

FROM PLAN DATED:
 BUILDER: GREEN PARK HOMES
 SITE: SECONDO VALES ESTATES
 MODEL: HOLLAND 15
 ELEVATION: 1
 LOT:
 CITY: EAST GWILLIMBURY
 SALESMAN: M D
 DESIGNER:
 REVISION: lbv

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

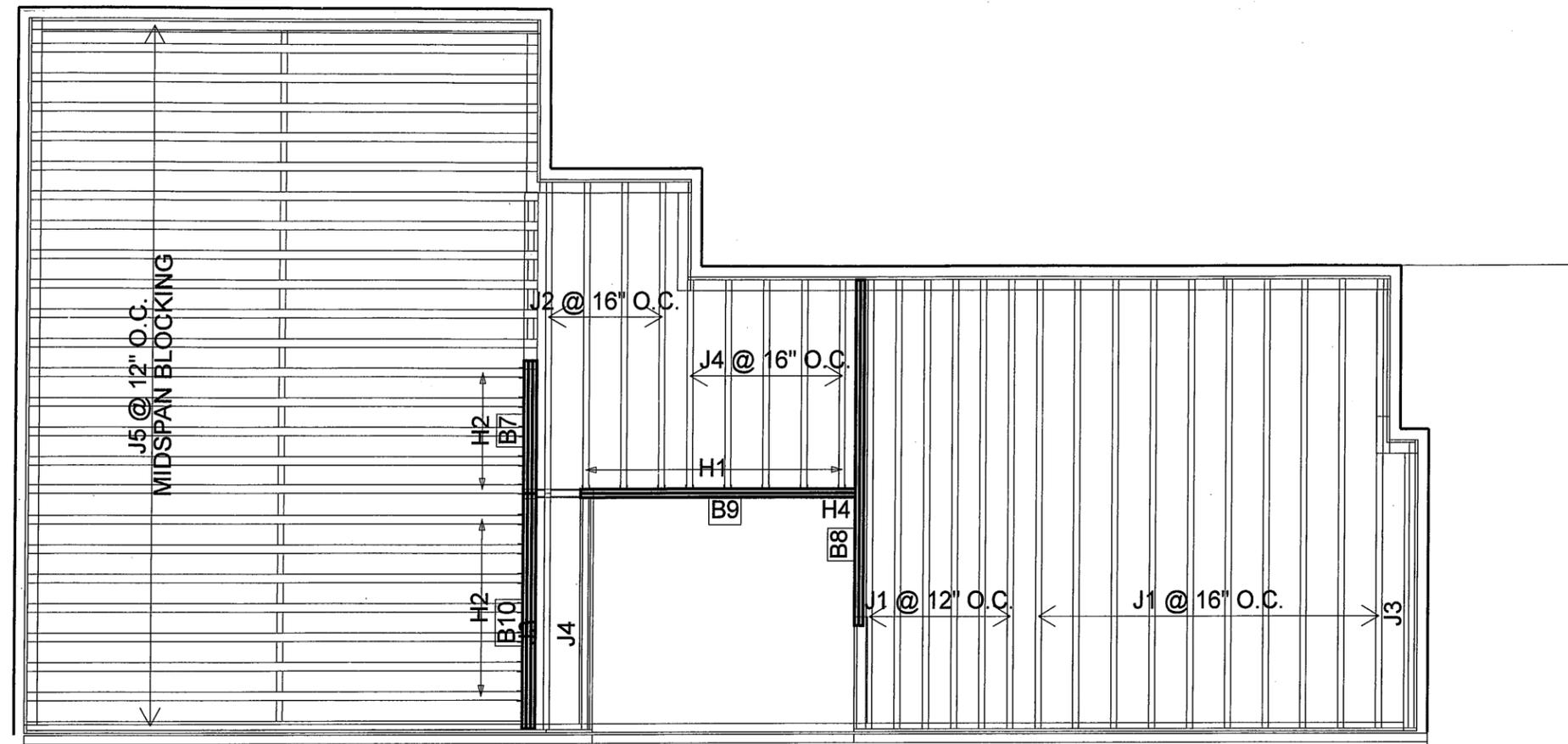
LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILED AREAS: 20 lb/ft²
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2018-01-26

1st FLOOR

Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	7
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	12-00-00	9 1/2" NI-40x	1	12
J3	10-00-00	9 1/2" NI-40x	1	4
J4	8-00-00	9 1/2" NI-40x	1	2
J5	4-00-00	9 1/2" NI-40x	1	3
J6	2-00-00	9 1/2" NI-40x	1	2
J7	18-00-00	9 1/2" NI-80	1	20
J7DJ	18-00-00	9 1/2" NI-80	2	8
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2
B1	6-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B2	6-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B4	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/9.5
7	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
1	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
4	H2	IUS3.56/9.5
1	H3	HUS1.81/10



FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: SECONDO VALES ESTATES

MODEL: HOLLAND 15

ELEVATION: 1

LOT:

CITY: EAST GWILLIMBURY

SALESMAN: M D

DESIGNER:

REVISION: lbv

NOTES:

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

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2018-01-26

2nd FLOOR

Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	16
J2	12-00-00	9 1/2" NI-40x	1	4
J3	10-00-00	9 1/2" NI-40x	1	2
J4	8-00-00	9 1/2" NI-40x	1	6
J5	18-00-00	9 1/2" NI-80	1	25
B8	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B7	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/9.5
12	H2	IUS3.56/9.5
1	H4	HGUS410

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
BURLINGTON
Nov. 24, 2017 14:45

PROJECT
J7 1ST FLR

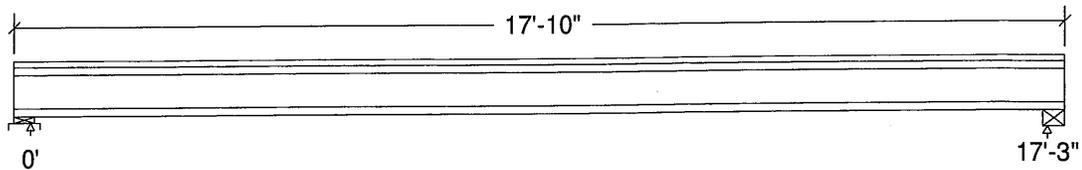
Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

Loads:

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

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



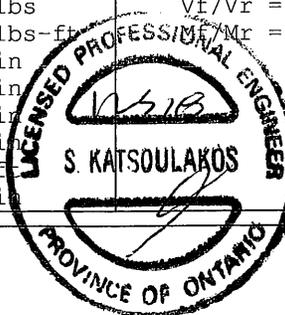
Unfactored:			
Dead	178		178
Live	357		357
Factored:			
Total	758		758
Bearing:			
Resistance			
Joist	1893		1893
Support	9417		-
Des ratio			
Joist	0.40		0.40
Support	0.08		-
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.00		-

*Minimum bearing length for joists is 2" for exterior supports

Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c.
 Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;
 Total length: 17'-10.0"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 733	Vr = 1895	lbs	Vf/Vr = 0.39
Moment (+)	Mf = 3162	Mr = 8958	lbs-ft	Mf/Mr = 0.35
Perm. Defl'n	0.12 = <L/999	0.58 = L/360	in	0.21
Live Defl'n	0.24 = L/857	0.43 = L/480	in	0.56
Total Defl'n	0.36 = L/571	0.86 = L/240	in	0.42
Bare Defl'n	0.27 = L/752	0.58 = L/360	in	0.48
Vibration	Lmax = 17'-3	Lv = 18'-5	ft	
Defl'n	= 0.030	= 0.036	in	0.83



DWG NO. TAM 5409-18
 STRUCTURAL
 COMPONENT ONLY

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

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

CALCULATIONS:

Deflection: E_Ieff = 375e06 lb-in² K= 4.94e06 lbs

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

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-14 Engineering Design in Wood standard (May 2014 edition).
2. Please verify that the default deflection limits are appropriate for your application. CONFORMS TO OBC 2012
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. TAM5409 -18
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
BURLINGTON
Nov. 24, 2017 16:12

PROJECT
J5 2ND FLR

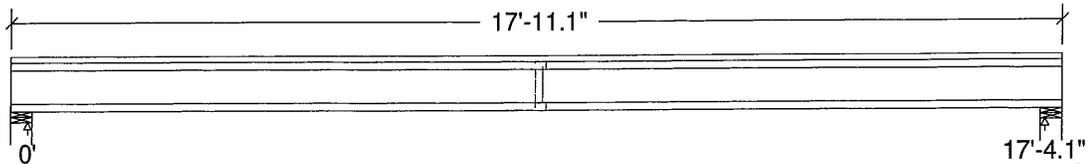
Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

Loads:

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

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



Unfactored:			
Dead	179		179
Live	359		359
Factored:			
Total	762		762
Bearing:			
Resistance			
Joist	1893		1893
Support	10829		10829
Des ratio			
Joist	0.40		0.40
Support	0.07		0.07
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.15		1.15

*Minimum bearing length for joists is 2" for exterior supports

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

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

Supports: All - Lumber Wall, No.1/No.2

Total length: 17'-11.1"; 5/8" nailed and glued OSB sheathing with 1 row of blocking and 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 737	Vr = 1895	lbs	Vf/Vr = 0.39
Moment (+)	Mf = 3197	Mr = 8958	lbs-ft	Mf/Mr = 0.36
Perm. Defl'n	0.13 = <L/999	0.58 = L/360	in	0.22
Live Defl'n	0.25 = L/829	0.43 = L/480	in	0.58
Total Defl'n	0.38 = L/552	0.87 = L/240	in	0.43
Bare Defl'n	0.28 = L/741	0.58 = L/360	in	0.49
Vibration	Lmax = 17'-4	Lv = 20'-1	ft	
Defl'n	= 0.026	= 0.036	in	0.71



DWG NO. TAM 5410-18
STRUCTURAL
COMPONENT ONLY

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

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

CALCULATIONS:

Deflection: $EI_{eff} = 367e06 \text{ lb-in}^2$ $K = 4.94e06 \text{ lbs}$

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

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-14 Engineering Design in Wood standard (May 2014 edition).
2. Please verify that the default deflection limits are appropriate for your application. CONFORMS TO OBC 2012
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. TAM 5410
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i1202)

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

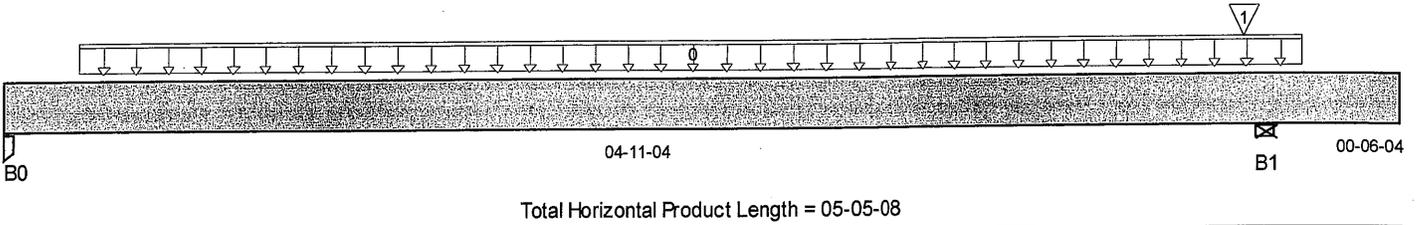
November 24, 2017 16:20:40

BC CALC® Design Report



Build 5033
 Job Name:
 Address:
 City, Province, Postal Code: EAST GWILLIMBURY,
 Customer:
 Code reports: CCMC 12472-R

File Name: HOLLAND 15.mmdl
 Description: Designs\Flush Beams\Basement\Flush Beams\B1(i1202)
 Specifier:
 Designer:
 Company:
 Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	52 / 0	38 / 0		
B1, 3-1/2"	56 / 0	54 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-03-08	05-01-00	22	11			n/a
1 E6(i821)	Conc. Pt. (lbs)	L	04-10-04	04-10-04		12			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	149 ft-lbs	12,704 ft-lbs	1.2%	2	02-06-08
Neg. Moment	-1 ft-lbs	n/a	n/a	0	04-11-04
End Shear	81 lbs	5,785 lbs	1.4%	1	01-01-00
Cont. Shear	76 lbs	5,785 lbs	1.3%	1	04-00-00
Total Load Defl.	L/999 (0.002")	n/a	n/a	9	02-06-08
Live Load Defl.	L/999 (0.001")	n/a	n/a	12	02-06-08
Total Neg. Defl.	2xL/1,998 (-0.001")	n/a	n/a	9	05-05-08
Max Defl.	0.002"	n/a	n/a	9	02-06-08
Span / Depth	5.9	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	125 lbs	2.5%	1.7%	Unspecified
B1 Wall/Plate	3-1/2" x 1-3/4"	152 lbs	4.6%	2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-04-08, Bottom: 00-04-08.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
CONFORMS TO OBC 2012
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.



DWG NO. TAM 5414-88
 STRUCTURAL COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i1202)

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

November 24, 2017 16:20:40

BC CALC® Design Report



Build 5033
 Job Name:
 Address:
 City, Province, Postal Code: EAST GWILLIMBURY,
 Customer:
 Code reports: CCMC 12472-R

File Name: HOLLAND 15.mmdl
 Description: Designs\Flush Beams\Basement\Flush Beams\B1(i1202)
 Specifier:
 Designer:
 Company:
 Misc:

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



DWG NO. TAM5414
 STRUCTURAL
 COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2(i1030)

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

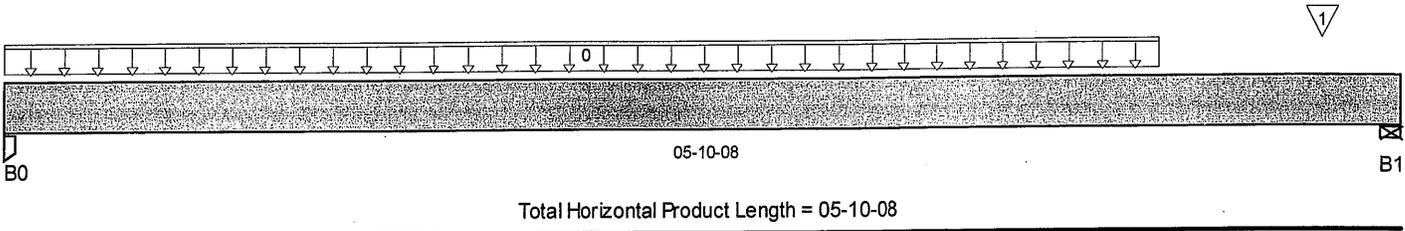
November 24, 2017 16:20:43

BC CALC® Design Report



Build 5033
 Job Name:
 Address:
 City, Province, Postal Code: EAST GWILLIMBURY,
 Customer:
 Code reports: CCMC 12472-R

File Name: HOLLAND 15.mmdl
 Description: Designs\Flush Beams\Basement\Flush Beams\B2(i1030)
 Specifier:
 Designer:
 Company:
 Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	711 / 0	370 / 0		
B1, 3-1/2"	915 / 0	538 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-10-08	233	117			n/a
1 -	Conc. Pt. (lbs)	L	05-06-08	05-06-08	489	312			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,832 ft-lbs	12,704 ft-lbs	14.4%	1	02-10-08
End Shear	972 lbs	5,785 lbs	16.8%	1	04-09-08
Total Load Defl.	L/999 (0.028")	n/a	n/a	4	02-10-08
Live Load Defl.	L/999 (0.018")	n/a	n/a	5	02-10-08
Max Defl.	0.028"	n/a	n/a	4	02-10-08
Span / Depth	7	n/a	n/a		00-00-00

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.

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	1-3/4" x 1-3/4"	1,530 lbs	61.5%	40.9%	Unspecified
B1 Wall/Plate	3-1/2" x 1-3/4"	2,045 lbs	62.5%	27.4%	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 O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



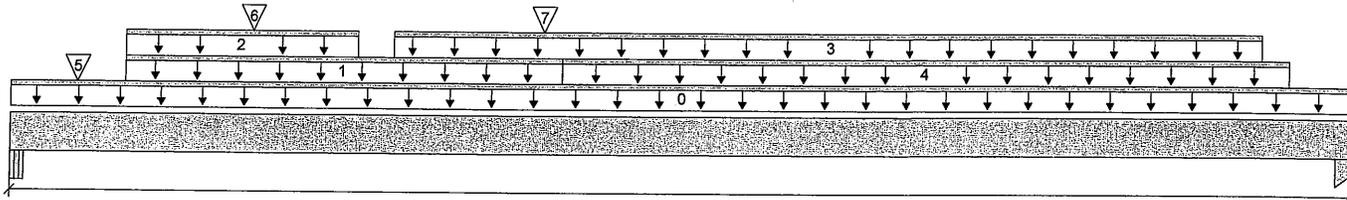
BC CALC® Design Report
Build 6215

Basment\Flush Beams\B3(i1828)

Dry | 1 span | No cant.

January 26, 2018 08:07:17

Job name:	File name: HOLLAND 15.mmdl
Address:	Description: Basment\Flush Beams\B3(i1828)
City, Province, Postal Code: EAS...URY	Specifier:
Customer:	Designer:
Code reports: CCMC 12472-R	Company:



Total Horizontal Product Length = 06-01-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	4,379 / 0	2,506 / 0		
B1, 3-1/4"	1,850 / 0	1,010 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
						1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-01-14		10			00-00-00
1	15(i1591)	Unf. Lin. (lb/ft)	L	00-06-04	02-06-06		65			n/a
2	15(i1591)	Unf. Lin. (lb/ft)	L	00-06-04	01-07-02	340	170			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	01-09-02	05-09-02	216	108			n/a
4	STAIR	Unf. Lin. (lb/ft)	L	02-06-06	05-10-10	240	120			n/a
5	PBO4(i1269)	Conc. Pt. (lbs)	L	00-03-10	00-03-10	1,979	1,137			n/a
6	-	Conc. Pt. (lbs)	L	01-01-05	01-01-05	459	230			n/a
7	15(i1591)	Conc. Pt. (lbs)	L	02-05-06	02-05-06	1,722	909			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,351 ft-lbs	23,220 ft-lbs	36.0%	1	02-05-06
End Shear	5,127 lbs	11,571 lbs	44.3%	1	01-02-12
Total Load Deflection	L/999 (0.06")	n/a	n/a	4	03-00-15
Live Load Deflection	L/999 (0.039")	n/a	n/a	5	03-00-15
Max Defl.	0.06"	n/a	n/a	4	03-00-15
Span / Depth	7.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Beam 5-1/4" x 3-1/2"	9,701 lbs	98.9%	43.3%	Unspecified
B1	Column 3-1/4" x 3-1/2"	4,038 lbs	43.7%	29.1%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
CONFORMS TO OBC 2012
 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.



DWG NO. TAM 6548-18
 STRUCTURAL COMPONENT ONLY

BC CALC® Design Report
Build 6215

Basement\Flush Beams\B3(i1828)

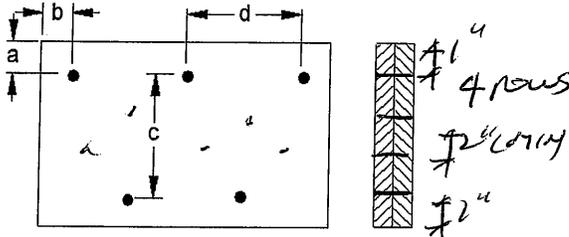
Dry | 1 span | No cant.

January 26, 2018 08:07:17

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

File name: HOLLAND 15.mmdl
Description: Basement\Flush Beams\B3(i1828)
Specifier:
Designer:
Company:

Connection Diagram



a minimum = 1 1/2"
b minimum = 3"
c = 1 1/2"
d = 4"

Calculated Side Load = 385.2 lb/ft
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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

DWG NO. TAM 6548-18 1/6/21
STRUCTURAL COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i1177)

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

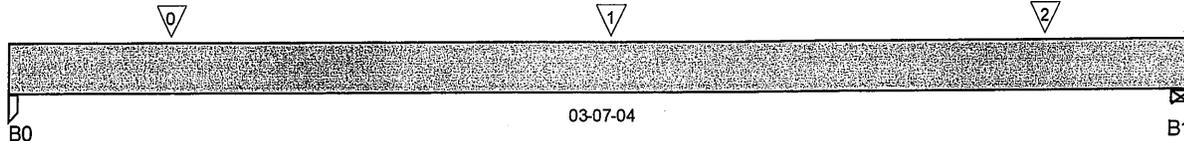
November 24, 2017 16:20:44

BC CALC® Design Report



Build 5033
 Job Name:
 Address:
 City, Province, Postal Code: EAST GWILLIMBURY,
 Customer:
 Code reports: CCMC 12472-R

File Name: HOLLAND 15.mmdl
 Description: Designs\Flush Beams\Basement\Flush Beams\B4(i1177)
 Specifier:
 Designer:
 Company:
 Misc:



Total Horizontal Product Length = 03-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	348 / 0	182 / 0		
B1, 3-1/2"	362 / 0	189 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 J3(i1191)	Conc. Pt. (lbs)	L	00-06-00	00-06-00	235	117			n/a
1 J3(i1170)	Conc. Pt. (lbs)	L	01-10-00	01-10-00	237	118			n/a
2 J3(i1218)	Conc. Pt. (lbs)	L	03-02-00	03-02-00	235	117			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	523 ft-lbs	12,704 ft-lbs	4.1%	1	01-10-00
End Shear	371 lbs	5,785 lbs	6.4%	1	01-01-00
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	01-09-11
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	01-09-11
Max Defl.	0.002"	n/a	n/a	4	01-09-11
Span / Depth	4	n/a	n/a		00-00-00

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.

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 1-3/4"	750 lbs	15.1%	10%	Unspecified
B1 Wall/Plate	3-1/2" x 1-3/4"	779 lbs	23.8%	10.4%	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 O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i888)

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

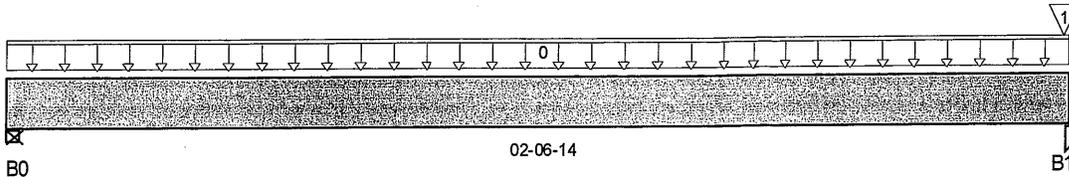
November 24, 2017 16:20:39

BC CALC® Design Report



Build 5033
 Job Name:
 Address:
 City, Province, Postal Code: EAST GWILLIMBURY,
 Customer:
 Code reports: CCMC 12472-R

File Name: HOLLAND 15.mmd
 Description: Designs\Flush Beams\Basement\Flush Beams\B5(i888)
 Specifier:
 Designer:
 Company:
 Misc:



Total Horizontal Product Length = 02-06-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	30 / 0	21 / 0		
B1, 1-3/4"	29 / 0	21 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-06-14	22	11			n/a
1 FC1 Floor Material	Conc. Pt. (lbs)	L	02-06-10	02-06-10	1	1			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	37 ft-lbs	12,704 ft-lbs	0.3%	1	01-03-12
End Shear	17 lbs	5,785 lbs	0.3%	1	00-11-14
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-03-12
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-03-12
Max Defl.	0"	n/a	n/a	4	01-03-12
Span / Depth	3	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0	Wall/Plate	71 lbs	3.2%	1.4%	Unspecified
B1	Post	70 lbs	2.8%	1.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



DWG NO. TAM 5413-18
 STRUCTURAL
 COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i889)

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

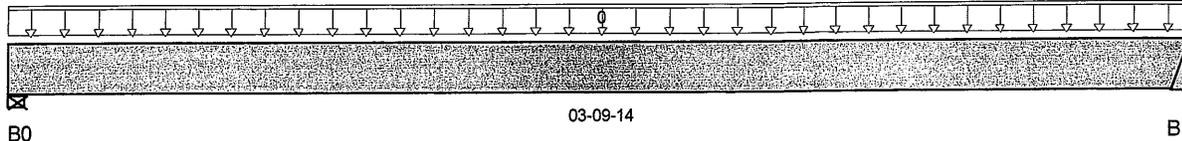
November 24, 2017 16:20:37

BC CALC® Design Report



Build 5033
 Job Name:
 Address:
 City, Province, Postal Code: EAST GWILLIMBURY,
 Customer:
 Code reports: CCMC 12472-R

File Name: HOLLAND 15.mmdl
 Description: Designs\Flush Beams\Basement\Flush Beams\B6(i889)
 Specifier:
 Designer:
 Company:
 Misc:



Total Horizontal Product Length = 03-09-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	14 / 0	17 / 0		
B1	14 / 0	16 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-09-14	8	4			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	35 ft-lbs	12,704 ft-lbs	0.3%	1	01-11-02
End Shear	21 lbs	5,785 lbs	0.4%	1	00-11-14
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-11-02
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-11-02
Max Defl.	0"	n/a	n/a	4	01-11-02
Span / Depth	4.5	n/a	n/a		00-00-00

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.

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 1-3/4"	42 lbs	1.9%	0.8%	Unspecified
B1 Hanger	2" x 1-3/4"	42 lbs	n/a	1%	HUS1.81/10

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



BC CALC® Design Report

Dry | 2 spans | No cant.

January 20, 2018 10:18:18

Build 6215

Job name:

File name: HOLLAND 15.mmdl

Address:

Description: 1st Floor\Flush Beams\B7(i1397)

City, Province, Postal Code: EAS...URY

Specifier:

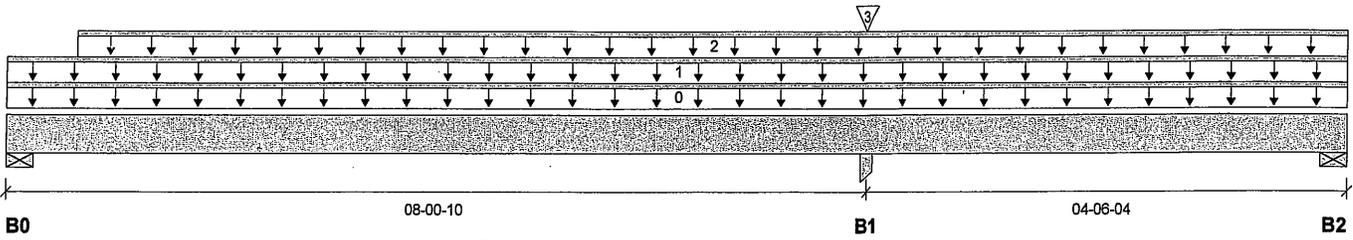
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 12-06-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	1,035 / 35	547 / 0		
B1, 3-1/2"	4,788 / 0	2,562 / 0		
B2, 3-1/2"	821 / 428	211 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-06-14	1.00	14	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-06-14	12	6			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-14	12-06-14	355	177			n/a
3	B9(i1404)	Conc. Pt. (lbs)	L	08-00-10	08-00-10	(1,788	947)			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,285 ft-lbs	36,222 ft-lbs	11.8%	2	03-01-14
Neg. Moment	-4,600 ft-lbs	-36,222 ft-lbs	12.7%	1	08-00-10
End Shear	2,192 lbs	17,356 lbs	12.6%	2	00-11-14
Cont. Shear	3,341 lbs	17,356 lbs	19.2%	1	07-01-06
Total Load Deflection	L/999 (0.039")	n/a	n/a	9	03-09-06
Live Load Deflection	L/999 (0.026")	n/a	n/a	12	03-09-06
Total Neg. Defl.	L/999 (-0.006")	n/a	n/a	9	09-09-06
Max Defl.	0.039"	n/a	n/a	9	03-09-06
Span / Depth	10.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 5-1/4"	2,236 lbs	42.0%	14.7%	Unspecified
B1	Column 3-1/2" x 5-1/4"	10,384 lbs	87.0%	46.3%	Unspecified
B2	Wall/Plate 3-1/2" x 5-1/4"	1,496 lbs	19.1%	6.7%	Unspecified
B2	Uplift	453 lbs			

Cautions

Uplift of 453 lbs found at span 2 - Right.



pg 1/2

DWG NO. TAM 5419-18
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report
Build 6215

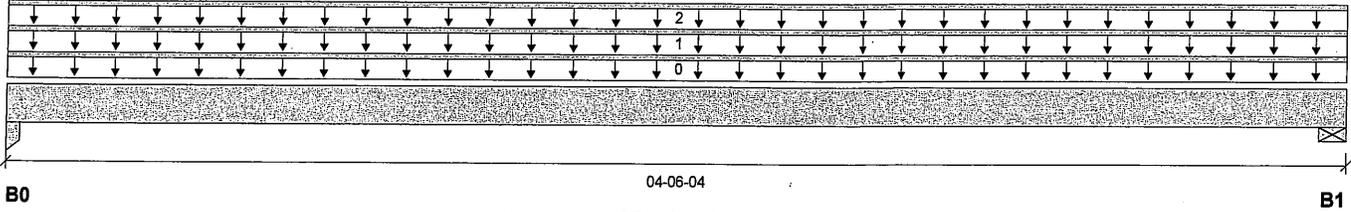
1st Floor\Flush Beams\B7(i1520)

Dry | 1 span | No cant.

January 26, 2018 08:07:17

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

File name: HOLLAND 15.mmdl
Description: 1st Floor\Flush Beams\B7(i1520)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 04-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	935 / 0	499 / 0		
B1, 3-1/2"	878 / 0	472 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-06-04	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-06-04	389	194			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-06-04	12	6			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,793 ft-lbs	36,222 ft-lbs	5.0%	1	02-01-04
End Shear	1,235 lbs	17,356 lbs	7.1%	1	00-11-04
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	02-02-00
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-02-00
Max Defl.	0.005"	n/a	n/a	4	02-02-00
Span / Depth	5.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Column 1-3/4" x 5-1/4"	2,026 lbs	27.2%	18.1%	Unspecified
B1	Wall/Plate 3-1/2" x 5-1/4"	1,908 lbs	19.4%	8.5%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition. **CONFORMS TO OBC 2012**
 Importance Factor : Normal Part code : Part 9
 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.



DWG NO. TAM 6550-18
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report
Build 6215

1st Floor\Flush Beams\B7(i1520)

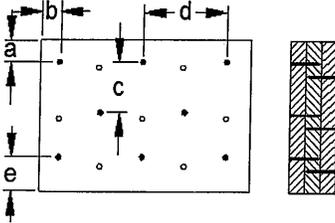
Dry | 1 span | No cant.

January 26, 2018 08:07:17

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

File name: HOLLAND 15.mmdl
Description: 1st Floor\Flush Beams\B7(i1520)
Specifier:
Designer:
Company:

Connection Diagram



a minimum = 2"
b minimum = 3"
c = 2-1/4"
d = 4"
e minimum = 3"

Calculated Side Load = 825.5 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.
Nailing schedule applies to both sides of the member.
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 6550-18 P6
STRUCTURAL COMPONENT ONLY

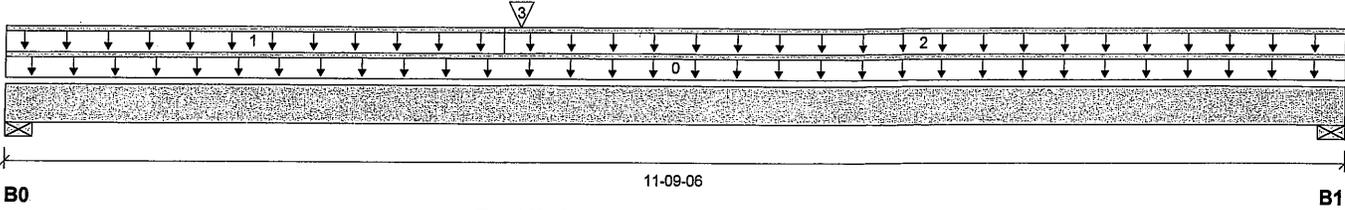
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

January 26, 2018 08:07:17

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

File name: HOLLAND 15.mmdl
Description: 1st Floor\Flush Beams\B8(i1509)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 11-09-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	606 / 0	388 / 0		
B1, 4-3/8"	434 / 0	292 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-09-06		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-04-08	10	5			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-04-08	11-09-06	20	10			n/a
3	B9(i1463)	Conc. Pt. (lbs)	L	04-06-04	04-06-04	847	469			n/a

Controls Summary

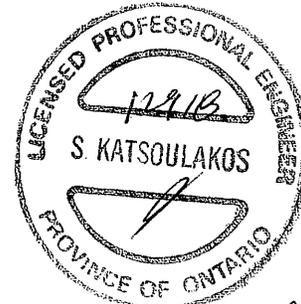
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,635 ft-lbs	23,220 ft-lbs	24.3%	1	04-06-04
End Shear	1,357 lbs	11,571 lbs	11.7%	1	01-01-00
Total Load Deflection	L/897 (0.15")	n/a	26.7%	4	05-05-11
Live Load Deflection	L/999 (0.093")	n/a	n/a	5	05-05-11
Max Defl.	0.15"	n/a	n/a	4	05-05-11
Span / Depth	14.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	1,394 lbs	21.3%	9.3%	Unspecified
B1	Wall/Plate 4-3/8" x 3-1/2"	1,016 lbs	12.4%	5.4%	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 O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 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.

CONFORMS TO OBC 2012



DWG NO. TAM 6551
STRUCTURAL COMPONENT ONLY

BC CALC® Design Report
Build 6215

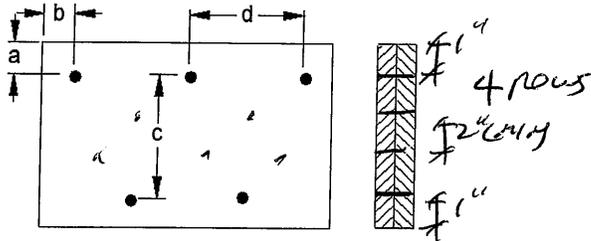
Dry | 1 span | No cant.

January 26, 2018 08:07:17

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

File name: HOLLAND 15.mmdl
Description: 1st Floor\Flush Beams\B8(i1509)
Specifier:
Designer:
Company:

Connection Diagram



a minimum = 1"
b minimum = 3"
c = 2-1/2"
d = 4"

Calculated Side Load = 157.6 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: Nails

3-1/2" ARDOX SPIRAL

Disclosure

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

DWG NO. TAM 6551-08 1/6/22
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report
Build 6215

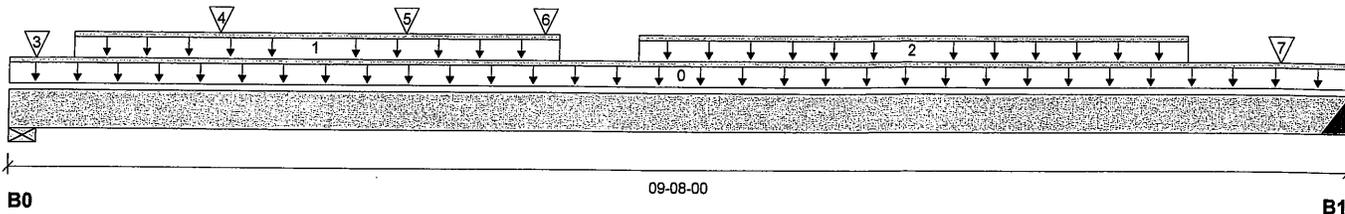
1st Floor\Flush Beams\B9(i1463)

Dry | 1 span | No cant.

January 26, 2018 08:07:17

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

File name: HOLLAND 15.mmdl
Description: 1st Floor\Flush Beams\B9(i1463)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 09-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	1,702 / 0	898 / 0		
B1, 2"	868 / 0	480 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
						1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-08-00		10			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	03-11-08	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	04-06-04	08-06-04	148	74			n/a
3	J2(i1578)	Conc. Pt. (lbs)	L	00-02-04	00-02-04	279	139			n/a
4	J2(i1582)	Conc. Pt. (lbs)	L	01-06-04	01-06-04	283	141			n/a
5	J2(i1587)	Conc. Pt. (lbs)	L	02-10-04	02-10-04	251	125			n/a
6	J4(i1584)	Conc. Pt. (lbs)	L	03-10-04	03-10-04	173	86			n/a
7	J4(i1589)	Conc. Pt. (lbs)	L	09-02-04	09-02-04	145	73			n/a

Controls Summary

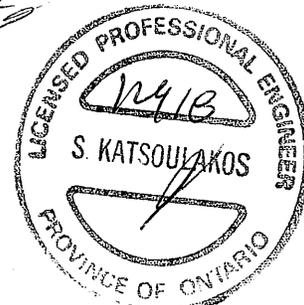
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,650 ft-lbs	23,220 ft-lbs	24.3%	1	03-10-04
End Shear	2,651 lbs	11,571 lbs	22.9%	1	01-03-00
Total Load Deflection	L/999 (0.118")	n/a	n/a	4	04-08-11
Live Load Deflection	L/999 (0.077")	n/a	n/a	5	04-08-11
Max Defl.	0.118"	n/a	n/a	4	04-08-11
Span / Depth	11.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 5-1/2" x 3-1/2"	3,676 lbs	35.8%	15.7%	Unspecified
B1	Hanger 2" x 3-1/2"	1,902 lbs	n/a	22.3%	HGUS410

Cautions

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. TAM 6552-18
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: EAS...URY

Customer:

Code reports: CCMC 12472-R

File name: HOLLAND 15.mmdl

Description: 1st Floor\Flush Beams\B9(i1463)

Specifier:

Designer:

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

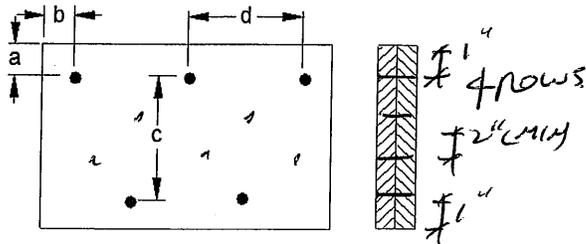
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

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.

Connection Diagram



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

Calculated Side Load = 378.5 lb/ft

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

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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



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

DWG NO. TAM 6552-18
 STRUCTURAL COMPONENT ONLY

BC CALC® Design Report
Build 6215

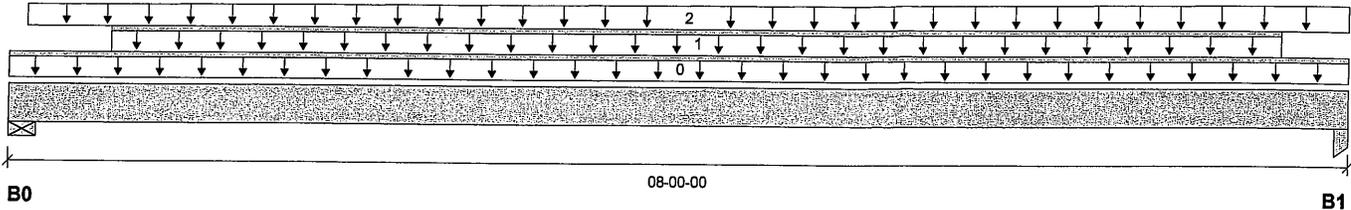
1st Floor Flush Beams B10(i1522)

Dry | 1 span | No cant.

January 26, 2018 08:07:17

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

File name: HOLLAND 15.mmdl
Description: 1st Floor\Flush Beams\B10(i1522)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 08-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	1,242 / 0	677 / 0		
B1, 2-1/4"	1,331 / 0	722 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-00-00	1.00	0.65	1.00	1.15	
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-04	07-07-04	354	176			n/a
2	FC2 Floor Material	Trapezoidal (lb/ft)	L	00-01-04	08-00-00	11	6			n/a
					08-00-00	13	6			

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,051 ft-lbs	36,222 ft-lbs	16.7%	1	04-01-04
End Shear	2,796 lbs	17,356 lbs	16.1%	1	07-00-04
Total Load Deflection	L/999 (0.062")	n/a	n/a	4	03-11-12
Live Load Deflection	L/999 (0.04")	n/a	n/a	5	03-11-12
Max Defl.	0.062"	n/a	n/a	4	03-11-12
Span / Depth	9.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 1-3/4" x 5-1/4"	2,710 lbs	55.2%	24.2%	Unspecified
B1	Column 2-1/4" x 5-1/4"	2,900 lbs	30.2%	20.1%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 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.

CONFORMS TO OBC 2012



p66h

DWG NO. TAM 6549-08
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report
Build 6215

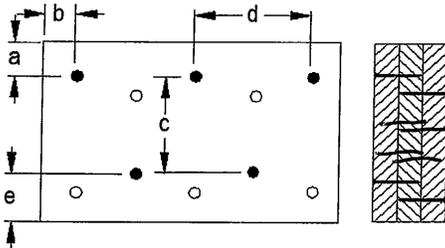
1st Floor\Flush Beams\B10(i1522)
Dry | 1 span | No cant.

January 26, 2018 08:07:17

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

File name: HOLLAND 15.mmdl
Description: 1st Floor\Flush Beams\B10(i1522)
Specifier:
Designer:
Company:

Connection Diagram



4 rows

a minimum = 0"
b minimum = 3"
c = 6 1/2"
d = 6"
e minimum = 2"

Calculated Side Load = 657.8 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: 16d Nails

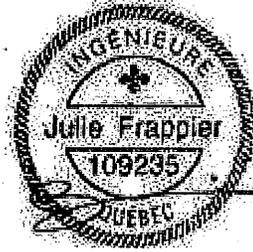
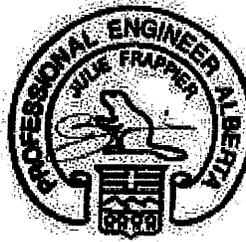
3-1/2" ARDOX SPIRAL

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DWG NO. TAM 6549-13 1/6/18
STRUCTURAL
COMPONENT ONLY



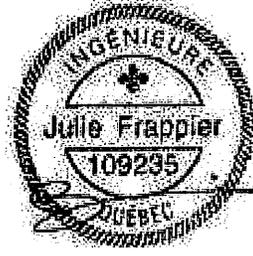
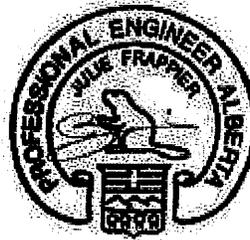
Maximum Floor Spans

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

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

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

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



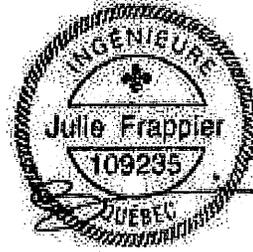
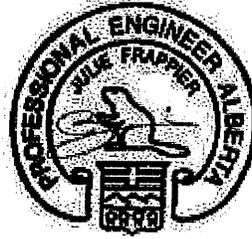
Maximum Floor Spans

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

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

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

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



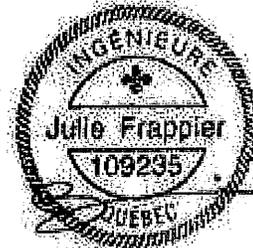
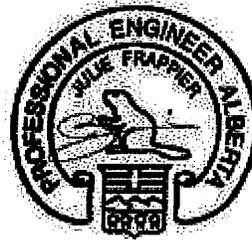
Maximum Floor Spans

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

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

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

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



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

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

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

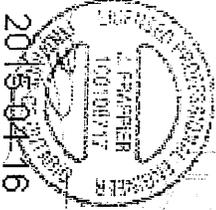
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load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

NORDIC

ENGINEERED WOOD



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:

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SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

WARNING

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

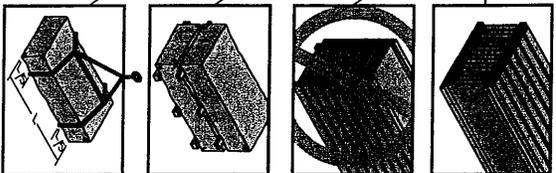
Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

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



MAXIMUM FLOOR SPANS

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

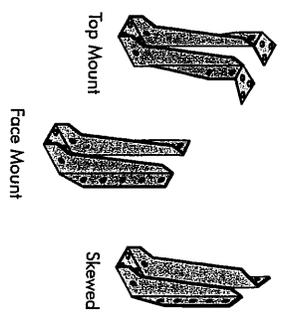
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing 16"	19.2"	24"	12"	On centre spacing 16"	19.2"	24"	
12"	NI-20	13.97'	14.83'	15.69'	16.55'	12.10'	12.97'	13.83'	14.70'
	NI-40x	14.83'	15.69'	16.55'	17.41'	12.97'	13.83'	14.70'	15.56'
	NI-60	15.69'	16.55'	17.41'	18.27'	13.83'	14.70'	15.56'	16.43'
	NI-70	16.55'	17.41'	18.27'	19.13'	14.70'	15.56'	16.43'	17.29'
	NI-80	17.41'	18.27'	19.13'	19.99'	15.56'	16.43'	17.29'	18.15'
	NI-90	18.27'	19.13'	19.99'	20.85'	16.43'	17.29'	18.15'	19.01'
	NI-90x	19.13'	19.99'	20.85'	21.71'	17.29'	18.15'	19.01'	19.87'
	NI-100	19.99'	20.85'	21.71'	22.57'	18.15'	19.01'	19.87'	20.73'
	NI-110	20.85'	21.71'	22.57'	23.43'	19.01'	19.87'	20.73'	21.59'
	NI-120	21.71'	22.57'	23.43'	24.29'	19.87'	20.73'	21.59'	22.45'
16"	NI-20	18.27'	19.13'	19.99'	20.85'	14.70'	15.56'	16.43'	17.29'
	NI-40x	19.13'	19.99'	20.85'	21.71'	15.56'	16.43'	17.29'	18.15'
	NI-60	19.99'	20.85'	21.71'	22.57'	16.43'	17.29'	18.15'	19.01'
	NI-70	20.85'	21.71'	22.57'	23.43'	17.29'	18.15'	19.01'	19.87'
	NI-80	21.71'	22.57'	23.43'	24.29'	18.15'	19.01'	19.87'	20.73'
	NI-90	22.57'	23.43'	24.29'	25.15'	19.01'	19.87'	20.73'	21.59'
	NI-90x	23.43'	24.29'	25.15'	26.01'	19.87'	20.73'	21.59'	22.45'
	NI-100	24.29'	25.15'	26.01'	26.87'	20.73'	21.59'	22.45'	23.31'
	NI-110	25.15'	26.01'	26.87'	27.73'	21.59'	22.45'	23.31'	24.17'
	NI-120	26.01'	26.87'	27.73'	28.59'	22.45'	23.31'	24.17'	25.03'
19.2"	NI-20	20.85'	21.71'	22.57'	23.43'	17.29'	18.15'	19.01'	19.87'
	NI-40x	21.71'	22.57'	23.43'	24.29'	18.15'	19.01'	19.87'	20.73'
	NI-60	22.57'	23.43'	24.29'	25.15'	19.01'	19.87'	20.73'	21.59'
	NI-70	23.43'	24.29'	25.15'	26.01'	19.87'	20.73'	21.59'	22.45'
	NI-80	24.29'	25.15'	26.01'	26.87'	20.73'	21.59'	22.45'	23.31'
	NI-90	25.15'	26.01'	26.87'	27.73'	21.59'	22.45'	23.31'	24.17'
	NI-90x	26.01'	26.87'	27.73'	28.59'	22.45'	23.31'	24.17'	25.03'
	NI-100	26.87'	27.73'	28.59'	29.45'	23.31'	24.17'	25.03'	25.89'
	NI-110	27.73'	28.59'	29.45'	30.31'	24.17'	25.03'	25.89'	26.75'
	NI-120	28.59'	29.45'	30.31'	31.17'	25.03'	25.89'	26.75'	27.61'
24"	NI-20	23.43'	24.29'	25.15'	26.01'	19.87'	20.73'	21.59'	22.45'
	NI-40x	24.29'	25.15'	26.01'	26.87'	20.73'	21.59'	22.45'	23.31'
	NI-60	25.15'	26.01'	26.87'	27.73'	21.59'	22.45'	23.31'	24.17'
	NI-70	26.01'	26.87'	27.73'	28.59'	22.45'	23.31'	24.17'	25.03'
	NI-80	26.87'	27.73'	28.59'	29.45'	23.31'	24.17'	25.03'	25.89'
	NI-90	27.73'	28.59'	29.45'	30.31'	24.17'	25.03'	25.89'	26.75'
	NI-90x	28.59'	29.45'	30.31'	31.17'	25.03'	25.89'	26.75'	27.61'
	NI-100	29.45'	30.31'	31.17'	32.03'	25.89'	26.75'	27.61'	28.47'
	NI-110	30.31'	31.17'	32.03'	32.89'	26.75'	27.61'	28.47'	29.33'
	NI-120	31.17'	32.03'	32.89'	33.75'	27.61'	28.47'	29.33'	30.19'

CGMC EVALUATION REPORT 13032-R

I-JOIST HANGERS

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

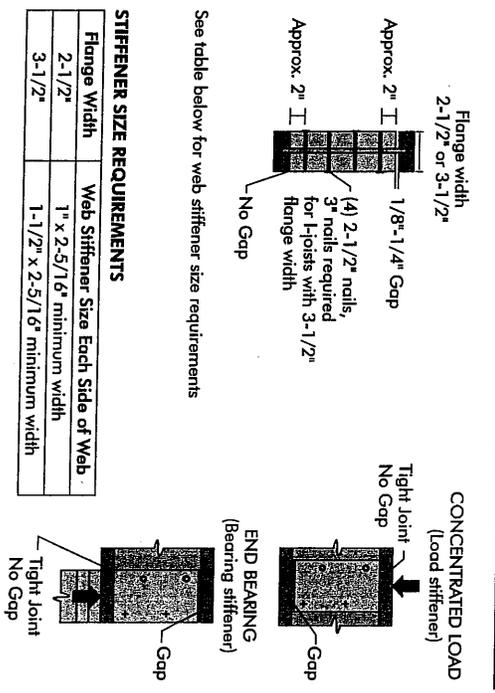


WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the Joist properties table found in the Construction Guide (C101). The gap between the stiffener and the flange is at the top.
 - A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
 - A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.
- SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

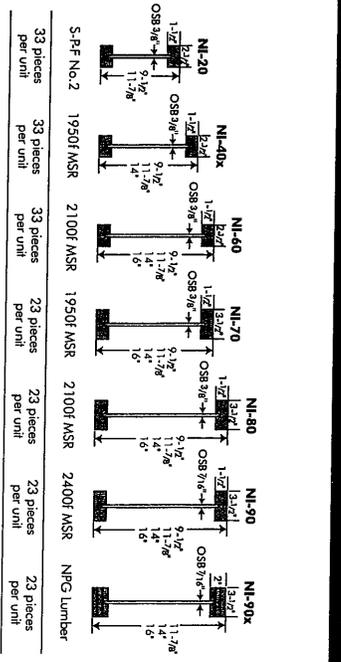


STIFFENER SIZE REQUIREMENTS

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

See table below for web stiffener size requirements

NORDIC I-JOIST SERIES



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

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

2015-04-16

INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple spans must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge **may never** be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

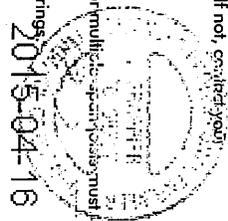
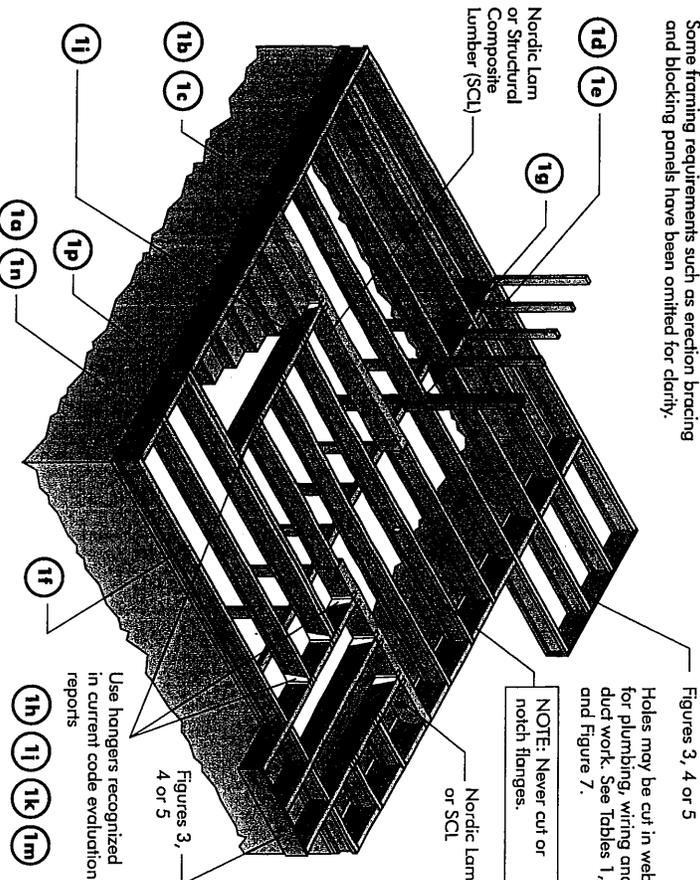
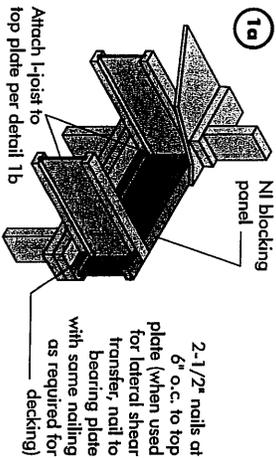


FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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

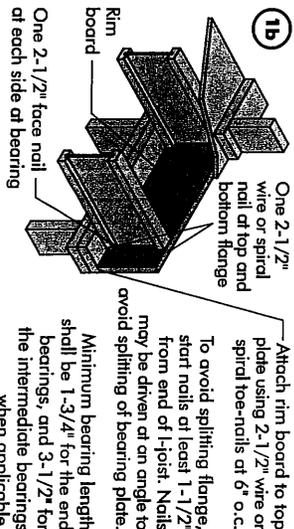


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



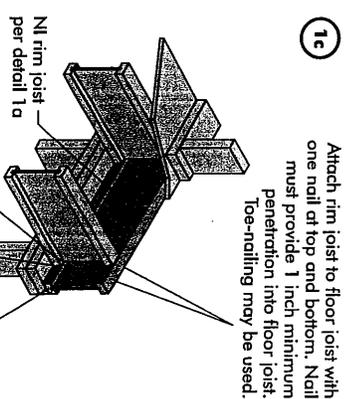
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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

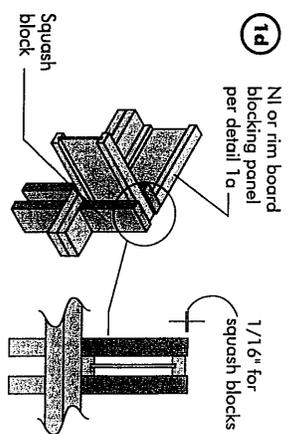


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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

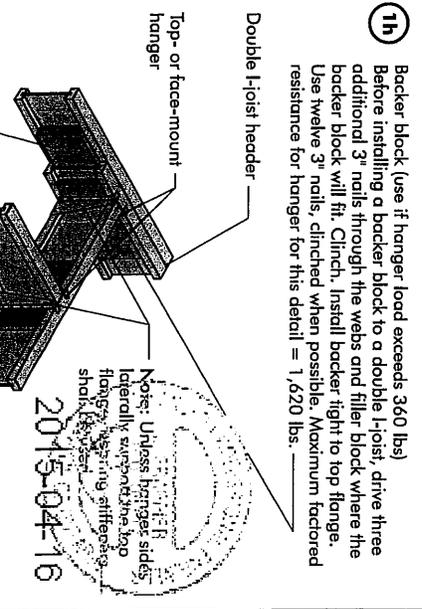
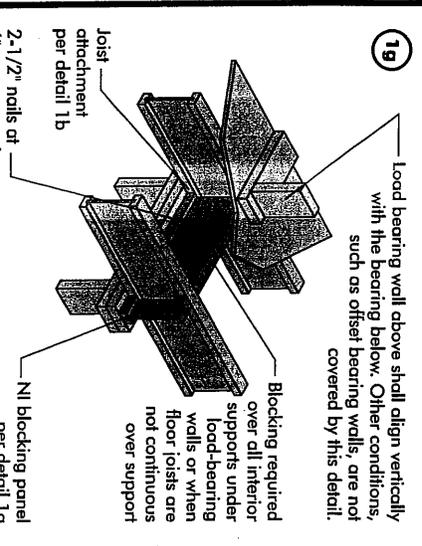
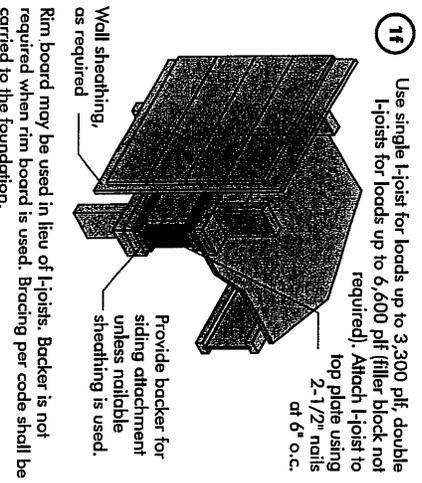
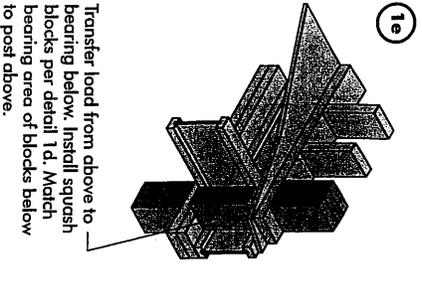


Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.



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

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



1e

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

1f

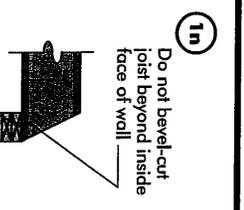
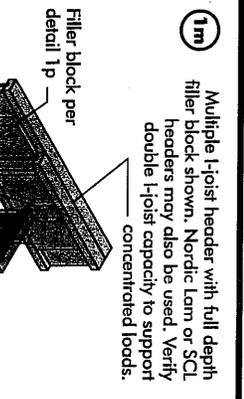
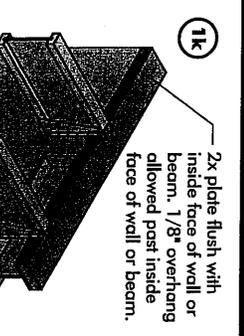
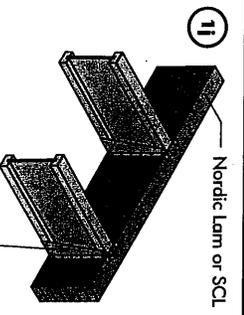
Use single I-beam for loads up to 3,300 plf, double I-beams for loads up to 6,600 plf (filler block not required). Attach I-beam to top plate using 2-1/2" nails at 6" o.c.

1g

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

1h

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



1i

Nordic Lam or SCL
Top- or face-mount hanger installed per manufacturer's recommendations

1k

2x plate flush with inside face of wall or beam. 1/8" overhanging allowed post inside face of wall or beam.

1m

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

1n

Do not bevel-cut joist beyond inside face of wall

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

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

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

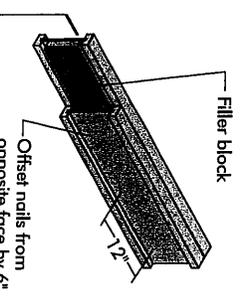
Note: Blocking required of bearing for lateral support, not shown for clarity.

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

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

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

1p

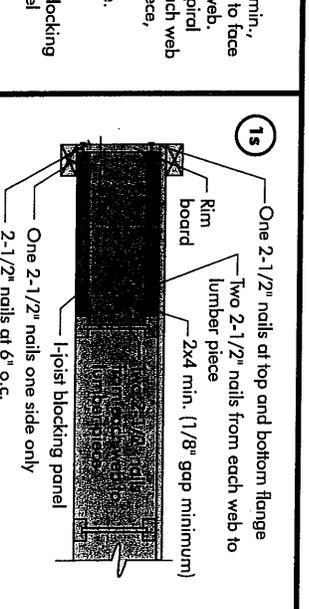
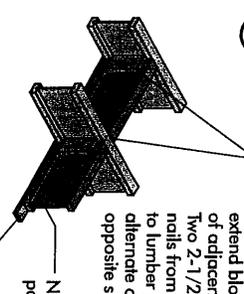


- Notes:
- Support back of I-beam during nailing to prevent damage to web/flange connection.
 - Leave a 1/8" to 1/4" gap between top of filler block and bottom of top I-beam flange.
 - Filler block is required between joists for full length of span.
 - Nail joists together with two rows of 3" nails at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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-BEAM CONSTRUCTION

Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2" to 11-7/8"	2-1/8" x 6"
3-1/2" x 1-1/2"	11-7/8" to 14"	2-1/8" x 8"
3-1/2" x 1-1/2"	14" to 16"	2-1/8" x 10"
3-1/2" x 2"	11-7/8" to 16"	2-1/8" x 12"
3-1/2" x 2"	16" to 18"	3" x 6"
3-1/2" x 2"	18" to 20"	3" x 8"
3-1/2" x 2"	20" to 22"	3" x 10"
3-1/2" x 2"	22" to 24"	3" x 12"

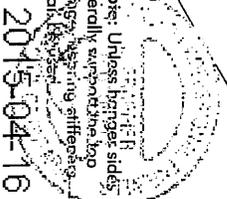
1r



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

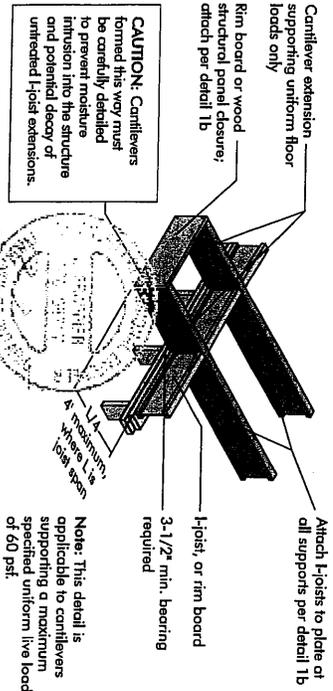
Notes:

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

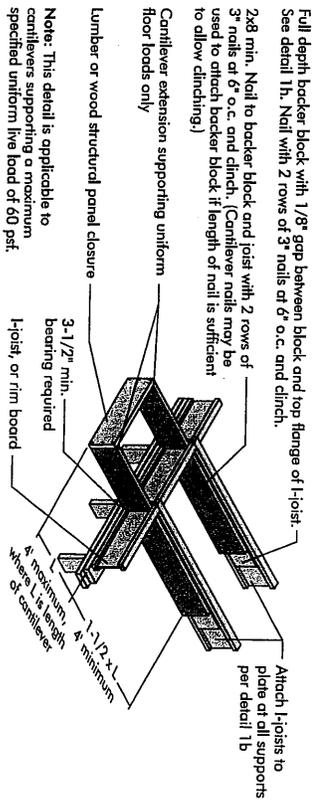


CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

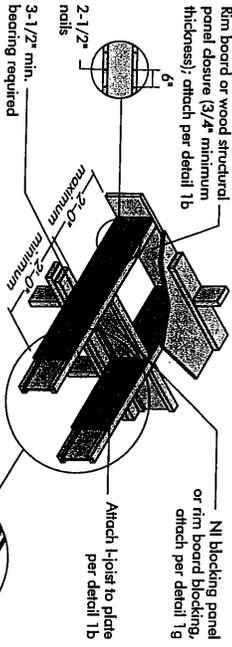


35 LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

40 Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

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

41 Alternate Method 2 — DOUBLE I-JOIST

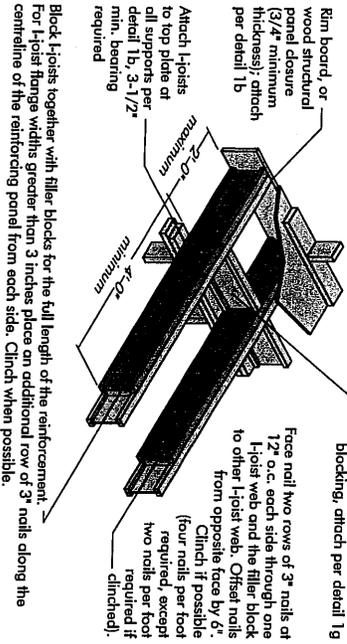
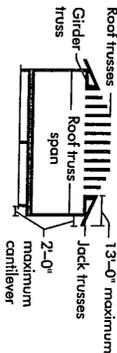
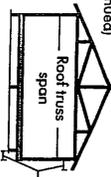


FIGURE 4 (continued)

See table below for N1 reinforcement requirements of cantilever.



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

CANTILEVER REINFORCEMENT METHODS ALLOWED

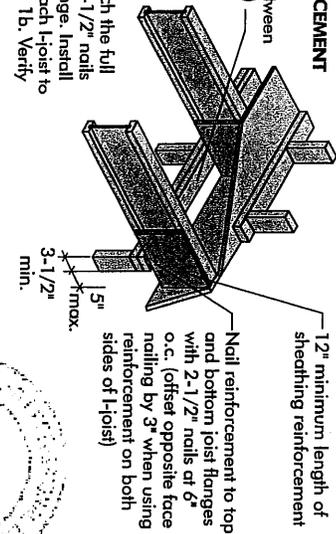
JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 60 psf, DL = 15 psf								
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
24	24	X	X	X	X	X	X	X	X	X	X	X	X
24	20	X	X	X	X	X	X	X	X	X	X	X	X
24	16	X	X	X	X	X	X	X	X	X	X	X	X
24	12	X	X	X	X	X	X	X	X	X	X	X	X
24	8	X	X	X	X	X	X	X	X	X	X	X	X
24	4	X	X	X	X	X	X	X	X	X	X	X	X
24	2	X	X	X	X	X	X	X	X	X	X	X	X
24	1	X	X	X	X	X	X	X	X	X	X	X	X
24	0.5	X	X	X	X	X	X	X	X	X	X	X	X
24	0.25	X	X	X	X	X	X	X	X	X	X	X	X
24	0.125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.03125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.015625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0078125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00390625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.001953125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0009765625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00048828125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000244140625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0001220703125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00006103515625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000030517578125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000152587890625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000762939453125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000003814697265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000019073486328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000095367431640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000476837158203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000002384185791015625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000011920928955078125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000059604644775390625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000298023223876953125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000001490116119384765625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000007450580596923828125	X	X	X	X	X	X	X	X	X	X	X	X
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24	0.000000000931322574615278515625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000004656612873076392578125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000023283064365381962890625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000000116415321826909814453125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000582076609134549072265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000291038304567274545140625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000001455191522836372727265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000000007275957614181863636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000036379788070909318181640625	X	X	X	X	X	X	X	X	X	X	X	X
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24	0.0000000000009094947017727272727265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000000000454747350886363636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000002273736754431818181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000011368683772159090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000568434188608863636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000002842170943044318181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000001421085471522159090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000710542735761418181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000035527136788070909318181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000177635683940354546590908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000088817841970177272727265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000004440892098508863636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000022204460492544318181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000011102230246272159090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000005551115113136372727265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000000277555755663636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000001387778778318181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000000693889389159090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000000034694469459090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000000017347234727265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000000086736173636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000000043368086818181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000000021684043409090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000000001084202170454546590908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000000005421010854659090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000000002710505427265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000000001355252713636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000000000000000006776263636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000000000033881318181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000000000016940659090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.00000000000000000000084703295454659090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000000000000000000423516477265625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000000000000000000211758238636328125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000000000000000000105879119318181640625	X	X	X	X	X	X	X	X	X	X	X	X
24	0.000000000000000000000052939559659090908203125	X	X	X	X	X	X	X	X	X	X	X	X
24	0.0000000000000000000000264697798295454659090908203125	X	X	X	X</								

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

5a SHEATHING REINFORCEMENT

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

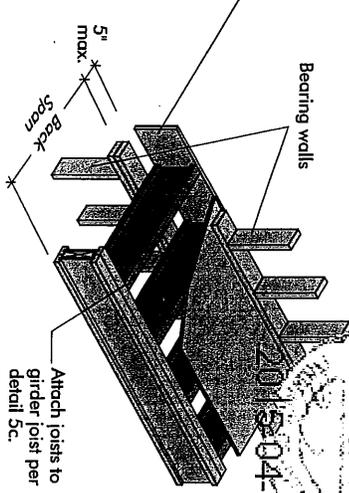
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate of all supports per detail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



5b SET-BACK DETAIL

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

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



5c SET-BACK CONNECTION

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

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

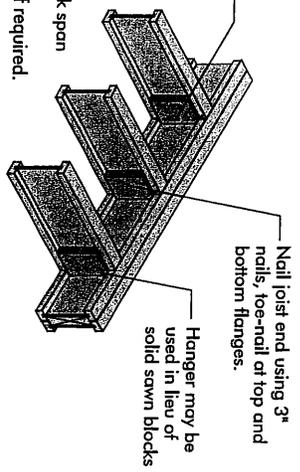
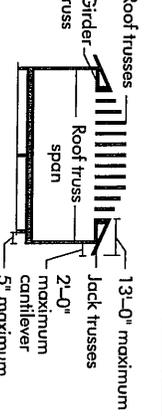
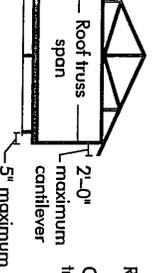


FIGURE 5 (continued)



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)		ROOF LOADING (UNFACTORED)			
	12	16	12	16	19.2	24
26	2	2	2	2	2	2
28	2	2	2	2	2	2
30	2	2	2	2	2	2
32	2	2	2	2	2	2
34	2	2	2	2	2	2
36	2	2	2	2	2	2
38	2	2	2	2	2	2
40	2	2	2	2	2	2
42	2	2	2	2	2	2
12	2	2	2	2	2	2
14	2	2	2	2	2	2
16	2	2	2	2	2	2
18	2	2	2	2	2	2
20	2	2	2	2	2	2
22	2	2	2	2	2	2
24	2	2	2	2	2	2
26	2	2	2	2	2	2
28	2	2	2	2	2	2
30	2	2	2	2	2	2
32	2	2	2	2	2	2
34	2	2	2	2	2	2
36	2	2	2	2	2	2
38	2	2	2	2	2	2
40	2	2	2	2	2	2
42	2	2	2	2	2	2

1. N = No reinforcement required.
 1 = NI reinforced with 3/4" wood structural panel on one side only.
 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joists.
 X = Try a deeper joist or closer spacing.
 2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
 3. 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.
 4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
 5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

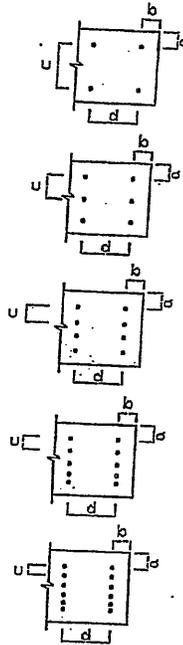
MICRO CITY

ENGINEERING SERVICES INC.

TEL: (519) 287 - 2242

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

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



NOTES:

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



DWG NO TAMN1001.14

STRUCTURAL COMPONENT ONLY

TO BE USED ONLY WITH BEAM CLES BEARING THE STAMP BELOW

PROVIDE NAILING DETAIL # X SEE DWG #TAMN1001-14