

FROM PLAN DATED: MAR02017

BUILDER: GREENPARK HOMES

SITE: RUSSEL GARDENS

MODEL: ROSEWOOD 12

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: CZ

REVISION:

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

LOADING:  
DESIGN LOADS: L/480.000

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

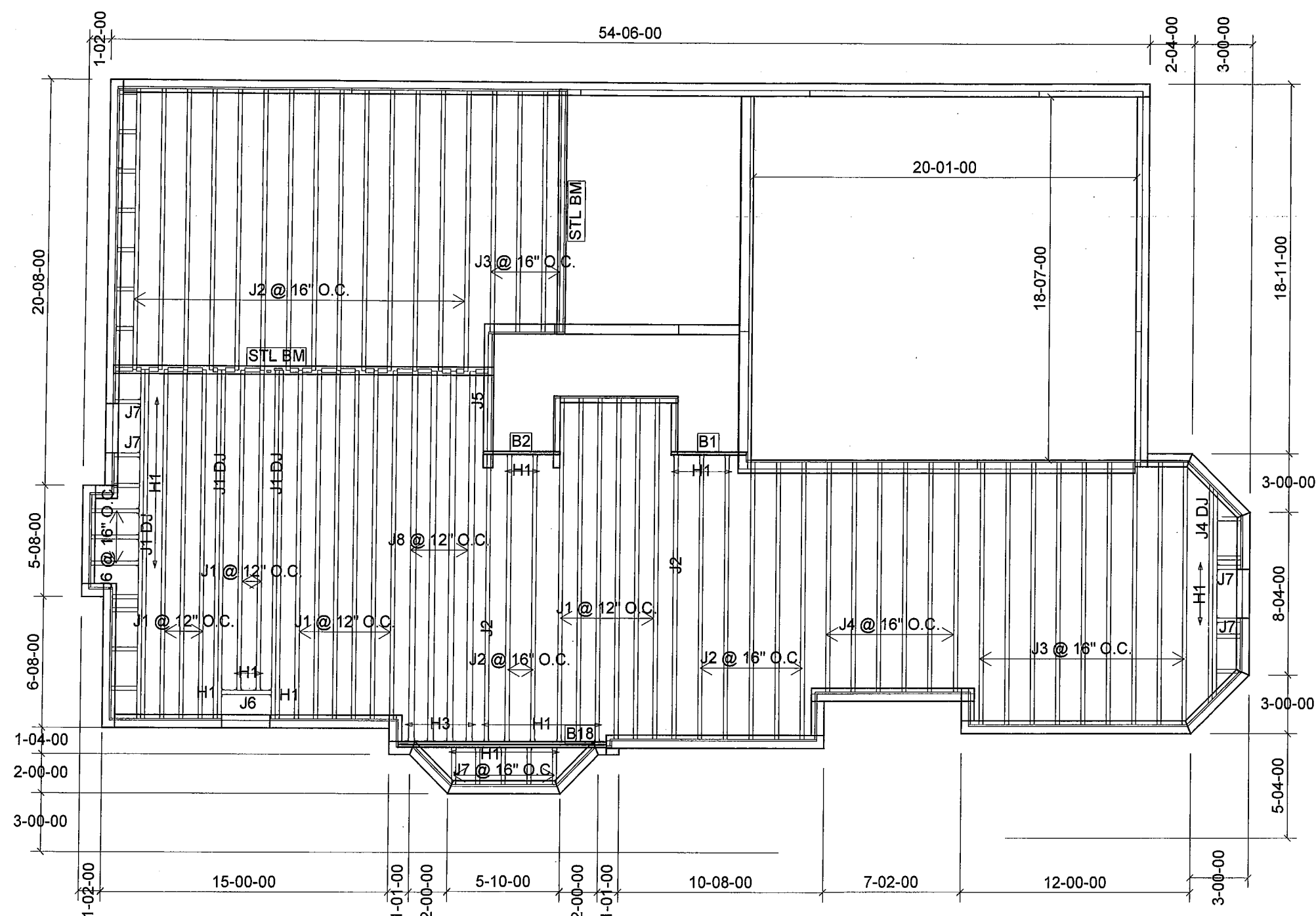
DEAD LOAD: 15.0 lb/ft

TILED AREAS: 20 lb/ft

SUBFLOOR: 3/4" GLUED AND NAILED

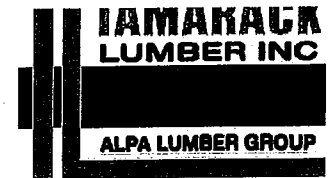
DATE: 18/08/2017

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J1 DJ	18-00-00	11 7/8" NI-40x	2	6
J2	16-00-00	11 7/8" NI-40x	1	23
J3	14-00-00	11 7/8" NI-40x	1	13
J4	12-00-00	11 7/8" NI-40x	1	6
J4 DJ	12-00-00	11 7/8" NI-40x	2	2
J5	6-00-00	11 7/8" NI-40x	1	1
J6	4-00-00	11 7/8" NI-40x	1	4
J7	2-00-00	11 7/8" NI-40x	1	9
J8	20-00-00	11 7/8" NI-80	1	4
B18	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
9	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
4	H3	IUS3.56/11.88



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CERAMIC TILE APPLICATION AS PER  
O.B.C 9.30.6.

LOADING:  
DESIGN LOADS: L/480.000

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

DEAD LOAD: 15.0 lb/ft

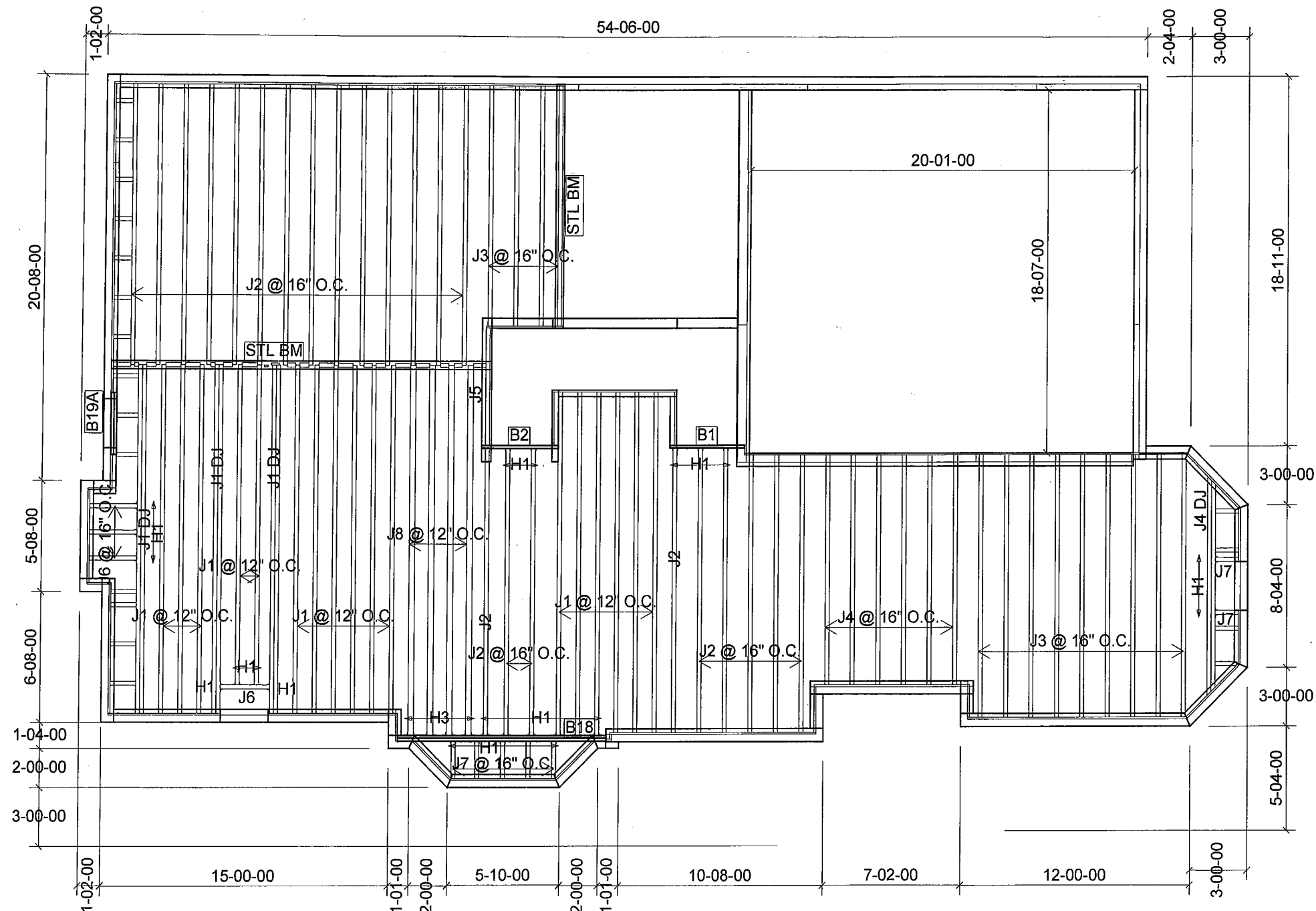
TILED AREAS: 20 lb/ft

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 18/08/2017

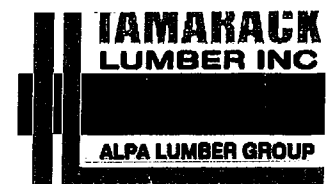
## 1st FLOOR

DECK CON.



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J1 DJ	18-00-00	11 7/8" NI-40x	2	6
J2	16-00-00	11 7/8" NI-40x	1	23
J3	14-00-00	11 7/8" NI-40x	1	13
J4	12-00-00	11 7/8" NI-40x	1	6
J4 DJ	12-00-00	11 7/8" NI-40x	2	2
J5	6-00-00	11 7/8" NI-40x	1	1
J6	4-00-00	11 7/8" NI-40x	1	4
J7	2-00-00	11 7/8" NI-40x	1	7
J8	20-00-00	11 7/8" NI-80	1	4
B18	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B19A	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
7	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
4	H3	IUS3.56/11.88



FROM PLAN DATED: MAR02017

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SITE: RUSSEL GARDENS

MODEL: ROSEWOOD 12

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: CZ

REVISION:

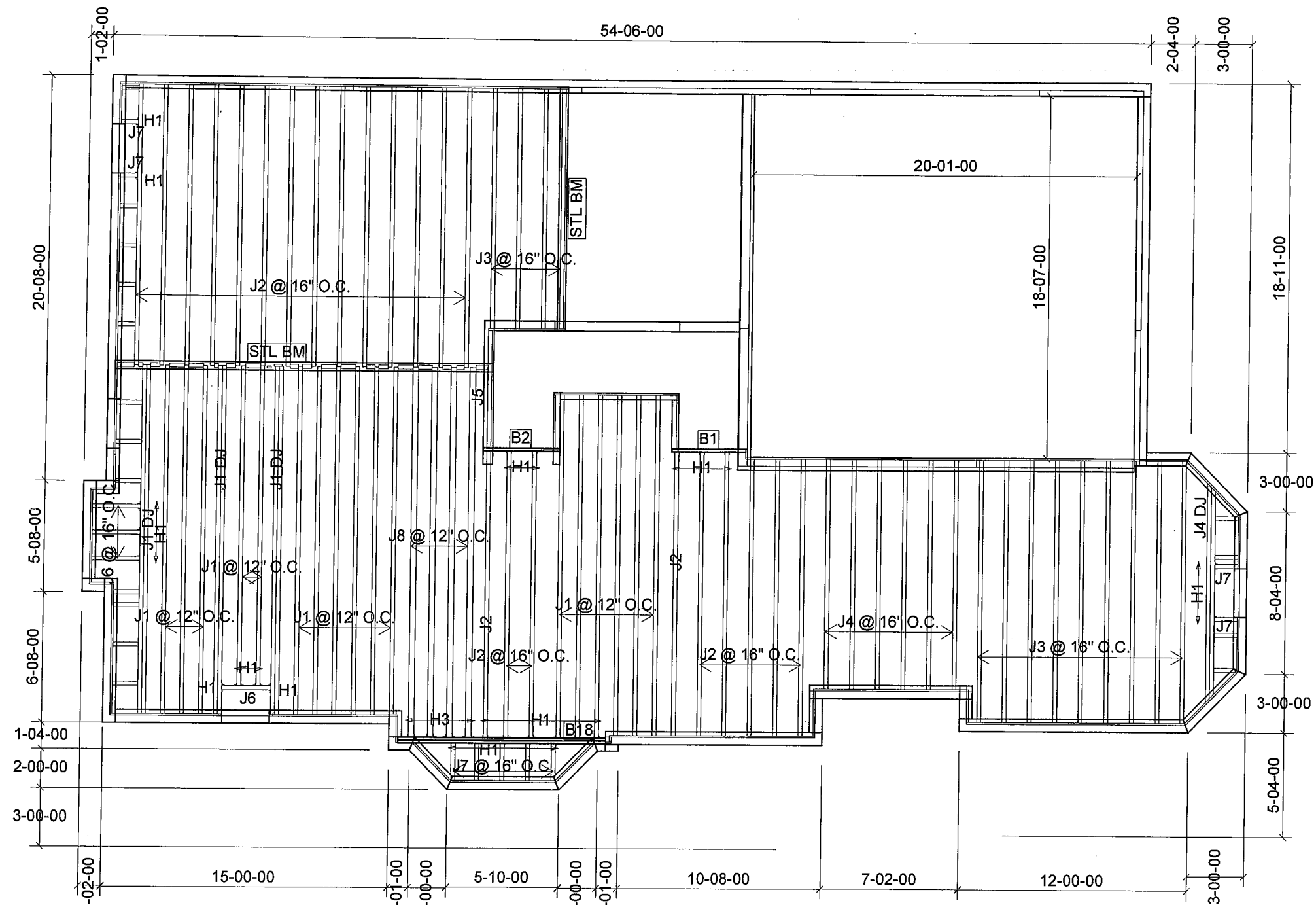
NOTES:  
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O.B.C 9.30.6.

LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 18/08/2017

## 1st FLOOR

WALK UP CON.



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J1 DJ	18-00-00	11 7/8" NI-40x	2	6
J2	16-00-00	11 7/8" NI-40x	1	23
J3	14-00-00	11 7/8" NI-40x	1	13
J4	12-00-00	11 7/8" NI-40x	1	6
J4 DJ	12-00-00	11 7/8" NI-40x	2	2
J5	6-00-00	11 7/8" NI-40x	1	1
J6	4-00-00	11 7/8" NI-40x	1	4
J7	2-00-00	11 7/8" NI-40x	1	9
J8	20-00-00	11 7/8" NI-80	1	4
B18	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
7	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
4	H3	IUS3.56/11.88

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MODEL: ROSEWOOD 12

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: CZ

REVISION:

NOTES:  
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INSTALLATION GUIDE. CERAMIC TILE  
APPLICATION AS PER O.B.C. 9.30.6

LOADING:

DESIGN LOADS: L/480.000

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

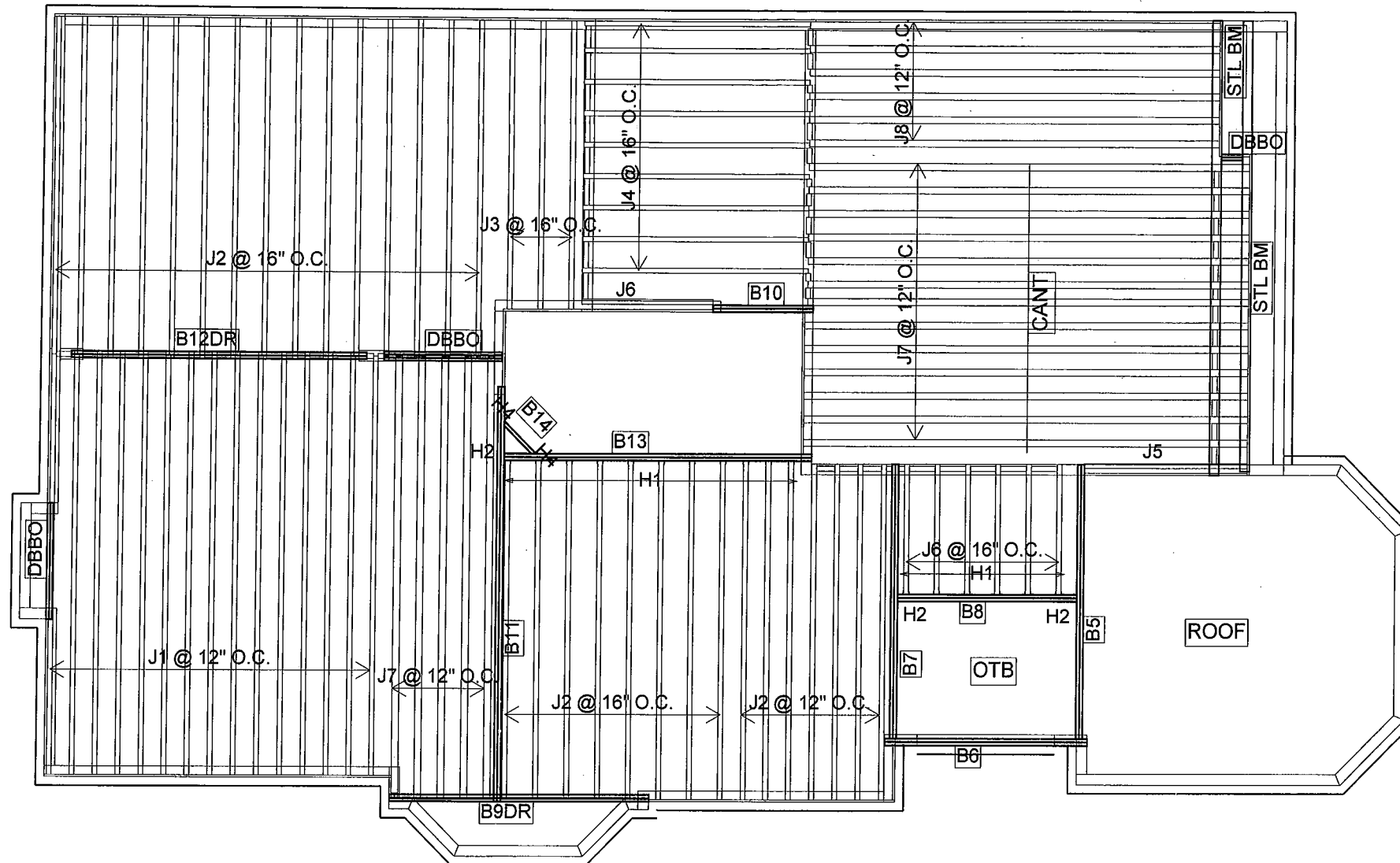
DEAD LOAD: 15.0 lb/ft

TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

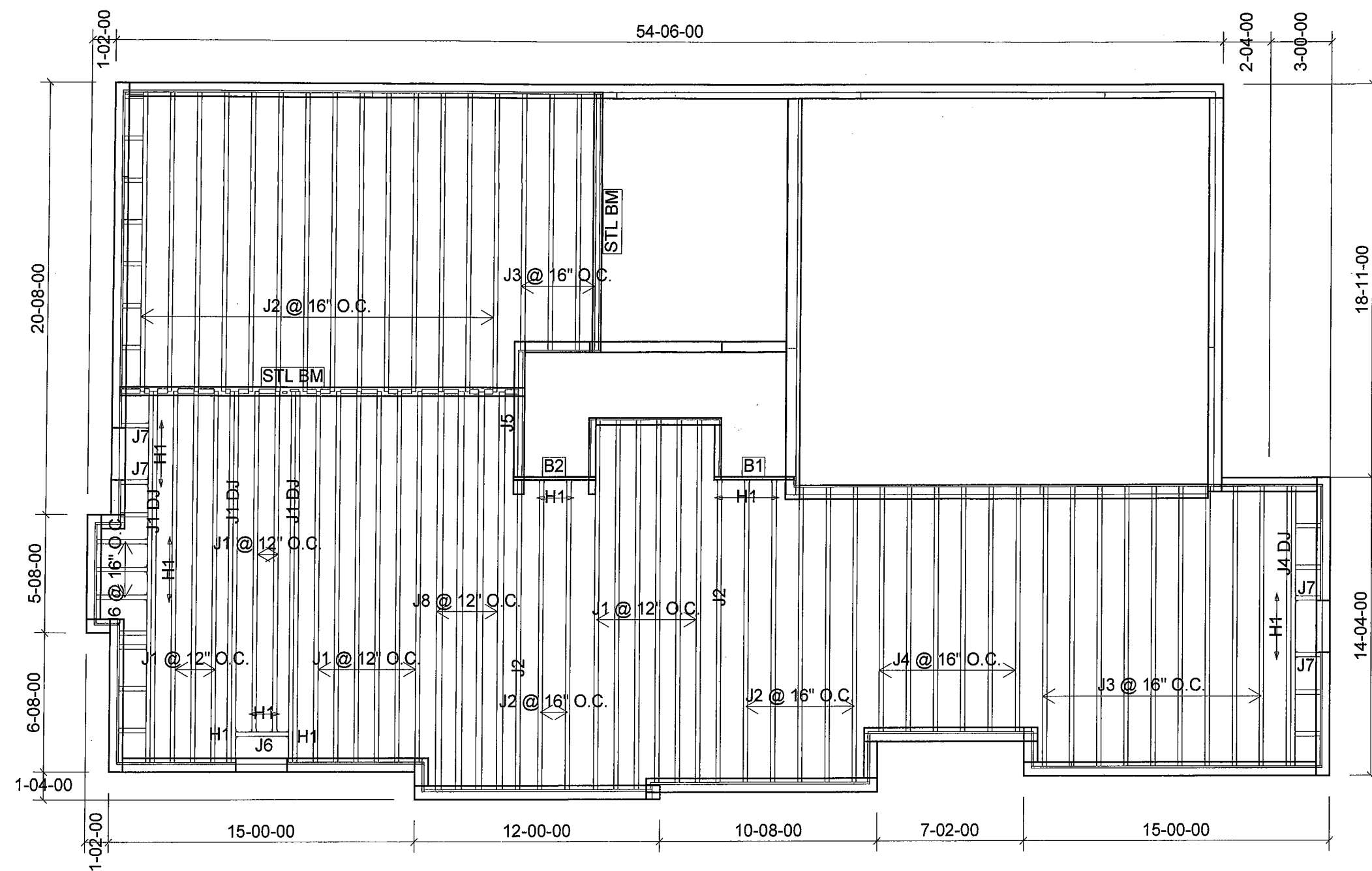
DATE: 16/05/2017

**2nd FLOOR**



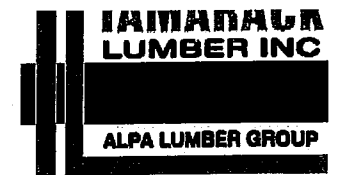
Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	14
J2	16-00-00	11 7/8" NI-40x	1	30
J3	14-00-00	11 7/8" NI-40x	1	3
J4	10-00-00	11 7/8" NI-40x	1	9
J5	8-00-00	11 7/8" NI-40x	1	1
J6	6-00-00	11 7/8" NI-40x	1	7
J7	20-00-00	11 7/8" NI-80	1	18
J8	18-00-00	11 7/8" NI-80	1	6
B9DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B13	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B14	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/11.88
3	H2	HGUS410
1	H4	LS90
1	H4	LS90



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J1 DJ	18-00-00	11 7/8" NI-40x	2	6
J2	16-00-00	11 7/8" NI-40x	1	23
J3	14-00-00	11 7/8" NI-40x	1	13
J4 DJ	14-00-00	11 7/8" NI-40x	2	2
J4	12-00-00	11 7/8" NI-40x	1	6
J5	6-00-00	11 7/8" NI-40x	1	1
J6	4-00-00	11 7/8" NI-40x	1	4
J7	2-00-00	11 7/8" NI-40x	1	4
J8	20-00-00	11 7/8" NI-80	1	4
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
9	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88



FROM PLAN DATED: MAR02017

BUILDER: GREENPARK HOMES

SITE: RUSSEL GARDENS

MODEL: ROSEWOOD 12

ELEVATION: 2

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: CZ

REVISION:

#### NOTES:

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INSTALLATION GUIDE FOR PROPER  
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O.B.C 9.30.6.

#### LOADING:

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

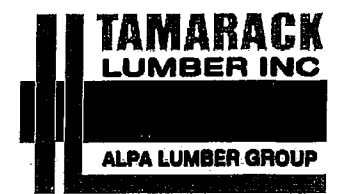
DEAD LOAD: 15.0 lb/ft

TILED AREAS: 20 lb/ft

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 18/08/2017

## 1st FLOOR



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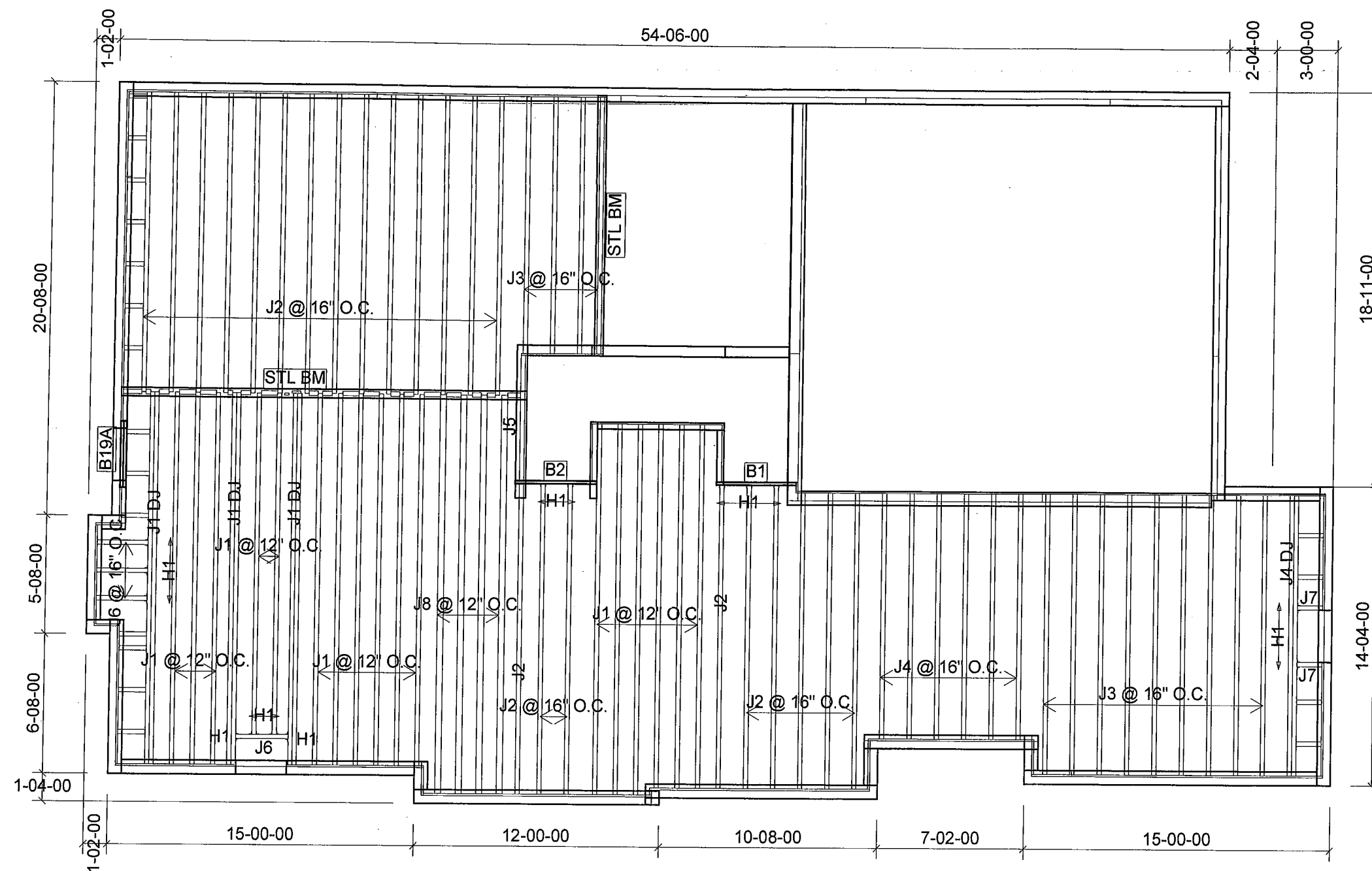
TILED AREAS: 20 lb/ft

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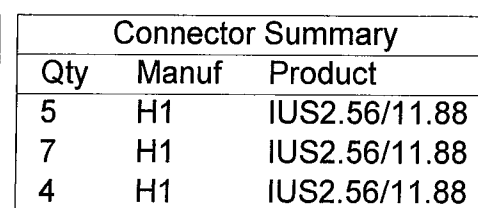
## 1st FLOOR

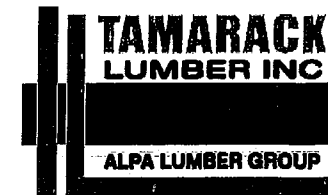
DECK CON.



Products				
PlotID	Length	Product	Plies	Net Qty
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J2	16-00-00	11 7/8" NI-40x	1	23
J3	14-00-00	11 7/8" NI-40x	1	13
J4 DJ	14-00-00	11 7/8" NI-40x	2	2
J4	12-00-00	11 7/8" NI-40x	1	6
J5	6-00-00	11 7/8" NI-40x	1	1
J6	4-00-00	11 7/8" NI-40x	1	4
J7	2-00-00	11 7/8" NI-40x	1	2
J8	20-00-00	11 7/8" NI-80	1	4
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B19A	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
7	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88



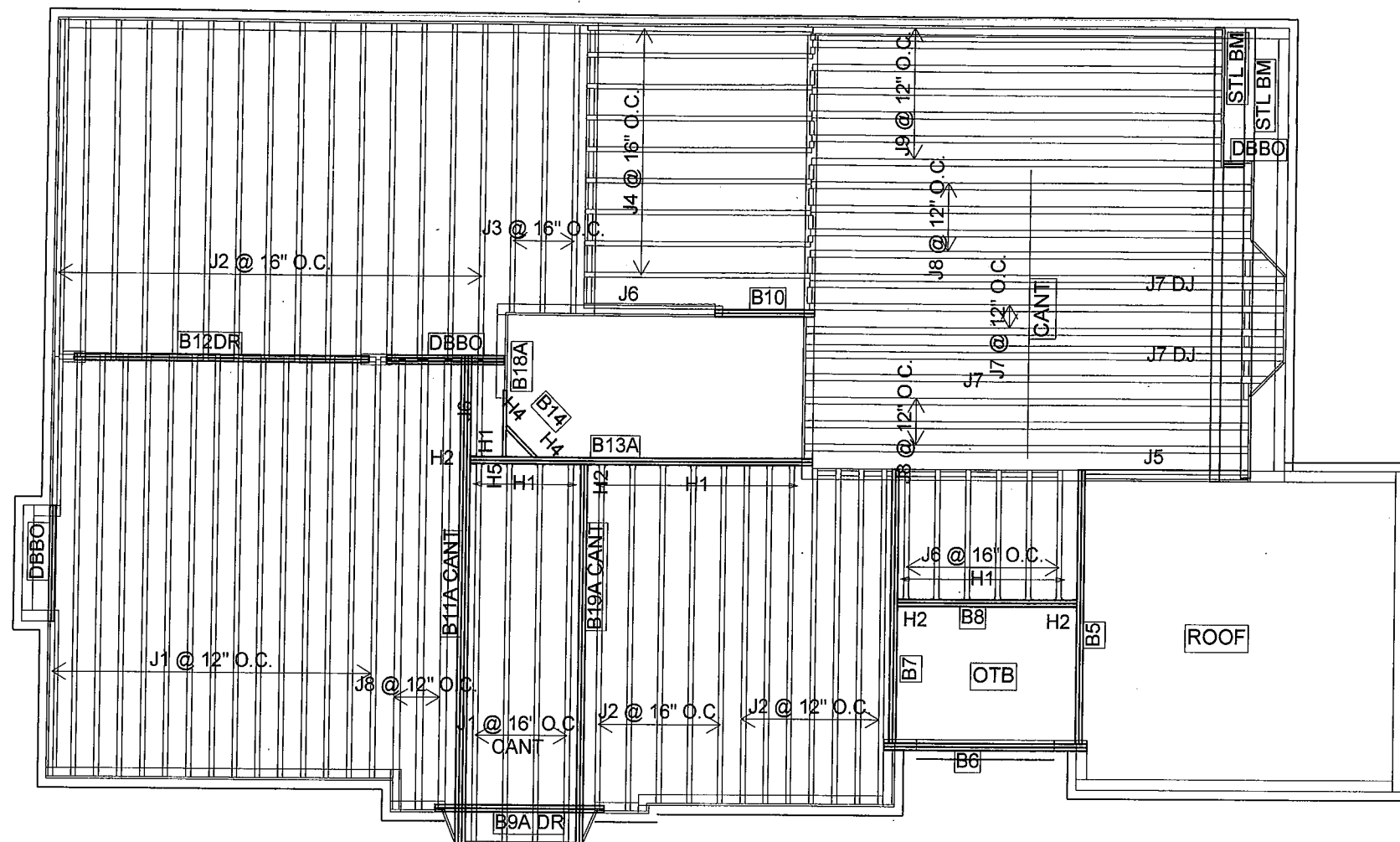


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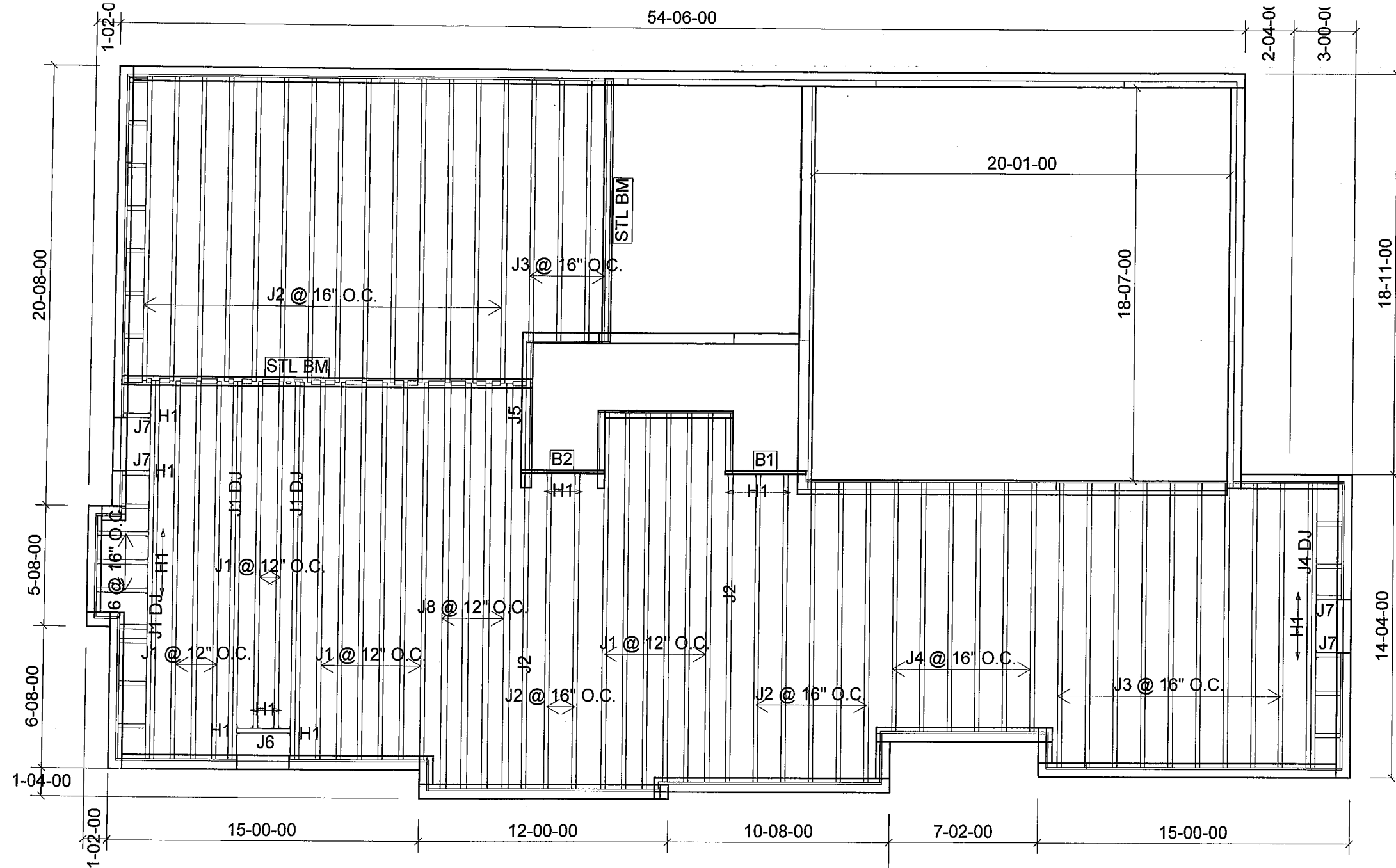
## 2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	18
J2	16-00-00	11 7/8" NI-40x	1	27
J3	14-00-00	11 7/8" NI-40x	1	3
J4	10-00-00	11 7/8" NI-40x	1	9
J5	8-00-00	11 7/8" NI-40x	1	1
J6	6-00-00	11 7/8" NI-40x	1	8
J7	22-00-00	11 7/8" NI-80	1	3
J7 DJ	22-00-00	11 7/8" NI-80	2	4
J8	20-00-00	11 7/8" NI-80	1	10
J9	18-00-00	11 7/8" NI-80	1	7
B9A DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11A CANT	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B19A CANT	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B13A	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18A	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

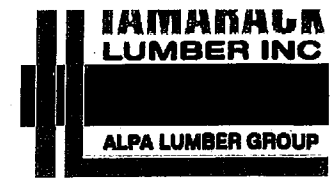
Connector Summary		
Qty	Manuf	Product
19	H1	IUS2.56/11.88
3	H2	HGUS410
1	H2	HGUS410
1	H4	LS90
1	H4	LS90
1	H5	HUS1.81/10





Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J1 DJ	18-00-00	11 7/8" NI-40x	2	6
J2	16-00-00	11 7/8" NI-40x	1	23
J3	14-00-00	11 7/8" NI-40x	1	13
J4 DJ	14-00-00	11 7/8" NI-40x	2	2
J4	12-00-00	11 7/8" NI-40x	1	6
J5	6-00-00	11 7/8" NI-40x	1	1
J6	4-00-00	11 7/8" NI-40x	1	4
J7	2-00-00	11 7/8" NI-40x	1	4
J8	20-00-00	11 7/8" NI-80	1	4
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
9	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88



FROM PLAN DATED: MAR02017

BUILDER: GREENPARK HOMES

SITE: RUSSEL GARDENS

MODEL: ROSEWOOD 12

ELEVATION: 3

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: CZ

REVISION:

#### NOTES:

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

#### LOADING:

DESIGN LOADS: L/480.000

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

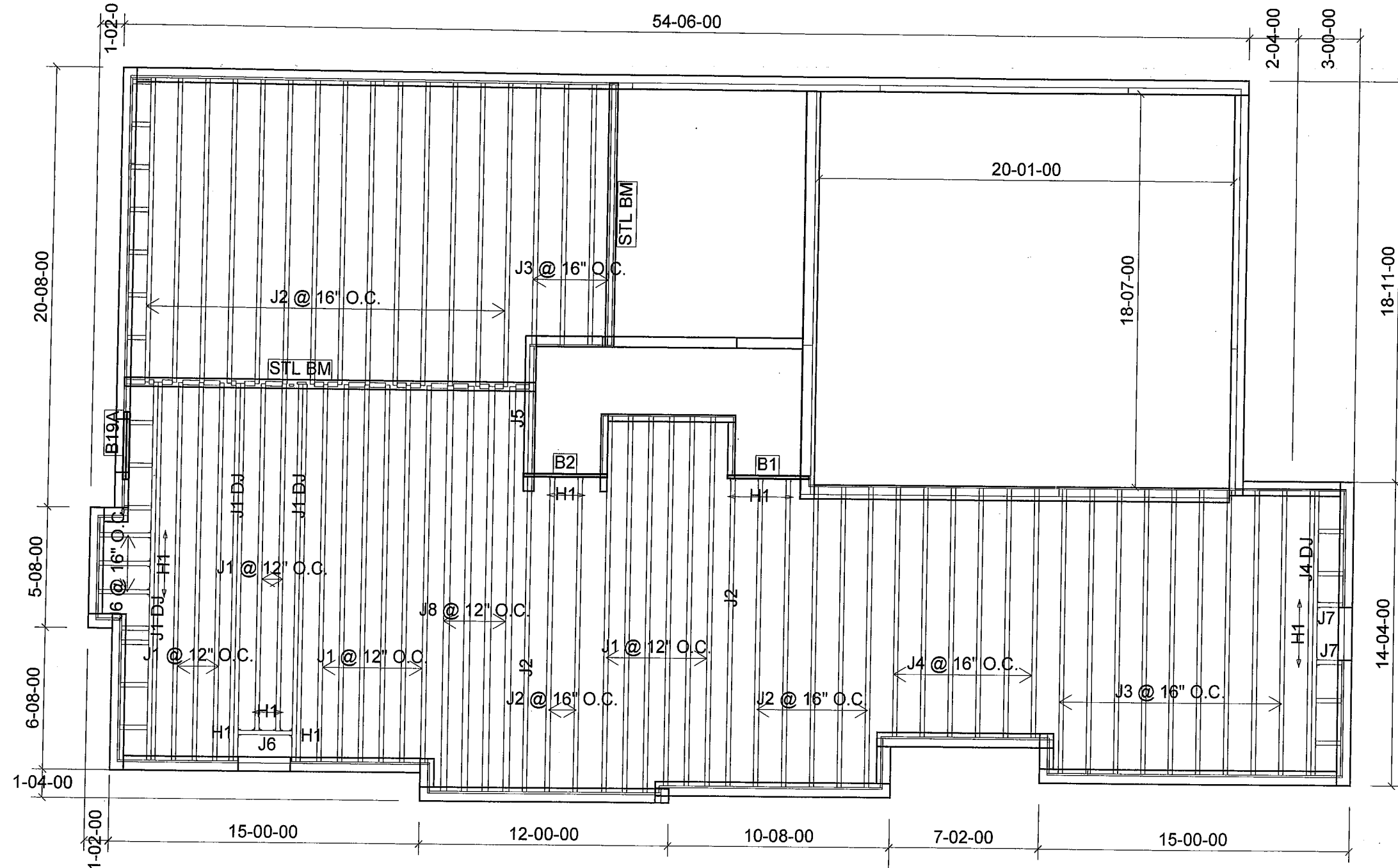
DEAD LOAD: 15.0 lb/ft

TILED AREAS: 20 lb/ft

SUBFLOOR: 3/4" GLUED AND NAILED

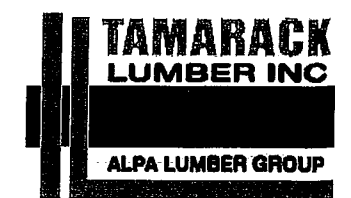
DATE: 18/08/2017

## 1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J1 DJ	18-00-00	11 7/8" NI-40x	2	6
J2	16-00-00	11 7/8" NI-40x	1	23
J3	14-00-00	11 7/8" NI-40x	1	13
J4 DJ	14-00-00	11 7/8" NI-40x	2	2
J4	12-00-00	11 7/8" NI-40x	1	6
J5	6-00-00	11 7/8" NI-40x	1	1
J6	4-00-00	11 7/8" NI-40x	1	4
J7	2-00-00	11 7/8" NI-40x	1	2
J8	20-00-00	11 7/8" NI-80	1	4
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B19A	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
7	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88



FROM PLAN DATED: MAR02017

BUILDER: GREENPARK HOMES

SITE: RUSSEL GARDENS

MODEL: ROSEWOOD 12

ELEVATION: 3

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: CZ

REVISION:

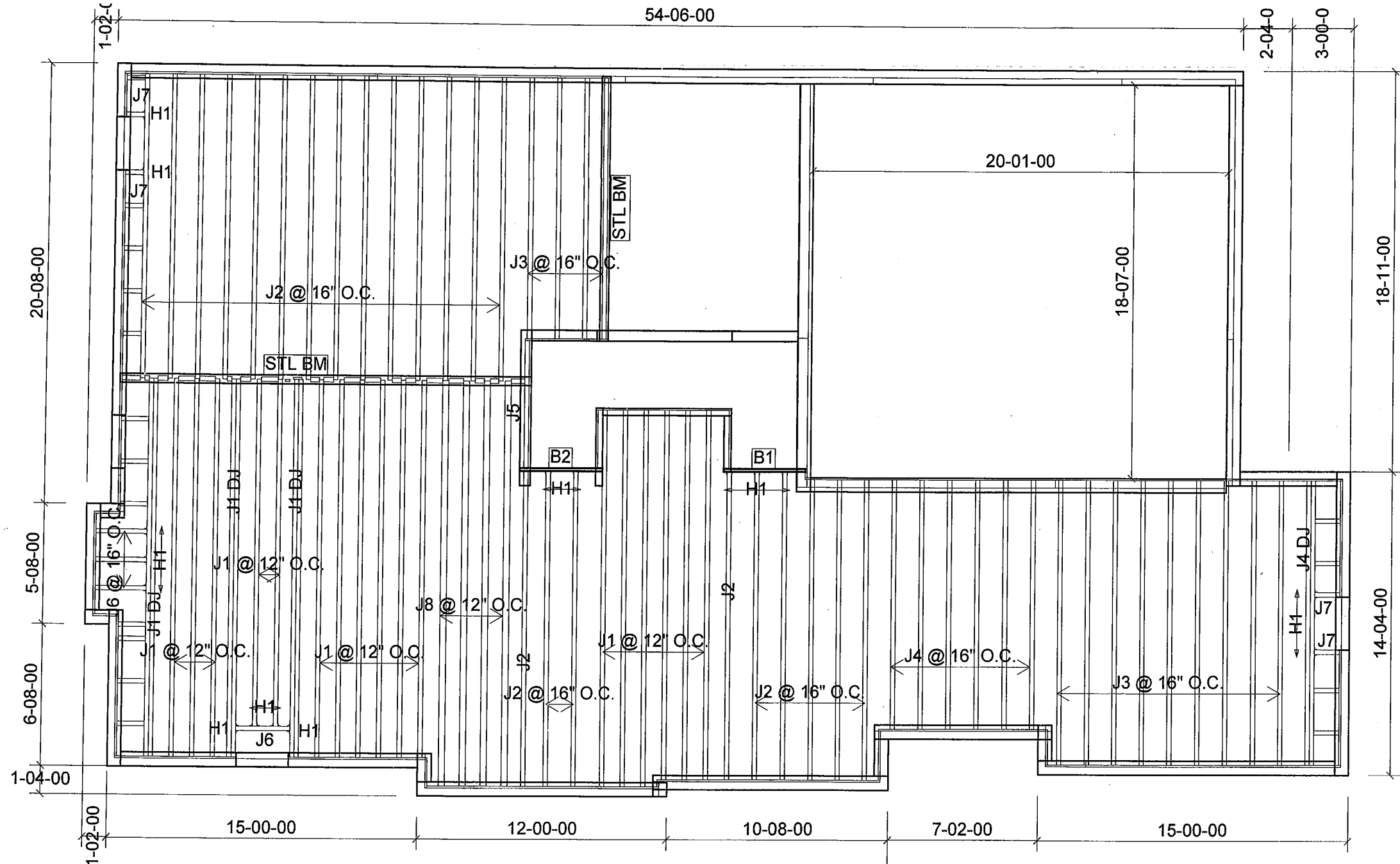
NOTES:  
REFER TO THE NORDIC  
INSTALLATION GUIDE FOR PROPER  
STORAGE AND INSTALLATION.  
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2  
S.P.F REQ'D UNDER INTERIOR  
UNIFORM LOAD BEARING WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS. SEE  
FIGURE 1. CANTILEVERED JOISTS  
INCLUDING CANT' OVER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

LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 18/08/2017

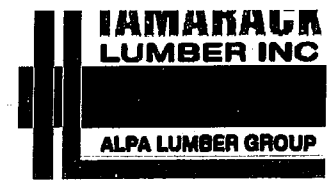
1st FLOOR

DECK CON.



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J1 DJ	18-00-00	11 7/8" NI-40x	2	6
J2	16-00-00	11 7/8" NI-40x	1	23
J3	14-00-00	11 7/8" NI-40x	1	13
J4 DJ	14-00-00	11 7/8" NI-40x	2	2
J4	12-00-00	11 7/8" NI-40x	1	6
J5	6-00-00	11 7/8" NI-40x	1	1
J6	4-00-00	11 7/8" NI-40x	1	4
J7	2-00-00	11 7/8" NI-40x	1	4
J8	20-00-00	11 7/8" NI-80	1	4
B1	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
7	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88



FROM PLAN DATED: MAR02017

BUILDER: GREENPARK HOMES

SITE: RUSSEL GARDENS

MODEL: ROSEWOOD 12

ELEVATION: 3

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: CZ

REVISION:

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

LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 21/08/2017

1st FLOOR

WALK UP CON.

FROM PLAN DATED: MAR02017

BUILDER: GREENPARK HOMES

SITE: RUSSEL GARDENS

MODEL: ROSEWOOD 12

ELEVATION: 3

LOT:

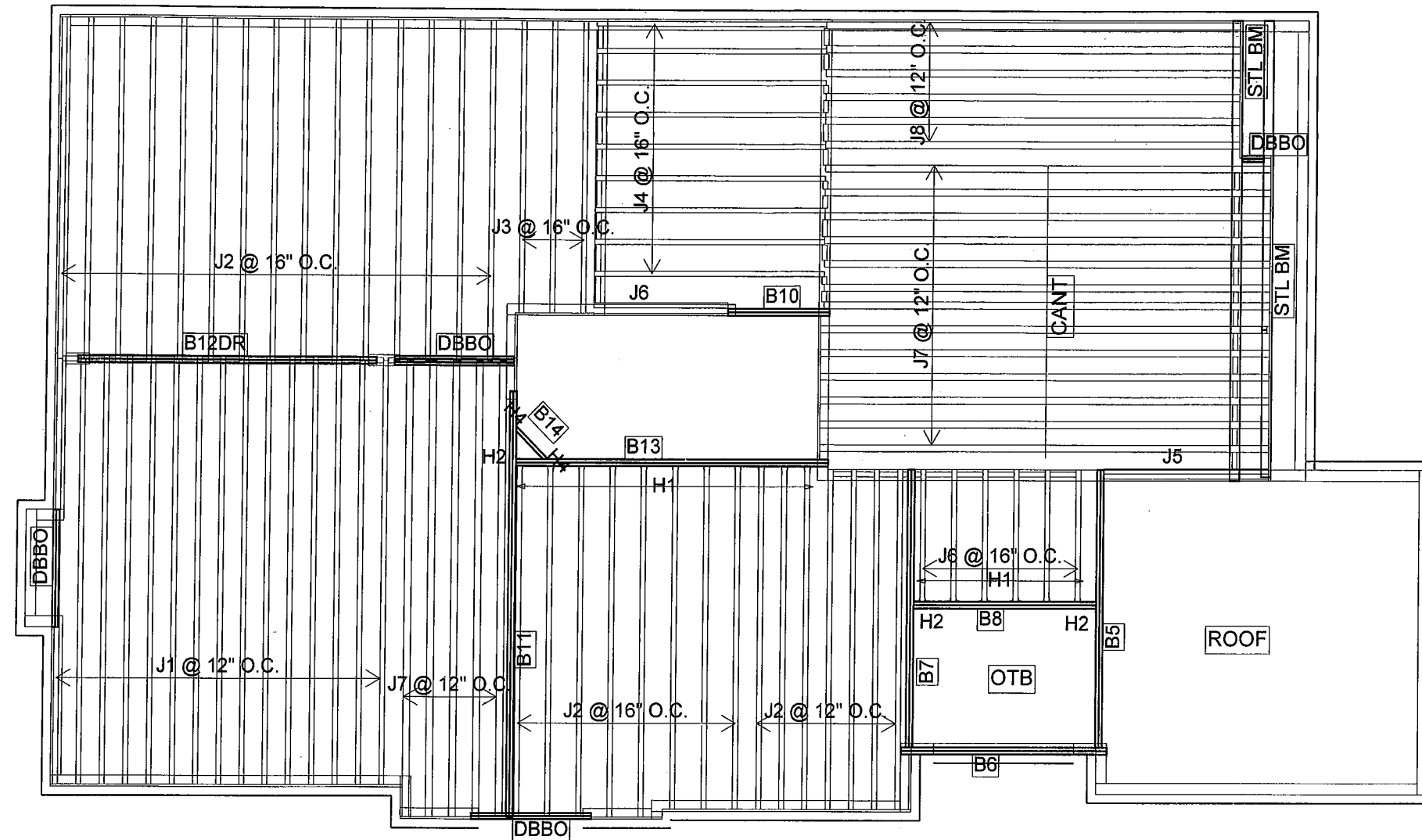
CITY: WATERDOWN

SALESMAN: M D

DESIGNER: CZ

REVISION:

**NOTES:**  
REFER TO THE NORDIC  
INSTALLATION GUIDE FOR PROPER  
STORAGE AND INSTALLATION.  
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2  
S.P.F. REQ'D UNDER INTERIOR  
UNIFORM LOAD BEARING WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS. SEE  
FIGURE 1. CANTILEVERED JOISTS  
INCLUDING CANT' OVER BRICK REQ.  
I-JOIST BLOCKING ALONG BEARING  
AND RIMBOARD CLOSURE AT ENDS.  
SEE FIGURE 7 TABLES 4 & 5 FOR  
REINFORCEMENT REQUIREMENTS.  
FOR HOLES INCLUDING DUCT  
CHASE AND FIELD CUT OPENINGS  
SEE FIGURE 7 TABLES 1 & 2 OF THE  
INSTALLATION GUIDE. CERAMIC TILE  
APPLICATION AS PER O.B.C. 9.30.6  
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	14
J2	16-00-00	11 7/8" NI-40x	1	30
J3	14-00-00	11 7/8" NI-40x	1	3
J4	10-00-00	11 7/8" NI-40x	1	9
J5	8-00-00	11 7/8" NI-40x	1	1
J6	6-00-00	11 7/8" NI-40x	1	7
J7	20-00-00	11 7/8" NI-80	1	18
J8	18-00-00	11 7/8" NI-80	1	6
B11	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B13	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B14	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
17	H1	IUS2.56/11.88
3	H2	HGUS410
1	H4	LS90
1	H4	LS90

DATE: 16/05/2017

**2nd FLOOR**

# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
May 16, 2017 13:37

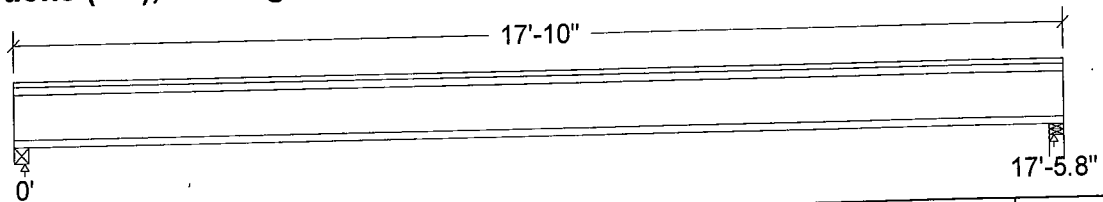
**PROJECT**  
GREENPARK  
ROSEWOOD 12  
WATERDOWN  
J1-1ST FL-wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 6.4

### 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

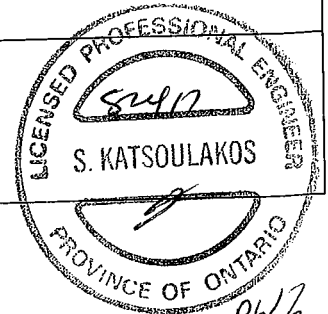
### Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:			175
Dead	175		350
Live	350		
Factored:			743
Total	743		
Bearing:			
Resistance			2189
Joist	2189		5304
Support	-		
Des ratio			0.34
Joist	0.34		0.14
Support	-		#2
Load case	#2		3
Length	3		1-3/4
Min req'd	1-3/4		No
Stiffener	No		1.00
Kd	1.00		1.00
KB support	-		769
fcp sup	-		1.15
Kzcp sup	-		

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

**Nordic Joist 11-7/8" NI-40x Floor joist @ 12" o.c.**  
Supports: 1 - Steel Beam, W; 2 - Lumber Wall, No.1/No.2;  
Total length: 17'-10.0"; 3/4" nailed and glued OSB sheathing  
**This section PASSES the design code check.**



DWG NO. TAM 4277217  
STRUCTURAL  
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 743	Vr = 2336	lbs	Vf/Vr = 0.32
Moment(+)	Mf = 3247	Mr = 6255	lbs-ft	Mf/Mr = 0.52
Perm. Defl'n	0.11 = <L/999	0.58 = L/360	in	0.18
Live Defl'n	0.21 = L/983	0.44 = L/480	in	0.49
Total Defl'n	0.32 = L/655	0.87 = L/240	in	0.37
Bare Defl'n	0.25 = L/838	0.58 = L/360	in	0.43
Vibration	Lmax = 17'-6	Lv = 19'-6	ft	
Defl'n	= 0.027	= 0.036	in	0.74

**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 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

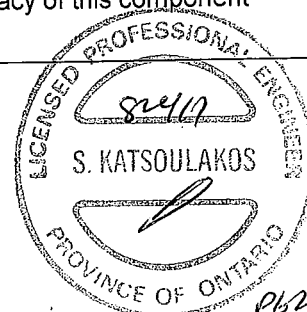
All Load Combinations (LCs) are listed in the Analysis output

**CALCULATIONS:**Deflection: E<sub>IEff</sub> = 443e06 lb-in<sup>2</sup> K= 6.18e06 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. JAM 4272-17  
STRUCTURAL  
COMPONENT ONLY

# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
May 16, 2017 13:39

**PROJECT**  
GREENPARK  
ROSEWOOD 12  
WATERDOWN  
J8-1ST FL-www

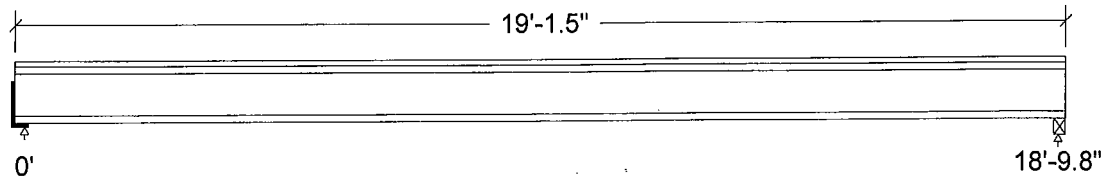
## Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

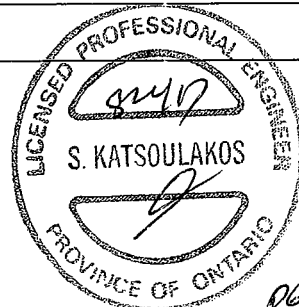
### Loads:

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	188		188
Live	376		376
Factored:			
Total	800		800
Bearing:			
Resistance			
Joist	2243		2198
Support	-		-
Des ratio			
Joist	0.36		0.36
Support	-		-
Load case	#2		#2
Length	3		2-1/2
Min req'd	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00
KB support	-		-
fcp sup	-		-
Kzcp sup	-		-



DWNO.TAM 4273-17  
STRUCTURAL  
COMPONENT ONLY

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

Supports: 1 - Hanger; 2 - Steel Beam, W;  
Total length: 19'-1.5"; 3/4" 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 = 800	Vr = 2336	lbs	Vf/Vr = 0.34
Moment (+)	Mf = 3761	Mr = 11609	lbs-ft	Mf/Mr = 0.32
Perm. Defl'n	0.10 = <L/999	0.63 = L/360	in	0.17
Live Defl'n	0.21 = <L/999	0.47 = L/480	in	0.44
Total Defl'n	0.31 = L/724	0.94 = L/240	in	0.33
Bare Defl'n	0.23 = L/966	0.63 = L/360	in	0.37
Vibration	Lmax = 18'-10	Lv = 21'-3	ft	
Defl'n	= 0.025	= 0.033	in	0.74

J8-1ST FL-.wwb

Nordic Sizer – Canada 6.4

**Additional Data:**

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

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L  
 Moment(+) : LC #2 = 1.25D + 1.5L  
 Deflection: LC #1 = 1.0D (permanent)  
                   LC #2 = 1.0D + 1.0L (live)  
                   LC #2 = 1.0D + 1.0L (total)  
                   LC #2 = 1.0D + 1.0L (bare joist)  
 Bearing : Support 1 - LC #2 = 1.25D + 1.5L  
                   Support 2 - LC #2 = 1.25D + 1.5L  
 Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake  
                   L=live(use,occupancy) Ls=live(storage,equipment) f=fire  
 Load Patterns: s=S/2 L=L+Ls \_=no pattern load in this span  
 All Load Combinations (LCs) are listed in the Analysis output

**CALCULATIONS:**

Deflection:  $EI_{eff} = 625e06 \text{ lb-in}^2$   $K = 6.18e06 \text{ lbs}$   
 "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 NBC 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 4223-17  
 STRUCTURAL  
 COMPONENT ONLY



# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
May 16, 2017 09:55

**PROJECT**  
GREENPARK  
ROSEWOOD 12  
WATERDOWN  
J1-2ND FL-.wwb

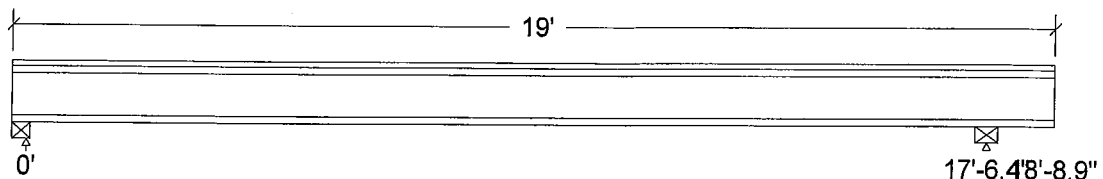
## Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

### Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area	No		20.00	psf
Load2	Live	Full Area	Yes		40.00	psf

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



Unfactored:				
Dead	174		200	
Live	351		401	
Factored:				
Total	744		851	
Bearing:				
Resistance				
Joist	2333		5373	
Support	-		-	
Des ratio				
Joist	0.32		0.16	
Support	-		-	
Load case	#4		#2	
Length	4		5	
Min req'd	1-3/4		3-1/2	
Stiffener	No		No	
Kd	1.00		1.00	
KB support	-		-	
fcp sup	-		-	
Kzcp sup	-		-	

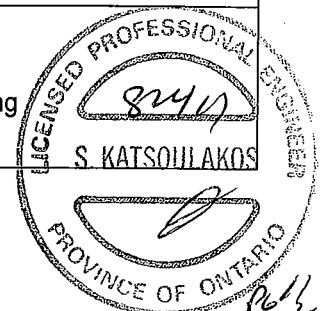
Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to Kd factor. See Analysis results for reaction from critical load combination.

**Nordic Joist 11-7/8" NI-40x Floor joist @ 12" o.c.**

Supports: All - Steel Beam, W

Total length: 19'; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

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



DWG NO. TAM 4274-17  
STRUCTURAL  
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 749	Vr = 2336	lbs	Vf/Vr = 0.32
Moment(+)	Mf = 3257	Mr = 6255	lbs-ft	Mf/Mr = 0.52
Moment(-)	Mf = 62	Mr = 4065	lbs-ft	Mf/Mr = 0.02
Deflection:				
Interior Perm	0.11 = <L/999	0.58 = L/360	in	0.19
Live	0.22 = L/955	0.44 = L/480	in	0.50
Total	0.33 = L/639	0.88 = L/240	in	0.38
Cantil. Perm	-0.02 = L/683	0.08 = L/180	in	0.26
Live	-0.04 = L/334	0.06 = L/240	in	0.72
Total	-0.06 = L/224	0.12 = L/120	in	0.53
Bare Defl'n	-0.05 = L/286	0.08 = L/180	in	0.63
Vibration	Lmax = 17'-6	Lv = 18'-11	ft	
Defl'n	= 0.029	= 0.036	in	0.81

**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#4
Mr-	6255	0.65	1.00	-	1.000	-	-	-	#5
EI	371.1 million	-	-	-	-	-	-	-	#4

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L  
 Moment(+) : LC #4 = 1.25D + 1.5L (pattern: L)  
 Moment(-) : LC #5 = 1.25D + 1.5L (pattern: L)  
 Deflection: LC #1 = 1.0D (permanent)  
             LC #4 = 1.0D + 1.0L (pattern: L) (live)  
             LC #4 = 1.0D + 1.0L (pattern: L) (total)  
             LC #4 = 1.0D + 1.0L (pattern: L) (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L  
             Support 2 - LC #0 = 1.4D

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>ieff</sub> = 433e06 lb-in<sup>2</sup> K= 6.18e06 lbs

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

**Design Notes:**

- 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**
- Please verify that the default deflection limits are appropriate for your application.
- Refer to technical documentation for installation guidelines and construction details.
- Nordic I-joists are listed in CCMC evaluation report 13032-R.
- Joists shall be laterally supported at supports and continuously along the compression edge.
- 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 42774-17  
 STRUCTURAL  
 COMPONENT ONLY



# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
May 16, 2017 13:39

**PROJECT**  
GREENPARK  
ROSEWOOD 12  
WATERDOWN  
J7-2ND FL-wwb

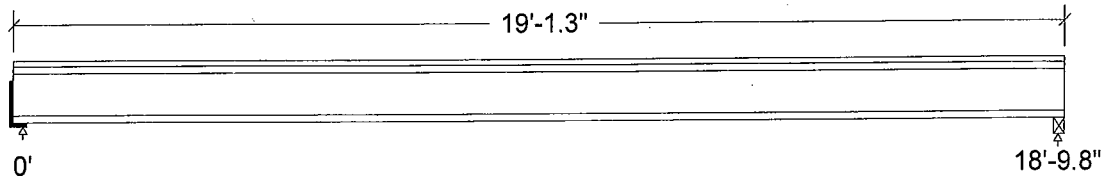
## Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

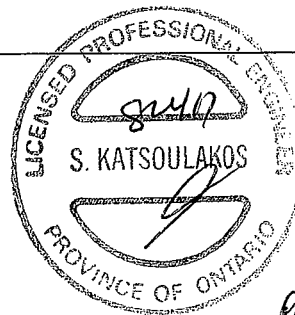
### Loads:

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	188			188
Live	376			376
Factored:				
Total	800			800
Bearing:				
Resistance				
Joist	2243			2179
Support	-			4950
Des ratio				
Joist	0.36			0.37
Support	-			0.16
Load case	#2			#2
Length	3			2-5/16
Min req'd	1-3/4			1-3/4
Stiffener	No			No
Kd	1.00			1.00
KB support	-			1.00
fcg sup	-			769
Kzcg sup	-			1.00



DWG NO. TAM 4275-17  
STRUCTURAL  
COMPONENT ONLY

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

Supports: 1 - Hanger; 2 - Lumber Beam, No.1/No.2;  
Total length: 19'-1.3"; 5/8" nailed and glued OSB sheathing with 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 = 800	Vr = 2336	lbs	Vf/Vr = 0.34
Moment (+)	Mf = 3761	Mr = 11609	lbs-ft	Mf/Mr = 0.32
Perm. Defl'n	0.11 = <L/999	0.63 = L/360	in	0.17
Live Defl'n	0.21 = <L/999	0.47 = L/480	in	0.45
Total Defl'n	0.32 = L/712	0.94 = L/240	in	0.34
Bare Defl'n	0.23 = L/966	0.63 = L/360	in	0.37
Vibration	Lmax = 18'-10	Lv = 20'-6	ft	
Defl'n	= 0.027	= 0.033	in	0.81

**Additional Data:**

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

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

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

**CALCULATIONS:**Deflection: E<sub>I</sub>eff = 613e06 lb-in<sup>2</sup> K= 6.18e06 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.

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. YAM 4275-17  
STRUCTURAL  
COMPONENT ONLY

# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
May 16, 2017 10:00

**PROJECT**  
GREENPARK  
ROSEWOOD 12  
WATERDOWN  
J7-2ND FL GARAGE-.wwb

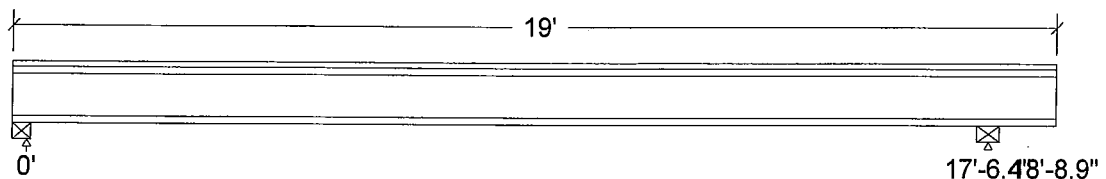
## Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

### Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area	No		20.00	psf
Load2	Live	Full Area	Yes		40.00	psf

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



Unfactored:				
Dead	174		200	
Live	351		401	
Factored:				
Total	744		851	
Bearing:				
Resistance				
Joist	2334		5531	
Support	-		-	
Des ratio				
Joist	0.32		0.15	
Support	-		-	
Load case	#4		#2	
Length	4		5	
Min req'd	1-3/4		3-1/2	
Stiffener	No		No	
Kd	1.00		1.00	
KB support	-		-	
fcp sup	-		-	
Kzcp sup	-		-	

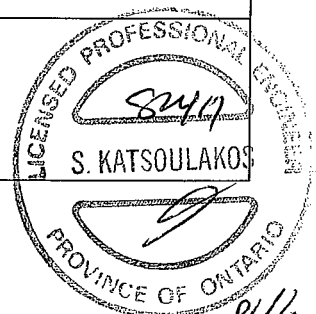
Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to Kd factor. See Analysis results for reaction from critical load combination.

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

Supports: All - Steel Beam, W

Total length: 19'; 5/8" nailed and glued OSB sheathing

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



DWG NO. TAM 4276-17  
STRUCTURAL  
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 749	Vr = 2336	lbs	Vf/Vr = 0.32
Moment (+)	Mf = 3257	Mr = 11609	lbs-ft	Mf/Mr = 0.28
Moment (-)	Mf = 62	Mr = 7546	lbs-ft	Mf/Mr = 0.01
Deflection:				
Interior Perm	0.08 = <L/999	0.58 = L/360	in	0.14
Live	0.16 = <L/999	0.44 = L/480	in	0.37
Total	0.24 = L/866	0.88 = L/240	in	0.28
Cantil. Perm	-0.01 = L/967	0.08 = L/180	in	0.19
Live	-0.03 = L/474	0.06 = L/240	in	0.51
Total	-0.05 = L/318	0.12 = L/120	in	0.38
Bare Defl'n	-0.03 = L/422	0.08 = L/180	in	0.43
Vibration	Lmax = 17'-6	Lv = 19'-11	ft	
Defl'n	= 0.026	= 0.036	in	0.72

**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#4
Mr-	11609	0.65	1.00	-	1.000	-	-	-	#5
EI	547.1 million	-	-	-	-	-	-	-	#4

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L  
 Moment(+) : LC #4 = 1.25D + 1.5L (pattern: L<sub>-</sub>)  
 Moment(-) : LC #5 = 1.25D + 1.5L (pattern: L<sub>-</sub>)  
 Deflection: LC #1 = 1.0D (permanent)  
               LC #4 = 1.0D + 1.0L (pattern: L<sub>-</sub>) (live)  
               LC #4 = 1.0D + 1.0L (pattern: L<sub>-</sub>) (total)  
               LC #4 = 1.0D + 1.0L (pattern: L<sub>-</sub>) (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L  
               Support 2 - LC #0 = 1.4D

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 = 613e06 lb-in<sup>2</sup> K= 6.18e06 lbs  
 "Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

**Design Notes:**

- 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.
- Please verify that the default deflection limits are appropriate for your application.
- Refer to technical documentation for installation guidelines and construction details.
- Nordic I-joists are listed in CCMC evaluation report 13032-R.
- Joists shall be laterally supported at supports and continuously along the compression edge.
- 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.

**CONFORMS TO OBC 2012**

DWG NO. TAN 42776-17  
 STRUCTURAL  
 COMPONENT ONLY



# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
May 16, 2017 10:02

**PROJECT**  
GREENPARK  
ROSEWOOD 12  
WATERDOWN  
J8-2ND FL GARAGE-.wwb

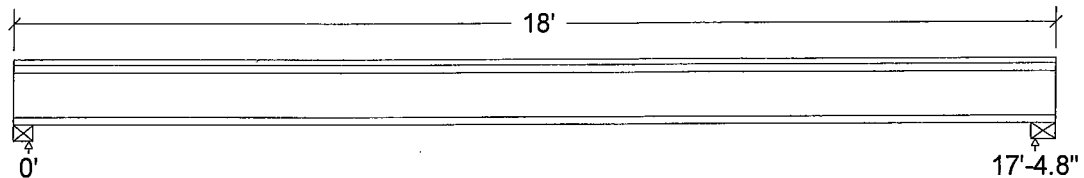
## Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

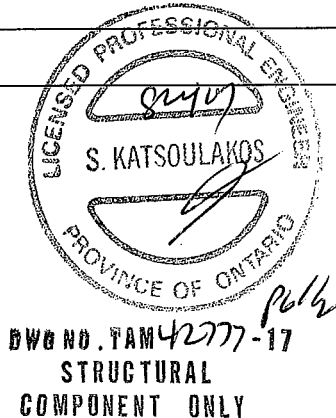
### Loads:

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	174			174
Live	348			348
Factored:				
Total	739			739
Bearing:				
Resistance				
Joist	2334			2336
Support	-			-
Des ratio				
Joist	0.32			0.32
Support	-			-
Load case	#2			#2
Length	4			5
Min req'd	1-3/4			1-3/4
Stiffener	No			No
Kd	1.00			1.00
KB support	-			-
fcp sup	-			-
Kzcp sup	-			-



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

Supports: All - Steel Beam, W

Total length: 18'; 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 = 739	Vr = 2336	lbs	Vf/Vr = 0.32
Moment (+)	Mf = 3216	Mr = 11609	lbs-ft	Mf/Mr = 0.28
Perm. Defl'n	0.08 = <L/999	0.58 = L/360	in	0.14
Live Defl'n	0.16 = <L/999	0.43 = L/480	in	0.36
Total Defl'n	0.24 = L/881	0.87 = L/240	in	0.27
Bare Defl'n	0.17 = <L/999	0.58 = L/360	in	0.30
Vibration	Lmax = 17'-5	Lv = 19'-11	ft	
Defl'n	= 0.025	= 0.036	in	0.70

**Additional Data:**

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

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L  
 Moment(+) : LC #2 = 1.25D + 1.5L  
 Deflection: LC #1 = 1.0D (permanent)  
               LC #2 = 1.0D + 1.0L (live)  
               LC #2 = 1.0D + 1.0L (total)  
               LC #2 = 1.0D + 1.0L (bare joist)  
 Bearing : Support 1 - LC #2 = 1.25D + 1.5L  
               Support 2 - LC #2 = 1.25D + 1.5L  
 Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake  
               L=live(use,occupancy) Ls=live(storage,equipment) f=fire

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

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

**CALCULATIONS:**

Deflection:  $EI_{eff} = 613e06 \text{ lb-in}^2$   $K = 6.18e06 \text{ lbs}$   
 "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 NBC 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. YAW 4277-17**  
**STRUCTURAL**  
**COMPONENT ONLY**





Boise Cascade

**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i2335)**

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

May 16, 2017 10:51:21

## BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports:

CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

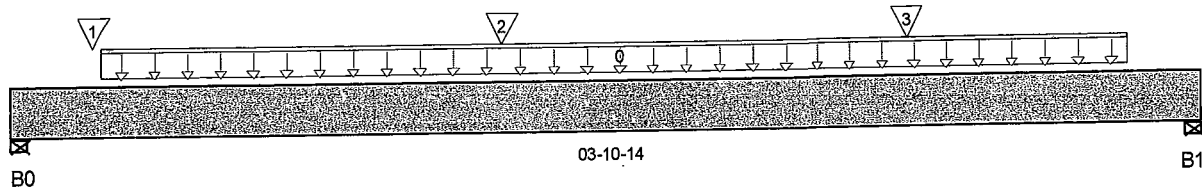
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i2335)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-10-14

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,050 / 0	537 / 0		
B1, 4-3/8"	896 / 0	460 / 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	00-03-10	03-08-01	240	120			n/a
1	J2(i2411)	Conc. Pt. (lbs)	L	00-03-04	00-03-04	340	170			n/a
2	J2(i2345)	Conc. Pt. (lbs)	L	01-07-04	01-07-04	389	194			n/a
3	J2(i2256)	Conc. Pt. (lbs)	L	02-11-04	02-11-04	383	192			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,578 ft-lbs	19,364 ft-lbs	8.2%	1	01-07-04
End Shear	1,002 lbs	7,232 lbs	13.9%	1	02-06-10
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	01-11-08
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-11-08
Max Defl.	0.005"	n/a	n/a	4	01-11-08
Span / Depth	3.4	n/a	n/a		00-00-00

**Bearing Supports**

			Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing Supports		Dim. (L x W)	Demand		
B0	Wall/Plate	4" x 1-3/4"	2,246 lbs	22.7%	26.3%
B1	Wall/Plate	4-3/8" x 1-3/4"	1,918 lbs	46.9%	20.5%
					Unspecified
					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

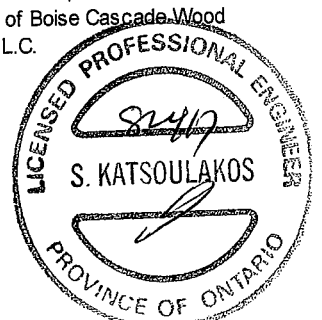
CONFORMS TO OBC 2012

DWG NO. TAM 4278-17  
STRUCTURAL  
COMPONENT ONLY

**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™, BCI®, 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.



BC CALC® Design Report



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

May 16, 2017 10:51:21

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

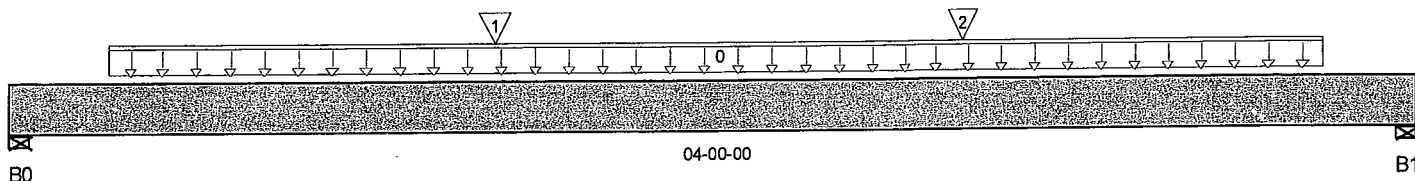
Description: Designs\Flush Beams\Basement\Flush Beams\B2(i2376)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-00-00

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

Bearing	Live	Dead	Snow	Wind
B0, 6"	818 / 0	421 / 0		
B1, 4"	784 / 0	403 / 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	00-03-06	03-08-14	240	120			n/a
1	J2(i2377)	Conc. Pt. (lbs)	L	01-04-08	01-04-08	359	179			n/a
2	J2(i2258)	Conc. Pt. (lbs)	L	02-08-08	02-08-08	407	203			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,505 ft-lbs	19,364 ft-lbs	7.8%	1	02-02-05
End Shear	1,099 lbs	7,232 lbs	15.2%	1	02-08-02
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	02-01-00
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	02-01-00
Max Defl.	0.004"	n/a	n/a	4	02-01-00
Span / Depth	3.3	n/a	n/a		00-00-00

### Bearing Supports

B0	Wall/Plate	6" x 1-3/4"	1,753 lbs	11.8%	13.7%	Unspecified
B1	Wall/Plate	4" x 1-3/4"	1,680 lbs	17%	19.7%	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

DWG NO. TAM 4274-17  
STRUCTURAL  
COMPONENT ONLY

### 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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# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor...\B5(i1775)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

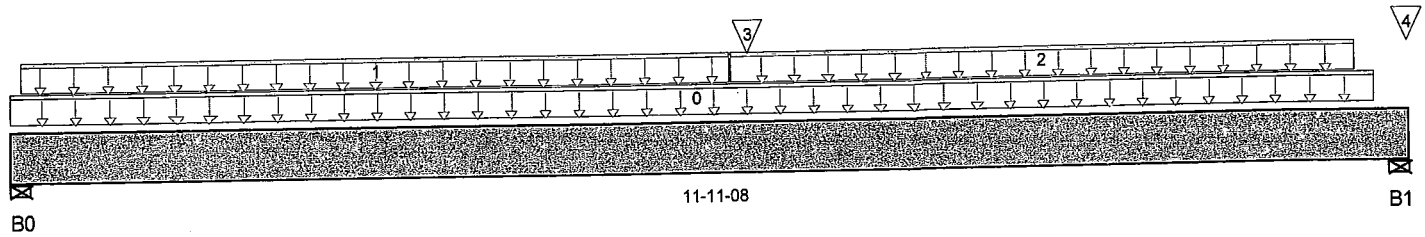
Description: Designs\Flush Beams\1st Floor\Flush Beams\B5(i1775)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 11-11-08

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	261 / 0	706 / 0		
B1, 5-1/2"	375 / 0	779 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E31(i748)	Unf. Lin. (lb/ft)	L	00-00-00	11-08-00		81			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-01-02	06-01-08	12	6			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	06-01-08	11-06-00	22	11			n/a
3	B8(i1762)	Conc. Pt. (lbs)	L	06-03-04	06-03-04	376	230			n/a
4	-	Conc. Pt. (lbs)	L	11-11-02	11-11-02	65	70			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,100 ft-lbs	25,173 ft-lbs	12.3%	0	06-03-04
End Shear	816 lbs	9,401 lbs	8.7%	0	10-06-02
Total Load Defl.	L/999 (0.073")	n/a	n/a	4	05-11-12
Live Load Defl.	L/999 (0.025")	n/a	n/a	5	06-01-08
Max Defl.	0.073"	n/a	n/a	4	05-11-12
Span / Depth	11.3	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"	988 lbs	14.8%	6.5%	Unspecified
B1	Wall/Plate 5-1/2" x 3-1/2"	1,090 lbs	16.3%	7.1%	Unspecified

## Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



OWN NO. TAM4720217  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B5(i1775)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B5(i1775

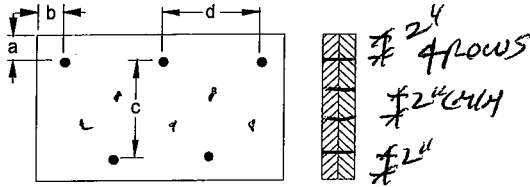
Specifier:

Designer: CZ

Company:

Misc:

## Connection Diagram



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

Calculated Side Load = 71.2 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.

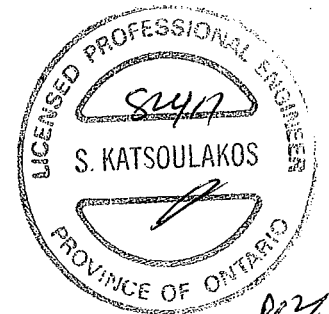
Connectors are: Nails

3 1/2" ARDOX SPIRAL

## Disclosure

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DWG NO. TAM 4200-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B6(i2992)

May 16, 2017 13:23:47

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

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

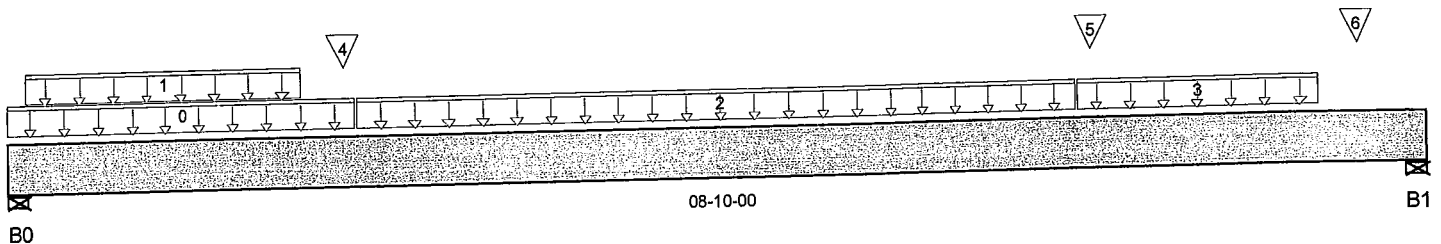
Description: Designs\Flush Beams\1st Floor\Flush Beams\B6(i2992)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 08-10-00

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	990 / 0	1,356 / 0	2,336 / 0	
B1, 5-1/2"	336 / 0	685 / 0	794 / 0	

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E38(i753)	Unf. Lin. (lb/ft)	L	00-00-00	02-02-00		81			n/a
1	E38(i753)	Unf. Lin. (lb/ft)	L	00-01-06	01-10-00	171	156	403		n/a
2	E44(i905)	Unf. Lin. (lb/ft)	L	02-02-00	06-08-00		61			n/a
3	E45(i906)	Unf. Lin. (lb/ft)	L	06-08-00	08-02-00		81			n/a
4	E38(i753)	Conc. Pt. (lbs)	L	02-01-00	02-01-00	864	892	2,041		n/a
5	E45(i906)	Conc. Pt. (lbs)	L	06-09-00	06-09-00	168	180	398		n/a
6	E31(i748)	Conc. Pt. (lbs)	L	08-04-12	08-04-12		24			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,711 ft-lbs	38,727 ft-lbs	19.9%	13	02-01-00
End Shear	4,347 lbs	14,464 lbs	30.1%	13	01-05-06
Total Load Defl.	L/999 (0.058")	n/a	n/a	45	04-01-10
Live Load Defl.	L/999 (0.037")	n/a	n/a	61	03-11-15
Max Defl.	0.058"	n/a	n/a	45	04-01-10
Span / Depth	8.1	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"	5,694 lbs	55.4%	24.2%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	2,216 lbs	21.6%	9.4%	Unspecified

## Notes



DWG NO. TAM 42081-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B6(i2992)

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

May 16, 2017 13:23:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B6(i2992

Specifier:

Designer: CZ

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: 00-02-08, Bottom: 00-02-08.

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.

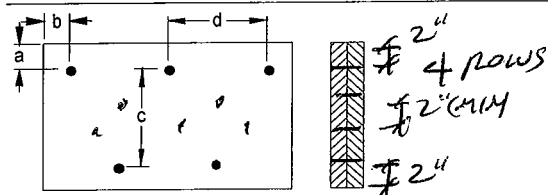
**CONFORMS TO OBC 2012**

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

## Connection Diagram



a minimum = 2" c = 7-7/8"  
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 4081-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B7(i2417)

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

May 16, 2017 10:51:21

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

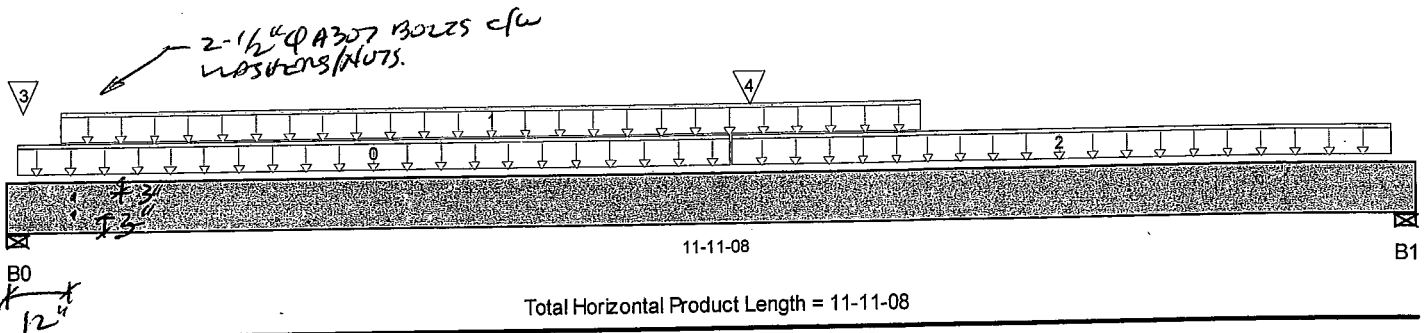
Description: Designs\Flush Beams\1st Floor\Flush Beams\B7(i2417)

Specifier:

Designer: CZ

Company:

Misc:



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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	1,176 / 0	1,697 / 0	2,130 / 0	
B1, 5-1/2"	327 / 0	403 / 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	00-01-02	06-01-08	11	5			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-05-08	07-09-01		60			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	06-01-08	11-09-02	27	13			n/a
3	-	Conc. Pt. (lbs)	L	00-01-13	00-01-13	902	1,177	2,130		n/a
4	B8(i1762)	Conc. Pt. (lbs)	L	06-03-04	06-03-04	373	227			n/a

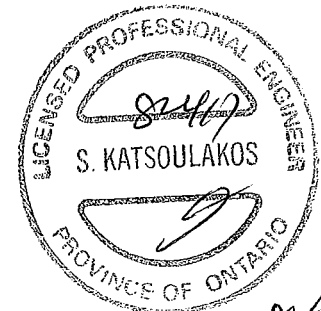
## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,081 ft-lbs	38,727 ft-lbs	10.5%	1	06-03-04
End Shear	602 lbs	9,401 lbs	6.4%	0	01-05-06
Total Load Defl.	L/999 (0.061")	n/a	n/a	35	05-11-12
Live Load Defl.	L/999 (0.026")	n/a	n/a	51	06-01-08
Max Defl.	0.061"	n/a	n/a	35	05-11-12
Span / Depth	11.3	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"	5,905 lbs	57.4%	25.1%	Unspecified
B1	Wall/Plate 5-1/2" x 3-1/2"	994 lbs	9.7%	4.2%	Unspecified

## Notes



DWG NO. TAM 42082-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...B7(i2417)

BC CALC® Design Report



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

May 16, 2017 10:51:21

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B7(i2417

Specifier:

Designer: CZ

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

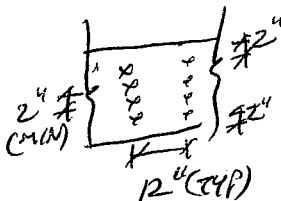
## Disclosure

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## Connection Diagram

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

OK WITH  
NAILING  
+  
BOLTING



PROVIDE 4 ROWS OF 3 1/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

+  
BOLTS

BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, 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.



DWONG, YAM 12/02/17  
STRUCTURAL  
COMPONENT ONLY





# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B8(i1762)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

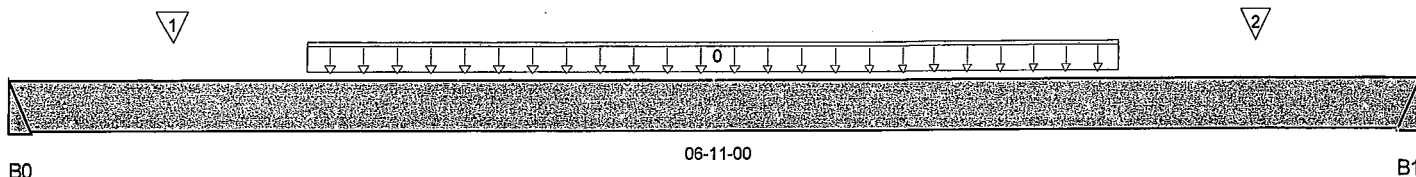
Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i1762)

Specifier:

Designer: CZ

Company:

Misc:



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

Bearing	Live	Dead	Snow	Wind
B0	372 / 0	227 / 0		
B1	377 / 0	230 / 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	01-05-08	05-05-08	118	59			n/a
1	J6(i1747)	Conc. Pt. (lbs)	L	00-09-08	00-09-08	135	67			n/a
2	J6(i1769)	Conc. Pt. (lbs)	L	06-01-08	06-01-08	140	70			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,527 ft-lbs	38,727 ft-lbs	3.9%	1	03-05-08
End Shear	725 lbs	14,464 lbs	5%	1	05-09-02
Total Load Defl.	L/999 (0.009")	n/a	n/a	4	03-05-08
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	03-05-08
Max Defl.	0.009"	n/a	n/a	4	03-05-08
Span / Depth	6.8	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 3-1/2"	843 lbs	n/a	9.9%	HGUS4 10
B1 Hanger	2" x 3-1/2"	852 lbs	n/a	10%	HGUS4 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

CONFORMS TO OBC 2012



DWG NO. TAM 4278317  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor...\B8(i1762)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmd

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i1762

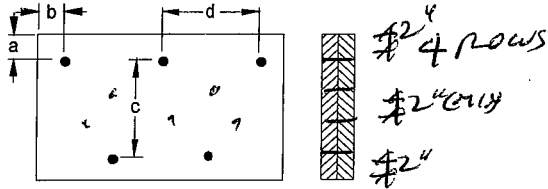
Specifier:

Designer: CZ

Company:

Misc:

## Connection Diagram



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

Calculated Side Load = 230.0 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

## Disclosure

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DWG NO. TAM 4203-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B9DR(i2453)

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

May 16, 2017 11:09:19

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

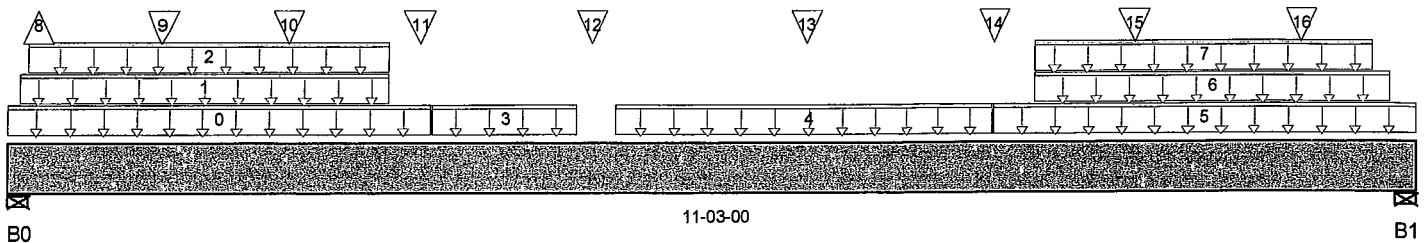
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B9D

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 11-03-00

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

Bearing	Live	Dead	Snow	Wind
B0, 8-7/8"	2,654 / 1,311	1,517 / 0	1,723 / 0	
B1, 8-7/8"	2,496 / 0	2,066 / 0	1,677 / 0	

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	R1(i2492)	Unf. Lin. (lb/ft)	L	00-00-00	03-04-08		81			n/a
1	R1(i2492)	Unf. Lin. (lb/ft)	L	00-01-02	03-00-08	99	90	234		n/a
2	R1(i2492)	Unf. Lin. (lb/ft)	L	00-01-15	03-00-08	33	30	78		n/a
3	R1(i2492)	Unf. Lin. (lb/ft)	L	03-04-08	04-06-08		61			n/a
4	R1(i2464)	Unf. Lin. (lb/ft)	L	04-10-00	07-10-08		61			n/a
5	R1(i2464)	Unf. Lin. (lb/ft)	L	07-10-08	11-03-00		81			n/a
6	R1(i2464)	Unf. Lin. (lb/ft)	L	08-02-08	11-00-08	99	90	234		n/a
7	R1(i2464)	Unf. Lin. (lb/ft)	L	08-02-08	10-10-14	33	30	78		n/a
8	J7(i2503)	Conc. Pt. (lbs)	L	00-02-14	00-02-14	-1,311	-649			n/a
9	J7(i2484)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	380	190			n/a
10	J7(i2466)	Conc. Pt. (lbs)	L	02-02-14	02-02-14	380	190			n/a
11	-	Conc. Pt. (lbs)	L	03-03-05	03-03-05	723	518	812		n/a
12	-	Conc. Pt. (lbs)	L	04-07-11	04-07-11	982	628			n/a
13	J2(i1901)	Conc. Pt. (lbs)	L	06-04-00	06-04-00	392	196			n/a
14	-	Conc. Pt. (lbs)	L	07-10-08	07-10-08	731	519	800		n/a
15	J2(i2513)	Conc. Pt. (lbs)	L	09-00-00	09-00-00	392	196			n/a
16	J2(i2501)	Conc. Pt. (lbs)	L	10-04-00	10-04-00	392	196			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	16,401 ft-lbs	25,408 ft-lbs	64.6%	1	05-00-00
End Shear	6,330 lbs	11,571 lbs	54.7%	1	01-06-06
Uplift	601 lbs	n/a	n/a	24	00-00-00
Total Load Defl.	L/271 (0.438")	0.495"	88.6%	58	05-06-00
Live Load Defl.	L/441 (0.27")	0.33"	81.7%	85	05-06-00
Max Defl.	0.438"	n/a	n/a	58	05-06-00
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
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DWG NO. TAM 42084-17  
STRUCTURAL  
COMPONENT ONLY



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor...B9DR(i2453)**

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

May 16, 2017 11:09:19

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

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

Specifier:

Designer: CZ

Company:

Misc:

B0	Wall/Plate	8-7/8" x 3-1/2"	6,739 lbs	26.7%	17.8%	Unspecified
B1	Wall/Plate	8-7/8" x 3-1/2"	7,166 lbs	28.4%	18.9%	Unspecified

**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.

**Cautions**

Uplift of 601 lbs found at span 1 - Left. (SIMPSON 1-H2-STAR-Q-BD)

**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.

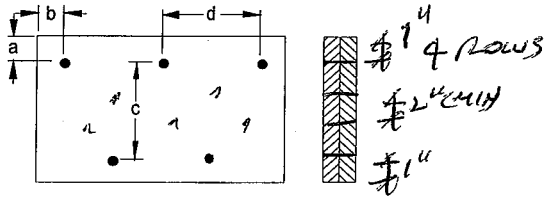
**CONFORMS TO OBC 2012**

Unbalanced snow loads determined from building geometry were used in selected products verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, 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.

**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**

DRAGON YAM 4/28/17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor...\B10(i1999)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

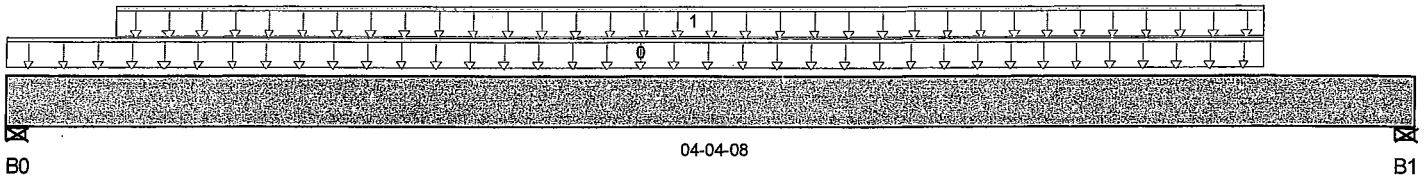
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i1999)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 04-04-08

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	74 / 0	170 / 0		
B1, 5-1/2"	64 / 0	167 / 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	00-00-00	03-11-00	35	17			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-04-00	03-11-00		60			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	215 ft-lbs	25,173 ft-lbs	0.9%	0	02-01-08
End Shear	100 lbs	9,401 lbs	1.1%	0	01-03-14
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	02-01-08
Live Load Defl.	L/999 (0")	n/a	n/a	5	02-01-08
Max Defl.	0.001"	n/a	n/a	4	02-01-08
Span / Depth	3.7	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 3-1/2"	238 lbs	4.9%	2.1%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	233 lbs	3.5%	1.5%	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.

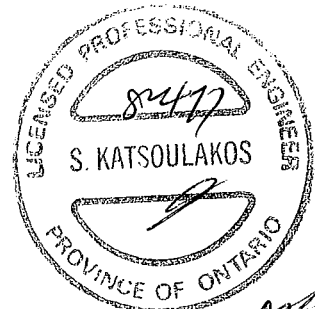
Resistance Factor phi has been applied to all presented results per CSA O86.

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 CBC 2012



DW8ND.TAM 42785-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B10(i1999)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i1999)

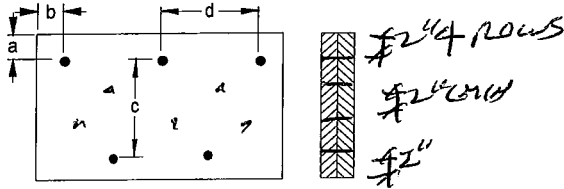
Specifier:

Designer: CZ

Company:

Misc:

## Connection Diagram



a minimum = 2" c = 7-7/8" B4  
b minimum = 3" d =

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

## Disclosure

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DWG NO. TAM 42785-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11(i2434)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

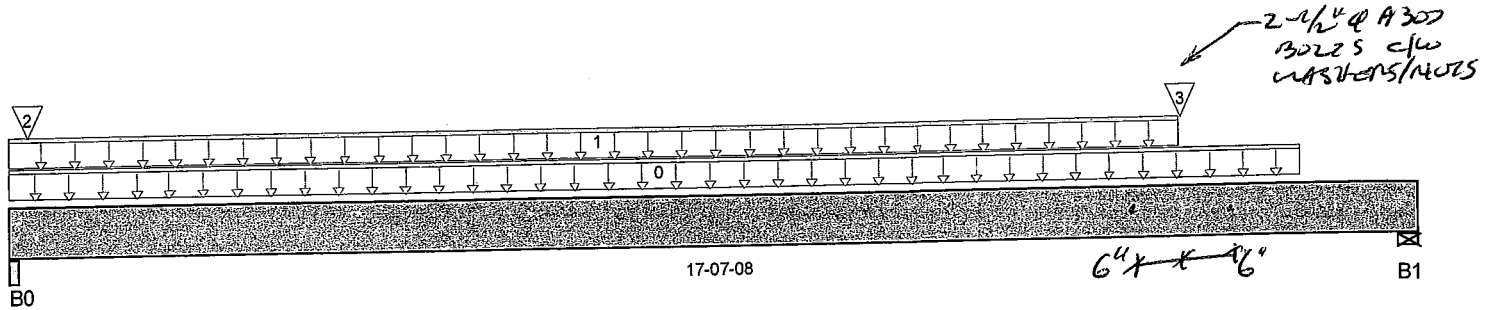
Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i2434)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 17-07-08

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	462 / 0	368 / 0		
B1, 4"	1,885 / 0	1,123 / 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	00-00-00	16-02-01	9	4			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	14-07-12	6	3			n/a
2	E41(i756)	Conc. Pt. (lbs)	L	00-02-12	00-02-12		18			n/a
3	B13(i2426)	Conc. Pt. (lbs)	L	14-07-12	14-07-12	2,067	1,115			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	11,232 ft-lbs	38,727 ft-lbs	29%	1	14-07-12
End Shear	4,177 lbs	14,464 lbs	28.9%	1	16-03-10
Total Load Defl.	L/595 (0.345")	0.856"	40.3%	4	09-10-02
Live Load Defl.	L/979 (0.21")	0.571"	36.8%	5	09-10-02
Max Defl.	0.345"	n/a	n/a	4	09-10-02
Span / Depth	17.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Beam	3-1/2" x 3-1/2"	1,154 lbs	8.6%	7.7%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	4,231 lbs	56.6%	24.8%	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



DWG NO. TAM 422617  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11(i2434)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i2434)

Specifier:

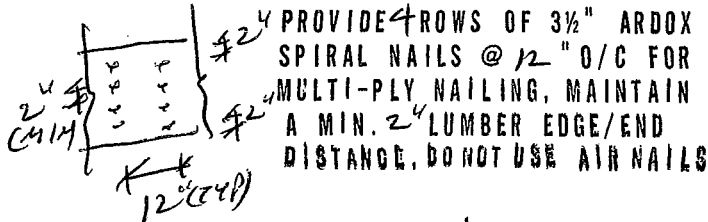
Designer: CZ

Company:

Misc:

## Connection Diagram

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.



+  
BOLTS

OK with  
NAILING  
+  
BOLTING

## Disclosure

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DWG NO. TAM 4208617  
STRUCTURAL  
COMPONENT ONLY





# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B12DR(i2254)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

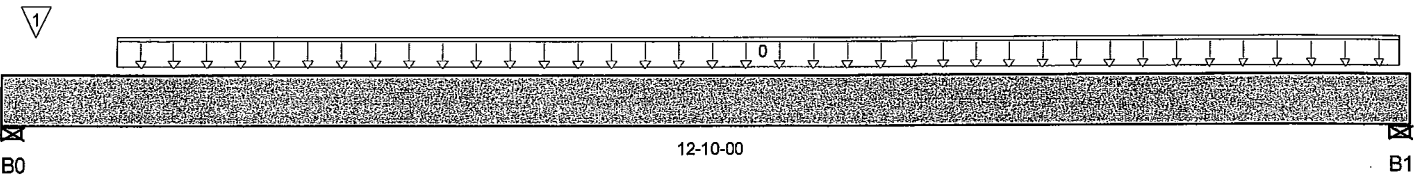
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B12I

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 12-10-00

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

Bearing	Live	Dead	Snow	Wind
B0, 6"	4,260 / 0	2,208 / 0		
B1, 4"	4,029 / 0	2,091 / 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	01-00-08	12-08-14	649	324			n/a
1	-	Conc. Pt. (lbs)	L	00-03-11	00-03-11	699	349			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	24,916 ft-lbs	38,727 ft-lbs	64.3%	1	06-02-14
End Shear	7,454 lbs	14,464 lbs	51.5%	1	01-05-14
Total Load Defl.	L/305 (0.477")	0.606"	78.7%	4	06-05-05
Live Load Defl.	L/463 (0.314")	0.404"	77.8%	5	06-05-05
Max Defl.	0.477"	n/a	n/a	4	06-05-05
Span / Depth	12.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	6" x 3-1/2"	9,150 lbs	53.7%	35.7%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	8,656 lbs	76.1%	50.7%	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: 00-02-00, Bottom: 00-02-00.

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



DWBN, TAM 42282-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B12DR(i2254)

BC CALC® Design Report



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

May 16, 2017 10:51:20

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

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

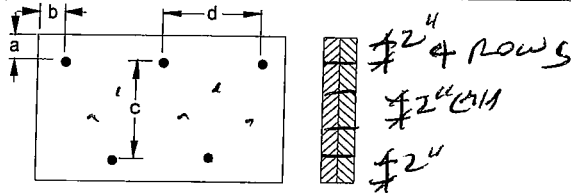
Specifier:

Designer: CZ

Company:

Misc:

## Connection Diagram



a minimum = 2" c = 7-7/8"  
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.

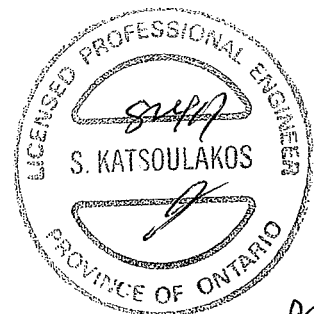
Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

## Disclosure

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DWG NO. TAM 4218217  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B13(i2426)

BC CALC® Design Report



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

May 16, 2017 10:51:20

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

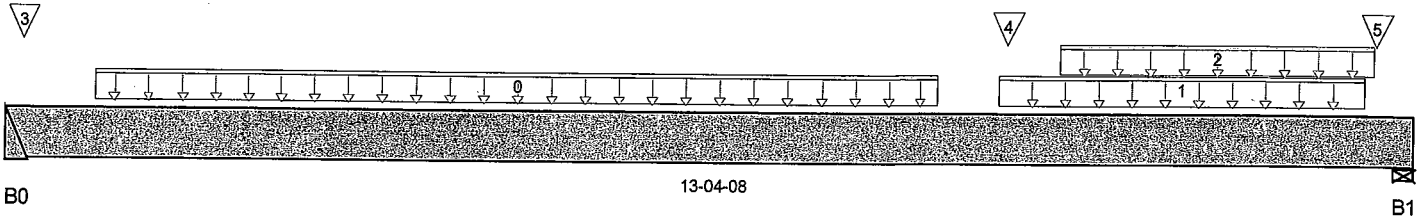
Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i2426)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 13-04-08

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

Bearing	Live	Dead	Snow	Wind
B0	2,074 / 0	1,119 / 0		
B1, 5-1/2"	2,692 / 0	1,428 / 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	00-10-00	08-10-00	296	148			n/a
1	User Load	Unf. Lin. (lb/ft)	L	09-05-00	12-11-00	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	10-00-00	13-00-00	293	146			n/a
3	J2(i1906)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	240	120			n/a
4	J2(i2437)	Conc. Pt. (lbs)	L	09-06-00	09-06-00	343	171			n/a
5	FC2 Floor Material	Conc. Pt. (lbs)	L	13-00-02	13-00-02	65	33			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	15,044 ft-lbs	38,727 ft-lbs	38.8%	1	06-10-00
End Shear	4,792 lbs	14,464 lbs	33.1%	1	11-11-02
Total Load Defl.	L/472 (0.327")	0.644"	50.8%	4	06-08-00
Live Load Defl.	L/725 (0.213")	0.429"	49.7%	5	06-08-00
Max Defl.	0.327"	n/a	n/a	4	06-08-00
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 Hanger	2" x 3-1/2"	4,510 lbs	n/a	52.8%	HGUS4 10
B1 Wall/Plate	5-1/2" x 3-1/2"	5,823 lbs	56.6%	24.8%	Unspecified

## Notes



DWG NO. TAM 4262 17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B13(i2426)

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

May 16, 2017 10:51:20

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i2426

Specifier:

Designer: CZ

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.

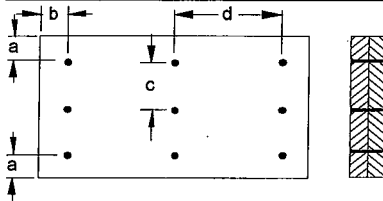
Importance Factor : Normal Part code : Part 9

## Disclosure

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**CONFORMS TO OBC 2012**

## Connection Diagram



a minimum = 2" c = 3-15/16"  
b minimum = 3" d = 6"

Calculated Side Load = 608.2 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

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DWG NO. TAM 4200017  
STRUCTURAL  
COMPONENT ONLY



# Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor...\B14(i2038)

BC CALC® Design Report



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

May 16, 2017 10:51:21

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

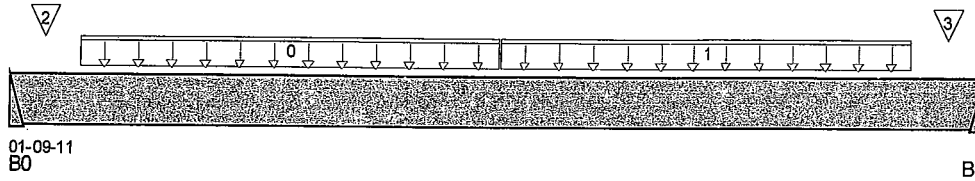
Description: Designs\Flush Beams\1st Floor\Flush Beams\B14(i2038;

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 01-09-11

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

Bearing	Live	Dead	Snow	Wind
B0	7 / 0	9 / 0		
B1	7 / 0	9 / 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	00-01-10	00-10-13	4	2			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-10-13	01-08-01	12	6			n/a
2	FC2 Floor Material	Conc. Pt. (lbs)	L	00-00-13	00-00-13	1				n/a
3	FC2 Floor Material	Conc. Pt. (lbs)	L	01-08-14	01-08-14	1				n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9 ft-lbs	n/a	n/a	1	00-10-13
End Shear	11 lbs	7,232 lbs	0.1%	1	01-01-14
Span / Depth	1.6	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"	21 lbs	n/a	0.5%	LS90
B1 Hanger	2" x 1-3/4"	21 lbs	n/a	0.5%	LS90

## Notes

Calculations assume unbraced length of Top: 00-01-12, Bottom: 00-01-12.

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

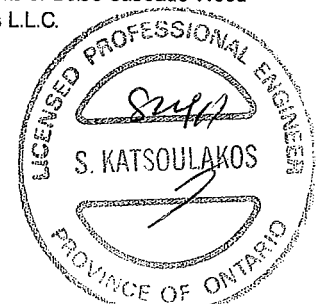
## Disclosure

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.

BC CALCO®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, 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.

CONFORMS TO OBC 2012

DWG NO. TAM 42287-17  
STRUCTURAL  
COMPONENT ONLY





# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basement...B18(i2447)

BC CALC® Design Report



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

May 16, 2017 10:51:21

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

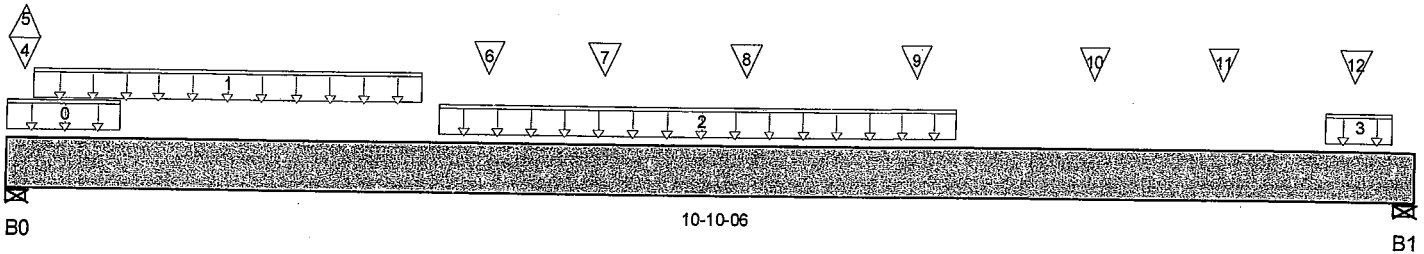
Description: Designs\Flush Beams\Basement\Flush Beams\B18(i2447

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 10-10-06

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

Bearing	Live	Dead	Snow	Wind
B0, 12-7/16"	3,371 / 876	1,775 / 0	272 / 0	
B1, 10-1/16"	2,687 / 0	1,660 / 0	140 / 0	

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E23(i729)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-11		81			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-06	03-02-06	382	192			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	03-03-14	07-03-14	42	21			n/a
3	E19(i715)	Unf. Lin. (lb/ft)	L	10-02-01	10-08-06		81			n/a
4	E23(i729)	Conc. Pt. (lbs)	L	00-01-08	00-01-08	1,315	609	272		n/a
5	E23(i729)	Conc. Pt. (lbs)	L	00-01-08	00-01-08	-876				n/a
6	J8(i2223)	Conc. Pt. (lbs)	L	03-08-06	03-08-06	360	180			n/a
7	J2(i2364)	Conc. Pt. (lbs)	L	04-07-00	04-07-00	281	140			n/a
8	J2(i2377)	Conc. Pt. (lbs)	L	05-07-14	05-07-14	360	180			n/a
9	J2(i2258)	Conc. Pt. (lbs)	L	06-11-14	06-11-14	409	204			n/a
10	J1(i2446)	Conc. Pt. (lbs)	L	08-04-10	08-04-10	419	210			n/a
11	J1(i2257)	Conc. Pt. (lbs)	L	09-04-10	09-04-10	354	177			n/a
12	-	Conc. Pt. (lbs)	L	10-04-12	10-04-12	1,065	742	140		n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,250 ft-lbs	38,727 ft-lbs	21.3%	1	05-07-14
End Shear	3,325 lbs	14,464 lbs	23%	1	02-00-05
Total Load Defl.	L/999 (0.089")	n/a	n/a	58	05-05-14
Live Load Defl.	L/999 (0.058")	n/a	n/a	85	05-05-14
Max Defl.	0.089"	n/a	n/a	58	05-05-14
Span / Depth	9.2	n/a	n/a		00-00-00

Demand/  
Resistance  
Support

Demand/  
Resistance  
Member

## Bearing Supports

	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	12-7/16" x 3-1/2"	7,412 lbs	31.9%	14%	Unspecified
B1 Wall/Plate	10-1/16" x 3-1/2"	6,175 lbs	32.8%	14.4%	Unspecified

## Notes



DWG NO. YAM4270-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basementl...B18(i2447)

BC CALC® Design Report



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

May 16, 2017 10:51:21

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B18(i24.

Specifier:

Designer: CZ

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.

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

Design based on Dry Service Condition.

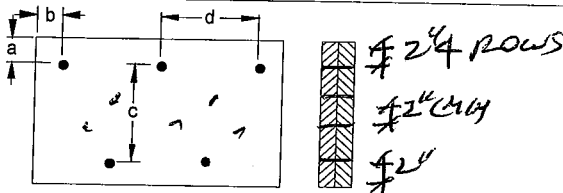
Importance Factor: Normal Part code: Part 9

## Disclosure

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## Connection Diagram



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

Calculated Side Load = 720.2 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



DWG NO. TAM4290-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B9A DR(i4696)

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

May 16, 2017 14:56:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

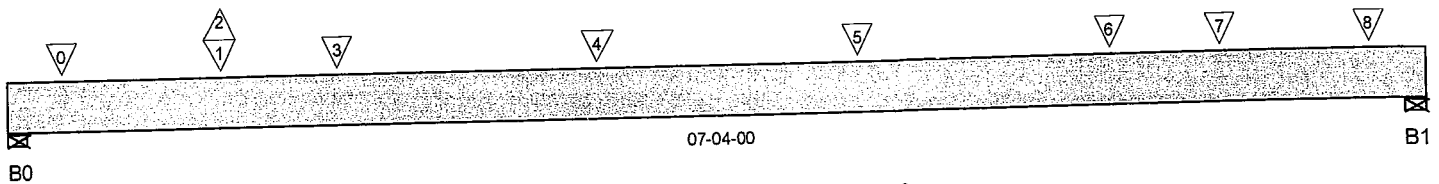
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B9A

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 07-04-00

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/8"	2,561 / 4	2,065 / 0	1,458 / 0	
B1, 4-3/4"	2,070 / 1	1,735 / 0	1,474 / 0	

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J7(i5203)	Conc. Pt. (lbs)	L	00-03-06	00-03-06	465	349	268		n/a
1	B11ACANT(i4698)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	1,274	1,119	1,007		n/a
2	B11ACANT(i4698)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	-5				n/a
3	J1(i4662)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	379	260	79		n/a
4	J1(i4686)	Conc. Pt. (lbs)	L	03-00-08	03-00-08	523	360	114		n/a
5	J1(i4661)	Conc. Pt. (lbs)	L	04-04-08	04-04-08	523	360	114		n/a
6	J1(i4692)	Conc. Pt. (lbs)	L	05-08-08	05-08-08	374	252	80		n/a
7	B19ACANT(i4699)	Conc. Pt. (lbs)	L	06-03-06	06-03-06	646	670	957		n/a
8	J2(i5204)	Conc. Pt. (lbs)	L	07-00-08	07-00-08	447	359	313		n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,060 ft-lbs	25,408 ft-lbs	27.8%	1	03-00-08
End Shear	5,306 lbs	11,571 lbs	45.9%	1	01-02-10
Total Load Defl.	L/999 (0.086")	n/a	n/a	58	03-07-08
Live Load Defl.	L/999 (0.053")	n/a	n/a	85	03-07-08
Max Defl.	0.086"	n/a	n/a	58	03-07-08
Span / Depth	8.4	n/a	n/a		00-00-00

## Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/8" x 3-1/2"	7,152 lbs	49.1%	32.7%	Unspecified
B1 Wall/Plate	4-3/4" x 3-1/2"	6,010 lbs	44.5%	29.6%	Unspecified

## Notes



DWG NO. TAM4271-17  
STRUCTURAL  
COMPONENT ONLY





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B9A DR(i4696)



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

May 16, 2017 14:56:47

BC CALC® Design Report

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

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

Specifier:

Designer: CZ

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: 01-01-08, Bottom: 01-01-08.

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.

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

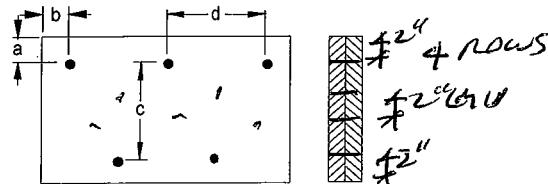
**CONFORMS TO OBC 2012**

## Disclosure

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## Connection Diagram



a minimum = 1" c = 1 1/2"  
b minimum = 3" d = 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.

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM 4291-17  
STRUCTURAL  
COMPONENT ONLY

**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor...\B11A CANT(i4698)**

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

May 16, 2017 14:56:47

BC CALC® Design Report



Build 5033

**Job Name:**

Address:

City, Province, Postal Code:WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

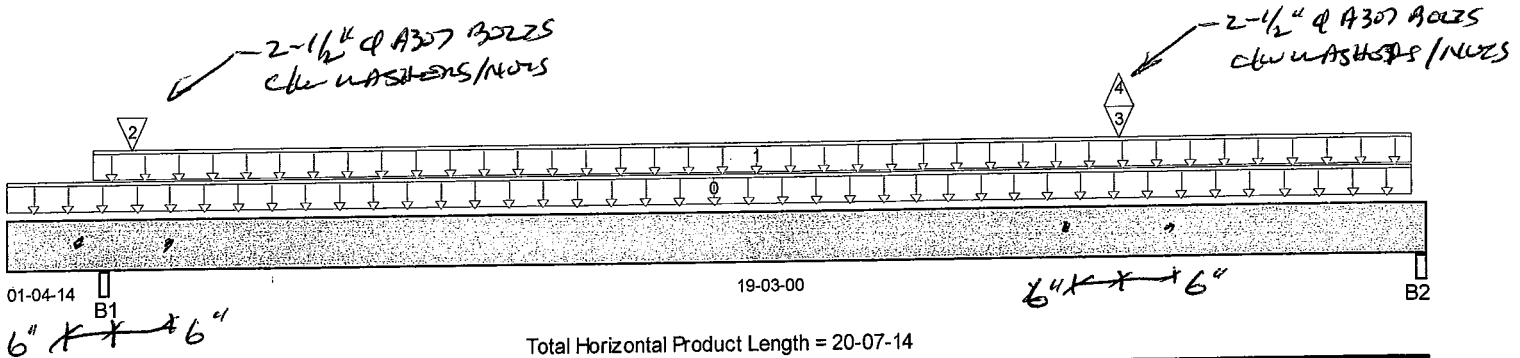
Description: Designs\Flush Beams\1st Floor\Flush Beams\B11A CAN'

**Specifier:**

Designer: CZ

Company:

**Misc:**

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

Be aring	Live	De ad	Snow	Wind
B1, 3-1/2"	1,268 / 5	1,116 / 0	1,009 / 2	
B2, 4-1/2"	2,173 / 21	1,387 / 0	21 / 6	

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	1.00	0.65	1.00	1.15	
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	20-05-10	12	6			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-02-14	20-05-10	16	8			n/a
2	E40(i755)	Conc. Pt. (lbs)	L	01-09-10	01-09-10	431	470	1,020		n/a
3	B13A(i4697)	Conc. Pt. (lbs)	L	16-02-10	16-02-10	2,417	1,363	-8		n/a
4	B13A(i4697)	Conc. Pt. (lbs)	L	16-02-10	16-02-10	-25				n/a

## Controls Summary

<b>Controls Summary</b>	<b>Factored Demand</b>	<b>Factored Resistance</b>	<b>Demand / Resistance</b>	<b>Load Case</b>	<b>Location</b>
Pos. Moment	19,872 ft-lbs	60,415 ft-lbs	32.9%	40	16-02-10
Neg. Moment	-108 ft-lbs	-60,415 ft-lbs	0.2%	17	01-04-14
End Shear	4,903 lbs	21,696 lbs	22.6%	20	19-03-08
Cont. Shear	2,263 lbs	21,696 lbs	10.4%	17	02-06-08
Total Load Defl.	L/433 (0.525")	0.947"	55.4%	269	11-08-15
Live Load Defl.	L/719 (0.316")	0.631"	50.1%	381	11-08-15
Total Neg. Defl.	2xL/1,998 (-0.112")	n/a	n/a	269	00-00-00
Max Defl.	0.525"	n/a	n/a	269	11-08-15
Span / Depth	19.1	n/a	n/a		00-00-00

## Bearing Supports

			Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing Supports					
	Dim. (L x W)	Demand			
B1	Beam 3-1/2" x 5-1/4"	3,802 lbs	19%	17%	Unspecified
B2	Beam 4-1/2" x 5-1/4"	5,005 lbs	39.7%	17.4%	Unspecified

## Notes



DWG NO. TAM 429217  
STRUCTURAL  
COMPONENT ONLY



# Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11A CANT(i4698)

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

May 16, 2017 14:56:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11A CA

Specifier:

Designer: CZ

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.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

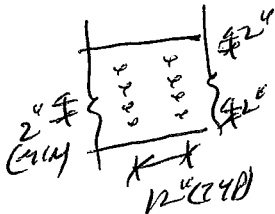
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

## Disclosure

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## Connection Diagram

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.



PROVIDE 4 ROWS OF 3 1/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS STAGGER NAILS 6" BETWEEN PLIES

+  
BOLTS

OK WITH  
NAILING  
+  
BOLTING

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DWONG, TAM 4279217  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B13A(i4685)

BC CALC® Design Report



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

May 16, 2017 14:38:53

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

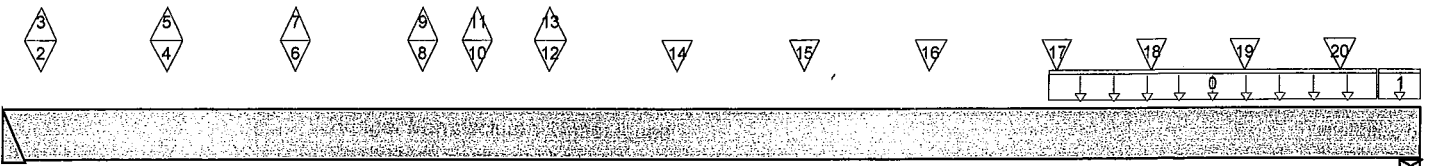
Description: Designs\Flush Beams\1st Floor\Flush Beams\B13A(i4685)

Specifier:

Designer: CZ

Company:

Misc:



B0

14-11-02

B1

Total Horizontal Product Length = 14-11-02

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

Bearing	Live	Dead	Snow	Wind
B0	2,425 / 41	1,358 / 0	14 / 37	
B1, 5-1/2"	3,006 / 10	1,624 / 0	7 / 7	

## 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	10-11-10	14-05-10	240	120			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	14-05-10	14-11-02	299	149			n/a
2	-	Conc. Pt. (lbs)	L	00-04-10	00-04-10	364	178	-9		n/a
3	-	Conc. Pt. (lbs)	L	00-04-10	00-04-10	-8				n/a
4	-	Conc. Pt. (lbs)	L	01-08-08	01-08-08	399	229	-13		n/a
5	-	Conc. Pt. (lbs)	L	01-08-08	01-08-08	-12				n/a
6	J1(i4661)	Conc. Pt. (lbs)	L	03-00-10	03-00-10	403	196	-13		n/a
7	J1(i4661)	Conc. Pt. (lbs)	L	03-00-10	03-00-10	-12				n/a
8	J1(i4692)	Conc. Pt. (lbs)	L	04-04-10	04-04-10	291	141	-9		n/a
9	J1(i4692)	Conc. Pt. (lbs)	L	04-04-10	04-04-10	-8				n/a
10	B19ACANT(i4693)	Conc. Pt. (lbs)	L	04-11-09	04-11-09	214	197	21		n/a
11	B19ACANT(i4693)	Conc. Pt. (lbs)	L	04-11-09	04-11-09	-5				n/a
12	J2(i4663)	Conc. Pt. (lbs)	L	05-08-10	05-08-10	323	161			n/a
13	J2(i4663)	Conc. Pt. (lbs)	L	05-08-10	05-08-10	-6				n/a
14	J2(i4689)	Conc. Pt. (lbs)	L	07-00-10	07-00-10	401	201			n/a
15	J2(i4351)	Conc. Pt. (lbs)	L	08-04-10	08-04-10	392	196			n/a
16	J2(i4351)	Conc. Pt. (lbs)	L	09-08-10	09-08-10	392	196			n/a
17	J2(i4651)	Conc. Pt. (lbs)	L	11-00-10	11-00-10	343	171			n/a
18	J2(i4561)	Conc. Pt. (lbs)	L	12-00-10	12-00-10	294	147			n/a
19	J2(i4561)	Conc. Pt. (lbs)	L	13-00-10	13-00-10	294	147			n/a
20	J2(i4648)	Conc. Pt. (lbs)	L	14-00-10	14-00-10	269	135			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	19,048 ft-lbs	38,727 ft-lbs	49.2%	9	07-00-10
End Shear	5,394 lbs	14,464 lbs	37.3%	9	13-05-12
Total Load Defl.	L/330 (0.525")	0.721"	72.8%	116	07-04-11
Live Load Defl.	L/514 (0.337")	0.481"	70%	168	07-04-11
Max Defl.	0.525"	n/a	n/a	116	07-04-11
Span / Depth	14.6	n/a	n/a		00-00-00



DWG NO. TAM 4293-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor...B13A(i4685)

BC CALC® Design Report



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

May 16, 2017 14:38:53

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B13A(i4685)

Specifier:

Designer: CZ

Company:

Misc:

Bearing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Hanger	2" x 3-1/2"	5,342 lbs	n/a	62.5%	HGUS410
B1 Wall/Plate	5-1/2" x 3-1/2"	6,542 lbs	63.6%	27.9%	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.

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.

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

**CONFORMS TO OBC 2012**

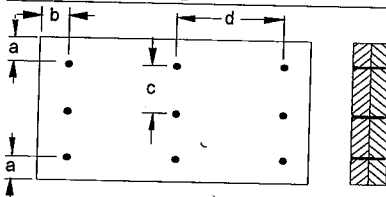
## Disclosure

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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



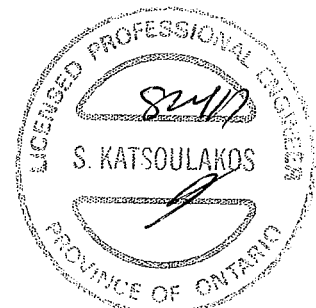
a minimum = 2" c = 3-15/16"  
b minimum = 3" d = 6"

Calculated Side Load = 612.5 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 for Nails

**3 1/2" ARDOX SPIRAL**



DWG NO. TAM 4293-17  
STRUCTURAL  
COMPONENT ONLY



# Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B18A(i4028)

BC CALC® Design Report



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

May 16, 2017 14:38:53

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

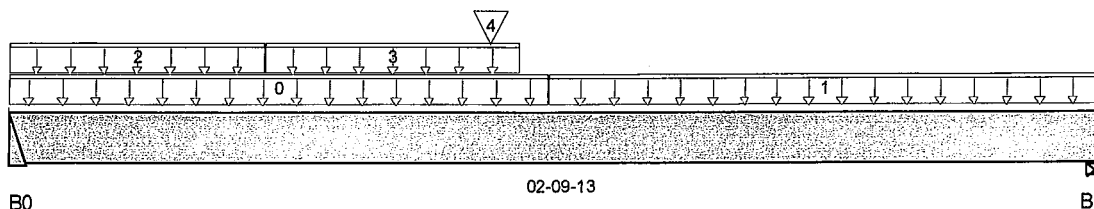
Description: Designs\Flush Beams\1st Floor\Flush Beams\B18A(i4028)

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 02-09-13

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

Bearing	Live	Dead	Snow	Wind
B0	46 / 0	34 / 0		
B1, 3-13/16"	40 / 0	31 / 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	00-00-00	01-04-09	22	11			n/a
1 FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-04-09	02-09-13	23	12			n/a
2 FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-07-13	0	0			n/a
3 FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-07-13	01-03-11	16	8			n/a
4 B14(i4083)	Conc. Pt. (lbs)	L	01-02-13	01-02-13	6	8			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	63 ft-lbs	19,364 ft-lbs	0.3%	1	01-02-13
End Shear	47 lbs	7,232 lbs	0.7%	1	01-01-14
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-03-11
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-03-11
Max Defl.	0"	n/a	n/a	4	01-03-11
Span / Depth	2.5	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"	111 lbs	n/a	2.6%	HUS1.81/10
B1 Wall/Plate	3-13/16" x 1-3/4"	100 lbs	2.8%	1.2%	Unspecified

## Notes

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

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

Calculations assume 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. YAM 4279-17  
STRUCTURAL  
COMPONENT ONLY



# Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B18A(i4028)

BC CALC® Design Report



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

May 16, 2017 14:38:53

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B18A(i4028)

Specifier:

Designer: CZ

Company:

Misc:

## Disclosure

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DWONG, TAM 4289-17  
STRUCTURAL  
COMPONENT ONLY



# Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor...B19A CANT(i4699)

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

May 16, 2017 14:56:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

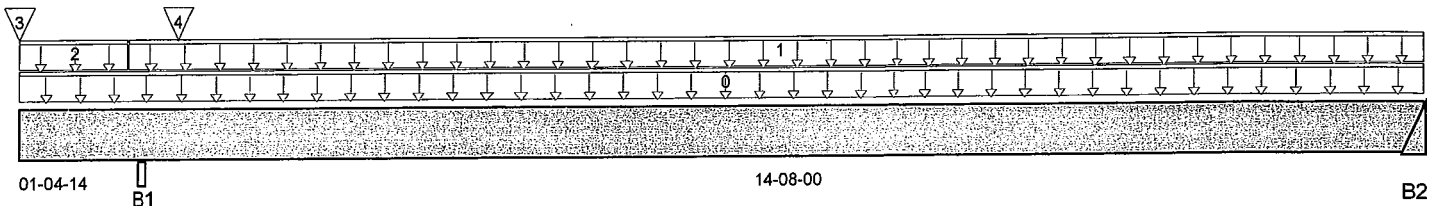
Description: Designs\Flush Beams\1st Floor\Flush Beams\B19A CAN

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 16-00-14

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	641 / 0	667 / 0	957 / 0	
B2	208 / 2	197 / 0	26 / 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	00-00-00	16-00-14	11	6			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-02-14	16-00-14	15	8			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-02-14	6	3			n/a
3	FC2 Floor Material	Conc. Pt. (lbs)	L	00-00-00	00-00-00			12		n/a
4	E34(i742)	Conc. Pt. (lbs)	L	01-09-10	01-09-10	411	451	970		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,219 ft-lbs	38,727 ft-lbs	5.7%	18	08-01-06
Neg. Moment	-99 ft-lbs	-38,727 ft-lbs	0.3%	1	01-04-14
End Shear	488 lbs	14,464 lbs	3.4%	3	14-11-00
Cont. Shear	822 lbs	14,464 lbs	5.7%	1	02-06-08
Total Load Defl.	L/999 (0.066")	n/a	n/a	126	08-06-01
Live Load Defl.	L/999 (0.036")	n/a	n/a	178	08-06-01
Total Neg. Defl.	2xL/1,998 (-0.022")	n/a	n/a	126	00-00-00
Max Defl.	0.066"	n/a	n/a	126	08-06-01
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
B1 Beam	3-1/2" x 3-1/2"	2,590 lbs	19.4%	17.3%	Unspecified
B2 Hanger	2" x 3-1/2"	572 lbs	n/a	6.7%	HGUS410

## Notes



DWG NO. YAM 4229517  
STRUCTURAL  
COMPONENT ONLY





Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor...B19A CANT(i4699)**

BC CALC® Design Report



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

May 16, 2017 14:56:47

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12EL-2.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B19A CA

Specifier:

Designer: CZ

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.

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.

**CONFORMS TO OBC 2012**

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

Design based on Dry Service Condition.

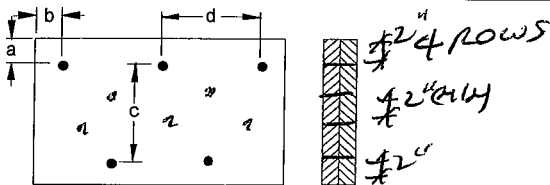
Importance Factor: Normal Part code: Part 9

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

**Disclosure**

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**Connection Diagram**

a minimum = 2" c = 7-7/8"  
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 4/295-17  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Design Report



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

August 18, 2017 16:47:27

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12 EL 3-DECK.mmdl

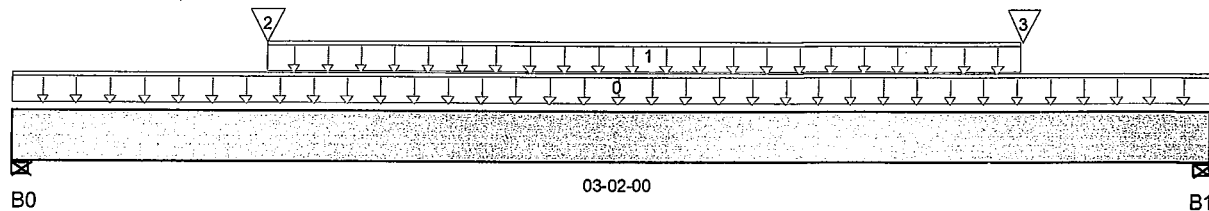
Description: Designs\Flush Beams\Basement\Flush Beams\B19A(i393

Specifier:

Designer: CZ

Company:

Misc:



Total Horizontal Product Length = 03-02-00

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

Bearing	Live	Dead	Snow	Wind
B0, 4"	96 / 0	333 / 0		
B1, 4"	98 / 0	334 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E5(i732)	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	28	182			n/a
1	FC 1 Floor Material	Unf. Lin. (lb/ft)	L	00-08-00	02-08-00	33	16			n/a
2	Bk1(i3939)	Conc. Pt. (lbs)	L	00-08-00	00-08-00	23				n/a
3	Bk1(i3937)	Conc. Pt. (lbs)	L	02-08-00	02-08-00	17	9			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	257 ft-lbs	25,173 ft-lbs	1%	0	01-07-00
End Shear	159 lbs	14,464 lbs	1.1%	1	01-10-02
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-07-00
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-07-00
Max Defl.	0"	n/a	n/a	4	01-07-00
Span / Depth	2.7	n/a	n/a		00-00-00

## Bearing Supports

			Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing Supports		Dim. (L x W)	Demand		
B0	Wall/Plate	4" x 3-1/2"	466 lbs	9.6%	4.2%
B1	Wall/Plate	4" x 3-1/2"	468 lbs	9.6%	4.2%
					Unspecified
					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.

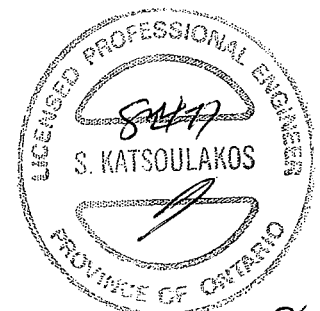
Resistance Factor phi has been applied to all presented results per CSA O86.

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**


DWG NO. TAM 4229617  
 STRUCTURAL  
 COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: ROSEWOOD 12 EL 3-DECK.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B19A(i3

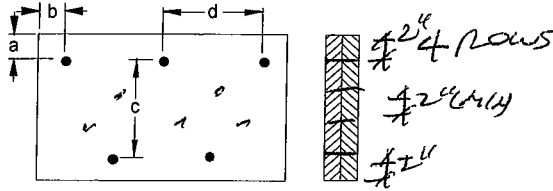
Specifier:

Designer: CZ

Company:

Msc:

Connection Diagram



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

Calculated Side Load = 27.2 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: 3/4" x 3" Nails

3 1/2" ARDOX SPIRAL

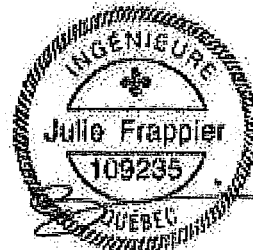
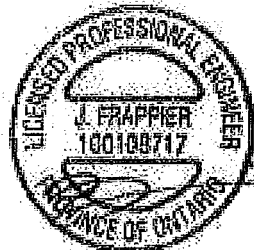
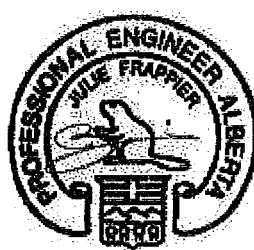
Disclosure

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DRG NO. TAM 4229617  
STRUCTURAL  
COMPONENT ONLY



## Maximum Floor Spans

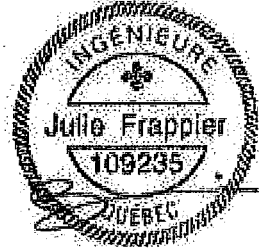
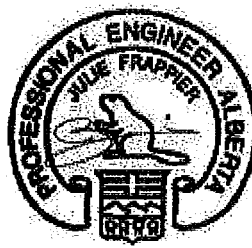
Live Load = 40 psf, Dead Load = 15 psf  
Simple Spans, L/480 Deflection Limit  
3/4" OSB G&N Sheathing

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

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

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

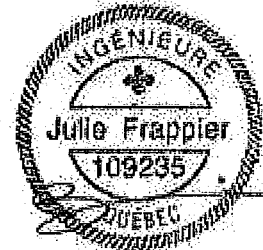
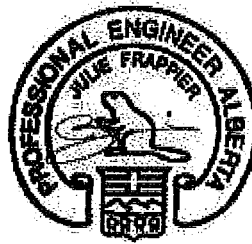


## Maximum Floor Spans

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

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

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



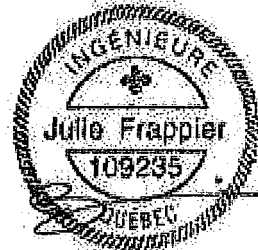
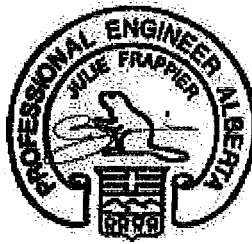
## Maximum Floor Spans

Live Load = 40 psf, Dead Load = 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

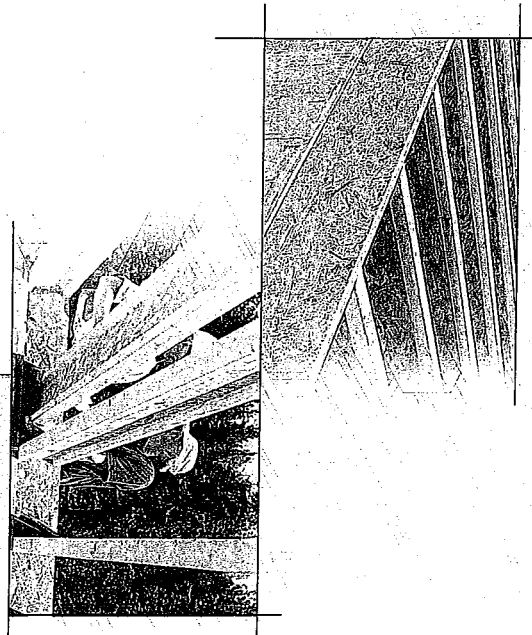
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	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"
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
14"	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"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
16"	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.



# 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-briding at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top 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-briding.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

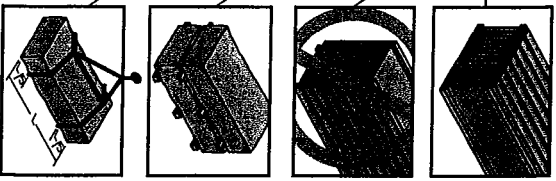
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



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.
8. Do not handle I-joists in a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.





# PROJECT HANDED

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.

most commonly used meta

## NORDIC I-JOIST SERIES

Nordic Engineered Wood Ljoists use only finger-joined back splices lumber in their flanges, ensuring consistent quality, superior strength, longer span carrying capacity.

2015-04-16

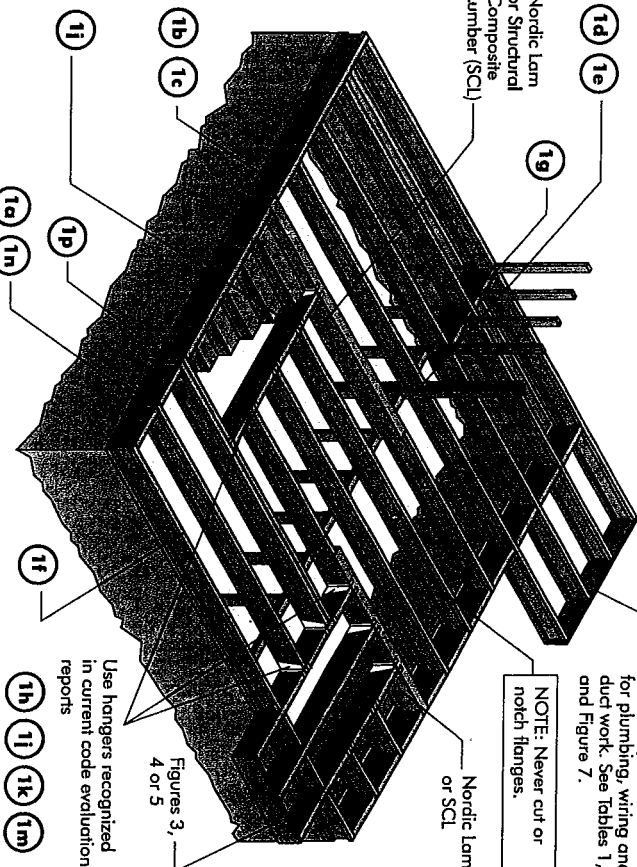
# INSTALLING NORDIC I-JOISTS

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 spans must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or 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.

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**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.

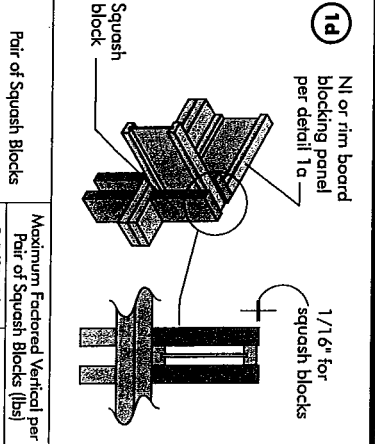
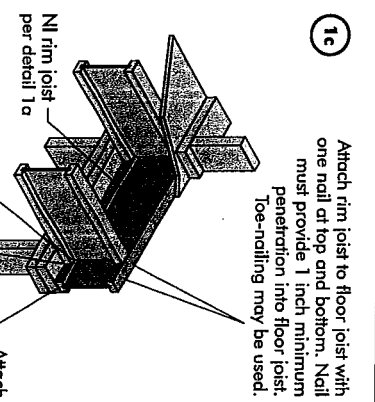
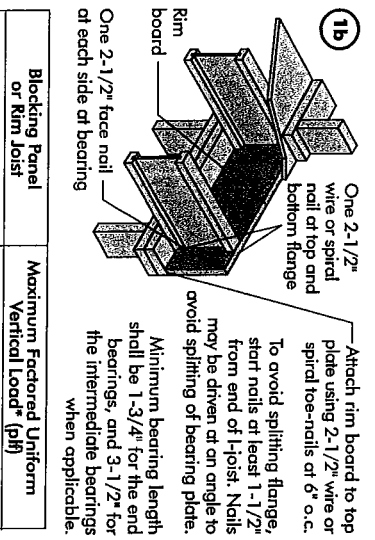
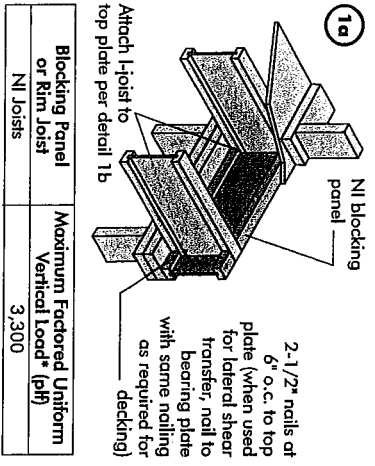


Figures 3, 4 or 5  
Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.  
NOTE: Never cut or notch flanges.

Use hangers recognized in current code evaluation reports

Figures 3, 4 or 5

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



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

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

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

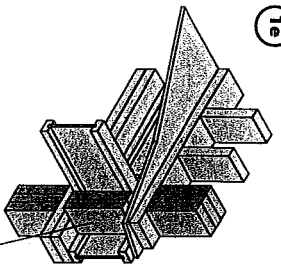
Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,500

\*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.

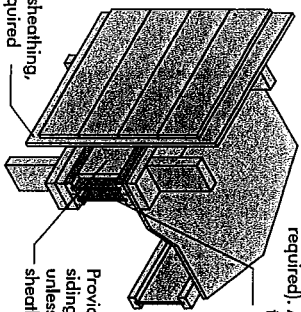
\*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

Attach I-joist per detail 1a  
Minimum 1-3/4" bearing required

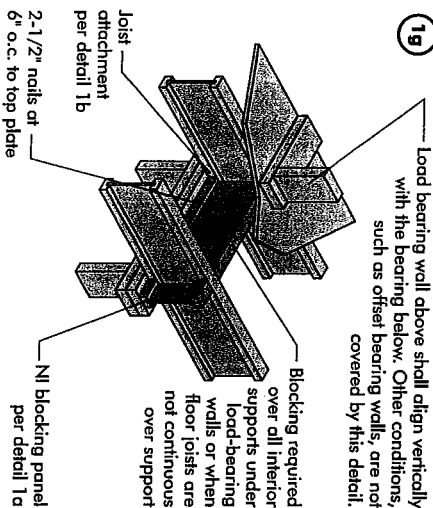
Provide lateral bracing per detail 1a, 1b, or 1c



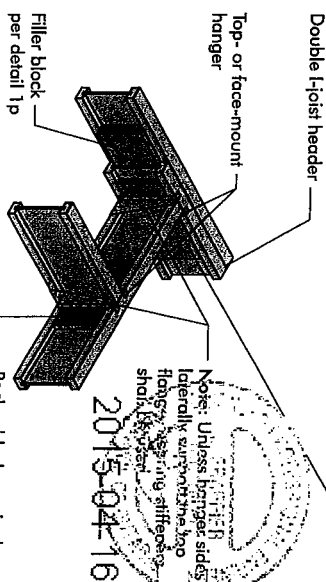
Transfer load from above to bearing below. Install squish blocks per detail 1d. Match bearing area of blocks below to post above.



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



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

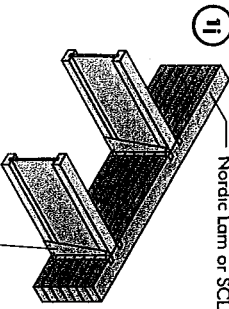


Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum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

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

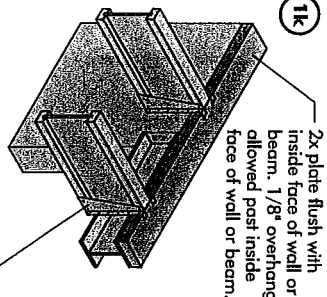
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

\* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-Q437 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".



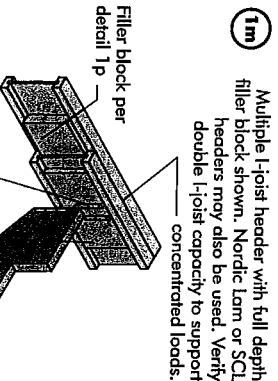
Top- or face-mount hanger installed per manufacturer's recommendations.

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

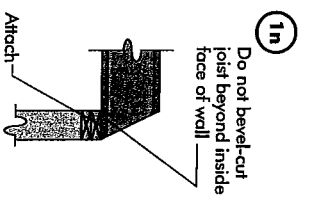


Top-mount hanger installed per manufacturer's recommendations

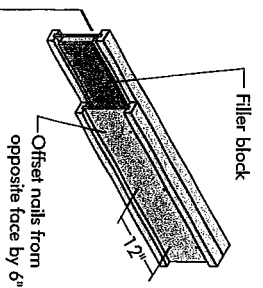
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



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



Do not bevel-cut joist beyond inside face of wall.

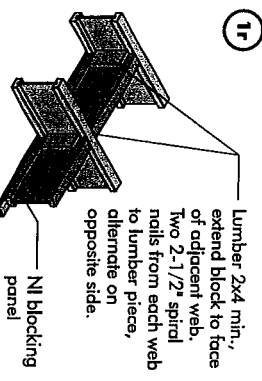


1/8" to 1/4" gap between top flange and filler block

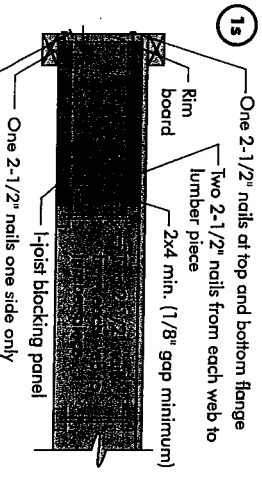
- Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 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 lb/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" x 11-7/8" x 14"	2-1/8" x 6" x 8"
3-1/2" x 1-1/2"	9-1/2" x 11-7/8" x 14"	2-1/8" x 8" x 10"
3-1/2" x 2"	11-7/8" x 14" x 16"	3" x 8" x 12"
3-1/2" x 2"	11-7/8" x 14" x 16"	3" x 9" x 11"



Optional: Minimum 1x4 inch strip applied to underside of joist at blocking attached to underside of joists.

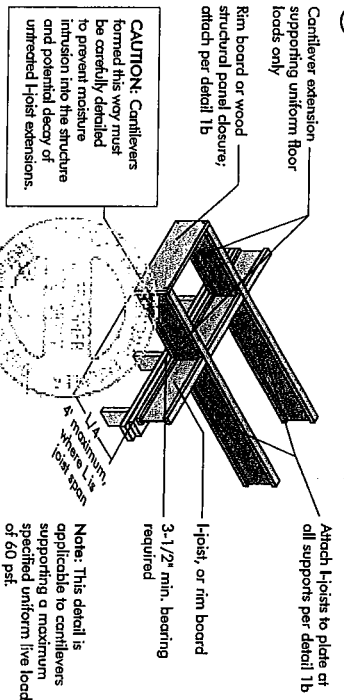


Notes:

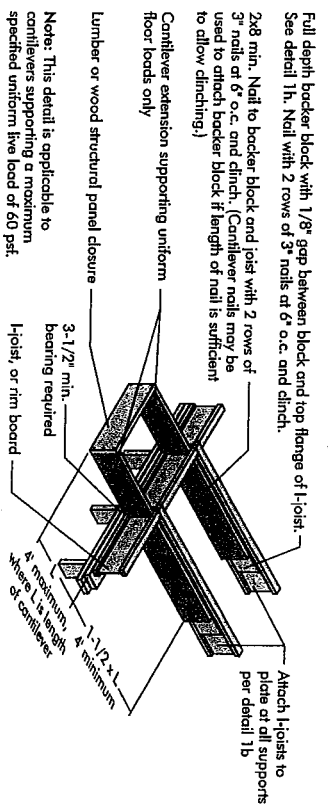
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

# CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

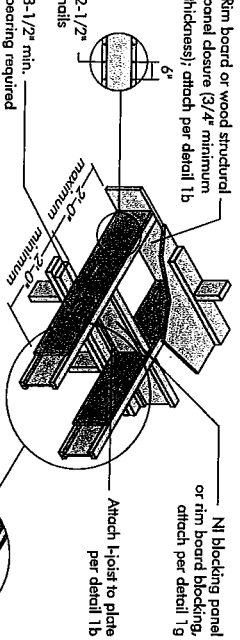


## 3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



# 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

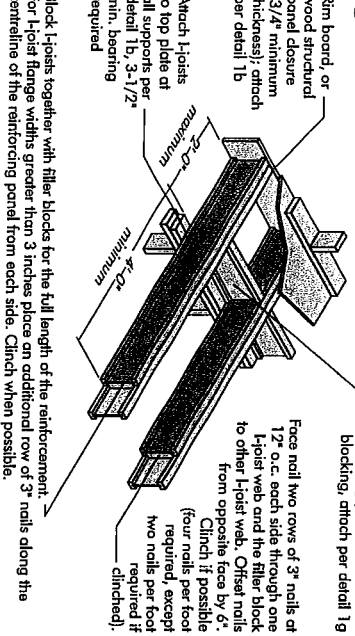
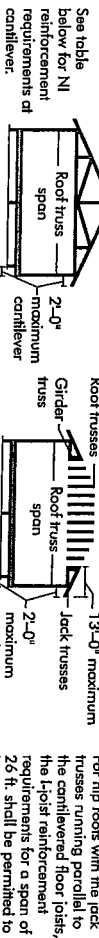


FIGURE 4 (continued)



## CANTILEVER REINFORCEMENT METHODS ALLOWED

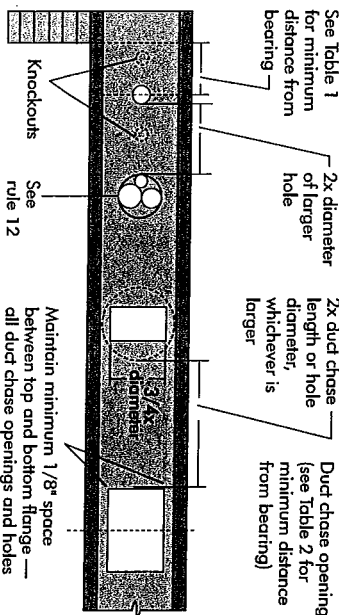
JOIST DEPTH (in.)	TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf JOIST SPACING (in.)				LL = 40 psf, DL = 15 psf JOIST SPACING (in.)				LL = 50 psf, DL = 15 psf JOIST SPACING (in.)			
12	16	19.2	24	12	16	19.2	24	12	16	19.2	24		
25	X	X	X	X	X	X	X	X	X	X	X		
30	X	X	X	X	X	X	X	X	X	X	X		
32	X	X	X	X	X	X	X	X	X	X	X		
34	X	X	X	X	X	X	X	X	X	X	X		
36	X	X	X	X	X	X	X	X	X	X	X		
38	X	X	X	X	X	X	X	X	X	X	X		
40	X	X	X	X	X	X	X	X	X	X	X		
42	X	X	X	X	X	X	X	X	X	X	X		
44	X	X	X	X	X	X	X	X	X	X	X		
46	X	X	X	X	X	X	X	X	X	X	X		
48	X	X	X	X	X	X	X	X	X	X	X		
50	X	X	X	X	X	X	X	X	X	X	X		
52	X	X	X	X	X	X	X	X	X	X	X		
54	X	X	X	X	X	X	X	X	X	X	X		
56	X	X	X	X	X	X	X	X	X	X	X		
58	X	X	X	X	X	X	X	X	X	X	X		
60	X	X	X	X	X	X	X	X	X	X	X		
62	X	X	X	X	X	X	X	X	X	X	X		
64	X	X	X	X	X	X	X	X	X	X	X		
66	X	X	X	X	X	X	X	X	X	X	X		
68	X	X	X	X	X	X	X	X	X	X	X		
70	X	X	X	X	X	X	X	X	X	X	X		
72	X	X	X	X	X	X	X	X	X	X	X		
74	X	X	X	X	X	X	X	X	X	X	X		
76	X	X	X	X	X	X	X	X	X	X	X		
78	X	X	X	X	X	X	X	X	X	X	X		
80	X	X	X	X	X	X	X	X	X	X	X		
82	X	X	X	X	X	X	X	X	X	X	X		
84	X	X	X	X	X	X	X	X	X	X	X		
86	X	X	X	X	X	X	X	X	X	X	X		
88	X	X	X	X	X	X	X	X	X	X	X		
90	X	X	X	X	X	X	X	X	X	X	X		
92	X	X	X	X	X	X	X	X	X	X	X		
94	X	X	X	X	X	X	X	X	X	X	X		
96	X	X	X	X	X	X	X	X	X	X	X		
98	X	X	X	X	X	X	X	X	X	X	X		
100	X	X	X	X	X	X	X	X	X	X	X		
102	X	X	X	X	X	X	X	X	X	X	X		
104	X	X	X	X	X	X	X	X	X	X	X		
106	X	X	X	X	X	X	X	X	X	X	X		
108	X	X	X	X	X	X	X	X	X	X	X		
110	X	X	X	X	X	X	X	X	X	X	X		
112	X	X	X	X	X	X	X	X	X	X	X		
114	X	X	X	X	X	X	X	X	X	X	X		
116	X	X	X	X	X	X	X	X	X	X	X		
118	X	X	X	X	X	X	X	X	X	X	X		
120	X	X	X	X	X	X	X	X	X	X	X		
122	X	X	X	X	X	X	X	X	X	X	X		
124	X	X	X	X	X	X	X	X	X	X	X		
126	X	X	X	X	X	X	X	X	X	X	X		
128	X	X	X	X	X	X	X	X	X	X	X		
130	X	X	X	X	X	X	X	X	X	X	X		
132	X	X	X	X	X	X	X	X	X	X	X		
134	X	X	X	X	X	X	X	X	X	X	X		
136	X	X	X	X	X	X	X	X	X	X	X		
138	X	X	X	X	X	X	X	X	X	X	X		
140	X	X	X	X	X	X	X	X	X	X	X		
142	X	X	X	X	X	X	X	X	X	X	X		
144	X	X	X	X	X	X	X	X	X	X	X		
146	X	X	X	X	X	X	X	X	X	X	X		
148	X	X	X	X	X	X	X	X	X	X	X		
150	X	X	X	X	X	X	X	X	X	X	X		
152	X	X	X	X	X	X	X	X	X	X	X		
154	X	X	X	X	X	X	X	X	X	X	X		
156	X	X	X	X	X	X	X	X	X	X	X		
158	X	X	X	X	X	X	X	X	X	X	X		
160	X	X	X	X	X	X	X	X	X	X	X		
162	X	X	X	X	X	X	X	X	X	X	X		
164	X	X	X	X	X	X	X	X	X	X	X		
166	X	X	X	X	X	X	X	X	X	X	X		
168	X	X	X	X	X	X	X	X	X	X	X		
170	X	X	X	X	X	X	X	X	X	X	X		
172	X	X	X	X	X	X	X	X	X	X	X		
174	X	X	X	X	X	X	X	X	X	X	X		
176	X	X	X	X	X	X	X	X	X	X	X		
178	X	X	X	X	X	X	X	X	X	X	X		
180	X	X	X	X	X	X	X	X	X	X	X		
182	X	X	X	X	X	X	X	X	X	X	X		
184	X	X	X	X	X	X	X	X	X	X	X		
186	X	X	X	X	X	X	X	X	X	X	X		
188	X	X	X	X	X	X	X	X	X	X	X		
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192	X	X	X	X	X	X	X	X	X	X	X		
194	X	X	X	X	X	X	X	X	X	X	X		
196	X	X	X	X	X	X	X	X	X	X	X		
198	X	X	X	X	X	X	X	X	X	X	X		
200	X	X	X	X	X	X	X	X	X	X	X		
202	X	X	X	X	X	X	X	X	X	X	X		
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228	X	X	X	X	X	X	X	X	X	X	X		
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234	X	X	X	X	X	X	X	X	X	X	X		
236	X	X	X	X	X	X	X	X	X	X	X		
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240	X	X	X	X	X	X	X	X	X	X	X		
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246	X	X	X	X	X	X	X	X	X	X	X		
248	X	X	X	X	X	X	X	X	X	X	X		
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252	X	X	X	X	X	X	X	X	X	X	X		
254	X	X	X	X	X	X	X	X	X	X	X		
256	X	X	X	X	X	X	X	X	X	X	X		
258	X	X	X	X	X	X	X	X	X	X	X		
260	X	X	X	X	X	X	X	X	X	X	X		
262	X	X	X	X	X	X	X	X	X	X	X		
264	X	X	X	X	X	X	X	X	X	X	X		
266	X	X	X	X	X	X	X	X	X	X	X		
268	X	X	X	X	X	X	X	X	X	X	X		
270	X	X	X	X	X	X	X	X	X	X	X		
272	X	X	X	X	X	X	X	X	X	X	X		
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276	X	X	X	X	X	X	X	X	X	X	X		
278	X	X	X	X	X	X	X	X	X	X	X		
280	X	X	X	X	X	X	X	X	X	X	X		
282	X	X	X	X	X	X	X	X	X	X	X		
284	X	X	X	X	X	X	X	X	X	X	X		
286	X	X	X	X	X	X	X	X	X	X	X		
288	X	X	X	X	X	X	X	X	X	X	X		
290	X	X	X	X	X	X	X	X	X	X	X		
292	X	X	X	X	X	X	X	X	X	X	X		
294	X	X	X	X	X	X	X	X	X	X	X		
296	X	X	X	X	X	X	X	X	X	X	X		
298	X	X	X	X	X	X	X	X	X	X	X		
300	X	X	X	X	X	X	X	X	X	X	X		
302	X	X	X	X	X	X	X	X	X	X	X		
304	X	X	X	X	X	X	X	X	X	X	X		
306	X	X	X	X	X	X	X	X	X	X	X		
308	X	X	X	X	X	X	X	X	X	X	X		
310	X	X	X	X	X	X	X	X	X	X	X		
312	X	X	X	X	X	X	X	X	X	X	X		
314	X	X	X	X	X	X	X	X	X	X	X		
316	X	X	X	X	X	X	X	X	X	X	X		
318	X	X	X	X	X	X	X	X	X	X	X		
320	X	X	X	X	X	X	X	X	X	X	X		
322	X	X	X	X	X	X	X	X	X	X	X		
324	X	X	X	X	X	X	X	X	X	X	X		
326	X	X	X	X	X	X	X	X	X	X	X		
328	X	X	X	X	X	X	X	X	X	X	X		
330	X	X	X	X	X	X	X	X	X	X	X		
332	X	X	X	X	X	X	X	X	X	X	X		
334	X	X	X	X	X	X	X	X	X	X	X		
336	X	X	X	X	X	X	X	X	X	X	X		
338	X	X	X	X	X	X	X	X	X	X	X		
340	X	X	X	X	X	X	X	X	X	X	X		
342	X	X	X	X	X	X	X	X	X	X	X		
344	X	X	X	X	X	X	X	X	X	X	X		
346	X	X	X	X	X	X	X	X	X	X	X		
348	X	X	X	X	X	X	X	X	X	X	X		
350	X	X	X	X	X	X	X	X	X	X	X		
352	X	X	X	X	X	X	X	X	X	X	X		
354	X	X	X	X	X	X	X	X	X	X	X		
356	X	X	X	X	X	X	X	X	X	X	X		
358	X	X	X	X	X	X	X	X	X	X	X		
360	X	X	X	X	X	X	X	X	X	X	X		
362	X	X	X	X	X	X	X	X	X	X	X		
364	X	X	X	X	X	X	X	X	X	X	X		
366	X	X	X	X	X	X	X	X	X	X	X		
368	X	X	X	X	X	X	X	X	X	X	X		
370	X	X	X	X	X	X	X	X	X	X	X		
372	X	X	X	X	X	X	X	X	X	X	X		
374	X	X	X	X	X	X	X	X	X	X	X		
376	X	X	X	X	X	X	X	X	X	X	X		
378	X	X	X	X	X	X	X	X	X	X	X		
380	X	X	X	X	X	X	X	X	X	X	X		
382	X	X	X	X	X	X	X	X	X	X	X		
384	X	X	X	X	X	X	X	X	X	X	X		
386	X	X	X	X	X	X	X	X	X	X	X		
388	X	X	X	X	X	X	X	X	X	X	X		
390	X	X	X	X	X	X	X	X					

# WEB HOLES

## RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

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.

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.) Round hole diameter (in.)												Span adjustment Factor			
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4	
10	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
14	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
16	16	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
18	18	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
20	20	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
22	22	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
24	24	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
26	26	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
28	28	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
30	30	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
32	32	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
34	34	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
36	36	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
38	38	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
40	40	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
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50	50	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
52	52	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
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96	96	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
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196																	

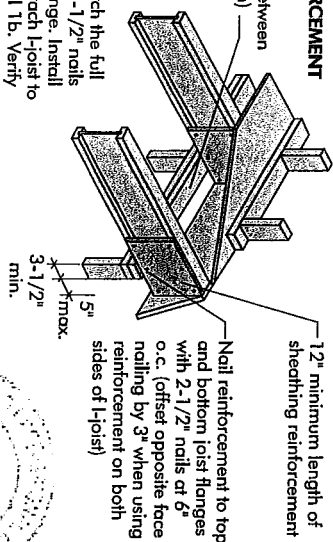


# BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

## 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.

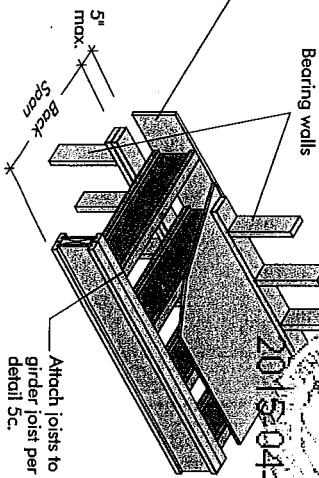


## 5b SET-BACK DETAIL

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

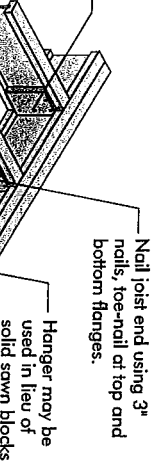
Notes:

- 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

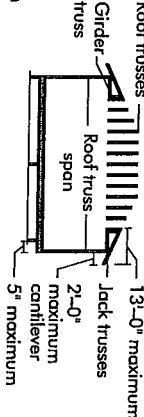
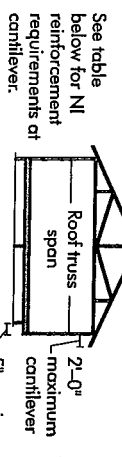
Vertical solid sawn blocks (2x6 S-J-F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails.



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)	ROOF LOADING (UNFACTORED)			
		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.)	
12	12	16	19.2	24	12
16	16	19.2	24	24	16
20	20	24	24	24	20
24	24	24	24	24	24
28	28	24	24	24	28
32	32	24	24	24	32
36	36	24	24	24	36
40	40	24	24	24	40
44	44	24	24	24	44
48	48	24	24	24	48
52	52	24	24	24	52
56	56	24	24	24	56
60	60	24	24	24	60
64	64	24	24	24	64
68	68	24	24	24	68
72	72	24	24	24	72
76	76	24	24	24	76
80	80	24	24	24	80
84	84	24	24	24	84
88	88	24	24	24	88
92	92	24	24	24	92
96	96	24	24	24	96
100	100	24	24	24	100
104	104	24	24	24	104
108	108	24	24	24	108
112	112	24	24	24	112
116	116	24	24	24	116
120	120	24	24	24	120
124	124	24	24	24	124
128	128	24	24	24	128
132	132	24	24	24	132
136	136	24	24	24	136
140	140	24	24	24	140
144	144	24	24	24	144
148	148	24	24	24	148
152	152	24	24	24	152
156	156	24	24	24	156
160	160	24	24	24	160

1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural studs on one side only.
3. NI reinforced with 3/4" wood structural studs on both sides, or double I-joist.
4. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
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.

# 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 tipped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. **Complete all nailing of each panel before glue sets.** Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

## FASTENERS FOR SHEATHING AND SUBFLOORING(1)

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

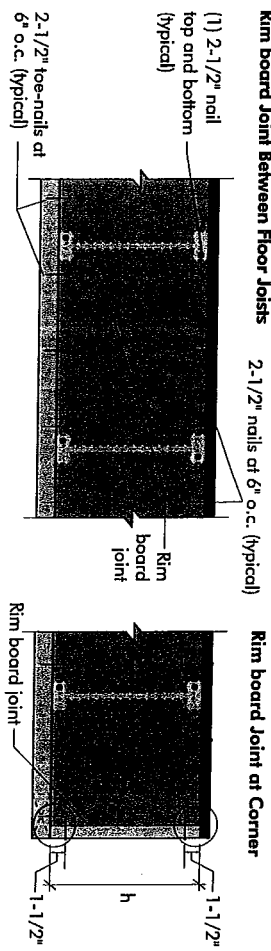
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions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

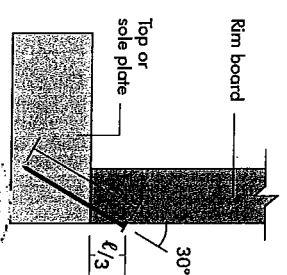
**IMPORTANT NOTE:**  
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

# RIM BOARD INSTALLATION DETAILS

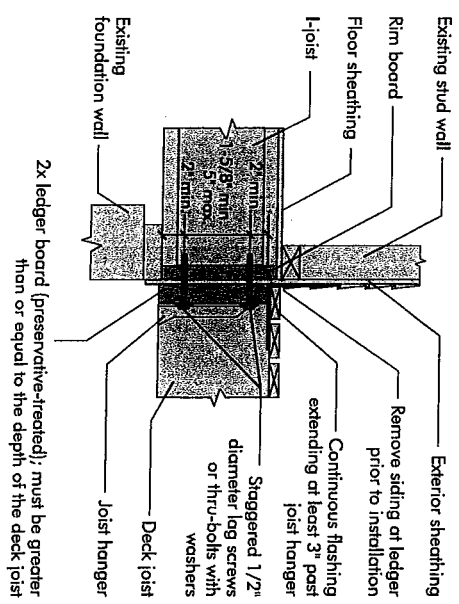
## 8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



## 8b TOE-NAIL CONNECTION AT RIM BOARD



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

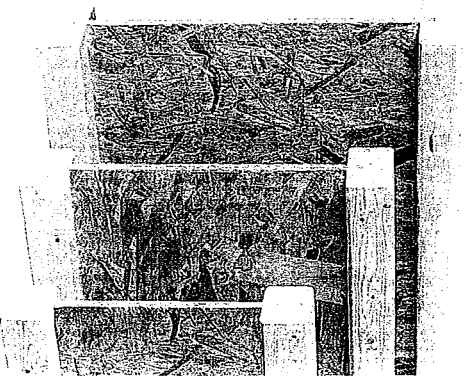


2015-04-16

## PRODUCT WARRANTY

**Champion's Challenge** guarantees that, in accordance with our specifications, Namek products are free from manufacturing defects in material and construction.

**Champion's Challenge** guarantees that our products, when installed in accordance with our building and installation instructions, will meet or exceed our specifications for the lifetime of the product.



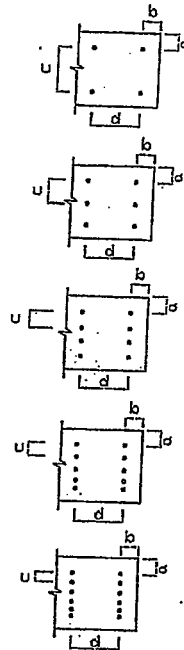
# MICRO CITY

## 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 CAGES  
BEARING THE  
STAMP BELOW

PROVIDE NAILING

DETAIL NO X SEE

DWG #TAMN1001-14