maximum Floor Spans

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

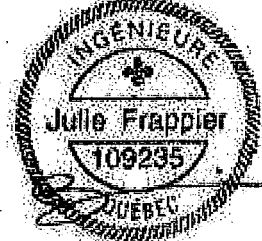
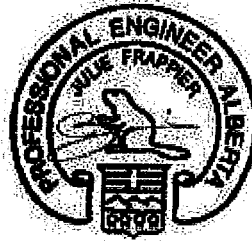
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

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

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





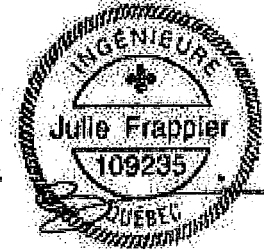
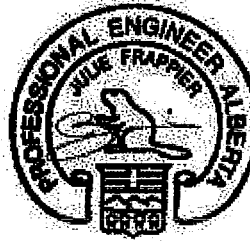
## Maximum Floor Spans

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

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

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

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



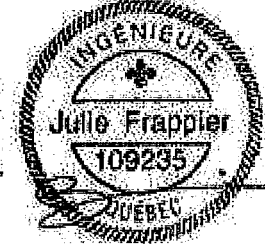
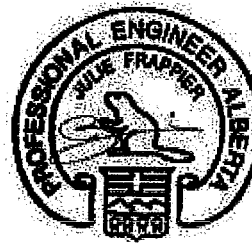
## Maximum Floor Spans

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

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

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

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



## Maximum Floor Spans

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

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

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

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

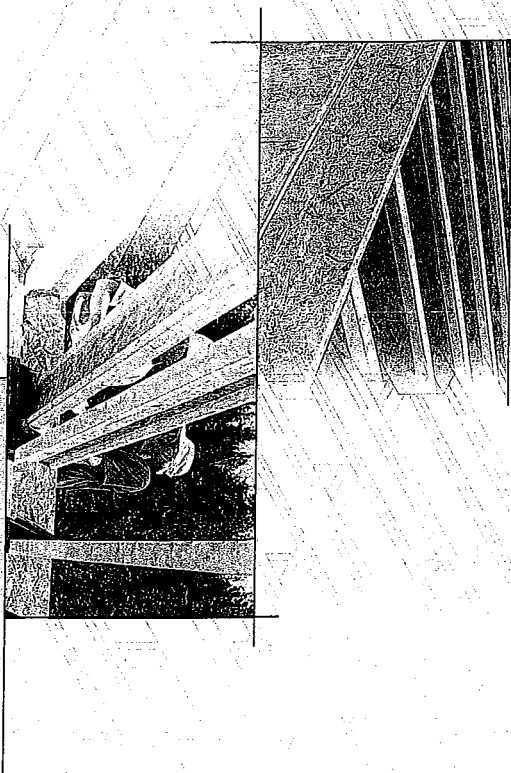
# NORDIC

ENGINEERED WOOD



## INSTALLATION GUIDE

### FOR RESIDENTIAL FLOORS



Distributed by:

N-C301 / November 2014

### SAFETY AND CONSTRUCTION PRECAUTIONS

#### WARNING

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

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

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.



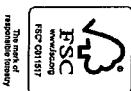
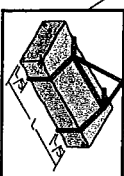
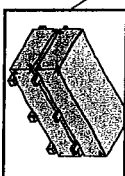
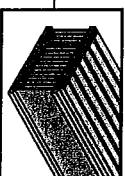
Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



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

### STORAGE AND HANDLING GUIDELINES

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



## MAXIMUM FLOOR SPANS

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

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

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
12"	NI-20	15.1	15.2	13.9	13.5	15.1	15.2	14.0	14.7
	NI-40	16.1	15.2	14.5	14.9	16.1	15.2	15.0	15.5
	NI-60	16.1	15.1	14.0	14.1	16.1	15.2	16.0	16.1
	NI-80	16.1	15.1	13.8	13.9	16.1	15.2	16.0	16.1
	NI-90	16.1	15.1	13.8	13.9	16.1	15.2	16.0	16.1
16"	NI-20	18.1	18.2	16.5	16.6	18.1	18.2	17.0	17.7
	NI-40	18.1	17.3	16.5	16.6	18.1	17.3	17.0	17.7
	NI-60	18.1	17.3	16.5	16.6	18.1	17.3	17.0	17.7
	NI-80	18.1	17.3	16.5	16.6	18.1	17.3	17.0	17.7
	NI-90	18.1	17.3	16.5	16.6	18.1	17.3	17.0	17.7
19.2"	NI-20	19.2	19.2	17.1	17.1	19.2	19.2	18.0	18.7
	NI-40	19.2	19.2	17.1	17.1	19.2	19.2	18.0	18.7
	NI-60	19.2	19.2	17.1	17.1	19.2	19.2	18.0	18.7
	NI-80	19.2	19.2	17.1	17.1	19.2	19.2	18.0	18.7
	NI-90	19.2	19.2	17.1	17.1	19.2	19.2	18.0	18.7
24"	NI-20	20.4	20.4	18.2	18.2	20.4	20.4	19.0	19.7
	NI-40	20.4	20.4	18.2	18.2	20.4	20.4	19.0	19.7
	NI-60	20.4	20.4	18.2	18.2	20.4	20.4	19.0	19.7
	NI-80	20.4	20.4	18.2	18.2	20.4	20.4	19.0	19.7
	NI-90	20.4	20.4	18.2	18.2	20.4	20.4	19.0	19.7

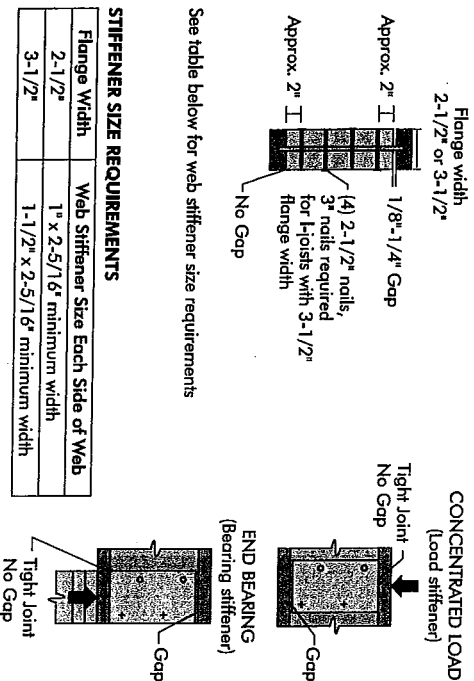
CCMC EVALUATION REPORT 13032-R

## WEB STIFFENERS

### RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the 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



## NORDIC I-JOIST SERIES

S-PF No.2	1950f MSR	2100f MSR	1950f MSR	2100f MSR	2400f 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	23 pieces per unit
NI-20	NI-40	NI-60	NI-70	NI-80	NI-90	NI-90
1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"
9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"
11-1/2"	11-1/2"	11-1/2"	11-1/2"	11-1/2"	11-1/2"	11-1/2"
14"	14"	14"	14"	14"	14"	14"
16"	16"	16"	16"	16"	16"	16"

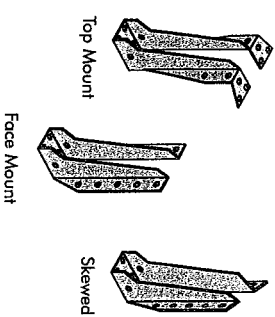
Chomiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures through our manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

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

2015-04-16

## 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.



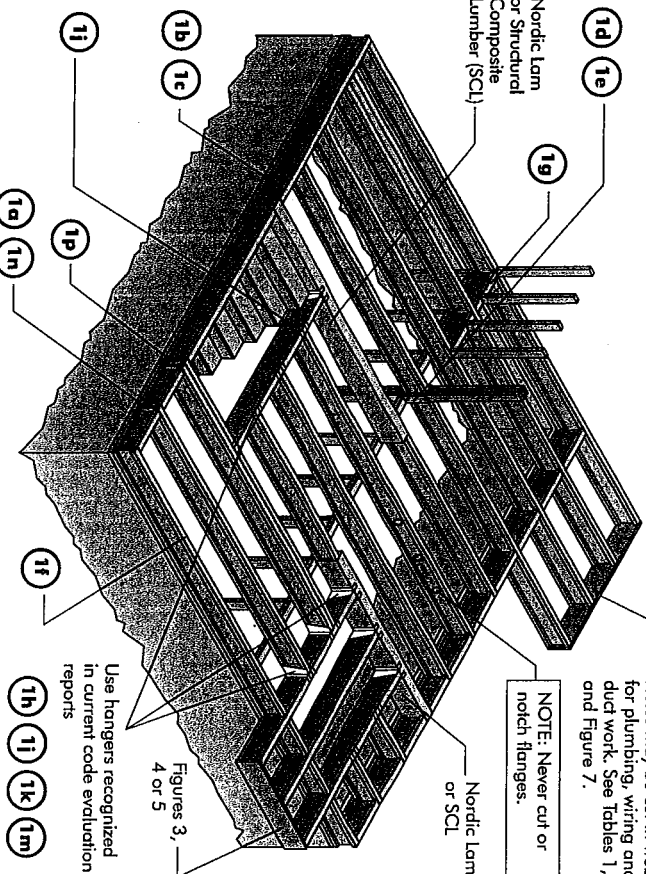
# INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated 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 spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

2015-04-16

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

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



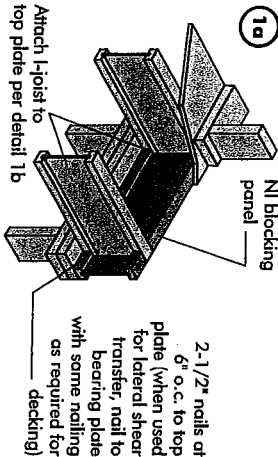
Figures 3, 4 or 5  
Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.

NOTE: Never cut or notch flanges.

Figures 3, 4 or 5

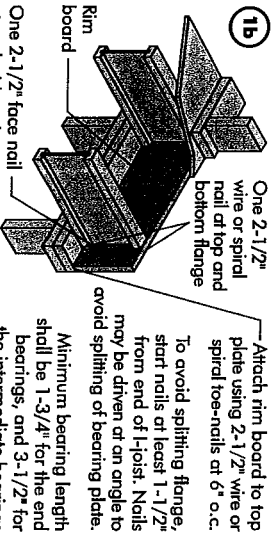
Use hangers recognized in current code evaluation reports

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.



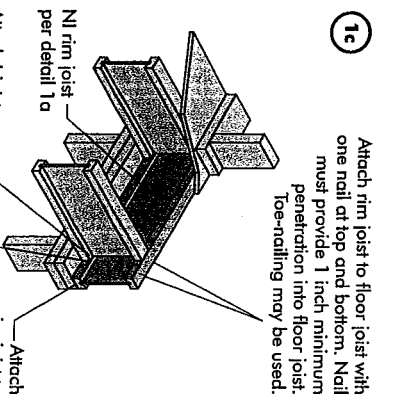
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
Nl Joists	3,300

\*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.

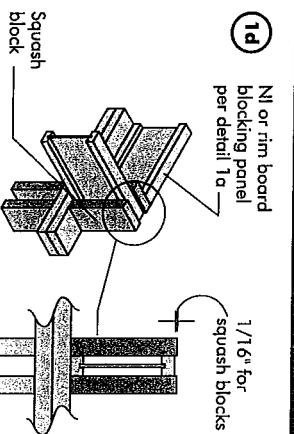


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
1-1/8" Rim Board Plus	8,090

\*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.

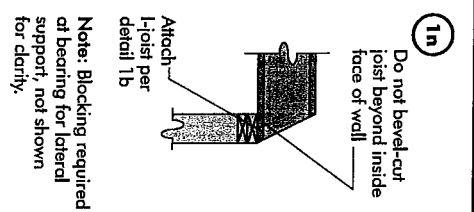
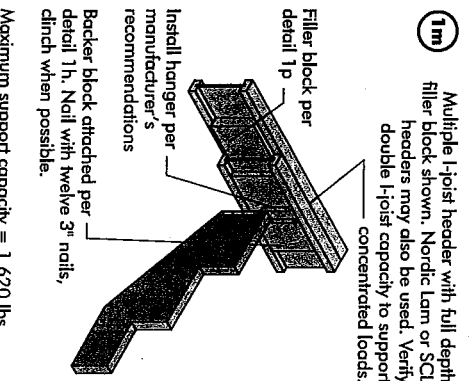
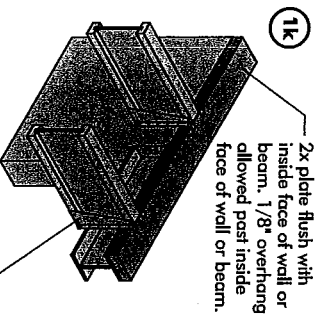
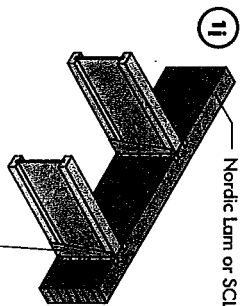
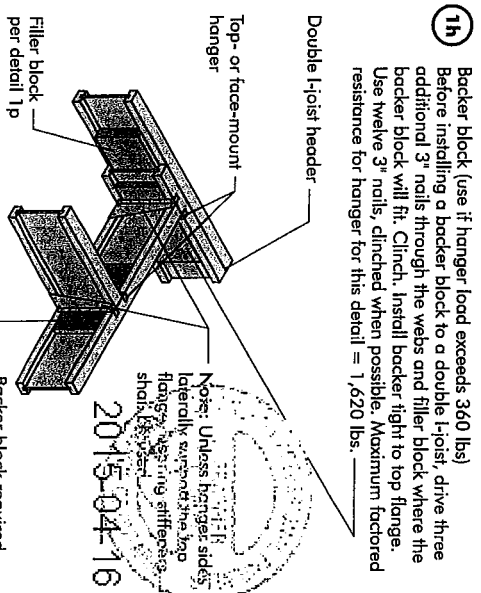
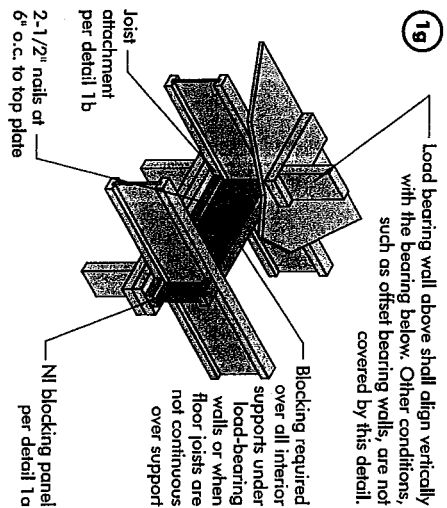
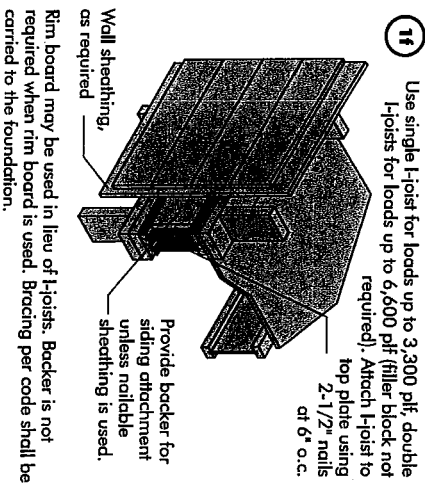
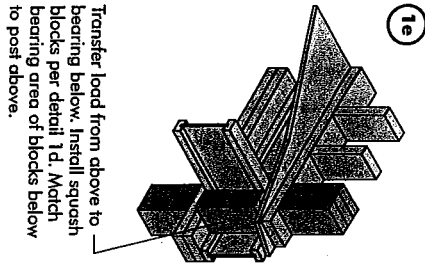


Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.



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

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



**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.

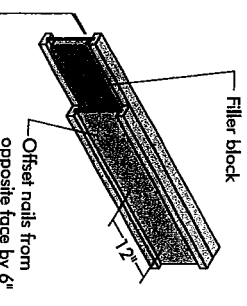
\*\* For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

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.

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

1p



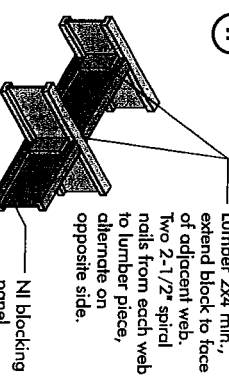
Notes:

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 blf/ft. Verify double I-joist capacity.

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

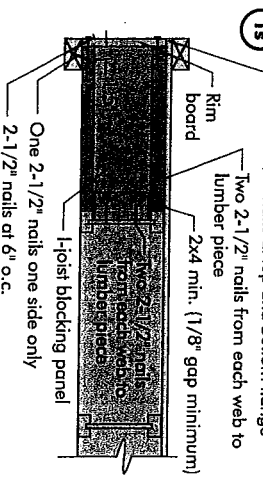
Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
2-1/2" x 1-1/2"	11-7/8"	2-1/8" x 8"
2-1/2" x 1-1/2"	14"	2-1/8" x 10"
2-1/2" x 1-1/2"	16"	2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"
3-1/2" x 1-1/2"	11-7/8"	3" x 8"
3-1/2" x 1-1/2"	14"	3" x 10"
3-1/2" x 1-1/2"	16"	3" x 12"
3-1/2"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

1r



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.

1s



Notes:

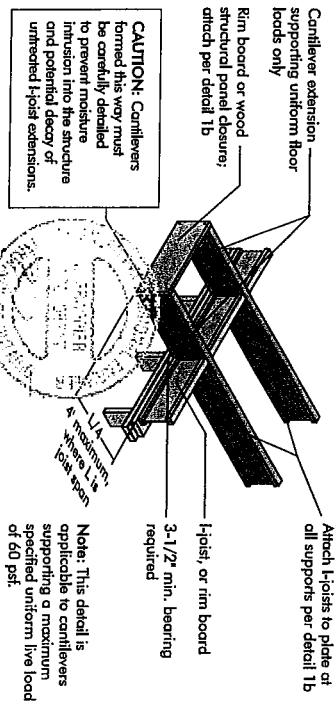
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

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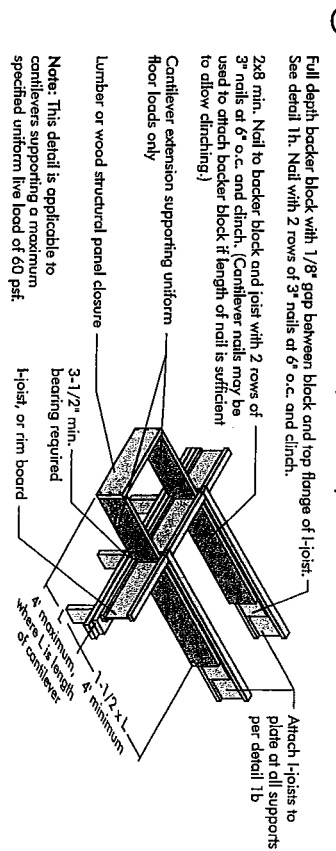


## CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

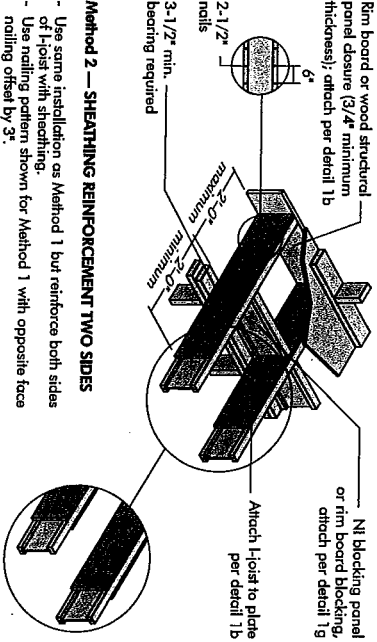


### 3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



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

### 4a) Method 1 — SHEATHING REINFORCEMENT ONE SIDE

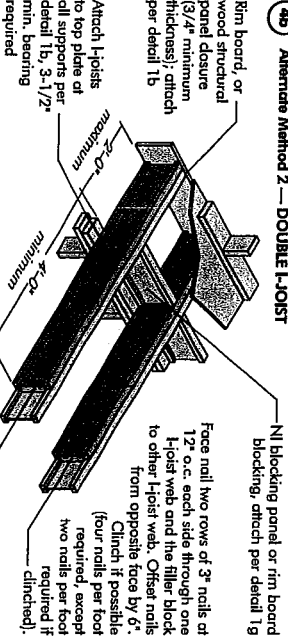


### Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- 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".

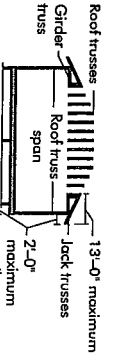
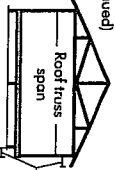
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

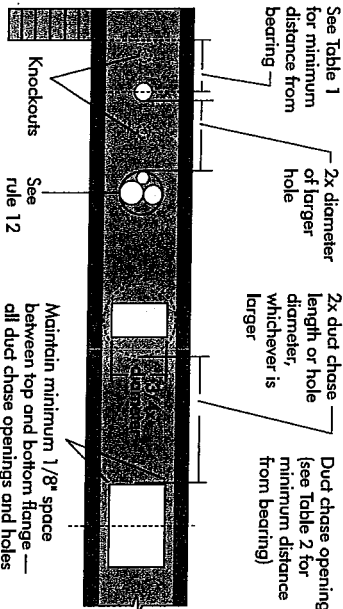
### CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS		ROOF LOADING (UNFACTORED)				ROOF TRUSS			
	LL = 30 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 40 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 50 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 30 psf, DL = 15 psf	JOIST SPACING (in.)		
12	12	16	12	16	12	16	12	16		
16	16	24	16	24	16	24	16	24		
20	20	32	20	32	20	32	20	32		
24	24	40	24	40	24	40	24	40		
28	28	48	28	48	28	48	28	48		
32	32	56	32	56	32	56	32	56		
36	36	64	36	64	36	64	36	64		
40	40	72	40	72	40	72	40	72		
44	44	80	44	80	44	80	44	80		
48	48	88	48	88	48	88	48	88		
52	52	96	52	96	52	96	52	96		
56	56	104	56	104	56	104	56	104		
60	60	112	60	112	60	112	60	112		
64	64	120	64	120	64	120	64	120		
68	68	128	68	128	68	128	68	128		
72	72	136	72	136	72	136	72	136		
76	76	144	76	144	76	144	76	144		
80	80	152	80	152	80	152	80	152		
84	84	160	84	160	84	160	84	160		
88	88	168	88	168	88	168	88	168		
92	92	176	92	176	92	176	92	176		
96	96	184	96	184	96	184	96	184		
100	100	192	100	192	100	192	100	192		

1. N = NI reinforcement required.
2. NI = NI reinforced with 3/4" wood structural panel on one side only.
3. NI = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. 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.
6. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

## 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-joint 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-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.
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.

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

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

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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.)												Span adjustment Factor		
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4		11	12
12	2	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
14	3	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
16	4	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
18	5	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
20	6	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
22	7	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
24	8	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
26	9	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
28	10	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
30	11	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
32	12	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
34	13	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
36	14	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
38	15	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
40	16	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
42	17	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
44	18	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
46	19	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
48	20	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
50	21	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
52	22	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
54	23	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
56	24	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
58	25	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
60	26	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
62	27	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
64	28	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
66	29	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
68	30	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
70	31	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
72	32	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
74	33	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
76	34	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
78	35	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
80	36	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
82	37	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
84	38	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
86	39	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
88	40	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
90	41	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
92	42	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
94	43	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
96	44	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
98	45	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9
100	46	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9

1. Above table may be used for I-joint 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:

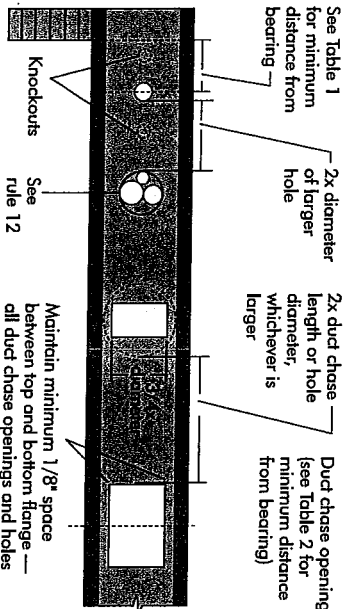
The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Span Tables), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$\text{Reduced } D = \frac{\text{Actual } D}{\text{SAF}} \times D$$

Where:

- 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.
- 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 Actual is greater than 1, use 1 in the above calculation for Actual.

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

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

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

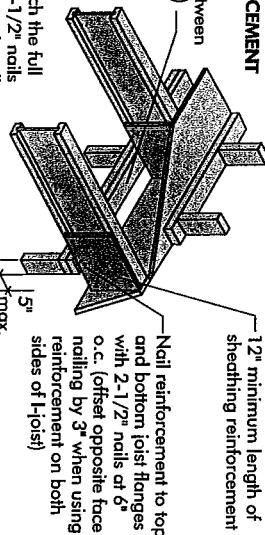
TABLE 2  
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in.)											
		Due to chaise length (ft-in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
12	12	4.4	4.5	4.10	5.4	5.8	6.5	7.5	7.4	7.5	7.5	7.4	7.5
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	12	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
14	14	4.4	4.5	4.10	5.4	5.8	6.5	7.5	7.4	7.5	7.5	7.4	7.5
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	14	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
16	16	4.4	4.5	4.10	5.4	5.8	6.5	7.5	7.4	7.5	7.5	7.4	7.5
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2
	16	5.4	5.9	6.2	6.5	6.10	7.3	7.8	8.2	8.2	8.2	8.2	8.2

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

## 5a SHEATHING REINFORCEMENT

Provide full depth blocking between joists over support (not shown)



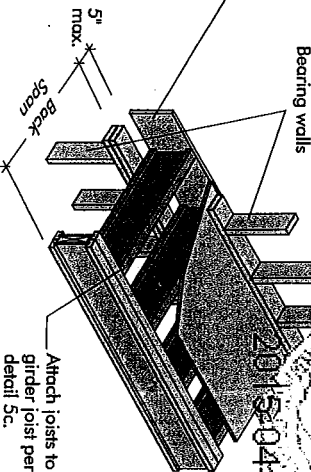
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

## 5b SET-BACK DETAIL

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

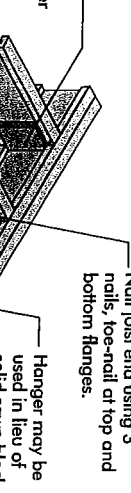
Notes:

- Provide full depth blocking between joists over support (not shown for clarity)
- Attach I-joist to plate at all supports per detail 1b.
- 3-1/2" minimum I-joist bearing required.



## 5c SET-BACK CONNECTION

Vertical solid sawn blocks (2x6 S-P-F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails.



Notes:

- Verify girder joist capacity if the back span exceeds the joist spacing.
- Attach double I-joist per detail 1p, if required.

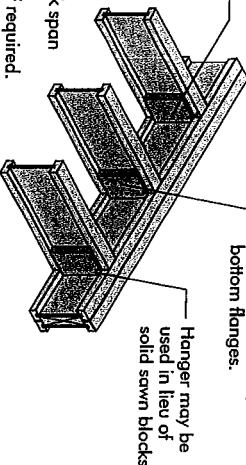
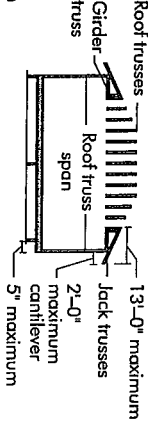
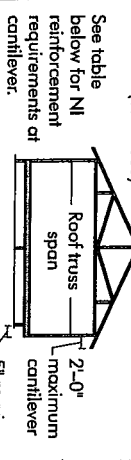


FIGURE 5 (continued)



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

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
9 1/2"	26	1	1	1	1	1	1	1	1	1	1	1	1
	28	1	1	1	1	1	1	1	1	1	1	1	1
	30	1	1	1	1	1	1	1	1	1	1	1	1
	32	1	1	1	1	1	1	1	1	1	1	1	1
	34	1	1	1	1	1	1	1	1	1	1	1	1
	36	1	1	1	1	1	1	1	1	1	1	1	1
11 7/8"	26	1	1	1	1	1	1	1	1	1	1	1	1
	28	1	1	1	1	1	1	1	1	1	1	1	1
	30	1	1	1	1	1	1	1	1	1	1	1	1
	32	1	1	1	1	1	1	1	1	1	1	1	1
	34	1	1	1	1	1	1	1	1	1	1	1	1
	36	1	1	1	1	1	1	1	1	1	1	1	1
	38	1	1	1	1	1	1	1	1	1	1	1	1
	40	1	1	1	1	1	1	1	1	1	1	1	1
14"	26	1	1	1	1	1	1	1	1	1	1	1	1
	28	1	1	1	1	1	1	1	1	1	1	1	1
	30	1	1	1	1	1	1	1	1	1	1	1	1
	32	1	1	1	1	1	1	1	1	1	1	1	1
	34	1	1	1	1	1	1	1	1	1	1	1	1
	36	1	1	1	1	1	1	1	1	1	1	1	1
	38	1	1	1	1	1	1	1	1	1	1	1	1
	40	1	1	1	1	1	1	1	1	1	1	1	1
16"	26	1	1	1	1	1	1	1	1	1	1	1	1
	28	1	1	1	1	1	1	1	1	1	1	1	1
	30	1	1	1	1	1	1	1	1	1	1	1	1
	32	1	1	1	1	1	1	1	1	1	1	1	1
	34	1	1	1	1	1	1	1	1	1	1	1	1
	36	1	1	1	1	1	1	1	1	1	1	1	1
	38	1	1	1	1	1	1	1	1	1	1	1	1
	40	1	1	1	1	1	1	1	1	1	1	1	1
	42	1	1	1	1	1	1	1	1	1	1	1	1

1. N = No reinforcement required.  
 2. N = NI reinforced with 3/4" wood structural panel on one side only.  
 3. NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.  
 4. X = Try a deeper joist or closer spacing.  
 5. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.  
 6. For larger openings, or multiple 3'-0" with openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.  
 7. 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.  
 8. 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.  
 9. 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.  
 10. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

# 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. Top 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 I&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)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Common Wire or Spiral Nails	Nail Size and Type	Staples	Maximum Spacing of Fasteners	Internal Supports
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"

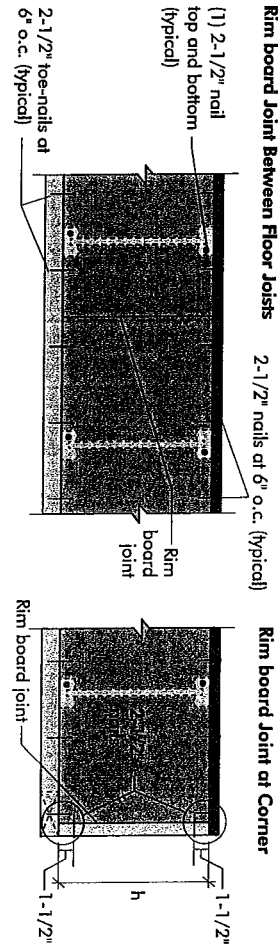
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions 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.

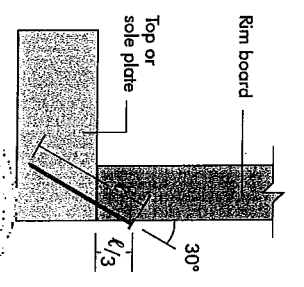
**IMPORTANT NOTE:**  
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

# RIM BOARD INSTALLATION DETAILS

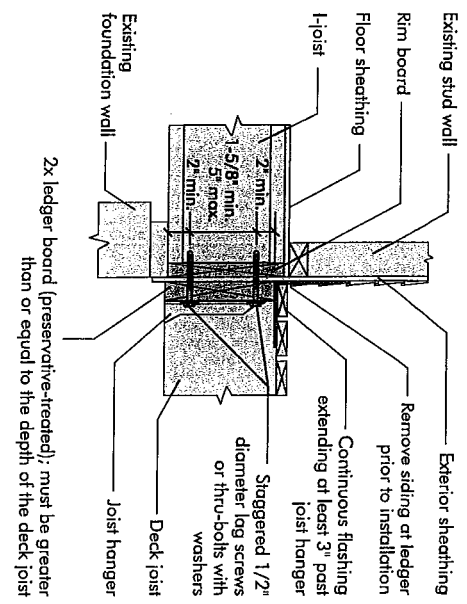
## 8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



## 8b TOE-NAIL CONNECTION AT RIM BOARD



## 8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

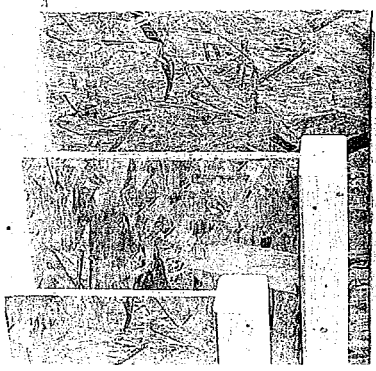


2015-04-16

## PRODUCT WARRANTY

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

**Furthermore, Champion** 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.



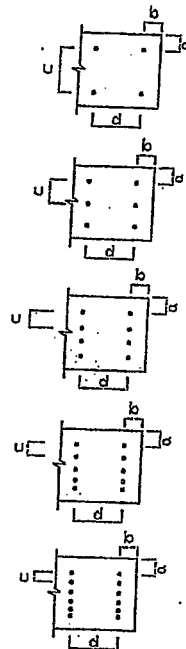
# MICRO CITY

## ENGINEERING SERVICES INC.

TEL: (519) 287 - 2242

R.R. #1, P.O. BOX 61, GLENCOE, ONTARIO, N0L 1M0

LVL HEADER AND CONVENTIONAL LUMBER NAILING DETAILS		
DETAIL NUMBER	NUMBER OF ROWS	SPACING (INCHES o/c) "d"
A	2	12
B	2	8
C	2	6
D	2	4
1A	3	12
1B	3	8
1C	3	6
1D	3	4
2A	4	12
2B	4	8
2C	4	6
2D	4	4
3A	5	12
3B	5	8
3C	5	6
3D	5	4
4A	6	12
4B	6	8
4C	6	6
4D	6	4



### NOTES:

- (1) MINIMUM LUMBER EDGE DISTANCE "a" = 1"
- (2) MINIMUM LUMBER END DISTANCE "b" = 2"
- (3) MINIMUM NAIL ROW SPACING "c" = 2"
- (4) STAGGER NAILS "d/2" BETWEEN PLYS FOR MULTI-PLY MEMBERS (3 PLY OR MORE)
- (5) ALL NAILS ARE 3-1/2" ARDOX SPIRAL NAILS
- (6) DO NOT USE AIR-DRIVEN NAILS



DWG NO TAMN1001.14

STRUCTURAL

COMPONENT ONLY

TO BE USED ONLY  
WITH BEAM CALCS  
BEARING THE  
STAMP BELOW

PROVIDE NAILING  
DETAIL # X SEE  
DWG #TAMN1001-14