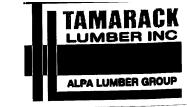


		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	18
J2	14-00-00	9 1/2" NI-40x	1	18
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	27
J3DJ	12-00-00	9 1/2" NI-40x	2	4
J4	10-00-00	9 1/2" NI-40x	1	2
J5	6-00-00	9 1/2" NI-40x	1	5
J6	4-00-00	9 1/2" NI-40x	1	2
J7	2-00-00	9 1/2" NI-40x	1	2
B1	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2		1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	8-00-00	1-3/4 X 9-1/2 VERSA-LAIVIE 2.0 3100 SF		

Connector Summary						
Qty	Manuf	Product				
 5	H1	IUS2.56/9.5				
4	H1	IUS2.56/9.5				
6	H1.	IUS2.56/9.5				
2	H2	HGUS410				

Town of Innisfil Certified Model 14/02/2018 10:03:13 AM kgervais



FROM PLAN DATED: FEB 2016

BUILDER:

BAYVIEW WELLINGTON

SITE:

ALCONA SHORES

MODEL: S32-5-12

ELEVATION: A,B

LOT:

CITY: INNISFIL

SALESMAN: MARIO DESIGNER: CZ REVISION:

NOTES:

CERAMIC TILE APPLICATION

AS PER O.B.C. 9.30.6.

SQUASH BLOCKS

2x4 OR 2x6 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING

WALLS.

MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS.

CANTILEVERED JOISTS

REQUIRE I-JOIST BLOCKING ALONG

BEARING AND RIMBOARD CLOSURE

AT ENDS.

REFER TO THE NORDIC

INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.

LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft

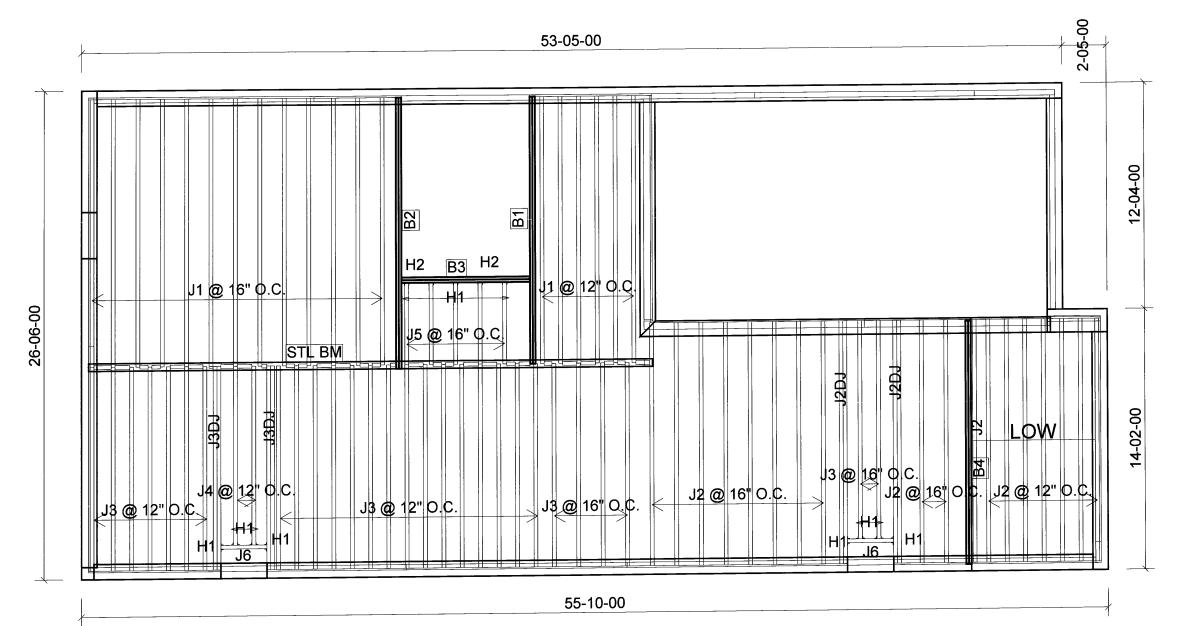
TILED AREAS: 20 fb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 11/09/2017

1st FLOOR

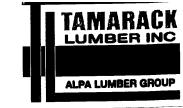
STANDARD



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	19
J2	14-00-00	9 1/2" NI-40x	1	18
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	28
J3DJ	12-00-00	9 1/2" NI-40x	2	4
J4	10-00-00	9 1/2" NI-40x	1	2
J5	6-00-00	9 1/2" NI-40x	1	5
J6	4-00-00	9 1/2" NI-40x	1	2
B1	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

C	Connector Summary					
Qty	Manuf	Product				
5	H1	IUS2.56/9.5				
4	H1	IUS2.56/9.5				
4	H1	IUS2.56/9.5				
2	H2	HGUS410				

Town of Innisfil Certified Model 14/02/2018 10:03:24 AM kgervais



FROM PLAN DATED: FEB 2016

BUILDER:

BAYVIEW WELLINGTON

SITE:

ALCONA SHORES

MODEL: S32-5-12

ELEVATION: A,B

LOT:

CITY: INNISFIL

SALESMAN: MARIO **DESIGNER: CZ REVISION:**

NOTES:

CERAMIC TILE APPLICATION

AS PER O.B.C. 9.30.6. **SQUASH BLOCKS**

2x4 OR 2x6 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING

WALLS.

MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS.

CANTILEVERED JOISTS

REQUIRE I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE

AT ENDS.

REFER TO THE NORDIC

INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.

LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft²

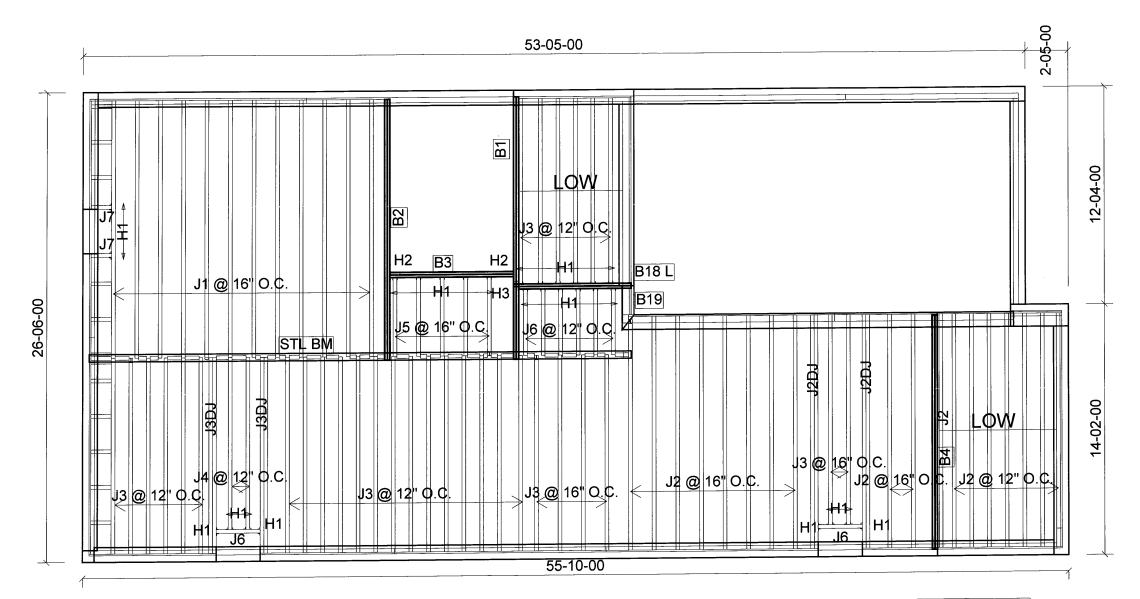
DEAD LOAD: 15.0 lb/ft TILED AREAS: 20 hb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 11/09/2017

1st FLOOR

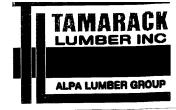
WOD



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	12
J2	14-00-00	9 1/2" NI-40x	1	18
J2DJ	14-00-00	9 1/2" NI-40x	2	4
J3	12-00-00	9 1/2" NI-40x	1	32
J3DJ	12-00-00	9 1/2" NI-40x	2	4
J4	10-00-00	9 1/2" NI-40x	1	2
J5	6-00-00	9 1/2" NI-40x	1	5
J6	4-00-00	9 1/2" NI-40x	1	8
J7	2-00-00	9 1/2" NI-40x	1	2
B1	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18 L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B19	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary						
Qty	Qty Manuf Product					
12	H1	IUS2.56/9.5				
5	H1	IUS2.56/9.5				
4	H1	IUS2.56/9.5				
6	H1	IUS2.56/9.5				
2	H2	HGUS410				
1	H3	HUS1.81/10				

Town of Innisfil Certified Model 14/02/2018 10:03:27 AM kgervais



FROM PLAN DATED: FEB 2016

BUILDER:

BAYVIEW WELLINGTON

SITE:

ALCONA SHORES

MODEL: S32-5-12

ELEVATION: A,B

LOT:

CITY: INNISFIL

SALESMAN: MARIO DESIGNER: CZ REVISION:

NOTES:

CERAMIC TILE APPLICATION

AS PER O.B.C. 9.30.6. SQUASH BLOCKS

2x4 OR 2x6 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING

WALLS.

MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS.

CANTILEVERED JOISTS

REQUIRE I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE

AT ENDS.

REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER

STORAGE AND INSTALLATION.

LOADING:

DESIGN LOADS: L/480.000

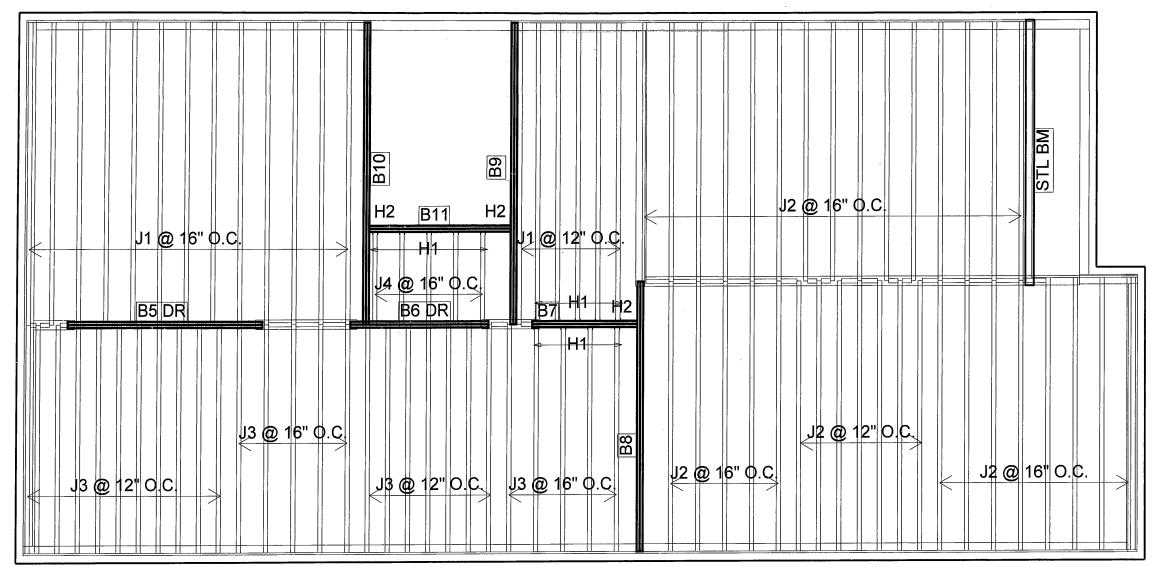
LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 fb/ft TILED AREAS: 20 fb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 11/09/2017

1st FLOOR

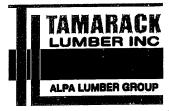
SUNKEN



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	19
J2	14-00-00	9 1/2" NI-40x	1	35
J3	12-00-00	9 1/2" NI-40x	1	28
J4	6-00-00	9 1/2" NI-40x	1	5
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

C	onnector	Summary			
Qty Manuf Product					
14	H1	IUS2.56/9.5			
3	H2	HGUS410			

Town of Innisfil Certified Model
14/02/2018 10:03:36 AM kgervais



FROM PLAN DATED: FEB 2016

BUILDER:

BAYVIEW WELLINGTON

SITE:

ALCONA SHORES

MODEL: S32-5-12

ELEVATION: A

LOT:

CITY: INNISFIL

SALESMAN: MARIO DESIGNER: CZ REVISION:

NOTES:

CERAMIC TILE APPLICATION

AS PER O.B.C. 9.30.6. SQUASH BLOCKS

2x4 OR 2x6 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING

WALLS.

MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS.

CANTILEVERED JOISTS

REQUIRE I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE

AT ENDS.

REFER TO THE NORDIC

INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.

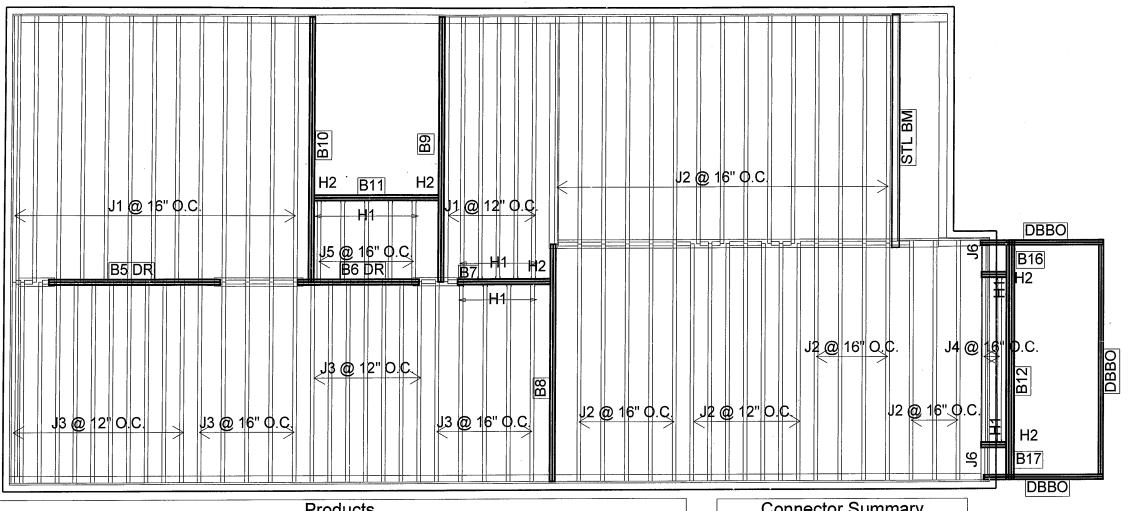
LOADING:

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

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 06/09/2017

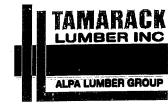
2nd FLOOR



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	19
J2	14-00-00	9 1/2" NI-40x	1	34
J3	12-00-00	9 1/2" NI-40x	1	28
J4	10-00-00	9 1/2" NI-40x	1	2
J5	6-00-00	9 1/2" NI-40x	1	5
J6	2-00-00	9 1/2" NI-40x	1	2
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B5 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B17	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary					
Qty Manuf Product					
16	H1	IUS2.56/9.5			
3	H2	HGUS410			
2	H2	HGUS410			

Town of Innisfil Certified Model 14/02/2018 10:03:40 AM kgervais



FROM PLAN DATED: FEB 2016

BUILDER:

BAYVIEW WELLINGTON

SITE:

ALCONA SHORES

MODEL: S32-5-12

ELEVATION: B

LOT:

CITY: INNISFIL

SALESMAN: MARIO DESIGNER: CZ REVISION: -

NOTES:

CERAMIC TILE APPLICATION

AS PER O.B.C. 9.30.6. SQUASH BLOCKS

2x4 OR 2x6 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING

WALLS.

MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS.

CANTILEVERED JOISTS

REQUIRE I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE

AT ENDS.

REFER TO THE NORDIC

INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.

LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft

TILED AREAS: 20 hb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 06/09/2017

2nd FLOOR



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B1(i1948)

BC CALC® Design Report

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

September 6, 2017 15:34:24

Build 5033

Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B1(i1948)

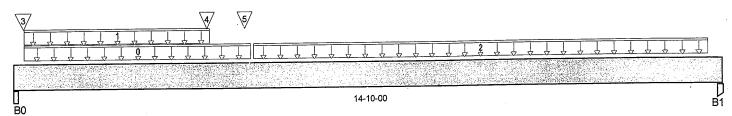
Specifier:

Designer: Company:

Misc:

Town of Innisfil Certified Model

14/02/2018 10:03:44 AM kgervais



Total Horizontal Product Length = 14-10-00

Reaction Summary (Down / Uplift) (lbs)								
Bearing	Live	De ad	Snow	Wind				
B0,5"	1,337 / 0	1,046 / 0						
B1 6"	435/0	686/0						

			Li	ve Dead	Snow Wind	ı rıb.
Load Summary Tag Description	Load Type	Ref. Start	End 1.0	0.65	1.00 1.15	
0 FC1 Floor Material	Unf. Lin. (lb/ft)	L 00-02-08	04-11-08 30) 15		n/a
1 FC1 Floor Material	Unf. Lin. (lb/ft)	L 00-02-08	04-01-04 10) 5		n/a
2 User Load	Unf. Lin. (lb/ft)	L 05-00-00	14-06-08	60		n/a
	Conc. Pt. (lbs)	L 00-02-04	00-02-04 26	37 221		n/a
3 7(i486)	Conc. Pt. (lbs)	L 04-00-06	04-00-06 22			n/a
4 B19(i1949)	, ,					n/a
5 B3(i1902)	Conc. Pt. (lbs)	L 04-09-12	UT-UU-12 1,	0,0		

Demand/

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	10,319 ft-lbs	17,073 ft-lbs	60.4%	1	04-09-12
End Shear	2.534 lbs	11,571 lbs	21.9%	1	01-02-08
Total Load Defl.	L/377 (0.447")	•	63.7%	4	06-10-07
Live Load Defl.	L/732 (0.23")	0.468"	49.2%	5	06-07-04
Max Defl.	0.447"	n/a	n/a	4	06-10-07
Span / Depth	17.7	n/a	n/a		00-00-00

Beari	ng Supports	Dim . (L x W)	De man d	Resistance Support	Resistance Member	Material
B0	Beam	5" x 3-1/2"	3,312 lbs	35.4%	15.5%	Un specified
B1	Post	6" x 3-1/2"	1,510 lbs	8.9%	5.9%	Un specified

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: 09-09-08, Bottom: 09-09-08.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

CONFORMS TO DBC 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



DWB NO. TAM 48375-17 Strugtural Component only



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B1(i1948)

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

September 6, 2017 15:34:24

BC CALC® Design Report

CCMC 12472-R

Build 5033 Job Name:

Address: City, Province, Postal Code:,

Customer:

Code reports:

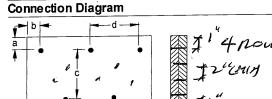
File Name: S32-5-12-ELB.mmdl

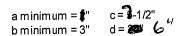
Description: Designs\Flush Beams\Basment\Flush Beams\B1(i194-

Specifier: Designer:

Company.

Misc:





Calculated Side Load = 159.4 lb/ft

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

Connectors are: Na ARDOX SPIRAL Nails

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.

Town of Innisfil Certified Model

14/02/2018 10:03:47 AM kgervais





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B2(i1891)

*

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

September 6, 2017 15:34:24

BC CALC® Design Report

sign Ke

Address: City, Province, Postal Code:,

Customer:

Build 5033

Job Name:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

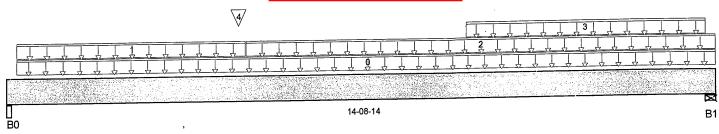
Description: Designs\Flush Beams\Basment\Flush Beams\B2(i1891)

Specifier: Designer: Company.

Misc:

Town of Innisfil Certified Model

14/02/2018 10:03:50 AM kgervais



Total Horizontal Product Length = 14-08-14

Reaction Summary	(Down / Uplift) (lbs) Live	De ad	Snow	Wind	
B0, 5"	992/0	645/0			
B1, 2-3/8"	542/0	598/0			

						Live	Dead	Snow	Wind	Trib.
	ad Summary g Description	Load Type	Re f.	Start	En d	1.00	0.65	1.00	1.15	
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-08	14-08-14	18	9			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-08	04-11-08	9	4			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-11-08	14-08-14	6	3			n/a
3	Us er Load	Unf. Lin. (lb/ft)	L	09-06-08	14-06-08		60			n/a
4	B3 (i1902)	Conc. Pt. (lbs)	L	04-09-12	04-09-12	1,175	621			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,487 ft-lbs	25,408 ft-lbs	37.3%	1	04-09-12
End Shear	2.222 lbs	11.571 lbs	19.2%	1	01-02-08
Total Load Defl.	L/403 (0.424")	0.712"	59.5%	4	06-11-09
Live Load Defl.	L/692 (0.247")	0.475"	52%	5	06-11-09
	0.424"	n/a	n/a	4	06-11-09
Max Defl. Span / Depth	18	n/a	n/a		00-00-00

Do orin	- « Summorto	Dim.(L x W)	Demand	De man d/ Re s istance Support	Demand/ Resistance Member	Material
B0 B1	n g Supports Beam Wall/Plate	5" x 3-1/2" 2-3/8" x 3-1/2"	2,294 lbs 1,560 lbs	24.5% 35.2%	10.7% 15.4%	Un specified Un specified

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

S. KATSOULAKOS ES

DWO NO . TAM 45376-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B2(i1891)

BC CALC® Design Report



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

September 6, 2017 15:34:24

Build 5033

Job Name:

Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

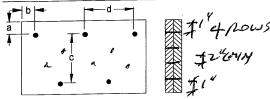
Description: Designs\Flush Beams\Basment\Flush Beams\B2(i189

Specifier:

Designer: Company:

Misc:

Connection Diagram



a minimum = 2" b minimum = 3"

c=1-1/2"

Calculated Side Load = 172.2 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:

"ARDOX SPIRAL

Disclosure

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

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Town of Innisfil Certified Model

14/02/2018 10:03:54 AM kgervais

BOUNCE OF ONTOR DWG NO. TAM 4537617

STRUCTURAL

COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B3(i1902)

September 6, 2017 15:34:25

BC CALC® Design Report

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

Build 5033 Job Name: File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B3(i1902)

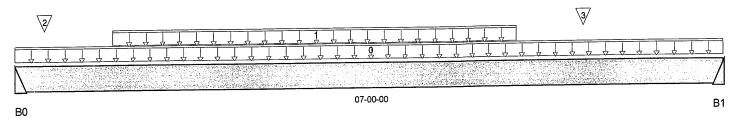
Address: City, Province, Postal Code:, Specifier: Designer:

Customer:

Code reports:

CCMC 12472-R

Company: Misc:



Total Horizontal Product Length = 07-00-00

Reaction Summary (Dow Bearing	n / Uplift) (lbs) Live	De ad	Snow	Wind	
B0	1,173/0	620/0			
B1	1,096 / 0	580/0			

						Live	Dead	Snow	Wind	Trib.
	ad Summary g Description	Load Type	Re f.	Start	En d	1.00	0.65	1.00	1.15	
<u> </u>	UserLoad	Unf. Lin. (lb/ft)	L	00-00-00	07-00-00	240	120			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	Ĺ	00-11-08	04-11-08	98	50			n/a
2	J5(i1925)	Conc. Pt. (lbs)	Ĺ	00-03-08	00-03-08	87	4 3			n/a
3	J5(i1958)	Conc. Pt. (lbs)	L	05-07-08	05-07-08	109	52			n/a

CONFORMS TO OBC 2012

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,147 ft-lbs	25,408 ft-lbs	16.3%	1	03-05-08
End Shear	1.879 lbs	11,571 lbs	16.2%	1	00-11-08
Total Load Defl.	L/999 (0.049")	n/a	n/a	6	03-05-08
	L/999 (0.032")	n/a	n/a	8	03-05-08
Live Load Defl.	0.049"	n/a	n/a	6	03-05-08
Max Defl.	0.0 .0	n/a	n/a	·	00-00-00
Span / Depth	8.6	II/a	1 1/a		23 00 00

Roari	ng Supports	Dim . (L x W)	De man d	De mand/ Re sistance Support	De mand/ Resistance Member	Material
B0	Hanger	2" x 3-1/2"	2,534 lbs	n/a	29.7%	HGUS410
B1	Hanger	2" x 3-1/2"	2,370 lbs	n/a	27.7%	HGUS410

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA 086.

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



DWG NO. TAM 45377-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B3(i1902)

BC CALC® Design Report



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

September 6, 2017 15:34:25

Build 5033

Job Name:

Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B3(i190)

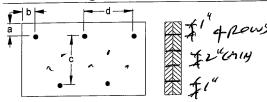
Specifier:

Designer:

Company.

Misc:

Connection Diagram



a minimum = **1**" b minimum = 3" c=3-1/2" (/

Calculated Side Load = 178.5 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:

Nails ½" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone w ho w ould 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 w ood 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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Town of Innisfil Certified Model

14/02/2018 10:03:57 AM kgervais

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DWG NO.TAM \(\frac{1}{2} \) 5372-17

STRUCTURAL

COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B4(i2061)



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

September 6, 2017 15:34:24

Build 5033

Job Name:

Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B4(i2061)

Specifier:

Designer:

Company:

Misc:

		×
×	13-02-08	B1
B0		

Total Horizontal Product Length = 13-02-08

Reaction Summary (Dov	vn / Uplift) (lbs) Live	De ad	Snow	Wind	_
B0, 5-1/2"		419/0			
B1,8"		255/0			

			Į.	Live	Dead	Snow	Wind	ı rıp.
Load Summary Tag Description	Load Type	Ref. Start	End 1		0.65	1.00	1.15	-/-
0 User Load	Unf. Lin. (lb/ft)	L 00-01-02	09-02-08		60 `			n/a

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resista <mark>nde</mark> o		fil Certified Mod
Pos. Moment	1,582 ft-lbs	13,029 ft-lbs	12.1 <mark>%</mark>	14/02/201 8 10	:03:58 A Ø6:901ai03
End Shear	472 lbs	7,521 lbs	6.3%	0	01-03-00
Total Load Defl.	∠ /999 (0.059")	n/a	n/a	1	06-04-03
Max Defl.	0.059"	n/a	n/a	1	06-04-03 00-00-00
Span / Depth	15.4	n/a	n/a		00-00-00

Town of Innisfil Certified Model 14/02/2018 10:04:00 AM kgervais

D	Cum orto	Dim . (L x W)	De man d	De man d/ Re sistance Support	De mand/ Resistance Member	Material
B0 W	Supports lall/Plate lall/Plate	5-1/2" x 3-1/2" 8" x 3-1/2"	586 lbs 358 lbs	3.3% 1.4%	3.8% 1.6%	Un specified Un specified

Notes

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

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

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

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DWOND.TAM 4537817 STRUCTURAL COMPONENT ORLY



Boise Cascade Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B4(i2061)

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

September 6, 2017 15:34:24

BC CALC® Design Report



File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B4(i206

Specifier:

Designer: Company.

Misc:

Build 5033

Job Name: Address:

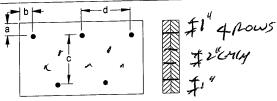
City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

Connection Diagram



c = 3 - 1/2" a minimum = 2" d = 200 6 b minimum = 3"

Member has no side loads. Connectors are: 16d 312" ARDOX SPIRAL

Disclosure

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

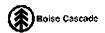
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Town of Innisfil Certified Model

14/02/2018 10:04:02 AM kgervais



DWG NO. TAM 45378-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B5 DR(i917)

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

September 6, 2017 15:34:24

BC CALC® Design Report

Build 5033 Job Name:

City, Province, Postal Code:,

Customer:

Address:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B5 D

Specifier: Designer: Company:

Misc:

	4	7
		d New York Colonia -
×	09-08-00	⊠ B1
B0		

Total Horizonta	l Product	Length =	= 09-08-00
-----------------	-----------	----------	------------

Reaction Summary	(Down / Uplift) (lbs)		_	100			
Be aring	Live	De ad	Snow	Wind			
B0, 4"	2,460 / 0	1,276 / 0					
B1, 4"	2,194/0	1,144 / 0					
					Donal	Snow Wind	Trib

L Company			LIV	e Dead	SHOW WILL	1110.
Load Summary Tag Description	Load Type	Ref. Start	En d 1.0	0 0.65	1.00 1.15	
0 Smoothed Load	Unf. Lin. (lb/ft)	L 00-00-08	08-00-08 50	2 251		n/a
1 -	Conc. Pt. (lbs)	L 08-06-08	08-06-08 63	4 317		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	11,367 ft-lbs	25,408 ft-lbs	44.7%	1	04-06-08
End Shear	4.707 lbs	11,571 lbs	40.7%	1	08-06-08
Total Load Defl.	L/458 (0.239")	0.456"	52.4%	4	04-09-08
Live Load Defl.	L/695 (0.158")	0.304"	51.8%	5	04-09-08
Max Defl.	0.239"	n/a	n/a	4	04-09-08
Span / Denth	11.5	n/a	n/a		00-00-00

Towr**Tofvim mi**s**filr@sfiti@edtif/lede/l**lodel 14/02/201480202004:805 0AD41k@@cANalskgervais

				Demand/ Resistance		
Bearin	ng Supports	Dim.(L x W)	De m an d	Support	Member	Material
B0	Wall/Plate	4" x 3-1/2"	5,285 lbs	46.5%	30.9%	Unspecified
B1	Wall/Plate	4" x 3-1/2"	4,721 lbs	41.5%	27.6%	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: 00-04-02, Bottom: 00-04-02.

Resistance Factor phi has been applied to all presented results per CSA 086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86. CONFORMS TO OBG 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



DWG NO. TAM45329-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B5 DR(i917)

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

September 6, 2017 15:34:24

BC CALC® Design Report

File Name: \$32-5-12-ELB.mmdl

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

Specifier: Designer:

Company:

Misc:

City, Province, Postal Code:, Customer: Code reports:

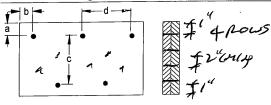
Build 5033

Job Name:

Address:

CCMC 12472-R

Connection Diagram



a minimum = 2" b minimum = 3"

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 312" ARDOX SPIRAL

Disclosure

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Town of Innisfil Certified Model

14/02/2018 10:04:07 AM kgervais



DWG NO . TAM 45375-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B6 DR(i1004)

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

September 6, 2017 15:34:24

BC CALC® Design Report

*

Build 5033 Job Name:

Address: City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B6 D

Specifier:

Designer: Company:

Misc:

\ <u>1</u> /	2/	3
V		
×	06-10-00	
B0		

Total Horizontal Product Length = 06-10-00

Reaction Summary (Down	/ Uplift) (lbs) Live	De ad	Snow	Wind	
B0, 4"	1,388 / 0	991/0			
B1, 4"	1,033 / 0	573/0			

						Live	Dead	Snow	wina	m.
	ad Summary g Description	Load Type	Ref	. Start	En d	1.00	0.65	1.00	1.15	
0	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-08	05-10-08	307	154			n/a
4		Conc. Pt. (lbs)	L	00-09-15	00-09-15	848	710			n/a
1	- J3(i1003)	Conc. Pt. (lbs)			01-10-08		108			n/a
3	J5(i916)	Conc. Pt. (lbs)	_	-	06-06-08		65			n/a

CONFORMS TO OBC 2012

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,632 ft-lbs	25,408 ft-lbs	14.3%	1	02-10-08
End Shear	2.478 lbs	11,571 lbs	21.4%	1	01-01-08
Total Load Defl.	L/999 (0.037")	n/a	n/a	4	03-04-08
Live Load Defl.	L/999 (0.024")	n/a	n/a	5	03-04-08
Max Defl.	0.037"	n/a	n/a	4	03-04-08
Span / Depth	7.9	n/a	n/a		00-00-00

Town of Innisfil Certified Model 14/02/2018 10:04:09 AM kgervais

Trib

Const. Wind

Bearing Supports				De mand/ Resistance	Demand/ Resistance	
		Dim.(LxW)	Demand	Support	Member	Material
B0	Wall/Plate	4" x 3-1/2"	3,321 lbs	29.2%	19.4%	Unspecified
B1	Wall/Plate	4" x 3-1/2"	2,265 lbs	19.9%	13.3%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-03-00, Bottom: 00-03-00. Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



DWG NO.TAM 45380217 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B6 DR(i1004)

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

September 6, 2017 15:34:24

BC CALC® Design Report



Build 5033 Job Name:

Address: City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

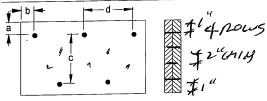
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B{

Specifier: Designer:

Company:

Misc:

Connection Diagram



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

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
3½ ARDOX SPIRAL

Disclosure

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

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14/02/2018 10:04:10 AM kgervais



DWGNO.TAM 4532017 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B7(i1031)



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

September 6, 2017 15:34:23

Build 5033 Job Name:

City, Province, Postal Code:,

Customer:

Address:

Code reports:

CCMC 12472-R

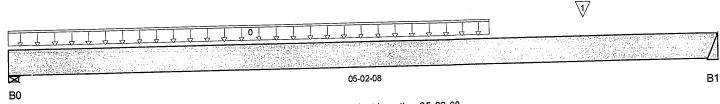
File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\87(i1031)

Specifier: Designer:

Company.

Misc:



Total Horizontal	Product	Length	= 05-	02-08
	_			

		Total Florizontari			
Reaction Summary (Down Bearing	/ Uplift) (lbs) Live		Snow	Wind	
B0, 4" B1	1,528 / 0 1,071 / 0	790/0 561/0			

			Live	Dead	Snow Wind	Trib.
Load Summary	Load Type	Ref. Start	End 1.00	0.65	1.00 1.15	
Tag Description	Unf. Lin. (lb/ft)	L 00-00-00	03-06-08 567	284		n/a
0 Smoothed Load	Conc. Pt. (lbs)	L 04-02-12	04-02-12 592	297		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
	3,174 ft-lbs	25,408 ft-lbs	12.5%	1	02-10-08
Pos. Moment	- *	11,571 lbs	19.8%	1	04-03-00
End Shear	2,296 lbs	•	n/a	4	02-08-10
Total Load Defl.	L/999 (0.019")		n/a	5	02-08-10
Live Load Defl.	L/999 (0.012")	n/a	n/a	4	02-08-10
Max Defl.	0.019"	n/a	n/a		00-00-00
Span / Depth	6.1	II/a	11/4		

Town of Innisfil Certified Mode
14/02/2018 10:04:11 AM kgervais

		Dim . (L x W)	De man d	Demand/ Der Resistance Res mand Support Me		Material
Bearin B0 B1	n g Supports Wall/Plate Hanger	4" x 3-1/2" 2" x 3-1/2"	3,280 lbs 2,308 lbs	43.9% n/a	19.2% 27%	Unspecified HGUS410

Notes

Design meets Code minimum (L/240) Total load deflection criteria. Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA 086.

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 . TAM45381-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B7(i1031)

BC CALC® Design Report



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

September 6, 2017 15:34:23

Build 5033

Job Name:

Address: City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

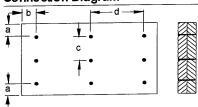
Description: Designs\Flush Beams\1st Floor\Flush Beams\B7(i103'

Specifier:

Designer: Company:

Misc:

Connection Diagram



a minimum = 2"

c = 2-3/4"

d= 8 6" b minimum = 3"

Calculated Side Load = 595.9 lb/ft

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

Connectors are: 16d (Nails

ARDOX SPIRAL

Disclosure

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

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14/02/2018 10:04:13 AM kgervais

TO OF ONTER

DWG NO. TAM 45381-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i891)

BC CALC® Design Report

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

September 6, 2017 15:34:23

Build 5033

Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\88(i891)

Specifier: Designer: Company:

Misc:

		3/
1		
8 0	13-00-10	B1

Total Horizontal Product Length = 13-00-10

Reaction Summary (Dow Bearing	n / Uplift) (Ibs) Live	De ad	Snow	Wind
B0, 4-3/8"	507/0	321/0		
B1, 2-3/4"	1,231 / 0	698/0		

	I O					Live	Dead	Snow	Wind	Trib.
	ad Summary Description	Load Type	Re f.	Start	E nd	1.00	0.65	1.00	1.15	
<u> </u>	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-00-10	30	15			n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-00-02	23	11			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	11-00-02	13-00-10	22	11			n/a
3	B7(i1031)	Conc. Pt. (lbs)	L	11-00-02	11-00-02	1,044	546			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,034 ft-lbs	25,408 ft-lbs	19.8%	1	09-03-13
End Shear	2.594 lbs	11,571 lbs	22.4%	1	12-00-06
Total Load Defl.	L/751 (0.201")	0.629"	31.9%	4	07-00-01
Live Load Defl.	L/1,201 (0.126")	0.419"	30%	5	07-00-01
Max Defl.	0.201"	n/a	n/a	4	07-00-01
Snan / Denth	15.9	n/a	n/a		00-00-00

Rea	ring Supports	Dim . (L x W)	De man d	De man d/ Re s istance Support	De man d/ Re s istance Me mbe r	Material
B0	Wall/Plate	4-3/8" x 3-1/2"	1,161 lbs	14.2%	6.2%	Unspecified
B1	Wall/Plate	2-3/4" x 3-1/2"	2,720 lbs	52.9%	23.2%	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.

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 CONFORMS TO OBC 2012 O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



DWO NO . TAM 45382-17 STRUCTURAL COMPONENT ONLY

Page 1 of 2

Town of Innisfil Certified Model 14/02/2018 10:04:14 AM kgervais



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i891)

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

September 6, 2017 15:34:23

BC CALC® Design Report

Build 5033

Job Name: Address:

City, Province, Postal Code:,

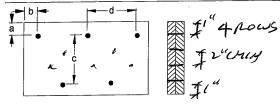
Customer:

Code reports: CCMC 12472-R File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i891)

Specifier: Designer: Company: Misc:

Connection Diagram



c = 3 - 1/2" a minimum = #" b minimum = 3"

Calculated Side Load = 172.3 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.

.... " 🧷 🤊 Nails Connectors are: .' ARDOX SPIRAL

Disclosure

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

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Town of Innisfil Certified Model

14/02/2018 10:04:15 AM kgervais

POLINICE OF ON PR

DWG ND. TAM 45382-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B9(i908)



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

September 6, 2017 15:34:23

BC CALC® Design Report Build 5033

Job Name:

Address: City, Province, Postal Code:,

Customer:

Code reports:

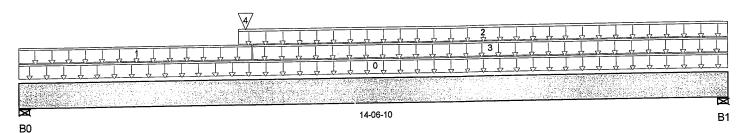
File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i908)

Specifier: Designer:

Company: Misc:

CCMC 12472-R



Total Horizontal Product Length = 14-06-10

Reaction Summary (Down	/ Uplift) (lbs) Live	De ad	Snow	Wind	
B0, 2-3/4"	808/0	700/0			
B1, 4-3/8"	394/0	679/0			

					Live	Dead	Snow	Wind	Trib.
Load Summary Tag Description	Load Type	Re f.	Start	En d	1.00	0.65	1.00	1.15	
0 FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	14-06-10	6	3			n/a
	Unf. Lin. (lb/ft)	Ī (00-00-00	04-09-04	30	15			n/a
1 FC3 Floor Material	Unf. Lin. (lb/ft)	_	04-05-12	14-06-10		60			n/a
2 User Load	` '	_	04-09-04	14-06-10		3	_		n/a
3 FC3 Floor Material	Unf. Lin. (lb/ft)	-		04-07-08	-	491	To	wn of Innis	fil Certified Model
4 B11(i980)	Conc. Pt. (lbs)	_ '	04-07-00	04-07-00	317	40 1		14/02/2018 10:	04:17 AM kgervais

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,348 ft-lbs	25,408 ft-lbs	32.9%	1	04-07-08
	1,995 lbs	11.571 lbs	17.2%	1	01-00-04
End Shear	L/443 (0.381")		54.1%	4	06-09-08
Total Load Defl.	L/919 (0.184")	0.469"	39.2%	5	06-07-14
Live Load Defl.	•	0. 4 00 n/a	n/a	4	06-09-08
Max Defl.	0.381"		n/a		00-00-00
Span / Depth	17.8	n/a	IVa		00 00 00

Doorin	- e Supporto	Dim . (L x W)	Demand	De mand/ Re sistance Support	De mand/ Resistance Member	Material
B0 B1	n g Supports Wall/Plate Wall/Plate	2-3/4" x 3-1/2" 4-3/8" x 3-1/2"	2,086 lbs 951 lbs	40.6% 17.9%	17.8% 7.8%	Un specified Un specified

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 086.

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

CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



P612

DWG NO.TAM 4536317 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B9(i908)

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

September 6, 2017 15:34:23

BC CALC® Design Report

Build 5033

Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

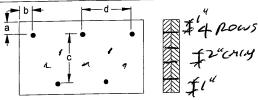
Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i908)

Specifier: Designer:

Company.

Misc:

Connection Diagram



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

Calculated Side Load = 136.4 lb/ft

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

, Nails Connectors are: 31/2" ARDOX SPIRAL

Disclosure

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

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Town of Innisfil Certified Model

14/02/2018 10:04:18 AM kgervais

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DWO NO. TAM45383-STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B10(i948)

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

September 6, 2017 15:34:23

BC CALC® Design Report

Build 5033 Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

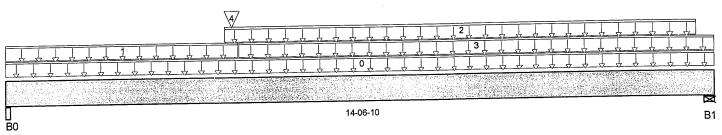
File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i948)

Specifier: Designer:

Company:

Misc:



Total Horizontal Product Length = 14-06-10

Reaction Summary (Dow	n / Uplift) (lbs) Live	De ad	Snow	Wind	
B0, 1-3/4"	560/0	575/0			
B1, 4-3/8"	356/0	641/0			

				Live	Dead	Snow Wind	Trib.
Load Summary Tag Description	Load Type	Ref. Start	En d	1.00	0.65	1.00 1.15	
0 FC3 Floor Material	Unf. Lin. (lb/ft)	L 00-00-00	14-06-10	18	9		n/a
1 FC3 Floor Material	Unf. Lin. (lb/ft)	L 00-00-00	04-09-04	9	4		n/a
	Unf. Lin. (lb/ft)	I 04-05-12	14-02-04		60		n/a
2 User Load	• •	L 04-09-04	14-06-10	6	3		n/a
3 FC3 Floor Material	Unf. Lin. (lb/ft)		04-07-08		313	'	fil Certified Model
4 B11(i980)	Conc. Pt. (lbs)	L 04-07-00	0 4 -01-00	001	0.0	14/02/2018 10:	04:20 AM kgervais

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,344 ft-lbs	25,408 ft-lbs	25%	1	04-07-08
	1,495 lbs	11,571 lbs	12.9%	1	00-11-04
End Shear	L/536 (0.317")	0.708"	44.8%	4	06-11-02
Total Load Defl.	L/1,217 (0.14")	0.472"	29.6%	5	06-07-14
Live Load Defl.	0.317"	n/a	n/a	4	06-11-02
Max Defl. Span / Depth	17.9	n/a	n/a	·	00-00-00

				De mand/ Resistance		Material
Bearing Supports_		Dim. (L x W)	Demand	Support	Member	Unspecified
B0	Beam	1-3/4" x 3-1/2"	1,5 <i>5</i> 9 lbs	23.4%	20.9%	
B1	Wall/Plate	4-3/8" x 3-1/2"	897 lbs	16.9%	7.4%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



DWG NO. TAM 4538417 STRUCTURAL COMPONENT ONLY



Boise Cascade Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B10(i948)

BC CALC® Design Report



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

September 6, 2017 15:34:23

Build 5033

Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

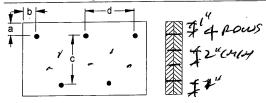
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i948

Specifier:

Designer: Company.

Misc:

Connection Diagram



a minimum = 2" b minimum = 3" c=**3**-1/2"

Calculated Side Load = 84.3 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: 1000 Annual Today Nails 312" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered w ood 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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Town of Innisfil Certified Model

14/02/2018 10:04:21 AM kgervais

NCE OF ONTE

DWOND. TAM4556 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B11(i980)

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

September 6, 2017 15:34:23

BC CALC® Design Report

Build 5033 Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

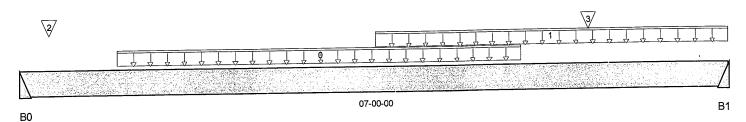
File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\811(i980)

Specifier: Designer:

Company.

Misc:



Total Horizontal Product Length = 07-00-00

Reaction Summary (Down	/ Uplift) (lbs) Live	De ad	Snow	Wind	
B0	548/0	308/0			•
B1	923/0	495/0			

					Live	Dead	Snow	Wind	Trib.
	ad Summary Description	Load Type	Ref. Start	E n d	1.00	0.65	1.00	1.15	
0	Smoothed Load	Unf. Lin. (lb/ft)	1 00-11-08	04-11-08	100	50			n/a
0		Unf. Lin. (lb/ft)	I 03-06-00	07-00-00	240	120			n/a
1	User Load	Conc. Pt. (lbs)	1 00-03-08	00-03-08	89	44			n/a
2	J5(i956) J5(i916)	Conc. Pt. (lbs)	1 05-07-08	05-07-08	143	71			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2.900 ft-lbs	25.408 ft-lbs	11.4%	1	04-03-08
End Shear	1.503 lbs	11.571 lbs	13%	1	06-00-08
Total Load Defl.	L/999 (0.032")	n/a	n/a	4	03-08-06
Live Load Defl.	L/999 (0.021")	n/a	n/a	5	03-08-06
Max Defl.	0.032"	n/a	n/a	4	03-08-06
Span / Depth	8.6	n/a	n/a		00-00-00

Bearing Supports		Dim . (L x W)	De man d	De mand/ Re sistance Support	De mand/ Resistance Member	Materia!	
B0	Hanger	2" x 3-1/2"	1.208 lbs	n/a	14.1%	HGUS410	
B1	Hanger	2" x 3-1/2"	2,003 lbs	n/a	23.5%	HGUS410	

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA 086.

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

O86.

CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



Town of Innisfil Certified Model 14/02/2018 10:04:22 AM kgervais

DWG NO. TAM 4538517 STRUCTURAL COMPONENT ONLY



Boise Cascade Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B11(i980)

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

September 6, 2017 15:34:23

BC CALC® Design Report

CCMC 12472-R

Build 5033 Job Name:

Address: City, Province, Postal Code:,

Customer:

Code reports:

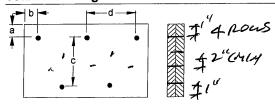
File Name: S32-5-12-ELB.mmdl Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i980

Specifier:

Designer: Company:

Misc:

Connection Diagram



a minimum = 2" b minimum = 3"

Calculated Side Load = 191.6 lb/ft

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

Connectors are: #1 = m Anetic 1 = Gun Nails 3%" ARDOX SPIKAL

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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Town of Innisfil Certified Model

14/02/2018 10:04:25 AM kgervais

S. KATSOULAKOS STRUCTURAL

COMPONENT ONLY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B12(i1285)

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

September 6, 2017 15:34:23

BC CALC® Design Report

Build 5033 Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

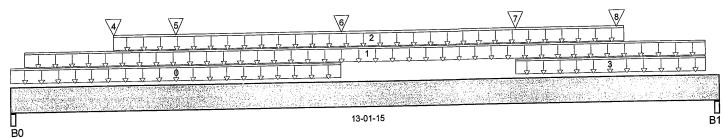
File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i1285)

Specifier: Designer:

Company:

Misc:



Total Horizontal Product Length = 13-01-15

Reaction Summary (Down / U	plift) (lbs) Live	De ad	Snow	Wind	
B0, 3"	817/0	1,361 / 0	1,892/0		
· B1.3"	772/0	1,235 / 0	1,758 / 0		

						Live	Dead	Snow	Wind	Trib.
	ad Summary	Load Type	Ref	. Start	En d	1.00	0.65	1.00	1.15	
	g Description	Unf. Lin. (lb/ft)		00-00-00	06-01-07	33	130	96		n/a
0	Us er Load	· · · · · · · · · · · · · · · · · · ·	ī	00-03-00	12-10-15		40	128		n/a
1	Us er Load	Unf. Lin. (lb/ft)	-	01-10-14	11-05-01		8			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	•	12-10-15	_	130	96		n/a
3	Us er Load	Unf. Lin. (lb/ft)	L	09-04-09			126	91		n/a
4	B17(i1289)	Conc. Pt. (lbs)	L	01-10-14	01-10-14			288		n/a
5	Us er Load	Conc. Pt. (lbs)	L	03-00-11	03-00-11		90			n/a
6	Us er Load	Conc. Pt. (lbs)	L	06-01-07	06-01-07		90	288		
7	Us er Load	Conc. Pt. (lbs)	L	09-04-09	09-04-09	99	90	288		n/a
, 8	B16(i1290)	Conc. Pt. (lbs)	L	11-03-05	11-03-05	120	124	91		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	14,629 ft-lbs	39,636 ft-lbs	36.9%	13	06-01-07
	4.384 lbs	17.356 lbs	25.3%	13	01-00-08
End Shear	L/361 (0.425")	0.639"	66.5%	45	06-06-05
Total Load Defl.	□551 (0.423) □553 (0.277")	0.426"	65.1%	61	06-06-05
Live Load Defl.	0.425"	n/a	n/a	45	06-06-05
Max Defl. Span / Depth	16.2	n/a	n/a		00-00-00

D i Cum orto		Dim . (L x W)	De man d	De mand/ Re s istance Support	De mand/ Resistance Member	Material	
B0 B1	g Supports Beam Beam	3" x 5-1/4" 3" x 5-1/4"	4,948 lbs 4,566 lbs	58.8% 54.3%	25.8% 23.8%	Unspecified Unspecified	

Notes

Town of Innisfil Certified Model 14/02/2018 10:04:28 AM kgervais



DWG NO. TAM45386 17 STRUCTURAL COMPONENT ONLY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B12(i1285)

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

September 6, 2017 15:34:23

BC CALC® Design Report

Build 5033

Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i128

Specifier: Designer:

Company:

Misc:

Disclosure

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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: 01-09-01, Bottom: 01-09-01. Resistance Factor phi has been applied to all presented results per CSA 086.

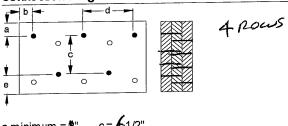
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA GONFORMS TO OBG 2012

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



c = 61/2" a minimum = 2" b minimum = 3" e minimum = 2"

Calculated Side Load = 58.2 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. Nailing schedule applies to both sides of the member.

Connectors are: -

3½" ARDOX SPIRAL

Town of Innisfil Certified Model

14/02/2018 10:04:29 AM kgervais



DWG NO . TAM 45366-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B16(i1290)



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

September 6, 2017 15:34:23

BC CALC® Design Report

Build 5033

File Name: S32-5-12-ELB.mmdl

Job Name:

Description: Designs\Flush Beams\1st Floor\Flush Beams\B16(i1290)

B1

Address: City, Province, Postal Code:, Specifier:

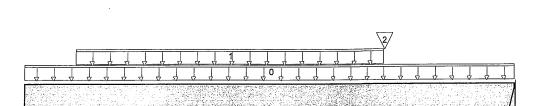
Customer:

Designer: Company.

Misc:

Code reports:

CCMC 12472-R



Total Horizontal Product Length = 01-04-12

	Total Total Control Co										
	action Summary (Dow	/n / Uplift) (lbs) Live	De ad	;	Snow	Win	d				
B0	5-1/2"	100/0	165/0	,	162/0					_	
B1		133/0	142/0	•	106/0						
١a	ad Summary					Live	Dead	Snow	Wind	Trib.	
	Description	Load Type	Ref	f. Start	En d	1.00	0.65	1.00	1.15		
0	Us er Load	Unf. Lin. (lb/ft)	L	00-00-00	01-04-12	66	160	192		n/a	
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-01-12	01-00-04	6				n/a	
2	J4(i1287)	Conc. Pt. (lbs)	L	01-00-04	01-00-04	136	68			n/a	

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	89 ft-lbs	25,408 ft-lbs	0.4%	1	01-00-04
End Shear	221 lbs	11,571 lbs	1.9%	13	00-05-04
Span / Depth	1.1	n/a	n/a		00-00-00

Bearing Supports				De mand/ Resistance		Material	
		Dim . (L x W)	De man d	Support	Member		
B0	Wall/Plate	5-1/2" x 3-1/2"	500 lbs	4.9%	2.1%	Unspecified	
B1	Hanger	2" x 3-1/2"	430 lbs	n/a	5%	HGUS410	

Town of Innisfil Certified Model 14/02/2018 10:04:30 AM kgervais

Notes

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 CONFORMS TO OBC 2012

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

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9



STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B16(i1290)

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

September 6, 2017 15:34:23

BC CALC® Design Report

幸

Build 5033

Job Name: Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

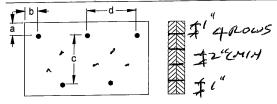
Description: Designs\Flush Beams\1st Floor\Flush Beams\B16(i12\)

Specifier: Designer:

Company.

Misc:

Connection Diagram



a minimum = 1" c=1-1/2" d = 24"

Calculated Side Load = 207.0 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 3½" ARDOX SPIKAL

Disclosure

Completeness and accuracy of input must be verified by anyone w ho w ould 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 w ood products must be in accordance w ith 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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Town of Innisfil Certified Model

14/02/2018 10:04:32 AM kgervais



DWG NO.TAM 45380-17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B17(i1289)

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

September 6, 2017 15:34:23

BC CALC® Design Report

File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\817(i1289)

Specifier:

Designer: Company.

Misc:

City, Province, Postal Code:,

Customer:

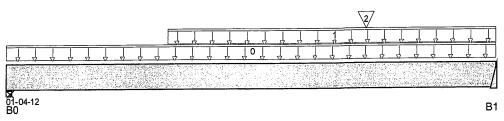
Build 5033

Job Name:

Address:

Code reports:

CCMC 12472-R



Total Horizontal Product Length = 01-04-12

Be aring	(Down / Uplift) (lbs)	De ad	Snow	Wind		
B0, 5-1/2"	98 / 0	164/0	162/0			
B1	133/0	142/0	106/0			

Load Summary					Live	Dead	Snow Wind	i rib.
	g Description	Load Type	Ref. Start	En d	1.00	0.65	1.00 1.15	
0	Us er Load	Unf. Lin. (lb/ft)	L 00-00-00	01-04-12	66	160	192	n/a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L 00-05-08	01-04-12	6			n/a
2	J4(i1287)	Conc. Pt. (lbs)	L 01-00-04	01-00-04	133	67		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	89 ft-lbs	25,408 ft-lbs	0.3%	1	01-00-04
End Shear	220 lbs	11,571 lbs	1.9%	13	00-05-04
Span / Depth	1.1	n/a	n/a		00-00-00

Bearing Supports			,	Resistance	Resistance	Material	
		Dim.(LxW)	Demand	Support	Member		
B0	Wall/Plate	5-1/2" x 3-1/2"	498 lbs	4.8%	2.1%	Unspecified	
B1	Hanger	2" x 3-1/2"	430 lbs	n/a	5%	HGUS410	

Town of Innisfil Certified Model 14/02/2018 10:04:33 AM kgervais

Notes

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA 086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA CONFORMS TO OBC 2012

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



DWG NO. TAMYS388 17 STRUCTURAL COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B17(i1289)

BC CALC® Design Report



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

September 6, 2017 15:34:23

Build 5033

Job Name:

Address:

City, Province, Postal Code:,

Customer:

Code reports:

CCMC 12472-R

File Name: S32-5-12-ELB.mmdl

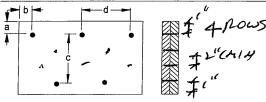
Description: Designs\Flush Beams\1st Floor\Flush Beams\B17(i128

Specifier:

Designer:

Company: Misc:

Connection Diagram



a minimum = 2" b minimum = 3"

Calculated Side Load = 202.9 lb/ft

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

Nails Connectors are: 34. ARDOX SPIRAL

Disclosure

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Town of Innisfil Certified Model

14/02/2018 10:04:34 AM kgervais



DWG NO. TAM 4539917 STRUCTURAL COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\...\B18 L(i1827)



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

September 6, 2017 15:34:24

В1

BC CALC® Design Report

File Name: S32-5-12-ELB.mmdl Description: Designs\Flush Beams\Basment\Flush Beams\B18 L(i182

Specifier:

Designer: Company:

Misc:

City, Province, Postal Code:,

Customer: Code reports:

B0

Build 5033

Job Name: Address:

CCMC 12472-R

Town of Innisfil Certified Model

14/02/2018 10:04:37 AM kgervais

3/ 2/ 1

Total Horizontal Product Length = 06-08-00

06-08-00

Reaction Summary (Down / Uplift) (Ibs) Wind Be aring De ad Snow B0, 3-1/2" 634/0 334/0 318/0 B1, 5-1/2" 603/0

16	ad Summary					Live	Dead	Snow	Wind	Trib.
	g Description	Load Type	Re	f. Start	E nd	1.00	0.65	1.00	1.15	
0	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-04	05-00-04	213	107			n/a
1	J3(i1839)	Conc. Pt. (lbs)	L	00-04-12	00-04-12	131	66			n/a
2	J3(i1830)	Conc. Pt. (lbs)	L	01-06-04	01-06-04	238	119			n/a
3	J3(i1837)	Conc. Pt. (lbs)	L	05-06-04	05-06-04	229	114			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,129 ft-lbs	12,704 ft-lbs	16.8%	1	03-06-04
End Shear	1,232 lbs	5,785 lbs	21.3%	1	05-05-00
Total Load Defl.	L/999 (0.039")	n/a	n/a	4	03-03-04
Live Load Defl.	L/999 (0.026")	n/a	n/a	5	03-03-04
Max Defl.	0.039"	n/a	n/a	4	03-03-04
Span / Depth	7.6	n/a	n/a		00-00-00

					Resistance	
Bear	ing Supports	Dim. (L x W)	Demand	Support	Member	Material
B0	Post	3-1/2" x 1-3/4"	1,368 lbs	27.5%	18.3%	Unspecified
B1	Wall/Plate	5-1/2" x 1-3/4"	1,303 lbs	25.4%	11.1%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria. Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume unbraced length of Top: 00-03-08, Bottom: 00-03-08. 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 CONFORMS TO OBC 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Disclosure

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COMPONENT ONLY



Build 5033

Job Name:

Boise Cascade Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B19(i1949)

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

September 6, 2017 15:34:24

BC CALC® Design Report

File Name: S32-5-12-ELB.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B19(i1949

Specifier: Designer:

Address: City, Province, Postal Code:,

Customer: Company: Code reports: CCMC 12472-R Misc:

Town of Innisfil Certified Model

14/02/2018 10:04:38 AM kgervais

2/ 1 06-04-08 B0 **B1**

Total Horizontal Product Length = 06-04-08

Reaction Summary (D	own / Uplift) (lbs)	•			
Be aring	Live	De ad	Snow	Wind	
B0	223/0	124/0			
B1, 5-1/2"	766/0	1,269 / 0			

١o	ad Summary					Live	Dead	Snow	Wind	Trib.
	g Description	Load Type	Re	f. Start	En d	1.00	0.65	1.00	1.15	
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-08	05-10-08	78	39			n/a
1	J6(i1918)	Conc. Pt. (lbs)	L	00-04-08	00-04-08	53	24			n/a
2	1(i483)	Conc. Pt. (lbs)	L	06-01-12	06-01-12	547	1,143			n/a

	Factored	Factored	Demand/	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	742 ft-lbs	12,704 ft-lbs	5.8%	· 1	03-04-08
End Shear	426 lbs	5,785 lbs	7.4%	1	05-01-08
Total Load Defl.	L/999 (0.013")	n/a	n/a	4	03-00-12
Live Load Defl.	L/999 (0.008")	n/a	n/a	5	03-00-12
Max Defl.	0.013"	n/a	n/a	4	03-00-12
Span / Depth	7.4	n/a	n/a		00-00-00

D	C	Dim . (L x W)	De man d	De mand/ Resistance Support	De mand/ Resistance Member	Material
Bear	ing Supports	Dilli. (L X VV)	Demanu	Support	Mellinei	Material
B0	Hanger	2" x 1-3/4"	490 lbs	n/a	11.5%	HUS1.81/10
B1	Wall/Plate	5-1/2" x 1-3/4"	2,734 lbs	53.2%	23.3%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

CONFORMS TO OBG 2012

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

DWG NO . TAM 4537017 STRUCTURAL COMPONENT ONLY

Disclosure

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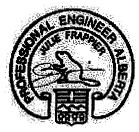
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Maximum Floor Spans

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







			E	Bare		1	1/2" Gyp:	sum Ceiling	
Depth	Series		On Cent	re Spacing			On Cent	re Spacing	
·	•	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	re Spacing 19.2" 14'-2"	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
	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
44 7/08	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	14'-2" 15'-1" 15'-3" 15'-10" 16'-0" 16'-11" 17'-1" 17'-9" 17'-11" 18'-5" 18'-6" 18'-9" 20'-6" 20'-6" 21'-5" 21'-9"	N/A
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	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
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
4.011	NI-70	23'-6"	21' -9 "	20' - 9"	N/A	24'-3"	22' - 5"	21'-5"	N/A
16"	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

			Mid-Spa	n Blocking		Mid-S	pan Blocking ar	nd 1/2" Gypsum	Ceiling
Depth	Series		On Cent	re Spacing	On Centre Spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	2 Spacing 19.2" 14'-5"	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
	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
11 7/0"	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22' - 9"	21'-1"	20'-1"	N/A	23' - 3"	21' - 7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	2 Spacing 19.2" 14'-5" 16'-1" 16'-4" 17'-7" 17'-8" 17'-3" 19'-2" 19'-6" 20'-5" 20'-8" 21'-2" 21'-7" 21'-11" 22'-11" 22'-11" 23'-2" 24'-2" 25'-6"	N/A
11-//0	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
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25' - 7"	23' - 8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23 '-3 "	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25 '- 3"	24'-2"	N/A
16"	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25' - 2"	N/A
10	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

^{1.} 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.

Town of Innisfil Certified Model

14/02/2018 10:04:43 AM kgervais

^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. 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.

^{3.} Minimum bearing length shall be 1-3/4 inches for the end bearings.

^{4.} Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

^{5.} This span chart is based on uniform loads. For applications with other than 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.

^{6.} 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-L27



Maximum Floor Spans

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







			В	are			1/2" Gyp	sum Ceiling	
Depth	Series		On Cent	re Spacing			On Cent	tre Spacing	
		12"	16"	19.2"	24"	12"	16"	/ 19.2"	24"
	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"
9-1/2"	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"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
14"	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"
	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"
16"	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"

			Mid-Spa	n Blocking		Mid-S	pan Blocking an	id 1/2" Gypsum	Ceiling
Depth	Series		On Centr	re Spacing			On Centr	re Spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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"
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
J -/ -	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"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23' - 8"	22'-4"	20'-10'
14"	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"
	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"
16"	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"

^{1.} 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.

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^{2.} 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.

^{3.} Minimum bearing length shall be 1-3/4 inches for the end bearings.

^{4.} Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

^{5.} This span chart is based on uniform loads. For applications with other than 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.

^{6.} 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.



Town of Innisfil Certified Model

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Maximum Floor Spans

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

			В	arė		·	1/2" Gyps	um Ceiling	
Depth	Series		On Centr	re Spacing			On Centi	re Spacing	
ССР	0000	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	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
	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
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	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
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20' - 3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	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
16"	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

		-	Mid-Spar	n Blocking		Mid-S	pan Blocking an	d 1/2" Gypsum	Ceiling
Depth	Series		On Centr	e Spacing			On Centr	e Spacing	
Берип	501105	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A
J-1/2	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
	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
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A
	NI-80	22'-9"	21' -1 "	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A_
	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
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22' - 9"	N/A
14	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23' - 3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	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
16"	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

^{1.} 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.

^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. 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.

^{3.} Minimum bearing length shall be 1-3/4 inches for the end bearings.

^{4.} Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

^{5.} This span chart is based on uniform loads. For applications with other than 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.

^{6.} 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.



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Maximum Floor Spans

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

			. В	are			1/2" Gyps	um Ceiling	
Depth	Series			e Spacing			On Centi	e Spacing	
Бериг	Series	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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"
9-1/2"	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"
3 1/2	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"
	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"
11-7/8"	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18 '-1 0"	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'-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"
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
14	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"
	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"
16"	NI-70	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"

			Mid-Spai	n Blocking		Mid-S	pan Blocking an	d 1/2" Gypsum	Ceiling
Depth	Series			e Spacing			On Centr	e Spacing	
Бери	501105	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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'
9-1/2"	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	15'-5"	14'-3"
9-1/Z	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"
	NI-70	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10
	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-40X NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
11-7/8"		23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"
	NI-70	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11
	NI-80	23 -7 24'-3"	21 - 10 22' - 6"	20-3"	19'-7"	24'-8"	22' - 7"	21'-3"	19'-7"
	NI-90x	24'-3"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"
	NI-40x	24 - 2 24' - 9"	21 -5 22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"
	NI-60	24 - 9 26' -1 "	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
14"	NI-70		24 -5 24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23' - 3"	21'-6"
	NI-80	26'-6"	24 -7 25'-4"	23 -3 24'-1"	22' - 4"	27'-9"	25'-10"	24'-3"	22'-4"
	NI-90x	27'-3"	25-4	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"
	NI-60	27'-3"		25'-3"	23'-4"	29'-3"	26'-11"	25' - 3"	23'-4"
16"	NI-70	28'-8"	26'-8"	25 - 3 25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10
	NI-80	29'-1"	27'-0"	25 -9 26'-6"	23 -10 24'-10"	30'-6"	28'-5"	26'-11"	24'-10
	NI-90x	29'-11"	27'-10"	ZD -b	24 -10	30-0	20 -5		

^{1.} 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.

^{2.} 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.

^{3.} Minimum bearing length shall be 1-3/4 inches for the end bearings.

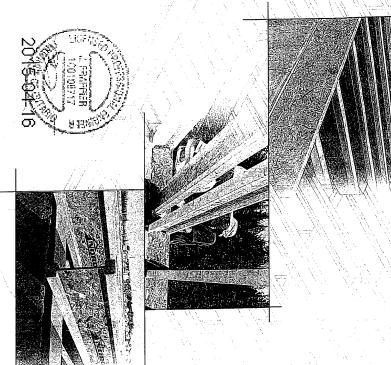
^{4.} Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

^{5.} This span chart is based on uniform loads. For applications with other than 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.

^{6.} 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.

NSTALLATION GUIDE

FOR RESIDENTIAL FLOORS



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SAFETY AND CONSTRUCTION PRECAUTIONS

until fully fastened and braced, or serious inju-ries can result.



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

Avoid Accidents by Following these Important Guidelines:

Do not walk on I-joists

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 Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location,

blocking will be required at the interior support.

to prevent 1-joist rollover or buckling.



over-stress I-joist with concentrated loads from Once sheathed, do not unsheathed I-joists. building materials materials over 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. 3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with Never install a damaged I-joist. 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. closure panels, rim board, or cross-bridging.

Never stack building 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 bracing over at least two 1-joists. the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining

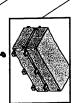
can result in serious accidents. Follow these installation guidelines carefully. Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic Ljoists, failure to follow allowable hole sizes and locations, or failure to use web stifteners when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

STORAGE AND HANDLING GUIDELINES

- Bundle wrap can be slippery when wet. Avoid walking on wrapped
- Store, stack, and handle I-joists vertically and level only.
- Always stack and handle I-joists in the upright position only.
- Protect I-joists from weather, and use spacers to separate bundles.

Do not store I-joists in direct contact with the ground and/or flatwise

- 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
- Pick I-joists in bundles as shipped by the supplier.
- Orient the bundles so that the webs of the I-joists are vertical.
- Pick the bundles at the 5th points, using a spreader bar if necessary.
- Do not handle I-joists in a horizontal orientation.
- NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST







FSC www.dsc.org

MAXIMUM FLOOR SPANS

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

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

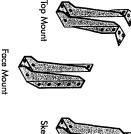
				Joist Depth
				Joist Series
22.3 233.4 231.1 24.5 24.5	2015 2015 21 11 21 11 20 5 11	1844 1964 1996 2042	1771 1807 1907 1907 1907 1907 1907 1907 1907 19	12"
20-8 21-9 22-1 22-6 22-6	1841 204 204 204 204 204 3	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	14:21 15:21 15:41 16:31	Simple On centre 16"
1929* 20-9* 21-15* 21-5*	19 4 19 4 19 4	16.55 17.4 17.4 17.4 17.10	13:9" 14:8" 14:10" 15:6"	spans spacing 19.2
19410 20410 2142 2143 2143	2-13-13-13-13-13-13-13-13-13-13-13-13-13-	15:8 16:5 17:5 17:5 17:5 17:5 17:5 17:5 17:5 17	13.5° 4.9° 4.11° 5.7°	24º
24.7 26.0 26.5 26.11 27.3	2222 2322 244 6	1844 20-0 21-8 21-8 21-9 22-3	.01-81 .4581 .4541 .55211	12"
2219* 2410* 2415* 24110* 2512*	20.6 20.11 22.11 22.6 22.10 23.11	1718 1816 19114 2012 2017 2017	15:48 16:51 16:27 17:48	Multiple On centre 16°
211.9* 22:111* 23:3* 23:9* 24:0*	19-8 20-0 21-1 21-5 21-10 22-0	16:8 17:9 19:0 19:0 19:3	14-10" 5-10" 6-2"	e spans e spacing 19.2"
,21;10; 23;0; 23;4; 23;9; 24;1;	19.4" 20.1" 21.2" 21.6" 21.10" 22.2"	18-7 17-7 18-1 19-1 19-4 19-9	15-5" 15-6" 16-11" 16-10"	24"

CCMC EVALUATION REPORT 13032-R

SIMPLE AND MULTIPLE SPANS

I-JOIST HANGERS

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





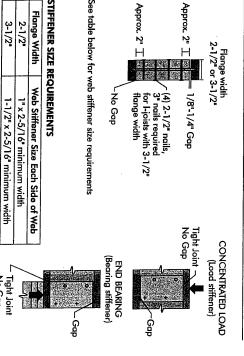
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

WEB STIFFENER INSTALLATION DETAILS



NORDIC I-JOIST SERIES 33 pieces per unit S-P-F No.2 1950f MSR 33 pieces per unit 2100f MSR 33 pieces per unit 1950f MSR 23 pieces per unit OSB 3/8" 2100f MSR 23 pieces per unit 2400f MSR 23 pieces per unit NPG Lumber 23 pieces per unit

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

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

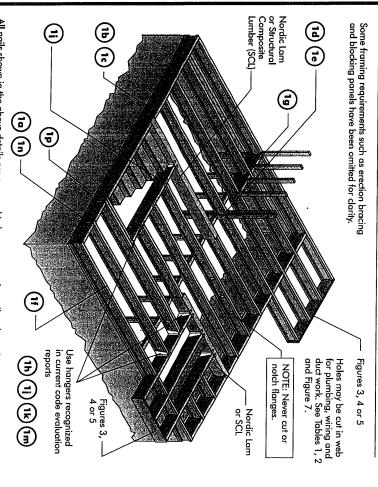
2015-04-1

INSTALLING NORDIC I-JOISTS

- 1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, ஜன்க்க்க்க்
- 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 நம்ப
- 5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings 5/15-5/4-16
- 6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement
- 7. Leave a 1/16-inch gap between the 1-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
- 9. Never install Lioists where they will be permanently exposed to weather, or where they will remain in direct contact with
- 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 I-joist-compatible depth selected panels or other engineered wood products – such as rim board – must be cut to fit between the Ljoists, and an
- 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 bracing or struts must be used structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary
- 14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to underlayment layer is installed minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate
- 15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

NI blocking

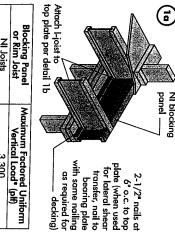
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS



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

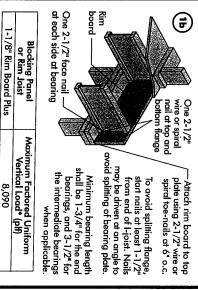
blocking panel NI or rim board per detail 1a

squash blocks 1/16" for

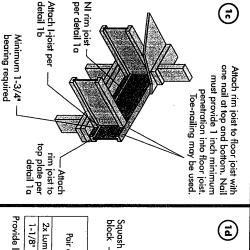


or Rim Joist	Maximum Factored Uniform Vertical Load* (pH)
NI Joists	3,300
*The uniform vertical load	*The uniform vertical load is limited to a joist depth of 16
Inches or less and is based It shall not be used in the	Inches or less and is based on standard term load duration. It shall not be used in the design of a bending member.
such as joist, header, or r	such as joist, header, or rafter. For concentrated vertical
Total franchis	

load transfer, see detail 1d

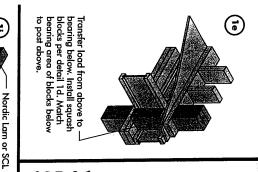


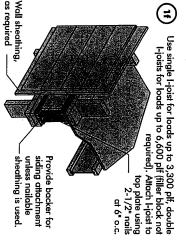
raiter, For concentrated vertical load transfer, see detail 1d.	used in the design of a bending member, such as joist, header, or	or less and is based on standard term load duration. It shall not be	i i e uniform vertical load is limited to a rim board depth of 16 inches	
bear	Mini.		detail 1b	Stolet House



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

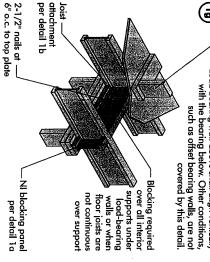
Provide lateral bracing per detail 1a, 1b, 익

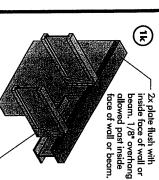




carried to the foundation. Rim board may be used in lieu of I-joists. Backer is not required when rim board is used. Bracing per code shall be

 \equiv





Top-mount hanger installed per ___ manutacturer's recommendations

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

Maximum support capacity = 1,620 lbs.

FILLER BLOCK REQUIREMENTS FOR

clinch when possible.

detail 1h. Nail with twelve 3" nails,

support the top flange, bearing Note: Unless hanger sides laterally

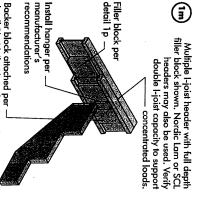
stiffeners shall be used

beams, see the manufacturer's

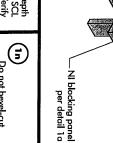
For nailing schedules for multiple

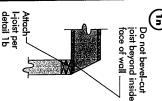
recommendations

installed per manutacturer's Top- or face-mount hanger



at bearing for lateral support, not shown



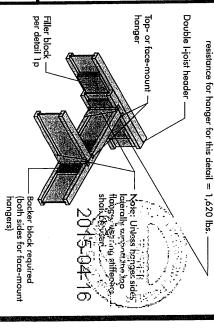


for clarity. Note: Blocking required

> \bigcirc Backer block (use if hanger load exceeds 360 lbs) Use twelve 3" nails, clinched when possible. Maximum factored backer block will fit. Clinch. Install backer tight to top tlange. additional 3" nails through the webs and filler block where the Before installing a backer block to a double I-joist, drive three

(

Load bearing wall above shall align vertically



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

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

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

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

(3)

—One 2-1/2" nails at top and bottom flange

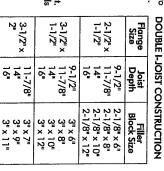
Two 2-1/2" nails from each web to

board

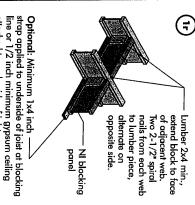
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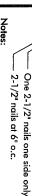
lumber piece

—2x4 min. (1/8" gap minimum)



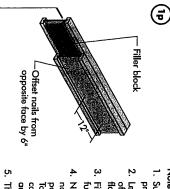
Optional: Minimum 1x4 inch affached to underside of joists





I-joist blocking panel

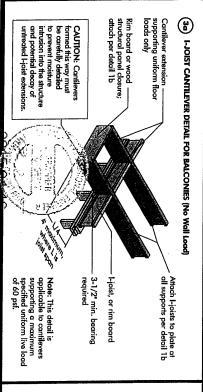
- the first joist space (or first and second joist space) next to In some local codes, blocking is prescriptively required in for spacing of the blocking the starter joist. Where required, see local code requirements
- All nails are common spiral in this detai



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

- 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
- Filler block is required between joists for full length ot span.
- Nail joists together with two rows of 3* possible) on each side of the double 1-joist. Total of four nails per foot required. If nails are required. can be clinched, only two nails per foot nails at 12 inches o.c. (clinched when
- applied to one side of the double joist using this detail is 860 lbf/ft. Verify double The maximum factored load that may be

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)





Full depth backer block with $1/8^{\circ}$ gap between block and top flange of I-joist. See detail 1h. Nail with 2 rows of 3° nails at 6° o.c. and clinch.

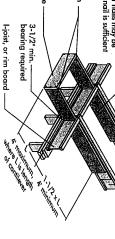
2x8 min. Nail to backer block and joist with 2 rows of - 3" nails at 6" o.c. and clinch. (Cantilever nails may be used to attach backer block if length of nail is sufficient to allow clinching.)

> plate at all supports per detail 1b Attach I-joists to

floor loads only Cantilever extension supporting uniform

Note: This detail is applicable to cantilevers supporting a maximum Lumber or wood structural panel closure bearing required 3-1/2" min.

specified uniform live load of 60 psf.



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

FIGURE 4 (continued) below for NI See table

Roof truss __ span

<u>2</u>ال 2 cantilever maximum

Roof trusses

13'-0" maximum Jack trusses

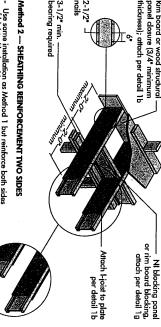
For hip roofs with the jack trusses running parallel to the cantilevered floor joists,

requirements for a span of 26 ft. shall be permitted to the I-joist reinforcement

Roof truss. span

maximum cantilever -2'-0"



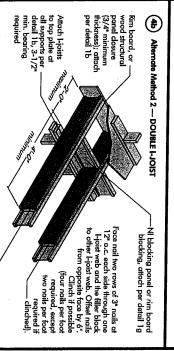


2-1/2"

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

 Use nailing pattern shown for Method 1 with apposite face
- nailing offset by 3".

Notes: 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.



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

cantilever. requirements at

JOIST DEPTH (in.)	ROOF TRUSS SPAN		. = 30 psf, [JOIST SPAC)L = 15 ING (in.	psf)	17 L	OADING = 40 psf, OIST SPA	CING (in	psf L)		= 50 psf, IOIST SPA	DL = 1
	[} ∃	12 N	N 91	19.2	24	N 21	16	19.2 2	24	12 N	16	19.2
0.4100	88	22:	- z '		××	ZZ Z		NNK	×××	-zz	3 N N	×××
	28	zz		90	××	zz	3 K) -	4 X N	(X)		٠×١	
	36	z	-	21	××	-, z	2	××	××		××	35 S
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7,0	30	z	z	z	ц.	z	Z	4.	2	zz	 .	
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	38	zz	ZZ	zz		ZZ	zz		دا د	ż		
	240	Z	z	z		Z.	2	1	2	Żź		
	28 28	227	: Z Z	: Z 2	22	zz	22	zz	-2	zz	zz	
	28	ZZ	ZZ	ZZ	Z Z	zz	ZZ	2		zz	zz	
164	34	zz	zz	zz	JZ.	zz	zz	77		227	2 Z Z	***
	6 88	zz	zz	zzz		zzz	222	. 2 2		zz	zz	

- N = No reinforcement required.
 1 = NI reinforced with 3/4 wood structural panel on one side only.
 2 = NI reinforced with 3/4 wood structural panel on both sides, or double I-joist.
- X = Try a deeper joist or closer spacing.

 Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3:0"
 - For larger openings, or multiple 3'-0" width openings spaced less than 6-0" o.c., additional joists beneath the opening's cripple studs may be required.

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

 5. Canfilevered joists supporting girder trusses or roof beams may require additional

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS

- The distance between the inside edge of the support and the centreline of any Table 1 or 2, respectively. hole or duct chase opening shall be in compliance with the requirements of
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified
- Whenever possible, field-cut holes should be centred on the middle of the web.
- 4. between the top or bottom of the hole or opening and the adjacent I-joist flange 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 The maximum size hole or the maximum depth of a duct chase opening that can
- Ċ 3/4 of the diameter of the maximum round hole permitted at that location. The sides of square holes or longest sides of rectangular holes should not exceed
- 6٠ Where more than one hole is necessary, the distance between adjacent hole opening shall be sized and located in compliance with the requirements of edges shall exceed twice the diameter of the largest round hole or twice the longest rectangular hole or duct chase opening) and each hole and duct chase size of the largest square hole (or twice the length of the longest side of the Tables 1 and 2, respectively
- .7 A knockout is **not** considered a hole, may be utilized anywhere it occurs, and and/or duct chase openings. may be ignored for purposes of calculating minimum distances between holes
- œ 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
- % 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
- 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.

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

About tak					Joist Depth
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	10.8 11.0 9.10		rriiri	iffii1	centre 10 1
	1122 223 643	1200320 1200320 1200320	111111	11111	of hole 10-3/4
	12.9	11111	111111		T (#-in.)
	1 0 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	200			12 12
	1 56 55 A		[1][1][1]		ğ
	20 0 21 0 21 0 21 0 21 0	18:21 18:23 19:55 20:00	77.5 77.5 87.7 80.8	44.00 55.7 H	Span ustment span

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

OPTIONAL:

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

Where:	Dreduced ==
$D_{reduced}$	SAFIO X D
11	

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applic distance shall not be less than 6 inches from the face of the support to edge of the hole.

awins (fi). The reduced

2015-04-16

- ₽ ₹ Factual
- The actual measured span distance between the inside faces of supports (ft).
- The minimum distance from the inside face of any support to centre of hole from this table Span Adjustment Factor given in this table.
- If Lactual is greater than 1, use 1 in the above calculation for



bearing

distance from See Table 1

for minimum

2x diameter of larger hole

2x duct chase diameter, whichever is length or hole

Duct chase opening

from bearing) minimum distance (see Table 2 for

field-cut holes

are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of electrical or small plumbing lines. They Knockouts are prescored holes provided

for the contractor's convenience to instal

FIELD-CUT HOLE LOCATOR

FIGURE 7

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

should be cut with a Holes in webs

sharp saw.

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

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

Knockouts

See rule 12

all duct chase openings and holes between top and bottom flange — Maintain minimum 1/8" space

DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

		l.		
				Joist Depth
				Joist Series
	#1659 <u>4</u>			(n) <i>m</i> un
-100 958 879	99998 989193	8137736 134822	415 518 559 518	n distan 10
1666	90580 90580 40	8887896 840906	4-10* 6-0 6-2 5-10* 5-0*	ce from 12
	900 900 1000 1000	88897 8869	5.4 6.5 6.3 6.3	Inside fa Duct o
12.1 12.1 12.6		99899 9939 100	5-8 6-10 7-11 6-7	ce of any hase ler 16
		870-0-3 0000001		말
				<u> </u>
		00000000000000000000000000000000000000		9.
		10-10-0 10-0 10-10-0 10-10-0 10-0 10-0		<u>.</u>
`	/3=000 da	7=#£04.		3

- Above table may be used for I-joist spacing of 24 inches on centre or less.

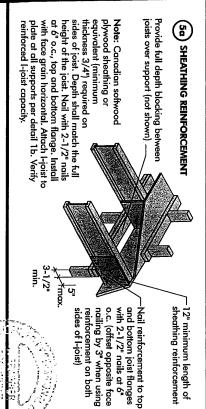
 Duct chase opening location distance is measured from inside face of supports to centre of opening.

 Duct chase opening location distance is measured from inside face of supports to centre of opening.

 The above table is based on simple-span joists only. For other applications, contact your local distributor.

 Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of I/480. For other applications, contact your local distributor.

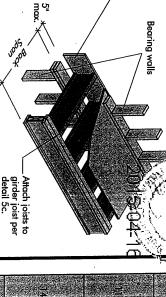
BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)



(EP) SET-BACK DETAIL

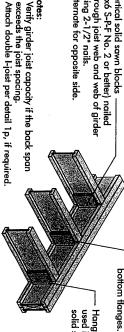
structural panel closure (3/4" minimum thickness), attach per detail 1b. Rim board or wood

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

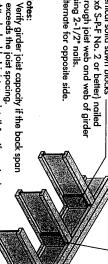


٥ SET-BACK CONNECTION

Vertical solid sawn blocks --



using 2-1/2" nails. through joist web and web of girder (2x6 S-P-F No. 2 or better) nailed Alternate for opposite side



nails, toe-nail at top and Nail joist end using 3"

Hanger may be

used in lieu of solid sawn blocks

- N = No reinforcement required.
 1 = NI reinforced with 3/4" wood structural panel on one side only. $2 = NI \text{ reinforced with } 3/4^n \text{ wood structural}$
- panel on both sides, or double I-joist.
- X = Try a deeper joist or closer spacing.

 Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings

FIGURE 5 (continued) below for NI See table cantilever requirements at reinforcement Roof truss span 7 2 -0" ∟ maximum -5" maximum cantilever

3	truss span	Girder Poof trust	Roof trusses
5" maximum	2'-0" maximum cantilever	Jack trusses	13'-0" maximum

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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

	₹ <u>0</u> 0					ROOF L	OXIDING	UNFAC	TORED)				
	TRUSS SPAN	Į.	= 30 psf, JOIST SPA	DL = 15 CING (in	psf .)		= 40 psf, DIST SPA	DL = 15 CING (in	psf)	_ F =	= 50 psf, DIST SPA	DL = 15 CING (in	psf)
	(f)	12	16	19.2	24	12	16	19.2	24	12	76	19.2	24
	26	L	××	×	×	2	×	××	××	×2	××	××	××
72	32 32	2-	××	××	××	NN	××	××	××	××	××	××	××
	34	22	××	××	××	××	××	××	××	××	××	××	××
	26 28	zz	22	××	××	74	××	××	××	1	××	××	××
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4	34	· z :	101	(×)	(×)	,	(×)	(×)	×	100	(X)	·×>	·×>
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6	334	Z Z Z	ად-	<×1	(X)	,	, 21	<×>	<×>		<×>	‹ ×>	·×>
	38	zzz	3 / N K	<×>	« ×>	و.	<×>	<×>	<×>	- در -	<×>	<×>	<××
	142		2	×	X	177	×	X	X	2	X:	X	×

- - additional joists beneath the opening's cripple For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., studs may be required
- 3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
 - 4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between When the roof is framed using a ridge board, the supporting wall and the ridge beam.
- Cantilevered joists supporting girder trusses or roof beams may require additional reintorcing.

truss is used.

distance between the supporting walls as if a the Roof Truss Span is equivalent to the

INSTALLING THE GLUED FLOOR SYSTEM

- Wipe any mud, dirt, water, or ice from l-joist flanges before gluing.
- Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
- Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
- Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
- glue in a winding pattern on wide areas, such as with double I-joists.

 6. Apply two lines of alive on Livists where name lands but to assure proper aliving of each end

5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply

- 6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
- After the first row of panels is in place, spread glue in the groove 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.
- 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 alue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

24	20 ,	16	Maximum Joist Spacing (in.)
3/4	5/8	5/8	Minimum Panel Thickness (in.)
2"	2"	2"	No Common Wire or Spiral Nails
1-3/4"	1-3/4"	1-3/4"	iil Size and Ty Ring Thread Nails or Screws
2*	2"	2"	pe Staples
6"	6"	6	Maximum of Fast Edges
12"	12"	12"	. Spacing eners Interm. Supports

Fasteners of sheathing and subflooring shall conform to the above table.

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- Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
- Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions may impose heavy traffic and concentrated loads that require construction in excess of 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.

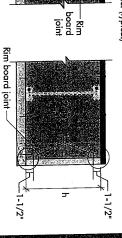
RIM BOARD INSTALLATION DETAILS

(8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim board Joint Between Floor Joists 2-1/2" nails at 6" o.c. (typical)

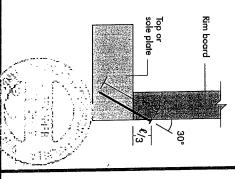
Rim board Joint at Corner



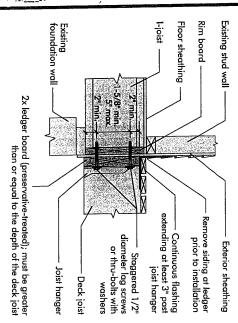


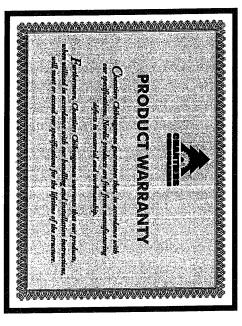
8b) TOE-NAIL CONNECTION AT RIM BOARD

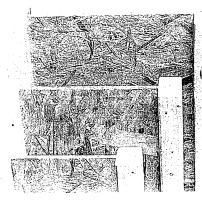
2-1/2" toe-nails at 6" o.c. (typical) —



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







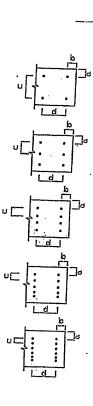
MICRO CITY

Engineering services inc.

TEL: (519) 287 - 2242

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

	LVL HEADER AND CONVENTIONAL				
		IVENTIONAL DETAILS			
	DETAIL NUMBER	NUMBER OF ROWS	SPACING (INCHES o/c) "d"		
- 11	. A	2.	1 12		
1	В	2	8		
	С	2	6		
L	D	2	4		
	1A	3	12		
L	1B	3	8		
L	1C	3	. 6		
L	1D	. 3:	4		
	2A	4	. 12		
Ŀ	2B	4	8 ·		
L	2C	4	6		
Ŀ	2D	4	4.		
L	3A	5	12		
L	3B	5	8		
L	3C	5	6		
Ŀ	3D	5,	4		
	4A	6	12		
Ŀ	4B	6	8		
L	4C	6	6 4		
L	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 PLIES 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



DUG NO TÄNNIOOI. 14

STRUCTURAL

COMPONENT ONLY

TO BE USED ONLY

WITH BEAM CALOS

PSEARING THE

STAMP BELOWS

PROVICE NATLING
DETAIL № > SEE
ONG #TAMN1001-14