

		Products		
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	27
J1 DJ	18-00-00	11 7/8" NI-40x	2	8
J2	16-00-00	11 7/8" NI-40x	1	17
J3	12-00-00	11 7/8" NI-40x	1	4
J4	6-00-00	11 7/8" NI-40x	1	4
J5	4-00-00	11 7/8" NI-40x	1	2
J6	2-00-00	11 7/8" NI-40x	1	2
B2 H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1 H	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3 H	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B22	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary					
Qty	Manuf	Product			
4	H1	IUS2.56/11.88			
7	H1	IUS2.56/11.88			
4	H1	IUS2.56/11.88			
6	H1	IUS2.56/11.88			
1	H3	HUS1.81/10			



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **REVISION:** Ibv

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. MULTIPL **SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALOI BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIEL **CUT OPENINGS** SEE FIGURE 7 TABLES 1 & OF THE INSTALLATION GUIDE. CERAMIC T APPLICATION AS PER O.B.C. 9.30.6

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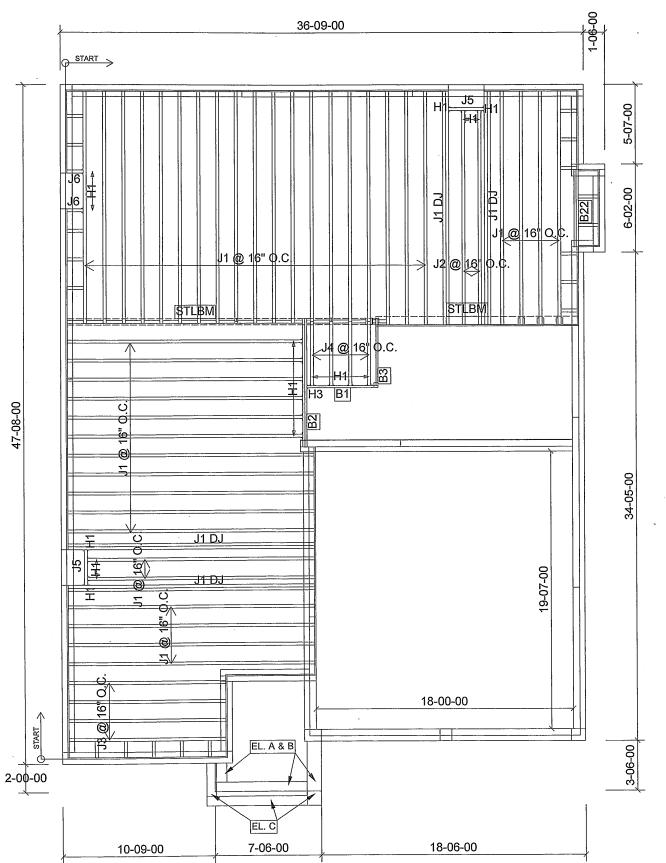
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-05-19

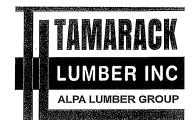
1ST FLOOR

STANDARD



	Products					
PlotID	Length	Product	Plies	Net Qty		
J1	18-00-00	11 7/8" NI-40x	1	40		
J1 DJ	18-00-00	11 7/8" NI-40x	2	8		
J2	16-00-00	11 7/8" NI-40x	1	2		
J3	12-00-00	11 7/8" NI-40x	1	4		
J4	6-00-00	11 7/8" NI-40x	1	4		
J5	4-00-00	11 7/8" NI-40x	1	2		
J6	2-00-00	11 7/8" NI-40x	1	2		
B2	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2		
B1	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1		
В3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1		
B22	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2		

	Connector Summary					
Qty	Manuf	Product				
4	H1	IUS2.56/11.88				
6	H1	IUS2.56/11.88				
4	H1	IUS2.56/11.88				
6	H1 -	IUS2.56/11.88				
1	H3	HUS1.81/10				



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **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 INTERIOI UNIFORM LOAD BEARING WALLS. MULTIF SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT **OVER BRICK** REQ. I-JOIST BLOCKING ALC BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIE **CUT OPENINGS** SEE FIGURE 7 TABLES 1 OF THE INSTALLATION GUIDE. CERAMIC APPLICATION AS PER O.B.C. 9.30.6

LOADING:

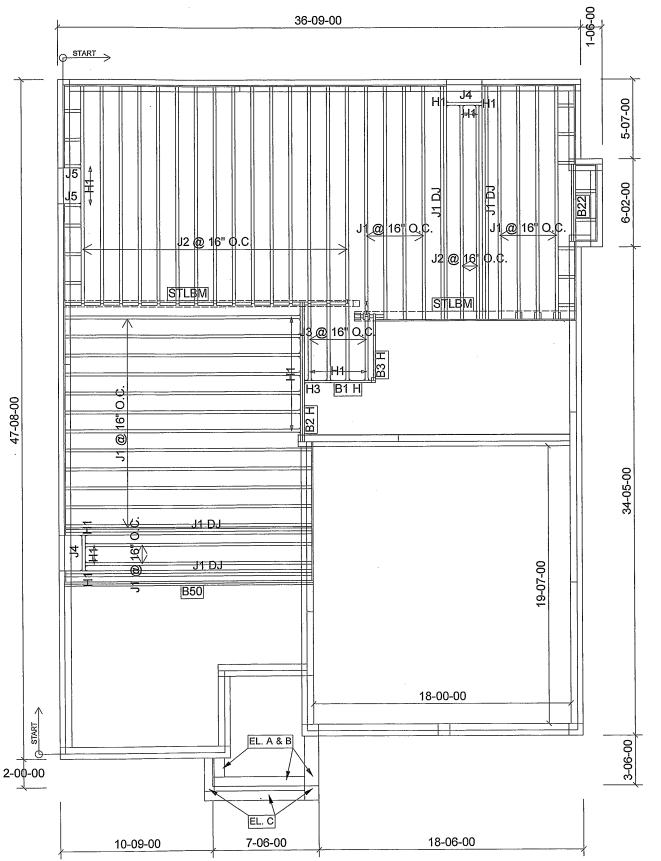
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-05-19

1ST FLOOR

OPTIONS



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	22
J1 DJ	18-00-00	11 7/8" NI-40x	2	8
J2	16-00-00	11 7/8" NI-40x	1	17
J3	6-00-00	11 7/8" NI-40x	1	4
J4	4-00-00	11 7/8" NI-40x	1	2
J5	2-00-00	11 7/8" NI-40x	1	2
B50	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2 H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1 H	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3 H	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B22	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary					
Qty	Manuf	Product			
4	H1	IUS2.56/11.88			
7	H1	IUS2.56/11.88			
4	H1	IUS2.56/11.88			
6	H1	IUS2.56/11.88			
1	H3	HUS1.81/10	l		



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **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 INTERIO UNIFORM LOAD BEARING WALLS. **MULTIF SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT OVER BRICK REQ. I-JOIST BLOCKING ALC BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIE **CUT OPENINGS** SEE FIGURE 7 TABLES 1 OF THE INSTALLATION GUIDE. CERAMIC APPLICATION AS PER O.B.C. 9.30.6

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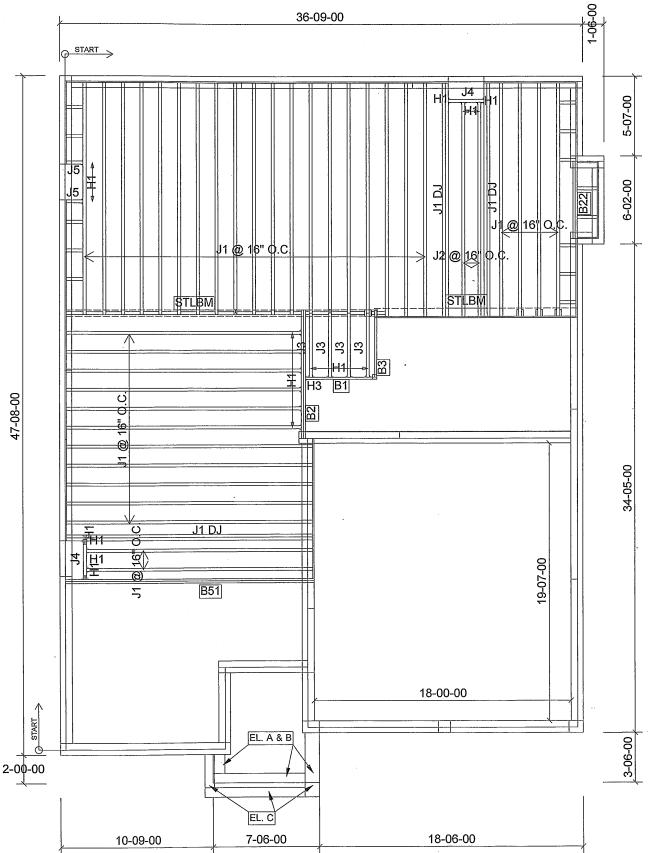
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-05-19

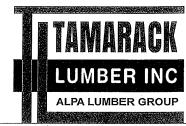
1ST FLOOR

STANDARD SUNKEN FOYER



	Products				
PlotID	Length	Product	Plies	Net Qty	
J1	18-00-00	11 7/8" NI-40x	1	36	
J1 DJ	18-00-00	11 7/8" NI-40x	2	6	
J2	16-00-00	11 7/8" NI-40x	1	2	
J3	6-00-00	11 7/8" NI-40x	1	4	
J4	4-00-00	11 7/8" NI-40x	1	2	
J5	2-00-00	11 7/8" NI-40x	1	2	
B51	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B2	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B1	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B22	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	

	Connector Summary					
Qty	Manuf	Product				
4	H1	IUS2.56/11.88				
7	H1	IUS2.56/11.88				
3	H1	IUS2.56/11.88				
6	H1	IUS2.56/11.88				
1	H3	HUS1.81/10				



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **REVISION:** Ibv

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 INTERIOF UNIFORM LOAD BEARING WALLS. MULTIP SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT **OVER BRICK** REQ. I-JOIST BLOCKING ALC BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIE **CUT OPENINGS** SEE FIGURE 7 TABLES 1 OF THE INSTALLATION GUIDE. CERAMIC 1 APPLICATION AS PER O.B.C. 9.30.6

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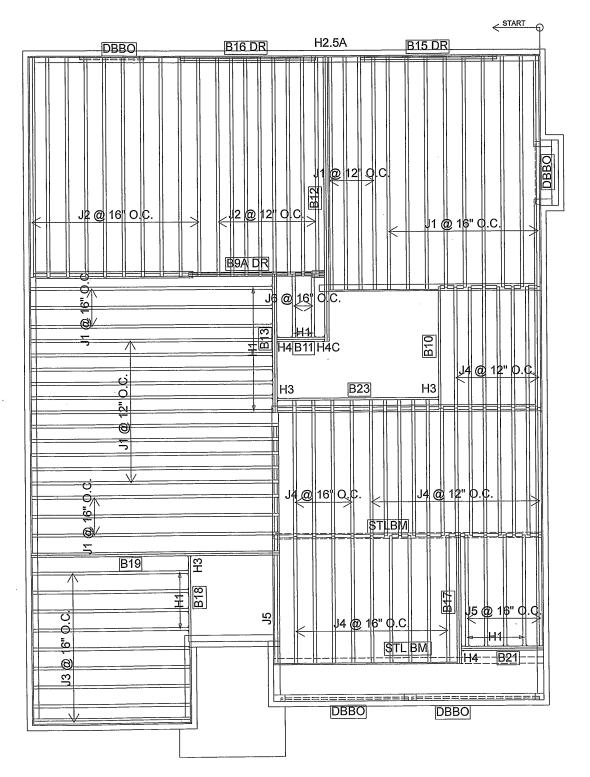
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-05-19

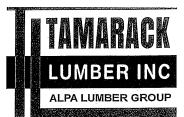
1ST FLOOR

OPTIONS SUNKEN FOYER



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	30
J2	16-00-00	11 7/8" NI-40x	1	18
J3	12-00-00	11 7/8" NI-40x	1	9
J4	10-00-00	11 7/8" NI-40x	1	33
J5	8-00-00	11 7/8" NI-40x	1	6
J6	6-00-00	11 7/8" NI-40x	1	2
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9A DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B21	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

	Connector Summary					
Qty	Manuf	Product				
4	H1	IUS2.56/11.88				
15	H1	IUS2.56/11.88				
1	N/A	H2.5A				
1	H3	HUS1.81/10				
2	H3	HUS1.81/10				
1	H4C	HUC410				
2	H4	HGUS410				



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: A

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **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 INTERIOF UNIFORM LOAD BEARING WALLS. MULTIP SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT OVER BRICK REQ. I-JOIST BLOCKING ALC BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIE **CUT OPENINGS** SEE FIGURE 7 TABLES 1 OF THE INSTALLATION GUIDE. CERAMIC APPLICATION AS PER O.B.C. 9.30.6

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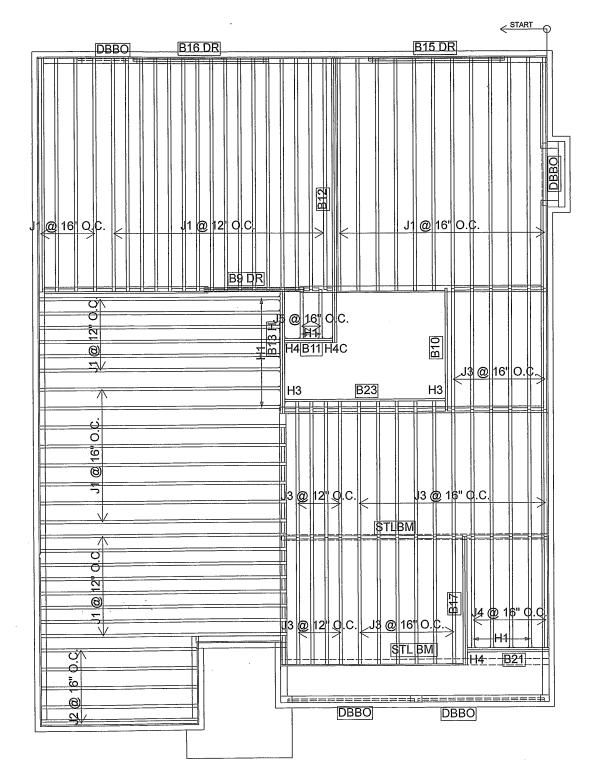
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-05-19

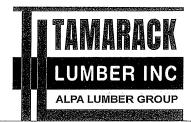
2nd FLOOR

STANDARD 4 BEDROOM



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	54
J2	12-00-00	11 7/8" NI-40x	1	5
J3	10-00-00	11 7/8" NI-40x	1	31
J4	8-00-00	11 7/8" NI-40x	1	5
J5	4-00-00	11 7/8" NI-40x	1	2
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13 H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B21	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2 ·	2

Connector Summary					
Qty	Manuf	Product			
14	H1	IUS2.56/11.88			
1	N/A	H2.5A			
1	H3	HUS1.81/10			
1	H3	HUS1.81/10			
1	H4C	HUC410			
2	H4	HGUS410			



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: A

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **REVISION:** ibv

NOTES:

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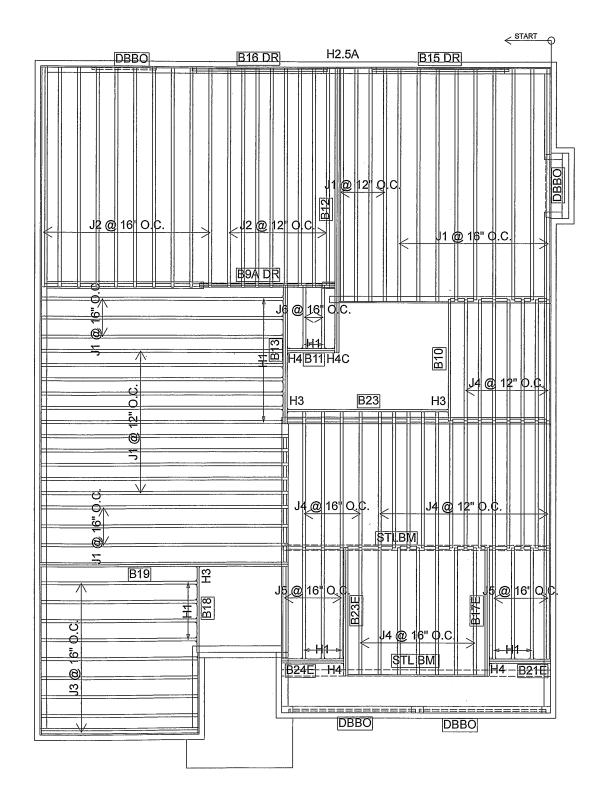
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-05-19

2ND FLOOR

OPTIONS 5 BEDROOM



		Products	•	
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	30
J2	16-00-00	11 7/8" NI-40x	1	18
.J3	12-00-00	11 7/8" NI-40x	1	9
J4	10-00-00	11 7/8" NI-40x	1	31
J5	8-00-00	11 7/8" NI-40x	1	8
J6	6-00-00	11 7/8" NI-40x	1	2
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9A DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17E	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23E	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B21E	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B24E	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

		Connecto	r Summary
	Qty	Manuf	Product
	4	H1	IUS2.56/11.88
	17	H1	IUS2.56/11.88
	1	N/A	H2.5A
	1	H3	HUS1.81/10
ĺ	2	H3	HUS1.81/10
	1	H4C	HUC410
	3	H4	HGUS410



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: B

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **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 INTERIOF UNIFORM LOAD BEARING WALLS. MULTIP **SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' **OVER BRICK** REQ. I-JOIST BLOCKING ALO BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIEI **CUT OPENINGS** SEE FIGURE 7 TABLES 1 { OF THE INSTALLATION GUIDE. CERAMIC T APPLICATION AS PER O.B.C. 9.30.6

LOADING:

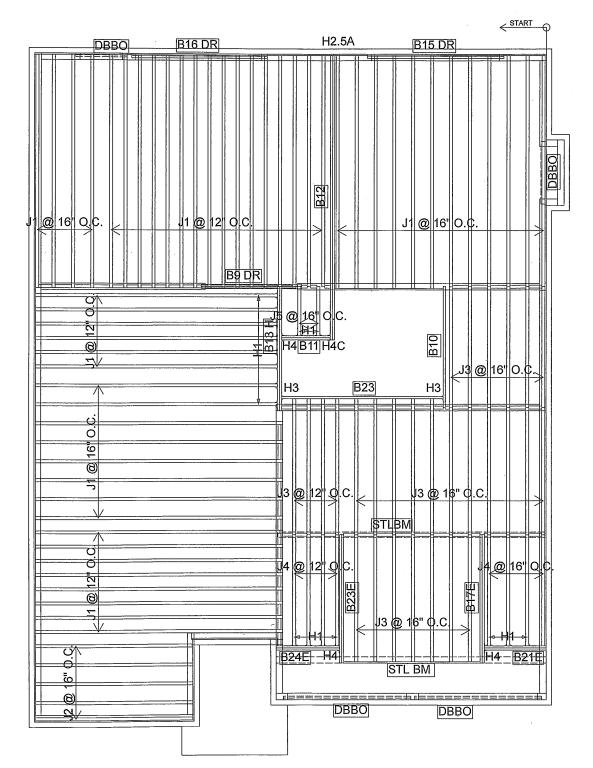
DESIGN LOADS: L/480,000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-05-19

2nd FLOOR

STANDARD 4 BEDROOM



	***************************************	Products		
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	54
J2	12-00-00	11 7/8" NI-40x	1	5
J3	10-00-00	11 7/8" NI-40x	1	28
J4	8-00-00	11 7/8" NI-40x	1	8
J5	4-00-00	11 7/8" NI-40x	1	2
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13 H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17E	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23E	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B21E	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B24E	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary

Manuf Product

IUS2.56/11.88

HUS1.81/10

HUS1.81/10

HUC410

HGUS410

H2.5A

Qty

3

H1

N/A

Н3

Н3

H4C

H4



FROM PLAN DATED: FEB 2021

BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: B

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. REVISION: Ibv

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. MULTIPI SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS, SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALO. BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIEL **CUT OPENINGS** SEE FIGURE 7 TABLES 1 { OF THE INSTALLATION GUIDE. CERAMIC T APPLICATION AS PER O.B.C. 9.30.6

LOADING:

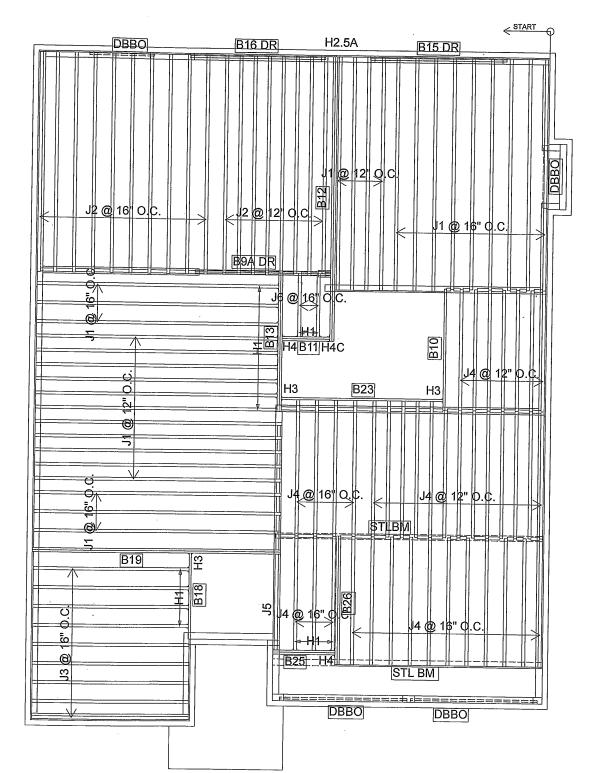
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-05-19

2ND FLOOR

OPTIONS 5 BEDROOM



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	. 1	30
J2	16-00-00	11 7/8" NI-40x	1	18
J3	12-00-00	11 7/8" NI-40x	1	9
J4	10-00-00	11 7/8" NI-40x	1	38
J5	8-00-00	11 7/8" NI-40x	1	1
J6	6-00-00	11 7/8" NI-40x	1	2
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9A DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B26	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18	8-00-Ò0	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B25	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

	Connector Summary								
Qty	Manuf	Product							
3	H1	IUS2.56/1.88							
4	H1	IUS2.56/11.88							
11	H1	IUS2.56/11.88							
1	Ñ/A	H2.5A							
1	H3	HUS1.81/10							
2	H3	HUS1.81/10							
1	H4C	HUC410							
2	H4	HGUS410							



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: C

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **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. MULTIPL SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALOI BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIEL **CUT OPENINGS** SEE FIGURE 7 TABLES 1 8 OF THE INSTALLATION GUIDE. CERAMIC TI APPLICATION AS PER O.B.C. 9.30.6

LOADING:

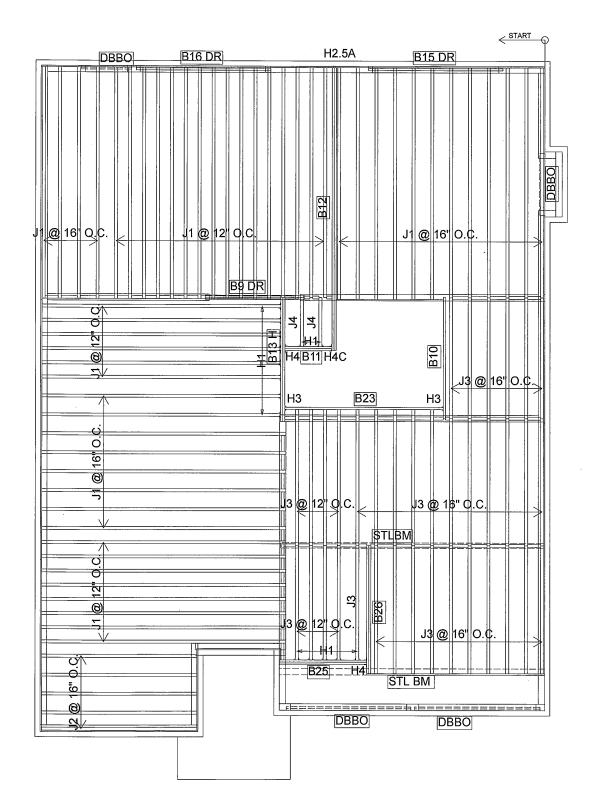
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-05-19

2nd FLOOR

STANDARD 4 BEDROOM



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	54
J2	12-00-00	11 7/8" NI-40x	1	5
J3	10-00-00	11 7/8" NI-40x	1	36
J4	4-00-00	11 7/8" NI-40x	1	2
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13 H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B26	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2 .	2

•	Connecto	r Summary
Qty	Manuf	Product
15	H1	IUS2.56/11.88
1	N/A	H2.5A
1 .	H3	HUS1.81/10
1	H3	HUS1.81/10
1	H4C	HUC410
2	H4	HGUS410



BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4502

ELEVATION: C

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **REVISION:** Ibv

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:

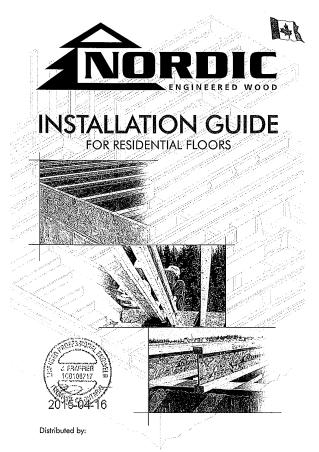
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft² TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-05-19

2ND FLOOR

OPTIONS 5 BEDROOM



SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

l-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:

Brace and nail each I-joist as it is installed, using hangers, blocking ponels, 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.

When the building is completed, the floor sheathing will provide lateral support for the top flonges of the I-joists. Until this sheathing is applied, temporary bracing, often colled struts, or temporary sheathing must be applied to prevent I-joist rollower or buckling.

■ Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long emporary procuring or strong the rax incri minimini, or leasts of each organized no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2º nails fastened to the top surface of each l-joist. Nail the bracing to a lateral restraint of the end of each boy. Lap ends of adjoining bracing over at least two l-joists.

Or, sheathing (temporary or permanent) can be noiled to the top flange of the first 4 feet of 1-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.

 Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only. 5. Never install a damaged I-joist.

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

MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or Maximum clear spans applicable to simple-span or multiple-span residential flaor 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 1/480. 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 (CSB) sheathing with a minimum thickness of 5/8 linds 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 CGBS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used 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 uniform loads, an engineering analysis may be required based on the use of the design properties.

FIGURE 2

WEB STIFFENER INSTALLATION DETAILS

Flange width 2-1/2" or 3-1/2"

- 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

Joist Joist Depth Series 12".		spans e spacing 19.2 13'-9'	24'		Multiple On centre 16"		24"
Depth Series 12".	14'-2'	19.2	CARCAGO MACAGO				9/11
12	14'-2"		CARCAGO MACAGO	12	16"	99	S OVER 3
		13'-9"					0.00
NI-20 15'-1"	15'-2"		13'-5"	16'-3'	15'-4"	14'-10"	14'-7'
NI-40x 16'-1"		14'-8"	14'-9"	17-5	16'-5"	15'-10"	15'-5"
9-1/2" NI-60 16'-3"	15'-4"	14'-10"	14'-11'	17'-7'	16-7	16'-0"	16'-1"
NI-70 17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4'	16'-9"	16'-10"
NI-80 17'-3"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6*	16-11	17'-0"
NI-20 16'-11'	16'-0"	15'-5"	15'-6"	18-4*	17'-3'	16'-8'	16'-7'
NI-40x 18'-1"	17'-0"	16'-5"	16'-6"	20'-0"	18'-6"	17'-9"	17'-7"
NI-60 18'-4"	17'-3"	16'-7"	16'-9"	20-3	18'-9"	18'-0"	18'-1"
11-7/8" NI-70 19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11'	19'-0"	19'-1"
NI-80 19'-9'	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"
NI-90 20'-2'	18'-7"	17'-10"	17'-11'	22'-3"	20'-7"	19'-8"	19'-9"
NI-90x 20'-4"	18'-9"	17'-11"	18'-0"	22'-5'	20'-9"	19'-10"	19'-11"
NI-40x 20'-1"	18'-7"	17'-10"	17:-11*	22'-2"	20'-6"	19'-8"	19'-4"
NI-60 20'-5"	18'-11'	18'-1"	18'-2'	22'-7'	20'-11"	20'-0"	20'-1"
14' NI-70 21'-7'	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2'
NI-80 21'-11'	20'-3"	19'-4"	19'-5"	24'-3'	22'-5"	21'-5"	21'-6"
NI-90 22'-5"	20'-8"	19'-9"	19'-10"	24'-9'	22'-10"	21'-10"	21'-10"
NI-90x 22'-7"	20'-11"	19'-11"	20'-0"	25'-0'	23'-1"	22'-0"	22'-2"
NI-60 22'-3"	20'-8"	19'-9"	19'-10"	24'-7'	22'-9'	21'-9'	21'-10'

CONCENTRATED LOAD

I-JOIST HANGERS

1. Hangers shown illustrate the three

2. All nailing must meet the hanger

Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.

Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.

most commonly used metal hanger to support I-joists.

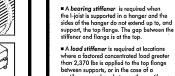
Face Mount

CCMC EVALUATION REPORT 13032

STORAGE AND HANDLING GUIDELINES

- 1. Bundle wrap can be slippery when wet. Avoid walking on wrapped
- 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 1-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.



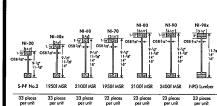


(1e)

■ 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 fip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitt by the code. The gap between the stiffener and the flange is at the bottom. SI units conversion: 1 inch = 25.4 mm

2-1/2 or or 1/8-1/4* Gap pprox. 2* T | (4) 2-1/2* noils, 3* noils required for 1-joists with 3. flange width 3" nails required for 1-joists with 3-1/2" flange width END BEARING └No Gap aring stiffener STIFFENER SIZE REQUIREMENTS Flange Width Web Stiffener Size Each Side of Web 2-1/2" 1" x 2-5/16" minimum width 3-1/2" 1-1/2" x 2-5/16" minimum width

NORDIC I-JOIST SERIES



Chantiers Chibouagmau Ltd. harvests its own trees, which enables. Navo Chanifers Chibougamou Ltd. harvests its own frees, which enables, Nortice products to other to strict quality control procedures through \$30.95.20, manufacturing process. Every phase of the operation, from loss or the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed back space in their flanges, ensuring consistent quality, superior street to the product of the control of the c

(A) longer span carrying capacity.

INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, continued

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. 1-joists must be anchored securely to supports before floor sheathing is attached, and supports be level.

5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate b

6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.

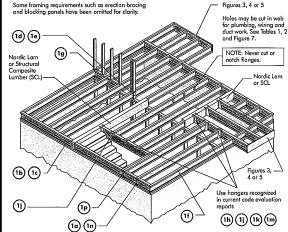
7. Leave a 1/16-inch gap between the I-joist end and a header.

- 8. Concentrated load 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 1-joists where they will be permanently exposed to weather, or where they will remain in direct contact with
- 10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.

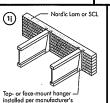
2-1/2" nails a

- 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 on I-joists compatible depth selected. 13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-spon joists. Similarly, support the bottom flange of all contilevered I-joists of the end support next to the cartilever 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 squaaks. 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.

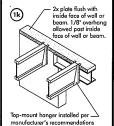
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS



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



For nailing schedules for multiple



Use single I-joist for loads up to 3,300 plf, double
I-joists for loads up to 6,600 plf (filler block no

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

Filler block pe Install hanger per manufadurer's recommendations Backer block attached per detail 1h. Nail with twelve 3* nails, dinch when possible.

(1m)

Maximum support capacity = 1,620 lbs. FILLER BLOCK REQUIREMENTS FOR DOUBLE 1-JOIST CONSTRUCTION

9-1/2" 11-7/8" 14" 16"

9-1/2" 11-7/8" 14" 16"

11-7/8" 14" 16"

Joist Filler Depth Block Size

2-1/8" x 6" 2-1/8" x 8" 2-1/8" x 10" 2-1/8" x 12"

Flange Size

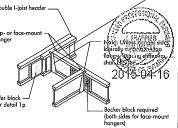
(19)

attachment per detail 1 b 2-1/2" nails at —J 6" o.c. to top plate

Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL (1n) headers may also be used. Verify double I-joist capacity to support Do not bevel-cut joist beyond insid face of wall ____ l-joist per detail 1b

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

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

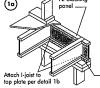


For hanger capacity see hanger manufacturer's recommer Verify double I-joist capacity to support concentrated loads

BACKER BLOCKS (Blocks must be long enough to permit required

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 sown lumber and wood structural panels conformit 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".

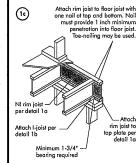


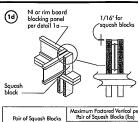
laximum Factored Uniform Vertical Load* (plf) NI Joists 3.300

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

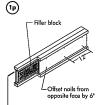
Minimum bearing length shall be 1-3/4* for the end bearings, and 3-1/2" for the intermediate bearings when applicable. 1-1/8" Rim Board Plus *The uniform vertical load is limited to a rim board depth of 16 inche

used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.





Maximum Factored Vertical per Pair of Squash Blocks (lbs) 3-1/2' wide 5-1/2' wide rovide lateral bracing per detail 1a, 1b, or 1c



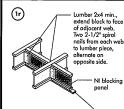
-1/8" to 1/4" gap between top flange and filler block

 Support back of I-joist web during nailing to prevent damage to web/flange connection. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top 1-joist

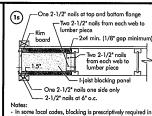
 Filler block is required between joists for full length of span. un tergun or spon.

Nail joist together with two rows of 3° nails at 12 inches o.c. (clinched when possible) on each side of the double l-joist. Total of four nails per foot required. If nails can be dinched, only two nails per foot are required.

3-1/2" x 2" 5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbt/ft. Verify double l-joist capacity.



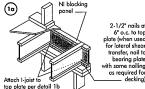
Optional: Minimum 1x4 inch
strop applied to underside of joist at blocking
line or 1/2 inch minimum gypsum ceiling
attached to underside of joists.



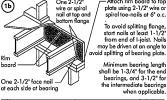
Notes:

In some local codes, blocking is prescriptively required in
the first joist space (or first and second joist space) next to
the stater joist. Where required, see local code requirement
for spacing of the blocking.

All nails are common spiral in this detail.



*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duralic inches or less and is based on standard term load duralic 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.

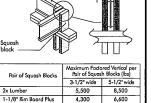


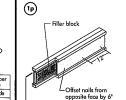
or less and is based on standard term load duration. It shall not be

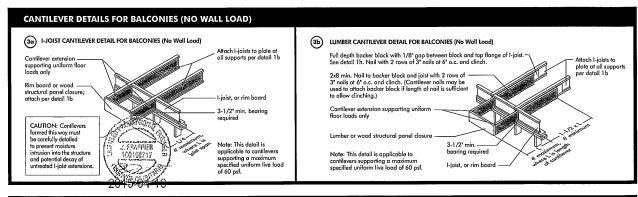
FSC FSC FSC FSC GRIBBI

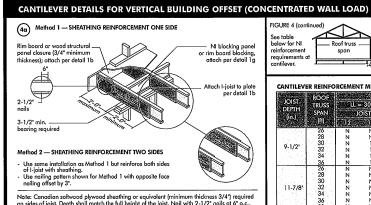
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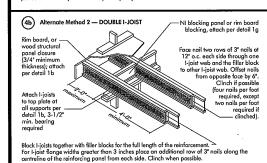








Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face gain in horizontal. Attach 1-joist to plate at all supports per detail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



IGURE 4 (continued)

— Roof truss span

Roof trusses

Girder Roof truss

Foot trusses

Tock trusses

Tock trusses 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. — Roof truss span

CANTILEVER REINFORCEMENT METHODS ALLOWED ROOF LOADING (UNFACTORED)

(in.)	(n)	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	26	N	N	1	2	N	1	2	Х	N	2	Х	X
23.00	28	N	N	1	Х	N	1	2	Х	N	2	Х	х
0.1/01	30	N	1	1	X	N	1	2	Х	1	2	Х	Х
9-1/2"	32	.N	1	2	X	N	2	Х	Х	1	Х	Х	X
1,500	34	N	1	2	X	N	2	Х	Х	1	Х	Х	х
	36 26	N	1	2	X	1	2	Х	X	1	X	X	. Х
	26	N	N	N	1	N	И	1	2	N	N	1	2
	28	N	N	N	1 .	N	N	1	2	N	1	1.	Х
45.00	28 30 32	N	N	N	1	N	N	1	2	N	1	2	X X X X X
11-7/8"	32	N	N	1	1	N	N	1	2	N	1	2	х
J. 440	34	N	N	1	2	N	1	1	Х	l N	1	2	х
4.000	36	N	N	1	2	N	1	2	Х	N	1	2	Х
9	38	N	· N	1	2	N.	1	2	X	N	2	Χ	X
1.00	26	N	N	N	N	N	Ν	N	1	N	N	N	1
	28	N	N	N	N	N	N	N	- 1	N	N	1	1
	30	N	N	N	N	N	N	N	1	. N	N	1	2
14"	32	N	N	N	1	N	N	N	1	N	N	1	2
1.9	34	N	N	N	1	N	N	1	1	N	N	1	2
	36	N	N	N	1	N	N	1	2	N	1	- 1	2 X
2.7	38	N	N	N	1	N	N	1	2	N	1	1	Х
100	40	- N	N	N	1	N	N	l	2	N		2	X
100	26	N	N	N	N	N	N	N	N	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	N	- 1
3.3	30	· N	N	N	N	N	N	N	1	N	N	N	1
	32	N	N	N	N	N	N	Ν	1	N	N	1	- 1
16"	34	- N	N	N	N	N	N	N	1	N	N	1	2
7.7	36	N	N	N	1	N	N	N	1	N	N	1	2
- 5 P	38	N	N	N	1	N	N	N	1	N	N	1	2
	40 42	N	Ņ	N	1	N N	Z Z	1	2	Ŋ	Ņ	!	2 X
	42	N	N	N	1	, N	. N	1	2	N	1		Х

1 = NI reinforced with 3/4* wood structural panel on one side only.
2 = NI reinforced with 3/4* wood structural panel on both sides, or double I-joist.
X = Try a deeper joist or closer specing.
2. Moximum design lood shall be: 15 psf roof deed load, 5/5 psf floor total load, and 80 plf wall load. Well load is based on 3-0° maximum width window or door openings.

___ Roof truss ____

span

elow for NI

openings spaced lies than 6·0° o.c., addi-fisonal joists beneath the opening's cripple studs may be required.

3. Table applies to joists 12° to 24° o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of 1/480. Use 12° o.c. requirements for lesser spacing.

maximum cantilever

obove is equivalent to the distance between the supporting well 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 trus is used.

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

For hip roofs with the jack

For hip roots 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.

(5a) SHEATHING REINFORCEMENT 12" minimum length of Provide full depth blocking between -Nail reinforcement to t and bottom joist flang with 2-1/2" nails at 6" 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 to the plant of the o.c. (offset opposite face nailing by 3" when using reinforcement on both sides of I-joist) height of the joist. Notil 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. 3-1/2" min. 2015204-1 (5b) SET-BACK DETAIL between joists over support (not shown for darity) Attach I-joist to plate at all supports per detail 1b. 3-1/2" minimum I-joist

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.

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

Noil joist end using 3" nails, toe-nail at top and bottom flanges.

Hanger may be used in lieu of solid sawn block

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED | ROOF | ROOF (DADING (UNFACTORED) | TRUSS | LL = 30 psf, DL = 15 psf | LL = 40 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | SPAN | JOIST SPACING (in.) | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 50 psf JOIST DEPTH (in.) 9-1/2 11-7/8 For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple

Roof trusses
Girder Roof truss Jack trusses
truss span

2'-0"
maximum
cantilever
- 5" maximum

— Roof truss — T

1. N = No reinforcement required.
1 = Ni reinforced with 3/4" wood structural poned on one side only.
2 = Ni reinforced with 3/4" wood structural poned on othis sides, or double I-joist.
X = Tiy o deeper joist or closer spacing.
2. Maximum design lood shall be 1: 5 paf root dead lood, 5.5 paf floor total lood, and 80 pf wall lood. Wall lood is based on 3:0" maximum width window or door openings.

additional josts beneath the opening's cnipile studs may be required.

3. Toble applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.

 For conventional roof construction using a nage beam, the Roof Truss Span column above is equivalent to the distance between above is equivalent to the distance between the supporting well and the ridge baom. 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 trus is used.

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

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

Joist	Joist		Mi	ilmun	idisid	nce fro			exofici			centro	toliho	D)((d)	D) BEE	Market	Spon
Depth	Series	00000			(2)				le diai					200		300	adjustmen Factor
经验期股票	经验证的	数之级	羅 腳	级。郑约	38.38	製 類	$\omega_{1/4}$	对数 6 0	40 6	wuu	ALC: NO		10.5/4	觀し級	3123	$U_{\bullet}\cup A$	
	NI-20	0:-7*	1'-6"	2'-10"	4'-3"	5'-8"	6.0,	***	***								13'-6"
100	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6.0	6-4	***	***	***	***					•••	14'-9'
9-1/2	NI-60	1'-3"	2.6	4'-0"	5'-4"	7'-0"	7'-5"	***	•••			•••		***	***		14'-11"
2.37	NI-70	2'-0"	3'-4"	4'-9"	6'-3'	8'-0"	8'-4"					•••			•••		15'-7'
	NI-80	2'-3'	3'-6"	5'-0"	6'-6"	8'-2"	8-8		***	***							15'-9"
100	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0'	5.0	6'-6"	7-9					***	***	15'-6"
	NI-40x	0'-7"	0.8	1:-3*	2'-8'	4'-0"	4'-4"	5-5	7'-0"	8'-4"	***	***	***				16'-6"
1.00	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7-3*	8'-10"	10:0				***			16'-9"
11-7/8"	NI-70	1'-3'	2'-6"	4'-0"	5'-4"	6'-9"	7-2	8-4	10:0"	11-2					***		17'-5"
	NI-80	1'-6"	2'-10"	4'-2"	5.6	7:0"	7-5	8'-6'	10'-3"	11:4*	***						17'-7'
1.0	NI-90	0'-7*	0'-8"	1'-5"	3'-2"	4'-10"	5.4"	6-9	8-9	10:2"	***			***	***	***	17:11*
	NI-90x	0.7	0-8	0-9	2'-5"	4'-4"	4'-9"	6'-3'				***	***				18'-0"
	NI-40x	0'-7"	0'-8'	0'-8"	1'-0"	2-4	2.9	3.9	5'-2"	6'-0"	6'-6"	8'-3"	10:2"				17:111
	NI-60	0.7*	0'-8"	1'-8"	3'-0"	4'-3"	4'-8'	5-8	7'-2'	8-0	8-8	10'-4"	11'-9"				18'-2"
	NI-70	0.8	1'-10"	3'-0"	4'-5"	5.10	6-2	7'-3"	8'-9"	9.9*	10.4	12'-0"	13'-5"				19'-2'
14"	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6:2"	6'-5'	7-6*	9-0	10:01	10.8	12'-4"	13'-9"				19-5
100	NI-90	0-7	0.8	0.10	2'-5"	4'-0"	4'-5"	5-9	7'-5"	8'-8'	94'	11'-4"	12:11				19'-9"
1011	NI-90x	0'-7"	0'-8"	0-8	2'-0"	3.9	4-2	5-5	7'-3'	8.5	9-2		***				20'-0'
	NI-60	0-71	0'-8'	0'-8"	1'-6"	2.10	3-2	4'-2"	5'-6'	6'-4"	7'-0'	8-5*	9-8	10'-2"	12:-2*	13'-9'	19'-10'
	NI-70	0'-7'	1'-0"	2-3*	3'-6"	4'-10"	5.3	6-3*	7'-8'	8-6	9.2	10'-8"	12-0	12'-4"	14'-0"	15-6	20'-10'
16"	NI-80	0-7	1'-3'	2-6"	3-10	5-3*	5.6	6-6	8-0	9.0	9-5	11:-01	12:-3"	12:9	14151	16'-0"	21.2
17, 17, 1	NI-90	0'-7"	0.8	0.8	1-9	3'-3"	3'-8'	4'-9"	6'-5"	7:5	8-0	9-10*	11:31	11:9	13-9*	15'-4"	21-6
40.00	NI-90x	0.7	0'-8"	0.9	2'-0'	3'-6"	4'-0"	5.0	6'-9"	7:-9	8-4"	10-2*	111-61	12:01			21.10

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

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

Orderused Distance from the inside face of any support to centre of hole, reduced for less-thon-maximudiations shall not be less than 6 inches from the face of the support to edge of the hole.

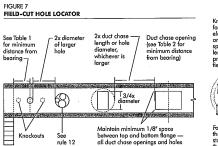
SAF

Sopon Adjustment Factor given in this toble.

If actual insurance from the factor of any support to centre of hole from this toble.

If actual is greater than 1, use 1 in the above colculation for factual.

SAF



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

Knockouts are prescored holes provided for the contractor's convenience to instal electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are



or rectangular holes, avoid over-cutting ror reacinguar notes, sovial over-cuming the corners, as this can cause unnecessars stress concentrations. Slightly rounding the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only 9-7" 9-8" 10-7" 11-1" 10-8" 11-1" 11-5" 11-5" 12-3" 12-3" 12-7" 13-0" 13-2" 8.1° 8.7' 9.3' 9.1' 9.8' 9.9' 10.8' 10.5' 10.5' 11.2' 11.5'

ns (f) SPAFFER

2015-04-10

Above table may be used for i-joist spacing of 24 inches on carire or less.
 Dust chase opening location distance is measured from inside face of supports to centre of opening.
 The above table is based on simple-span poists only. For other opplications, contact your local distributor.
 Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and deed load of 15 pst, and a five load defection limit of 1480. For other opplications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

- 1. Wipe any mud, dirt, water, or ice from I-joist flanges before aluing.
- 2. Snap a chalk line across the L-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
- Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
- 4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
- 5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
- 6. Apply two lines of alue on 1-joists where panel ends but to assure proper gluing of each end.
- 7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the neat row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) that nu sed on 1-joist flanges.
- 8. Tap the second row of panels into place, using a block to protect groove edges.
- Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure occurred and consistent spacing.)
- 10. Complete all nailing of each panel before glue sets. Check the manufacturer's reco for cure time. [Warm weather accelerates glue selling.] Use 2" ring, or serew-shank nolls for panels 3/4-inch thick or less, and 2-1/2" ring- or serew-shank nolls for thicker panels. Space noils per the table below. Closer noil spacing may be required by some codes, or for diaphragm construction. This finished deck can be walked on right away and will carry construction loads without damage to the

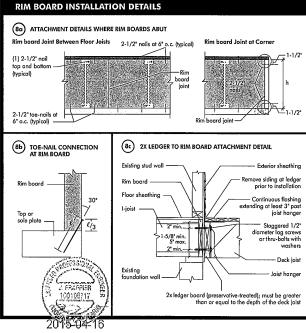
FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum	Minimum	N	ail Size and Ty	THE PARTY NAMED IN	Moximun	a Second		
Joist Spacina	Panel Thickness	Common Wire or	Ring Thread	Stanles	of Fasteners			
	(i) 1988	Spiral Nails	or Screws		Edges	Supports		
16	5/8	2"	1-3/4"	2*	6'	12"		
20	5/8	2*	1-3/4"	2"	6"	12*		
24	3/4	2.	1.3/4"	2"	6"	12"		

- 1. Fasteners of sheathing and subflooring shall conform to the above table.
- 2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown
- 3. Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
- Use only adhesives conforming to CAN/CGS8-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with asset panel for the control of the control o

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

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

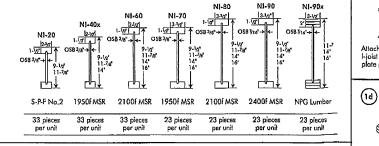








Çj FSC



Refer to the Installation Guide for Residential Floors for additional information CCMC EVALUATION REPORT 13032-R

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chose opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
 Whenever possible, field-cut holes should be centred on the middle of the web.
- 4. The maximum size hole or the maximum depth of a duct chose opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

3 4 5 6 6-1/4 7

11-6' 2-10' 4-3' 5-8' 6-0' ...

11-6' 3-0' 4-4' 5-0' 7-5' ...

12-6' 4-0' 5-4' 7-0' 7-5' ...

3-6' 5-0' 6-3' 8-2' 8-8' ...

3-6' 5-0' 6-6' 8-2' 8-8' ...

0-8' 11-0' 2-4' 3-8' 4-0' 5-5'

11-8' 3-0' 4-3' 5-9' 6-0' 7-2' 8-4'

2-10' 4-2' 5-6' 7-0' 7-5' 8-6'

2-10' 4-2' 5-6' 7-0' 7-5' 8-6'

0-8' 1-8' 3-0' 4-3' 4-9' 6-3'

0-8' 1-8' 3-0' 4-3' 4-9' 6-3'

0-8' 1-8' 1-0' 2-4' 4-9' 6-3'

1-10' 3-0' 4-5' 5-10' 4-5' 7-3'

1-10' 3-0' 4-5' 5-10' 4-5' 7-3'

1-10' 3-0' 4-5' 5-10' 4-5' 7-5'

0-8' 0-8' 3-8' 1-0' 2-4' 2-9' 3-9'

0-8' 0-8' 1-8' 1-0' 2-5' 4-0' 4-5' 5-7'

0-8' 0-8' 3-8' 1-0' 2-5' 4-0' 4-5' 5-7'

0-8' 0-8' 3-8' 2-0' 3-9' 4-2' 7-3'

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

Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.) Round Hole Diameter (in.)

 0.7°
 0.8°
 0.9°
 2.5°
 4.4°
 4.9°
 6.3°
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The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

6 6-1/4 7 8 8-5/8 9 10 10-3/4 11 12 12-3/4

--- ---

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the larges since exceed whice the diameter of the largest routin page or whice the size of the largest square hole (ar twice the length of the longest side of the longest rectingular hole or duct chose opening) and each hole and duct chose opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.

 A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between hales and/or duct
- chase openings.

 8. Hales measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Hales of greater size may be permitted subject to verification
- 9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.

 10. All holes and duct chase openings shall be cut in a workman-like
- manner in accordance with the restrictions listed above and as ustrated in Figure 7. 11. Limit three maximum size holes per span, of which one may be
- a duct chase opening.

 12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hale circumscribed around them.

DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

1-1-4	1-1-4	Minim	om distan	ce from in	side face	of suppo	orts to co	entre of	pening (ft - in.)
Joist Depth	Joist Series				Duct Ch	ase Leng	th (in.)			
Борш	00,100	8	10	12	14	16	18	20	22	24
	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8'	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8°	8'-2"	8'-6"
9-1/2"	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"
	N1-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	51-31	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-20	5-9	6'-2"	6'-6"	7'-1'	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
11-7/8°	NI-60	7'-3	7'-8"	8'-0"	B'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
	N1-70	7'-1"	7'-4"	7'-9'	8'-3"	8'-7"	9-10	9-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7°	10'-1'	10'-7"	10'-11"
	NJ-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
	NI-40x	8'-1"	8'-7"	9'_0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11-1*	11'-6"	13'-3"	13'-0"
14*	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11-2	11'-7"	12'-3"
14	NI-80	9'-0"	9'-3"	9'-9"	10,1	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90	9'-2"	91-8"	10'-0"	10'-6"	10'-11'		11'-9"	12'-4"	12-11*
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7'	11'-1"	11'-7"	12'-1"	12'-7"	13-2"
	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12-6*	13'-2"	14'-1"	14-10
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	17'-10'		12'-8"	13'-3"	14'-0"
16"	NI-80	10'-4'	10'-9"	11'-3"	11'-9"	12'-1"	12-7"	13'-1"	13'-8"	14'-4"
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"
	NI-90x	13'-1"	11'-5"	11'-10'	12'-4"	12'-10'	13'-2"	13'-9"	14'-4°	15'-2"

-1/8" to 1/4" gap between top flangs

Knockouts are prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the 1-joist. Where

possible, it is preferable to use knockouts instead of field-cut holes.

Holes in webs should be cut with a sharp saw.

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

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

Joist	Joist	Minimi	Minimum distance from inside face of supports to centre of opening (ff - in.)							
Depth	Series				Duct Ch	ase Leng	th (in.)			
200	75,,,,,	В	10	12	14	16	18	20	22	24
	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8'	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
9-1/2"	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3'	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-20	5'-9"	6'-2"	6'-6"	7'-1°	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	N1-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
	NI-60	7'-3	7'-8"	8'-0"	B'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
31-7/8"	N1-70	7'-1"	7'-4"	7'-9'	8'-3'	8'-7"	9'-1°	9-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7°	10'-1"	10'-7"	10'-11"
	NJ-90x	7'-7'	8'-1"	8'-5"	8-10	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10-1	10'-7"	11'-2"	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11-14	11'-6"	13'-3"	13'-0"
14*	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10-8"	11-2	13'-7"	12'-3"
	NI-80	9'-0"	9'-3"	9'-9"	10,-1	10'-7"	11,1,	11'-6"	12'-1"	12'-6"
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11'		11'-9"	12'-4"	12-11*
	NI-90x	9'-4"	9-9"	10'-3"	10'-7'	11'-1"	11'-7"	12'-1"	12'-7"	13-2"
	NI-60	10:-3"	10'-8"	11'-2"	11'-6"	12'-1"	1246*	13'-2"	14'-1"	14-10
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	17'-10'		12'-8"	13'-3"	14'-0"
16"	Ni-80	10-4"	10'-9"	11'-3"	11'-9"	12'-1"	12-7"	13'-1"	13'-8"	14'-4"
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"
<u>'</u>	NI-90x	13411	11'-5"	11-10	12'-4"	12'-10'	' 13'-2"	13'-9"	14-4°	15'-2"

Above table may be used for 1-joist spacing of 24 inches on centre or less.
 Duct chase opening location distance is measured from inside face of supports to centre of opening.
 The above table is based on simple-span joists only. For other opplications, contact your local distributor.
 Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 pst and dead load of 15 pst, and a live load deflection limit of L/480.
 The above table is based on the 1-joist being used of their maximum spans. The minimum distance os given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7

Never stack building materials over unsheathed I-jaists. Once

sheathed, do not over-stres

Depth

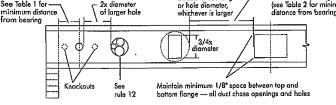
9-1/2"

1-7/8

NI-40x NI-60

NI-70 NI-80 NI-90

FIELD-CUT HOLE LOCATOR







SAFETY AND CONSTRUCTION PRECAUTIONS WARNING: Fjoists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

- AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES: Brace and nail each I-joist as it is installed, using hangers, blacking 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, blacking will
- oe 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 breating, often called struts, or temporary sheathing must be applied to prevent I-joist rallover.
- shoothing is applied, temporary aroung, onen sance and a 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 box. Lop ends of adjoining bracing over at least two I-joists.

 Or, sheathing (temporary or permanent) can be notled to the top flange of the first 4 feet of I-joists at the end of the box.
- 3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully notifing permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building malerials over beams ar walls only.

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



PRODUCT WARRANTY

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

 $m{F}$ urthermore, Chantiers Chibougaman warrants that our products, hen utilized in accordance with our handling and installation interaction. will meet or exceed our specifications for the lifetime of the structure

Altach I-joist to top

plate per detail 1b

Maximum Factored Uniform (1b) Vertical Load* (plf) or Rim Joist 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

each side at bearing

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 durotion. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c. To avoid splitting flange, start nails at least 1-1/2" from end of I-joist.

(11)

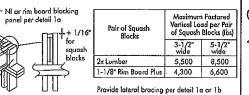
Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

Double I-joist heade

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

Backer black required

(both sides for face-



 $2\text{-}1/2^{\rm o}$ nails at 6° a.c. to top plate (when used for lateral shear transfer, noil to bearing plate with some nailing as required for decking)

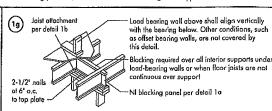


hanger —

Filler block

from above to bearing below Match bearing area of blocks below to post

For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to suppor



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

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

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

Minimum grade for backer black 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".

- 2x plate flush with inside face of wall

past inside face of wall or beam.

NOTE: Unless hange sides laterally support the top flange, bearing

installed per manufacturer

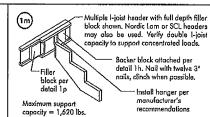
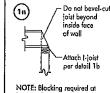


FIGURE 2



bearing for lateral support, not

shown for clarity



bearing stiffeners shall be used.

Nordic Lam or

Structural Composite Lumber (SCL)

For nailing schedules for multiple

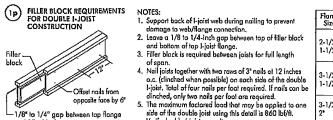
beams, see the manufacturer's

installed per monufacturer's

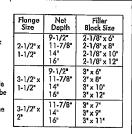
ecommendations.

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

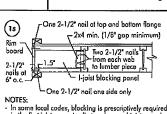
NOTE: Unless hanger sides laterally support the top flange,



Verify double 1-joist capacity



WEB STIFFENER INSTALLATION DETAILS



in some room costs, stocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist, Where requirements for spacing of the blocking.

All nails are common spiral in this detail.

common spiral nails may be substituted for 2-1/2" (0.128" dia.) ssumed to be Spruce-Pine-Fir No. 2 or better, Individual components not shown to scale for clarity.

All nails shown in the above details are assumed to be common wire nails

unless otherwise noted. 3" (0.122" dia.)

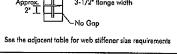
WEB STIFFENERS

bearing required

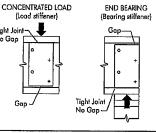
RECOMMENDATIONS:

- A hearing stiffener is required in all engineered applications with factored reactions greater than shown in the 1-joist properties table found of the 1-joist Construction Guide (C101). The gap between the stiffener and the flange is at
- ring stiffener is required when the I-joist is supported in a hange 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 conflicter fip 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.

2-1/2" or 3-1/2" 1/8"-1/4" Gap -(4) 2-1/2" nails, 3" nails require for I-joists with

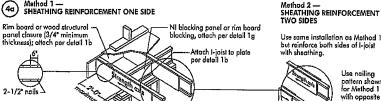






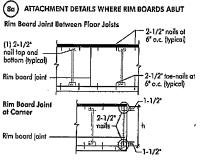
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2°	1-1/2" x 2-5/16" minimum width

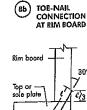
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

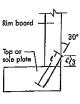


NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4*) required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2* nails at 6* o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

RIM BOARD INSTALLATION DETAILS











PASSED

May 19, 2021 08:41:54

1ST FLR FRAMING\Flush Beams\B50(i37048) (Flush Beam) Dry | 1 span | No cant.

BC CALC® Member Report

Build 7773

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

File name:

4502 SUNKEN FOYER .mmdl

Description: 1ST FLR FRAMING\Flush Beams\B50(i37048)

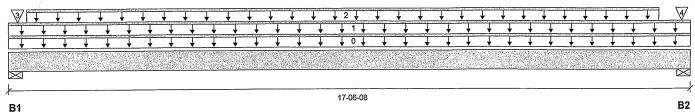
Specifier:

Designer: L.D.

Customer: Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 17-06-08

Reaction Summary (Down / Opinit) (ibs)												
Bearing	Live	Dead	Snow	Wind								
B1, 5-1/2"	372 / 0	861 / 0										
B2. 5-1/2"	391 / 0	841 / 0										

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	17-06-08	Тор		12			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	17-06-08	Тор	17	9			n\a
2	WALL	Unf. Lin. (lb/ft)	L	00-05-08	16-08-08	Top		60			n\a
3	E103(i36959)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	220	181			n\a
4	6(i699)	Conc. Pt. (lbs)	L	17-03-12	17-03-12	Top	239	183			n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	3959 ft-lbs	23005 ft-lbs	17.2%	0	08-09-04
End Shear	880 lbs	9401 lbs	9.4%	0	16-01-02
Total Load Deflection	L/1131 (0.178")	n\a	21.2%	4	08-09-04
Live Load Deflection	L/999 (0.031")	n\a	n\a	5	08-09-04
Max Defl.	0.178"	n\a	n\a	4	08-09-04
Span / Depth	16.9				

Bearin	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	1206 lbs	15.7%	7.9%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	1178 I bs	15.3%	7.7%	Spruce-Pine-Fir

Notes

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

CONFORMS TO OBC 2012

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

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 16-07-08.



ova ng. tam 10663-21 STRUCTURAL COMPONENT ONLY





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

PASSED

1ST FLR FRAMING\Flush Beams\B50(i37048) (Flush Beam)

Dry | 1 span | No cant.

May 19, 2021 08:41:54

Build 7773

Job name:

Address:

Customer:

City, Province, Postal Code: RICHMOND HILL

Description: 1ST FLR FRAMING\Flush Beams\B50(i37048) Specifier:

Designer:

File name:

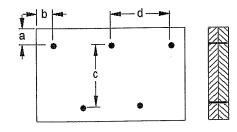
L.D.

4502 SUNKEN FOYER .mmdl

CCMC 12472-R Code reports:

Company:

Connection Diagram: Full Length of Member



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

Connectors are:

: Nails

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®,





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

1ST FLR FRAMING\Flush Beams\B1 H(i33766) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Tributary

00-00-00 n∖a n∖a n\a

Build 7493

Job name:

Address: City, Province, Postal Code: RICHMOND HILL

File name: Description: 4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

1ST FLR FRAMING\Flush Beams\B1 H(i33766)

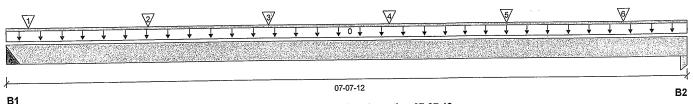
Specifier:

Designer: L.D.

Wind

AMENDED 2020

Customer: Company: CCMC 12472-R Code reports:



Total Horizontal Product Length = 07-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 2"	430 / 0	239 / 0	
B2 1-3/4"	346 / 0	197 / 0	

1	-d Cummons						Live	Dead	Snow	wind	Tributa
LO:	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-07-12	Тор		6			00-00-0
4	J4(i33770)	Conc. Pt. (lbs)	L	00-03-00	00-03-00	Top	105	53			n
1	J4(i33719)	Conc. Pt. (lbs)	L	01-07-00	01-07-00	Тор	162	81			n
2	J4(i33840)	Conc. Pt. (lbs)	L	02-11-00	02-11-00	Тор	162	81		1888 - 18 18 18 18 18 18 18 18 18 18 18 18 18	n
ى م	(/	Conc. Pt. (lbs)	Ĺ	04-03-00	04-03-00	Тор	123	62	200	antes.	ar was h
4	J4(i33365)	Conc. Pt. (lbs)	ī	05-07-00	05-07-00	Тор	123	62		A STATE OF THE PARTY OF THE PAR	n and
5	J4(i33689)	Conc. Pt. (lbs)	ī	06-11-00	06-11-00	qoT	101	51	137 1	F 4 15	\mathcal{U} In
6	J4(i33800)	Conc. Ft. (ibs)	!	00 . 1 00		i.				TANKE POR COMME	
									M REG	_	ALCOR

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1570 ft-lbs	17696 ft-lbs	8.9%	1	04-01-15
End Shear	729 lbs	7232 lbs	10.1%	1	01-01-14
Total Load Deflection	L/999 (0.023")	n\a	n\a	4	03-09-15
Live Load Deflection	L/999 (0.015")	n\a	n\a	5	03-09-15
Max Defl.	0.023"	n\a	n\a	4	03-09-15
Snan / Denth	7.5				

	Rearing	Supports	Dim (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
-	B1	Hanger	2" x 1-3/4"	943 lbs	n\a	22.1%	HUS1.81/10
	B2	Column	1-3/4" x 1-3/4"	766 lbs	30.8%	20.5%	Unspecified

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for des adequate capacity.

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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



PONICE OF OT

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

1ST FLR FRAMING\Flush Beams\B2 H(i33236) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

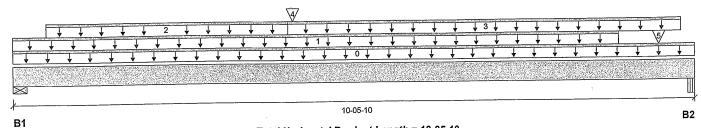
1ST FLR FRAMING\Flush Beams\B2 H(i33236) Description:

Specifier:

Designer: L.D.

Wind

Company:



Total Horizontal Product Length = 10-05-10

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead				
B1, 5-1/2"	2786 / 0	1470 / 0				
B2 5-1/4"	2013 / 0	1079 / 0				

	and Currence with						Live	Dead	Snow	Wind	Tributary
	oad Summary g Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
-16	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-05-10	Тор		12			00-00-00
4	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	09-03-06	Top	340	170			n\a
١	STAIRS	Unf. Lin. (lb/ft)	L	00-06-00	04-02-01	Top	240	120			n\a
2	•	Unf. Lin. (lb/ft)	1	04-02-01	10-03-00	Top	8	4			n\a
3	FC1 Floor Material	Conc. Pt. (lbs)	ī	04-02-15	04-02-15		426	237			n\a
4	B1 H(i33766)	• •	۱.		09-10-14	•	276	138			n\a
5	.11(i33460)	Conc. Pt. (lbs)	L	09-10-14	09-10-14	τυρ	210	100			1110

Controls Summary	Factored Demand	Factored Resistance	Resistance	Case	Location
Pos. Moment	12611 ft-lbs	35392 ft-lbs	35.6%	1	04-07-06
End Shear	5022 lbs	14464 lbs	34.7%	1	01-05-06
Total Load Deflection	L/778 (0.15")	n\a	30.9%	4	05-01-06
Live Load Deflection	L/999 (0.098")	n\a	n\a	5	05-01-06
Max Defl.	0.15"	n\a	n\a	4	05-01-06
Span / Depth	9.8				

Bearing Supports	S Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
	5-1/2" x 3-1/2"	6017 lbs	50.8%	25.6%	Spruce-Pine-Fir
B1 Wall/Plate B2 Beam	5-1/4" x 3-1/2"	4368 lbs	44.5%	19.5%	Unspecified

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



COMPONENT





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B2 H(i33236) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:33:58

Build 7493

Job name:

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

Address:

City, Province, Postal Code: RICHMOND HILL

Description: 1ST FLR FRAMING\Flush Beams\B2 H(i33236)

Specifier:

Customer:

Designer:

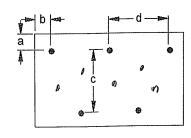
L.D.

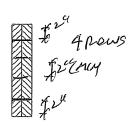
Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member





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

Calculated Side Load = 969.0 lb/ft

Connectors are: .

ARDUX SPIRAL

WINCE OF 88 NO. TAN 8734-26 STRUCTURAL COMPONENT ONLY

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Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B22(i33730) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:33:58

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

File name:

Description: 1ST FLR FRAMING\Flush Beams\B22(i33730)

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

Specifier: Designer:

L.D.

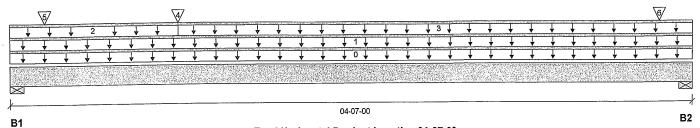
Wind

Company:

Customer:

Code reports:

CCMC 12472-R



Total Horizontal Product Length = 04-07-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	145 / 0	400 / 0
P2 3 1/2"	159 / 0	407 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-07-00	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	ıL.	00-00-00	04-07-00	Top	15	7			n\a
2	FC1 Floor Material	Unf, Lin. (lb/ft)	L	00-00-00	01-01-05	Top	6				n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	01-01-05	04-07-00	Тор	28	14			n\a
4	Bk3(i33755)	Conc. Pt. (lbs)	L	01-01-05	01-01-05	Top	12				n\a
5	E87(i23423)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	60	330			n\a
6	E6(i687)	Conc. Pt. (lbs)	L	04-04-04	04-04-04	Тор	60	330			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	228 ft-lbs	35392 ft-lbs	0.6%	1	02-03-11
End Shear	148 lbs	14464 lbs	1.0%	1	01-03-06
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	02-03-11
Live Load Deflection	L/999 (0")	n\a	n\a	5	02-03-11
Max Defl.	0.001"	n\a	n\a	4	02-03-11
Snan / Denth	4.2				

Beari	ing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	560 lbs	11.4%	5.8%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	570 lbs	11.6%	5.9%	Spruce-Pine-Fir

Notes

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

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

CUNVORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



COMPONENT ONLY





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

1ST FLR FRAMING\Flush Beams\B22(i33730) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Build 7493

Job name:

Address: City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

CCMC 12472-R

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

1ST FLR FRAMING\Flush Beams\B22(i33730) Description:

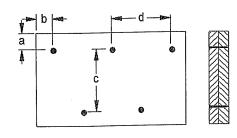
Specifier:

Designer:

Company:

L.D.

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 8 8 4

Calculated Side Load = 12.8 lb/ft

Connectors are:

ARDUX SPIKAL



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





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

1ST FLR FRAMING\Flush Beams\B3 H(i33726) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Build 7493

Job name: Address:

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl 1ST FLR FRAMING\Flush Beams\B3 H(i33726)

Description:

Specifier:

L.D.

Wind

Customer:

City, Province, Postal Code: RICHMOND HILL Code reports: CCMC 12472-R

Designer:

Company:

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10,000	SE interior	SIREMONIA	CR 02/06/04/8		WASA!	5,575	877.8%	ekrist.	reary		HOUSE.	34394	SANE	OF STATE	12/2/2017	W. Sel		SON SEC	(245.97	e regi	W S			COMP	85026	6-2714	No.	W.	(Maria)	er area e	
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															04-	09-15															

Total Horizontal Product Length = 04-09-15

Snow

Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead
B1, 3-1/2"	41 / 0	35 / 0
B2. 5-1/4"	93 / 0	73 / 0

Loa Tag	ad Summary Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-09-15	Тор		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-04-11	Тор	17	9			n\a
2	24(i9709)	Conc. Pt. (lbs)	L	04-07-05	04-07-05	Top	56	40			n\a

Carefuela Cumamami	To the west Demonstra	Factored Resistance	Demand/ Resistance	Case	Location
Controls Summary	Factored Demand			Case	
Pos. Moment	100 ft-lbs	17696 ft-lbs	0.6%	1	02-04-01
End Shear	47 lbs	7232 lbs	0.7%	1	01-03-06
Total Load Deflection	L/999 (0")	n\a	n\a	4	02-04-01
Live Load Deflection	L/999 (0")	n\a	n\a	5	02-04-01
Max Defl.	0"	n\a	n\a	4	02-04-01
Span / Depth	4.3				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	105 lbs 231 lbs	2.1% 4.7%	1.4% 2.1%	Unspecified Unspecified
B2	Beam	5-1/4" x 1-3/4"	231 108	4.770	2.170	Orispecified

DINCE OF

UWB NO. TAN 6736-21 STRUCTURAL COMPONENT ONLY

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

AMENDED 2020 Resistance Factor phi has been applied to all presented results per CSA O86. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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





PASSED

2ND FLR FRAMING\Dropped Beams\B15 DR(i33326) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:33:58

Build 7493 Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl 2ND FLR FRAMING\Dropped Beams\B15 DR(i33326)

Description:

Specifier:

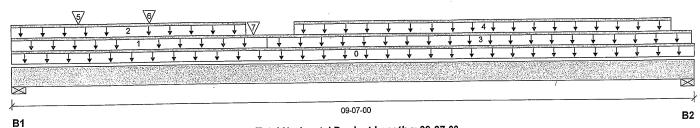
Designer:

Customer: Code reports:

CCMC 12472-R

L.D.

Company:



Total Horizontal Product Length = 09-07-00

Reaction Sun	nmary (Down / U	onit) (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1, 3-1/2"	1431 / 0	1401 / 0	645 / 0		
B1, 0-1/2"	1451 / 0	1112 / 0	220 / 0		

	ad Cummanı		•		,		Live	Dead	Snow	Wind	Tributary
LO ₃	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-07-00	Тор		10			00-00-00
1	R1(i33525)	Unf. Lin. (lb/ft)	L	00-00-00	03-06-08	Тор		81			n\a
2	R1(i33525)	Unf. Lin. (lb/ft)	L	00-00-00	03-03-00	Тор		60	132		n\a
2	R1(i33525)	Unf. Lin. (lb/ft)	L	03-06-08	09-06-08	Тор		41			n\a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-11-00	09-03-00	Top	326	163			n\a
4 5	J1(i33760)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	Top	326	163			n\a
-	V	Conc. Pt. (lbs)	L	01-11-00	01-11-00	Тор	381	190			n\a
6 7	J1(i33597)	Conc. Pt. (lbs)	Ĺ	03-04-04	03-04-04	Тор	435	465	436		n\a

Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
9867 ft-lbs	23220 ft-lbs	42.5%	1	04-07-00
4050 lbs	11571 lbs	35.0%	1	01-01-00
	n\a	48.3%	35	04-08-00
•	n\a	43.8%	51	04-08-00
•	n\a	n\a	35	04-08-00
0.22				
	Factored Demand 9867 ft-lbs 4050 lbs L/497 (0.22") L/822 (0.133") 0.22" 11.5	Factored Demand Resistance 9867 ft-lbs 23220 ft-lbs 4050 lbs 11571 lbs L/497 (0.22") n\a L/822 (0.133") n\a 0.22" n\a	Factored Demand Resistance Resistance 9867 ft-lbs 23220 ft-lbs 42.5% 4050 lbs 11571 lbs 35.0% L/497 (0.22") n\a 48.3% L/822 (0.133") n\a 43.8% 0.22" n\a n\a	Factored Demand Resistance Resistance Case 9867 ft-lbs 23220 ft-lbs 42.5% 1 4050 lbs 11571 lbs 35.0% 1 L/497 (0.22") n\a 48.3% 35 L/822 (0.133") n\a 43.8% 51 0.22" n\a n\a 35

Rearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1		3-1/2" x 3-1/2"	4542 lbs	27.8%	30.4%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	3786 lbs	23.2%	25.3%	Spruce-Pine-Fir

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume unbraced length of Top: 01-02-05, Bottom: 01-02-05.

AMENDED 2020

Resistance Factor phi has been applied to all presented results per CSA O86. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

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



COMPONENT ONLY





PASSED

2ND FLR FRAMING\Dropped Beams\B15 DR(i33326) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:33:58

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

Description:

Specifier:

2ND FLR FRAMING\Dropped Beams\B15 DR(i33326)

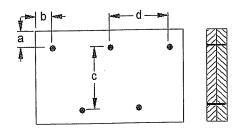
Customer:

Code reports:

CCMC 12472-R

Designer: Company: L.D.

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 5-1/2" d = 2 4

Connectors are: .

. ... Nails

ARDUX SPIKAL



STRUCTURAL COMPONENT ONLY

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BC CALC®, BC FRAMER® , AJS™, $\mathsf{ALLJOIST} @$, $\mathsf{BC} \ \mathsf{RIM} \ \mathsf{BOARD}^\mathsf{TM}, \ \mathsf{BCI} @$, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





PASSED

B2

2ND FLR FRAMING\Dropped Beams\B16 DR(i33810) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:33:58

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

Build 7493

Customer:

В1

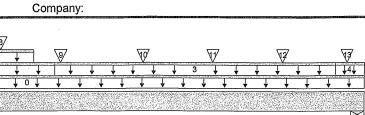
Job name:

Address: City, Province, Postal Code: RICHMOND HILL

Specifier: Designer: L.D.

File name:

CCMC 12472-R Code reports:



Description: 2ND FLR FRAMING\Dropped Beams\B16 DR(i33810)

09-07-00

Total Horizontal Product Length = 09-07-00

	Meachon Sun	illiary (Dogair) of	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
٠	Bearing	Live	Dead	Snow	Wind	
	B1, 3-1/2"	1394 / 0	1396 / 0	630 / 0		
	B2, 3-1/2"	1557 / 0	1432 / 0	635 / 0		

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-07-00	Тор		10			00-00-00
1	R1(i33767)	Unf. Lin. (lb/ft)	L	00-00-00	05-02-00	Top		81			n\a
2	R1(i33767)	Unf. Lin. (lb/ft)	L	00-00-00	04-10-08	Top		60	132		n\a
3	R1(i33767)	Unf. Lin. (lb/ft)	L	05-02-00	09-02-00	Top		41			n\a
4	R1(i33767)	Unf. Lin. (lb/ft)	L	09-02-00	09-07-00	Top		81			n\a
5	J2(i33782)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	Тор	399	200			n\a
6	J2(i33592)	Conc. Pt. (lbs)	L	02-01-00	02-01-00	Top	399	200			n\a
7	J2(i33593)	Conc. Pt. (lbs)	L	03-05-00	03-05-00	Тор	350	175			n\a
8	J2(i33642)	Conc. Pt. (lbs)	L	04-05-00	04-05-00	Top	300	150			n\a
9	•	Conc. Pt. (lbs)	L	05-02-15	05-02-15	Top	300	323	304		n\a
10	J2(i33849)	Conc. Pt. (lbs)	L	06-05-00	06-05-00	Top	300	150			n\a
11	J2(i33775)	Conc. Pt. (lbs)	L	07-05-00	07-05-00	Top	200	100			n\a
12	J2(i33750)	Conc. Pt. (lbs)	L	08-05-00	08-05-00	Тор	403	201			n\a
13	-	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	300	321	317		n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	9750 ft-lbs	23220 ft-lbs	42.0%	1	04-05-00
End Shear	3761 lbs	11571 lbs	32.5%	1	01-01-00
Total Load Deflection	L/502 (0.218")	n\a	47.8%	35	04-09-02
Live Load Deflection	L/843 (0.13")	n\a	42.7%	51	04-09-02
Max Defl.	0.218"	n\a	n\a	35	04-09-02
Span / Depth	11.5				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	4465 lbs	27.3%	29.9%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	4761 lbs	29.1%	31.9%	Spruce-Pine-Fir



STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Dropped Beams\B16 DR(i33810) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:33:58

Build 7493

Job name:

File name: Description:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

Address:

City, Province, Postal Code: RICHMOND HILL

Specifier:

2ND FLR FRAMING\Dropped Beams\B16 DR(i33810)

Customer:

L.D.

Code reports:

CCMC 12472-R

Designer:

Company:

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume unbraced length of Top: 01-02-05, Bottom: 01-02-05.

AMENDED 2020

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

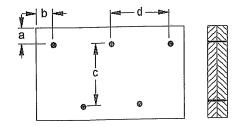
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" 4 d = 200 6

Connectors are:

ARDUX SPIRAL

PANCE OF ON

444 NO. TAM 823 STRUCTURAL COMPONENT ONLY

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®,





PASSED

2ND FLR FRAMING\Dropped Beams\B9 DR(i33311) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:33:58

Build 7493 Job name:

Address: City, Province, Postal Code: RICHMOND HILL

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl 2ND FLR FRAMING\Dropped Beams\B9 DR(i33311)

Description:

Specifier:

Designer:

L.D.

Wind

Customer: Code reports:

CCMC 12472-R

Company:

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P4								09-06	-08													B2

Total Horizontal Product Length = 09-06-08

Reaction Summary (Down / Uplift) (lbs)

	Live	Dead	Snow
Bearing B1, 3-1/2"	2112 / 0	1131 / 0	
B2 5-1/2"	2784 / 0	1490 / 0	

	10						Live	Dead	Snow	Wind	Tributary
LO: Tag	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-06-08	Top		10			00-00-00
0	Smoothed Load	Unf. Lin. (lb/ft)	L	02-05-00	05-05-00	Top	297	150			n\a
1		Conc. Pt. (lbs)	L	00-07-00	00-07-00	Top	388	194			n\a
2	J2(i33592)	Conc. Pt. (lbs)	Ĺ	01-11-00	01-11-00	Тор	340	170			n\a
3	J2(i33593)	Conc. Pt. (lbs)	ī	06-00-11	06-00-11	qoT	1868	1006			n\a
4	-	Conc. Pt. (lbs)	ī	07-00-01	07-00-01	Тор	527	264			n\a
5	-		1	07-11-00	07-11-00	Top	291	146			n\a
6	J2(i33822)	Conc. Pt. (lbs)	_		08-09-11	Тор	435	218			n\a
7	_	Conc. Pt. (lbs)	L	08-09-11	00-09-11	ιορ	400	210			11101

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	13778 ft-lbs	23220 ft-lbs	59.3%	1	06-00-14
End Shear	5424 lbs	11571 lbs	46.9%	1	08-03-08
Total Load Deflection	L/413 (0.259")	n\a	58.1%	4	04-11-00
	L/635 (0.168")	n\a	56.7%	5	04-11-00
Live Load Deflection Max Defl.	0.259"	n\a	n\a	4	04-11-00
Span / Depth	11.3				

Roarin	g Supports	Dim (LyW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	4581 lbs	28.0%	30.7%	Spruce-Pine-Fir
			6039 lbs	23.5%	25.7%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	0009 103	20.070	20.170	

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume unbraced length of Top: 01-01-08, Bottom: 01-01-08.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



COMPONENT





PASSED

2ND FLR FRAMING\Dropped Beams\B9 DR(i33311) (Dropped Beam)

BC CALC® Member Report

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

Dry | 1 span | No cant.

September 3, 2020 08:33:58

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl Description: 2ND FLR FRAMING\Dropped Beams\B9 DR(i33311)

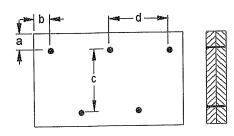
Specifier: Designer:

L.D.

Company:

Connection Diagram: Full Length of Member

CCMC 12472-R



a minimum = 2" b minimum = 3" c = 5-1/2''d = 26/6''

Connectors are: 3

Nails

ARDOX SPIRAL



THE NO. TAM 87 STRUCTURAL COMPONENT ONLY

Disclosure

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





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

2ND FLR FRAMING\Flush Beams\B10(i33830) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Build 7493

Job name:

Address: City, Province, Postal Code: RICHMOND HILL

BC CALC® Member Report

Customer: Code reports:

CCMC 12472-R

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

2ND FLR FRAMING\Flush Beams\B10(i33830) Description:

Specifier:

Designer: L.D.

Wind

CONFORMS TO OBC 2012

AMENDED 2020

Company:

3																													
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1								_										00											

Total Horizontal Product Length = 08-09-06

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 5-1/2"	91/0	107 / 0
B2, 2-3/4"	40 / 0	47 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-09-06	Тор		6			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	00-08-06	Тор	10	5			n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-08-06	08-06-10	Top	9	4			n\a
2	B23(i33778)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Тор	54	62			n\a
4	FC3 Floor Material	Conc. Pt. (lbs)	L	08-08-00	08-08-00	Top	2	1	100 miles	\$6881C	n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	243 ft-lbs	17696 ft-lbs	1.4%	1	04-03-12
End Shear	123 lbs	7232 lbs	1.7%	1	01-05-06
Total Load Deflection	L/999 (0.004")	n\a	n\a	4	04-04-15
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	04-04-15
Max Defl.	0.004"	n\a	n\a	4	04-04-15
Span / Depth	8.3				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	271 lbs	4.6%	2.3%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/4" x 1-3/4"	119 lbs	4.0%	2.0%	Spruce-Pine-Fir

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



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





PASSED

2ND FLR FRAMING\Flush Beams\B11(i33266) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

September 3, 2020 08:33:58

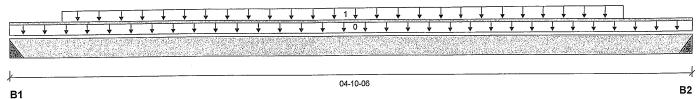
File name: 4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B11(i33266)

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 04-10-06

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 4"	245 / 0	153 / 0
B2. 2"	225 / 0	141 / 0

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	•	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L.	00-00-00	04-10-06	Тор		12			00-00-00
1	Smoothed Load	Trapezoidal (lb/ft)	L	00-04-06		Top	107	54			n\a
'	0000000	,			04-04-06		128	64			

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	710 ft-lbs	35392 ft-lbs	2.0%	1	02-04-06
End Shear	495 lbs	14464 lbs	3.4%	1	03-08-08
Total Load Deflection	L/999 (0.002")	n\a	n\a	4	02-06-06
Live Load Deflection	L/999 (0.001")	n∖a	n\a	5	02-06-06
Max Defl.	0.002"	n\a	n\a	4	02-06-06
Span / Depth	4.5				

Beari	ing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B1	Hanger	4" x 3-1/2"	559 lbs	n\a	3.3%	HGUS410	
B2	Hanger	2" x 3-1/2"	513 lbs	n\a	6.0%	HUC412	

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.

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

Header for the hanger HUC412 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



COMPONENT





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

2ND FLR FRAMING\Flush Beams\B11(i33266) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B11(i33266)

Specifier:

Designer:

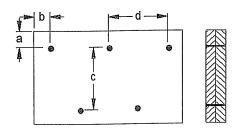
L.D.

Customer:

CCMC 12472-R Code reports:

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 8 8 °1

Calculated Side Load = 176.4 lb/ft

Connectors are: //

31/2" ARDOX SPIRAL



Disclosure

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2ND FLR FRAMING\Flush Beams\B12(i33774) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7493

Job name: Address:

Dry | 2 spans | L cant.

September 3, 2020 08:33:58

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl 2ND FLR FRAMING\Flush Beams\B12(i33774)

Description: Specifier:

Designer:

L.D.

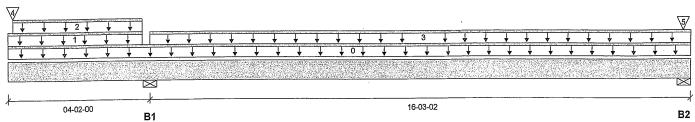
Wind

City, Province, Postal Code: RICHMOND HILL Customer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 20-05-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 5-1/2"	1513 / 0	946 / 0	
B2, 5-1/2"	167 / 185	118 / 0	39 / 0

Load Summary							Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	20-05-02	Тор		12			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-11-04	Тор	29	15			n\a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-01-12	03-11-04	Top	216	108			n\a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	04-02-00	20-05-02	Тор	20	10			n\a
1	B11(i33266)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Тор	233	146			n\a
5	E55(i3200)	Conc. Pt. (lbs)	L	20-02-06	20-02-06	Тор		41	39		n\a

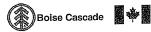
Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	908 ft-lbs	35392 ft-lbs	2.6%	3	14-06-04
Neg. Moment	-6510 ft-lbs	-35392 ft-lbs	18.4%	1	04-02-00
End Shear	263 lbs	14464 lbs	1.8%	3	18-11-12
Cont. Shear	2367 lbs	14464 lbs	16.4%	1	02-11-06
Total Load Deflection	2xL/521 (0.192")	n\a	46.0%	79	00-00-00
Live Load Deflection	2xL/721 (0.139")	n\a	50.0%	117	00-00-00
Total Neg. Defl.	L/999 (-0.101")	n\a	n\a	79	10-05-13
Max Defl.	-0.101"	n\a	n\a	79	10-05-13
Span / Depth	16.0				

Beari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	3451 lbs	29.1%	14.7%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	436 lbs	3.7%	1.9%	Spruce-Pine-Fir
B2	Uplift		171 lbs			

Uplift of 171 lbs found at bearing B2.



OWO NO. TAN 874221 STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B12(i33774) (Flush Beam)

Build 7493

Job name:

Dry | 2 spans | L cant.

September 3, 2020 08:33:58

Address:

BC CALC® Member Report

City, Province, Postal Code: RICHMOND HILL

File name: Description:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl 2ND FLR FRAMING\Flush Beams\B12(i33774)

Specifier: Designer:

L.D.

Customer: Code reports:

CCMC 12472-R

Company:

Notes

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

Design meets User specified (2xL/360) Live load deflection criteria.

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

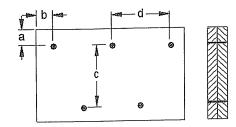
verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" $d = \mathcal{B}^{ij} \mathcal{B}^{ij}$

Calculated Side Load = 266.0 lb/ft

Connectors are:

ا در Nails د

ARDOX SPIRAL

ON OF ONE

146 NO. FAMBTYN-21 STRUCTURAL COMPONENT ONLY

Disclosure

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

2ND FLR FRAMING\Flush Beams\B13(i33325) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Build 7493

Job name:

Address: City, Province, Postal Code: RICHMOND HILL

Customer: Code reports: CCMC 12472-R

File name:

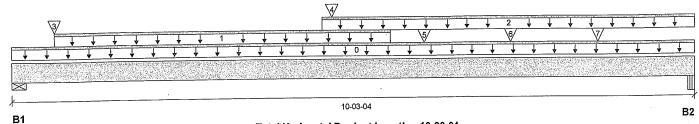
4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

2ND FLR FRAMING\Flush Beams\B13(i33325) Description:

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 10-03-04

Snow

Reaction Summary (Down / Uplift) (Ibs)

Live Dead Bearing 1042 / 0 B1, 5-1/2" 1857 / 0 908 / 0 1669 / 0 B2, 1-3/4"

ا ما	d Cumman/						Live	Dead	Snow	Wind	Tributary
LO∂ Tag	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-03-04	Тор		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-08	05-07-08	Тор	348	174			n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	04-07-06	10-03-04	Тор	24	12			n\a
2	B23(i33778)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Top	54	62			n\a
3		Conc. Pt. (lbs)	L	04-09-02	04-09-02	Top	237	148			n\a
4	B11(i33266)	Conc. Pt. (lbs)	Ī	06-01-08	06-01-08	Top	403	201			n\a
5	J1(i33617)	Conc. Pt. (lbs)	ī	07-05-08	07-05-08	Top	460	230			n\a
6	J1(i33737)		-	08-09-08	08-09-08	Top	481	240			n\a
7	J1(i33826)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	rop	401	270			1110

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	10674 ft-lbs	35392 ft-lbs	30.2%	1	05-01-08
End Shear	3676 lbs	14464 lbs	25.4%	1	01-05-06
Total Load Deflection	L/901 (0.13")	n\a	26.6%	4	05-03-00
Live Load Deflection	L/999 (0.085")	n\a	n\a	5	05-03-00
Max Defl.	0.13"	n\a	n\a	4	05-03-00
Span / Depth	9.9				

Rearin	ng Supports	Dim (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Materia l
B1		5-1/2" x 3-1/2"	4088 lbs	34.5%	17.4%	Spruce-Pine-Fir
B2	Beam	1-3/4" x 3-1/2"	3638 lbs	48.7%	48.7%	VL 2.0 3100 SP

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



STRUCTURAL COMPONENT ONLY





2ND FLR FRAMING\Flush Beams\B13(i33325) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

BC CALC® Member Report Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

CCMC 12472-R

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

2ND FLR FRAMING\Flush Beams\B13(i33325)

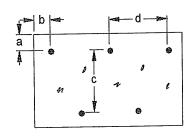
Description:

Specifier: Designer:

L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d=\$98

Calculated Side Load = 916.6 lb/ft

Connectors are: \

. A Nails

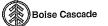
ARDOX SPIRAL

DVO NO. TAM A STRUCTURAL COMPONENT

Disclosure

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PASSED

September 3, 2020 08:33:58

2ND FLR FRAMING\Flush Beams\B17(i33695) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Code reports:

Customer:

Dry | 1 span | No cant.

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

2ND FLR FRAMING\Flush Beams\B17(i33695) Description:

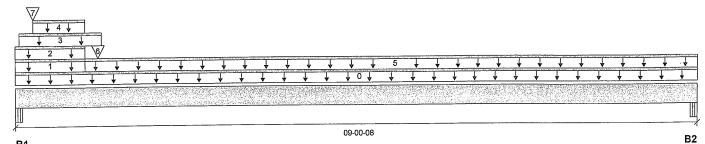
Specifier:

Designer:

Company:

L.D.

Wind



В1

Total Horizontal Product Length = 09-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 5-1/4"	537 / 0	1034 / 0	879 / 0
B2, 2-1/4"	153 / 0	185 / 0	70 / 0

CCMC 12472-R

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-08	Top		12			00-00-00
1	E43(i937)	Unf. Lin. (lb/ft)	L	00-00-00	00-11-00	Top		81			n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-11-00	Top	18				n\a
3	ROOF	Unf. Lin. (lb/ft)	L	00-00-10	01-01-10	Top	33	30	78		n\a
4	E43(i937)	Unf. Lin. (lb/ft)	L	00-02-12	00-11-00	Top		45	99		n\a
5	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-11-00	09-00-08	Тор	27	13			n\a
6	1 CO 1 IOOI Material	Conc. Pt. (lbs)	Ĺ	01-01-01	01-01-01	Top	420	841	767		n\a
0	E 40(1007)	Conc. Pt. (lbs)	ī	00-02-12	00-02-12	Top		14	30		n\a
- /	E43(i937)	Colic. Pt. (ibs)	L-	00-02-12	00 02 12	ΙΟρ			00		

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
	1971 ft-lbs	35392 ft-lbs	5.6%	13	01-01-12
Pos. Moment			13.9%	13	01-05-02
End Shear	2005 lbs	14464 lbs			
Total Load Deflection	L/999 (0.019")	n\a	n\a	35	04-02-15
Live Load Deflection	L/999 (0.011")	n\a	n\a	51	04-02-15
Max Defl.	0.019"	n\a	n\a	35	04-02-15
Span / Depth	8.6				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	3149 lbs	32.1%	14.0%	Unspecified
B2	Beam	2-1/4" x 3-1/2"	530 lbs	12.6%	5.5%	Unspecified

Cautions

Concentrated side load(s) 19 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



COMPONENT ONLY





City, Province, Postal Code: RICHMOND HILL

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B17(i33695) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7493

Job name: Address:

Dry | 1 span | No cant.

September 3, 2020 08:33:58

File name:

Description:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl 2ND FLR FRAMING\Flush Beams\B17(i33695)

Specifier:

Designer: Company:

Customer: Code reports:

CCMC 12472-R

L.D.

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.

CONFORMS TO OBC 2012 AMENDED 2020

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

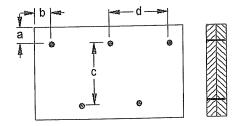
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

verification.

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

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 8 8

Calculated Side Load = 261.0 lb/ft

Connectors are:

ARDOX SPIRAL



STRUCTURAL COMPONENT ONLY

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Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B18(i33713) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:33:58

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: CCMC 12472-R Code reports:

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

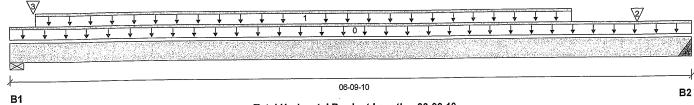
2ND FLR FRAMING\Flush Beams\B18(i33713) Description:

Wind

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 06-09-10

Snow

Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead
B1, 5-1/2"	700 / 0	409 / 0
B2, 3"	676 / 0	359 / 0

	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-09-10	Тор		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-00	05-07-00	Top	217	109			n\a
2	J3(i33613)	Conc. Pt. (lbs)	L	06-03-00	06-03-00	Тор	220	110			n\a
2	F82(i18743)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		37			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2326 ft-lbs	17696 ft-lbs	13.1%	1	03-07-00
End Shear	1175 lbs	7232 lbs	16.2%	1	01-05-06
Total Load Deflection	L/999 (0.023")	n\a	n\a	4	03-06-00
Live Load Deflection	L/999 (0.015")	n\a	n\a	5	03-06-00
Max Defl.	0.023"	n\a	n\a	4	03-06-00
Snan / Denth	6.3				

Bearing	յ Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	1562 lbs	26.4%	13.3%	Spruce-Pine-Fir
B2	Hanger	3" x 1-3/4"	1462 lbs	n\a	22.8%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

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.

CONFORMS TO OBC 2012 AMENDED 2020

Hanger Manufacturer: Unassigned

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



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PASSED

B2

2ND FLR FRAMING\Flush Beams\B19(i33687) (Flush Beam)

Dry | 1 span | No cant. **BC CALC® Member Report**

September 3, 2020 08:33:58

Build 7493 Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

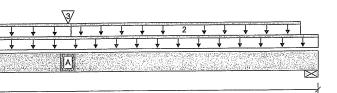
4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B19(i33687)

Specifier:

Designer:

L.D. Company:



В1

17-05-06 Total Horizontal Product Length = 17-05-06

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1. 4-3/8"	460 / 0	341 / 0
B2, 5-1/2"	590 / 0	412 / 0

		d Cummary						Live	Dead	Snow	Wind	Tributary
		ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
-	າ ay າ	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	17-05-06	Тор		12			00-00-00
	1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-11-14	Top	27	13			n\a
,	ו ר	FC3 Floor Material	Unf. Lin. (lb/ft)	L	10-11-14	16-11-14	Тор	16	8			n\a
4	<u>د</u> ع	R18(i33713)	Conc. Pt. (lbs)	Ĺ	10-11-00	10-11-00	Top	658	347			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7586 ft-lbs	35392 ft-lbs	21.4%	1	10-11-00
End Shear	1334 lbs	14464 lbs	9.2%	1	16-00-00
Total Load Deflection	L/826 (0.243")	n\a	29.1%	4	09-01-08
Live Load Deflection	L/1378 (0.146")	n\a	26.1%	5	09-01-08
Max Defl.	0.243"	n\a	n\a	4	09-01-08
Span / Depth	16.9				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	1117 lbs	11.9%	6.0%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	1401 lbs	11.8%	6.0%	Spruce-Pine-Fir

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B19(i33687) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

BC CALC® Member Report Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Customer: Code reports:

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl 2ND FLR FRAMING\Flush Beams\B19(i33687)

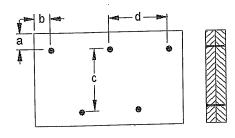
Description:

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 18 8 "

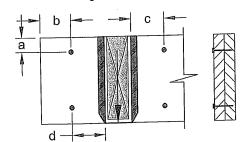
Connectors are: ...

~∘ ∴ .n Nails

Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 2



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are: 16d > A.: Nails

316" 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.

COMPONENT ONLY

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



PASSED

2ND FLR FRAMING\Flush Beams\B21(i33488) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name: Address: Dry | 1 span | No cant.

September 3, 2020 08:33:58

File name:

File name: 4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl Description: 2ND FLR FRAMING\Flush Beams\B21(i33488)

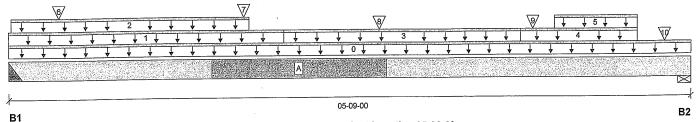
Specifier:

Company:

Designer: L.D.

Customer: Code reports:

CCMC 12472-R



Total Horizontal Product Length = 05-09-00

Reaction Summary (Down / Uplift) (lbs)

City, Province, Postal Code: RICHMOND HILL

Reaction Sun	Innail (Doggii)	pine, (iso,		
Bearing	Live	Dead	Snow	Wind
B1. 4"	452 / 0	639 / 0	370 / 0	
B2 5-1/2"	355 / 0	. 561 / 0	325 / 0	

10:	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	· ·	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-09-00	Тор		12			00-00-00
- 1	E91(i26170)	Unf. Lin. (lb/ft)	L	00-00-00	02-03-08	Top		81			n\a
2	E91(i26170)	Unf. Lin. (lb/ft)	L	00-00-04	02-00-00	Тор		60	132		n\a
3	E90(i26169)	Unf. Lin. (lb/ft)	L	02-03-08	04-03-08	Top		41			n\a
4	E75(i3228)	Unf. Lin. (lb/ft)	L	04-03-08	05-03-08	Тор		81			n\a
5	E75(i3228)	Unf. Lin. (lb/ft)	L	04-07-00	05-03-08	Тор		60	132		n\a
6	J5(i33805)	Conc. Pt. (lbs)	L	00-05-00	00-05-00	Тор	158	79			n\a
7	,	Conc. Pt. (lbs)	L	01-11-08	01-11-08	Тор	222	210	174		n\a
, 8	- J5(i33786)	Conc. Pt. (lbs)	L	03-01-00	03-01-00	Тор	222	111			n\a
_	33(133760)	Conc. Pt. (lbs)	L	04-04-12	04-04-12	qoT	205	198	167		n\a
9 10	E41(i933)	Conc. Pt. (lbs)	Ĺ	05-06-04	05-06-04	Тор		24			n\a

Controls Summ	narv Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
	1987 ft-lbs	35392 ft-lbs	5.6%	1	03-01-00
Pos. Moment		• •	9.2%	1	04-03-10
End Shear	1335 lbs	14464 lbs	9.270		
Total Load Deflection	n L/999 (0.008")	n\a	n\a	35	02-09-07
Live Load Deflection		n\a	n\a	51	02-09-07
Max Defl.	0.008"	n\a	n\a	35	02-09-07
Span / Depth	5.1				

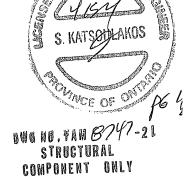
Rearii	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	1848 lbs	n\a	10.8%	HGUS410
B2	Wall/Plate	5-1/2" x 3-1/2"	1559 lbs	13.2%	6.6%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.

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







BC CALC® Member Report



City, Province, Postal Code: RICHMOND HILL

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

2ND FLR FRAMING\Flush Beams\B21(i33488) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Build 7493

Job name: Address:

File name:

4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

2ND FLR FRAMING\Flush Beams\B21(i33488) Description:

Specifier:

L.D. Designer:

Company:

Customer: Code reports:

CCMC 12472-R

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.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

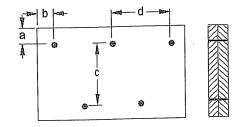
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

verification.

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

Connection Diagram: Full Length of Member



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

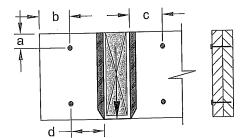
Calculated Side Load = 218.1 lb/ft

Connectors are:

31/2" ANDON SPIKAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A _____Applies to load tag(s): 8+15



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12" Connectors are:

Nails

ARDOX SPIRAL



OWO NO. TAMPS STRUCTURAL COMPONENT ONLY

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®,





2ND FLR FRAMING\Flush Beams\B23(i33778) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 08:33:58

PASSED

Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

BC CALC® Member Report

Customer: Code reports: 4502 - EL A - STD GRD ...ROOM - 2ND FLOOR.mmdl

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	11-07-00							i
9.0		11-07-00		11-07-00				

Total Horizontal Product Length = 11-07-00

Snow

Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead			
B1, 2"	54 / 0	62 / 0			
B2, 2"	54 / 0	62 / 0			

Wind Tributary Live Dead Snow **Load Summary** 1.00 0.65 1.00 1.15 Ref. Start End Loc. Load Type Tag Description 00-00-00 6 00-00-00 11-07-00 Top Unf. Lin. (lb/ft) L 0 Self-Weight 5 n\a 9 11-07-00 Top L 00-00-00 Unf. Lin. (lb/ft) FC3 Floor Material 1

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	445 ft-lbs	17696 ft-lbs	2.5%	1	05-09-06
End Shear	147 lbs	7232 lbs	2.0%	1	01-01-14
	L/999 (0.016")	n\a	n\a	4	05-09-06
Total Load Deflection	L/999 (0.007")	n\a	n\a	5	05-09-06
Live Load Deflection Max Defl.	0.016"	n\a	n\a	4	05-09-06
Span / Depth	11.5				

Rearing	Supports	Dim (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
	Hanger	2" x 1-3/4"	159 lbs	n\a	3.7%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	159 lbs	n\a	3.7%	HUS1.81/10

COMPONENT ONLY Disclosure

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STRUCTURAL

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM $^{\text{TM}}$, BC FloorValue® , VERSA-LAM®, VERSA-RIM PLUS®,

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.

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.

CONFORMS TO OBC 2012 AMENDED 2020

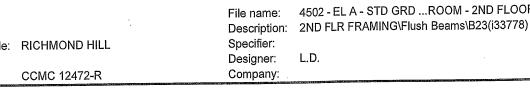
Wind

Hanger Manufacturer: Unassigned Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9







PASSED

2ND FLR FRAMING\Dropped Beams\B16A DR(i32616) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:42:07

Build 7493 Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

File name: Description: 4502 - EL A - 5 BEDROOM OPTION.mmdl

2ND FLR FRAMING\Dropp...Beams\B16A DR(i32616)

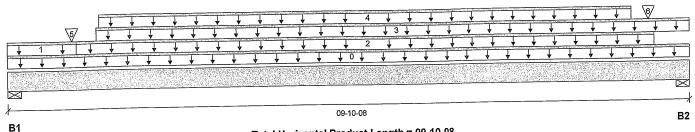
Specifier:

Designer: L.D.

Wind

Company:

Customer: CCMC 12472-R Code reports:



Total Horizontal Product Length = 09-10-08

Reaction Summary (Down / Uplift) (lbs)

	Illiary (Down 7 OF	Dead	Snow
Bearing	Live		780 / 0
B1, 5-3/4"	1540 / 0	1569 / 0	78070
B2, 4-3/4"	1735 / 0	1723 / 0	853 / 0

							Live	Dead	Snow	Wind	Tributary
	oad Summary	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
<u>Ta</u>	M	Unf. Lin. (lb/ft)	1	00-00-00	09-10-08	Top		10			00-00-00
0	Self-Weight	• •	i	00-00-00	00-11-12	•		41			n\a
1	R1(i32656)	Unf. Lin. (lb/ft)	L.		'	•		81			n\a
2	R1(i32656)	Unf. Lin. (lb/ft)	L	00-11-12	09-04-04	•					n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-04	09-10-08	Тор	342	172			
3		Unf. Lin. (lb/ft)	1	01-03-12	09-00-04	Top		60	132		n\a
4	R1(i32656)	•	1	00-11-00	00-11-00	Top	327	337	305		n\a
5	-	Conc. Pt. (lbs)		• • • • • •				176	311		n\a
6	R1(i32656)	Conc. Pt. (lbs)	L	09-03-04	09-03-04	Тор		170	011		

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
	10803 ft-lbs	23220 ft-lbs	46.5%	1	04-09-04
Pos. Moment	4436 lbs	11571 lbs	38.3%	1	01-03-04
End Shear		n\a	54.2%	35	05-00-04
Total Load Deflection	L/442 (0.247")		48.4%	51	05-00-04
Live Load Deflection	L/744 (0.147")	n\a		35	05-00-04
Max Defl.	0.247"	n\a	n\a	ათ	05-00-04
Span / Depth	11.5				

Posrin	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
		5-3/4" x 3-1/2"	5051 lbs	18.8%	20.6%	Spruce-Pine-Fir
B1	Wall/Plate				27.7%	Spruce-Pine-Fir
B2	Wall/Plate	4-3/4" x 3-1/2"	5610 lbs	25.3%	21.170	Sprace-rifle-rif

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume unbraced length of Top: 00-10-11, Bottom: 00-10-11.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

COMPONENT ONLY





PASSED

2ND FLR FRAMING\Dropped Beams\B16A DR(i32616) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:42:07

Build 7493

Customer:

Code reports:

Job name:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

4502 - EL A - 5 BEDROOM OPTION.mmdl 2ND FLR FRAMING\Dropp...Beams\B16A DR(i32616)

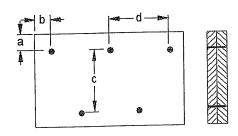
Description:

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2"d = 1/2 4

Connectors are:

Nails 3%" ARDOX SPIRAL



STRUCTURAL COMPONENT ONLY

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





PASSED

2ND FLR FRAMING\Dropped Beams\B9A DR(i32637) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:42:07

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

File name:

4502 - EL A - 5 BEDROOM OPTION.mmdl

2ND FLR FRAMING\Dropped Beams\B9A DR(i32637) Description:

Wind

Specifier:

Designer: L.D.

Customer:

В1

CCMC 12472-R Code reports:

Company:

				L I							1		2/			3/	
	<u> </u>	\ \	ŢŢ	Ţ Ţ	,	101		Ţ	 	-	↓	 	Ţ.	 	↓	<u> </u>	
X							<u> </u>							<u> </u>	<u> </u>	1	-
/						06-08-00	0	-									B2

Total Horizontal Product Length = 06-08-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 4"	1496 / 0	794 / 0
B2. 4"	2450 / 0	1312 / 0

1	d Cummons						Live	Dead	Snow	Wind	Tributary
	nd Summary	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
	Description Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-08-00	Тор		10			00-00-00
4	•	• •	1.	00-00-00	04-07-08	Top	350	176			n\a
1	Smoothed Load	·	ī		05-03-02	Top	1746	940			n\a
2	-	- ' '	ı				528	263			n\a
1 2 3	Smoothed Load	Unf. Lin. (lb/ft) Conc. Pt. (lbs) Conc. Pt. (lbs)	L L L	00-00-00 05-03-02 06-02-04	04-07-08 05-03-02 06-02-04	Тор					n

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5405 ft-lbs	23220 ft-lbs	23.3%	1	04-01-08
End Shear	4421 lbs	11571 lbs	38.2%	1	05-06-08
Total Load Deflection	L/999 (0.052")	n\a	n\a	4	03-06-05
	L/999 (0.034")	n\a	n\a	5	03-06-05
Live Load Deflection Max Defl.	0.052"	n\a	n\a	4	03-06-05
Span / Depth	7.7				

Rearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	3236 lbs 5315 lbs	17.3% 28.5%	18.9% 31.1%	Spruce-Pine-Fir Spruce-Pine-Fir
B2	Wall/Plate	4" x 3-1/2"	55 15 IDS	20.070	01.170	opiaco i mo i m

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume unbraced length of Top: 00-10-12, Bottom: 00-10-12.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Dropped Beams\B9A DR(i32637) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 08:42:07

Build 7493

Job name:

File name: Description:

Address:

4502 - EL A - 5 BEDROOM OPTION.mmdl

City, Province, Postal Code: RICHMOND HILL

Specifier:

2ND FLR FRAMING\Dropped Beams\B9A DR(i32637)

Customer:

Designer:

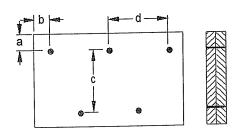
L.D.

Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 8 6 11

Connectors are: 3-1

ARDUX SPIRAL

PLINCE OF 1W8 NO. TAM 6750-21 STRUCTURAL

COMPONENT ONLY

Disclosure

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



PASSED

2ND FLR FRAMING\Flush Beams\B17E(i33214) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 12:15:41

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

4502 - EL B - STD GRD ...ROOM - 2ND FLOOR.mmdl

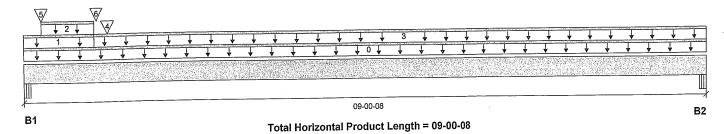
Description: 2ND FLR FRAMING\Flush Beams\B17E(i33214)

Specifier:

L.D. Designer:

Wind

Company:



Reaction Summary (Down / Uplift) (lbs)

1 COOLON CON		' ' <u> </u>	Cmarr
Bearing	Live	Dead	Snow
B1, 5-1/4"	432 / 0	880 / 0	763 / 0
B2 2-1/4"	145 / 0	173 / 0	64 / 0

							Live	Dead	Snow	Wind	Tributary
	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
Tag	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-08	Тор		12			00-00-00
4	E99(i33030)	Unf. Lin. (lb/ft)	L	00-00-00	00-11-00	Тор		81			n\a
1		Unf. Lin. (lb/ft)	Ĺ	00-02-12	00-11-00	Top		45	99		n\a
2	E99(i33030)	Unf. Lin. (lb/ft)	1	00-11-00	09-00-08	Тор	27	13			n\a
3	FC3 Floor Material	Conc. Pt. (lbs)	ī	01-01-02	01-01-02	Top	338	696	675		n\a
4	-	Conc. Pt. (lbs)	ī	00-02-12	00-02-12	•		14	30		n\a
5	E99(i33030)		i i	00-11-06	00-11-06	•	23	14	54		n\a
6	ROOF	Conc. Pt. (lbs)	L	00-11-00	00-11-00	٦٥٢	20				

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1736 ft-lbs	35392 ft-lbs	4.9%	13	01-02-10
	1721 lbs	14464 lbs	11.9%	13	01-05-02
End Shear	L/999 (0.017")	n\a	n\a	35	04-02-15
Total Load Deflection	L/999 (0.01")	n\a	n\a	51	04-02-15
Live Load Deflection	0.017"	n\a	n\a	35	04-02-15
Max Defl.	• • • • • • • • • • • • • • • • • • • •	IIIa	11.0		
Span / Depth	8.6				

Rearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	2676 lbs	27.3%	11.9%	Unspecified
B2	Beam	2-1/4" x 3-1/2"	498 lbs	11.9%	5.2%	Unspecified

Cautions

Concentrated side load(s) 24 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



DWG NO. TAM 875/ -21 COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B17E(i33214) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 12:15:41

BC CALC® Member Report Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: CCMC 12472-R Code reports:

File name:

4502 - EL B - STD GRD ...ROOM - 2ND FLOOR.mmdl

2ND FLR FRAMING\Flush Beams\B17E(i33214)

Description:

Specifier:

L.D.

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.

CONFORMS TO OBC 2012 AMENDED 2020

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

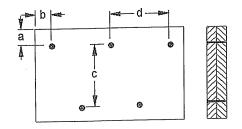
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

verification.

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

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

.-118" Y d=**®** B c = 7-7/8"

Calculated Side Load = 192.0 lb/ft

Connectors are:

, Nails ARDUX SPIKAL



COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™ ALLJOIST® , BC RIM BOARD $^{\mathsf{TM}}$, BCI® , BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





City, Province, Postal Code: RICHMOND HILL

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

PASSED

2ND FLR FRAMING\Flush Beams\B21 E(i33374) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name: Address:

Dry | 1 span | No cant.

September 3, 2020 12:15:41

File name:

4502 - EL B - STD GRD ...ROOM - 2ND FLOOR.mmdl Description: 2ND FLR FRAMING\Flush Beams\B21 E(i33374)

Wind

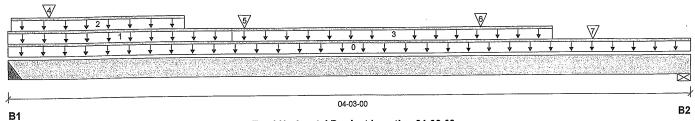
Specifier: Designer:

L.D.

Customer: Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 4"	338 / 0	466 / 0	269 / 0
B2 5-1/2"	233 / 0	429 / 0	267 / 0

10	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	. •	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-03-00	Тор		12			00-00-00
1	E98(i33032)	Unf. Lin. (lb/ft)	L	00-00-00	01-04-08	Top		81			n\a
2	E98(i33032)	Unf, Lin. (lb/ft)	L	00-00-04	01-01-00	Top		60	132		n\a
3	E97(i33040)	Unf. Lin. (lb/ft)	L	01-04-08	03-04-08	Тор		41			n\a
1	J5(i33276)	Conc. Pt. (lbs)	L	00-03-00	00-03-00	Тор	144	72			n\a
5	-	Conc. Pt. (lbs)	L	01-05-07	01-05-07	Тор	222	210	174		n\a
6	J5(i33273)	Conc. Pt. (lbs)	L	02-11-00	02-11-00	Тор	205	103			n\a
7	55(155275)	Conc. Pt. (lbs)	L	03-07-10	03-07-10	Тор		202	222		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand <i>l</i> Resistance	Case	Location _
Pos. Moment	935 ft-lbs	35392 ft-lbs	2.6%	1	01-07-00
End Shear	840 lbs	14464 lbs	5.8%	13	01-03-14
Total Load Deflection	L/999 (0.002")	n\a	n\a	35	02-00-08
Live Load Deflection	L/999 (0.001")	n\a	n\a	51	02-00-08
Max Defl.	0.002"	n\a	n\a	35	02-00-08
Snan / Denth	3.6				

Beari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	1360 lbs	n\a	8.0%	HGUS410
B2	Wall/Plate	5-1/2" x 3-1/2"	1169 lbs	9.9%	5.0%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.

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



STRUCTURAL COMPONENT ONLY



BC CALC® Member Report



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

PASSED

2ND FLR FRAMING\Flush Beams\B21 E(i33374) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 12:15:41

Build 7493

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

4502 - EL B - STD GRD ...ROOM - 2ND FLOOR.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B21 E(i33374)

Specifier:

Designer: L.D.

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.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

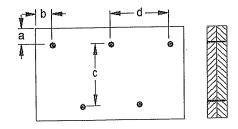
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

verification.

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

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8" B d = 200

Calculated Side Load = 235.9 lb/ft

Connectors are:

. Nails

36" ARDOX SPIRAL

PONNUE OF OND 848 NO. TAN 6752 STRUCTURAL COMPONENT ONLY

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





PASSED

2ND FLR FRAMING\Flush Beams\B23 E(i33293) (Flush Beam)

Dry | 1 span | No cant. **BC CALC® Member Report**

September 3, 2020 12:15:41

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL Customer:

Code reports:

CCMC 12472-R

File name:

4502 - EL B - STD GRD ...ROOM - 2ND FLOOR.mmdl

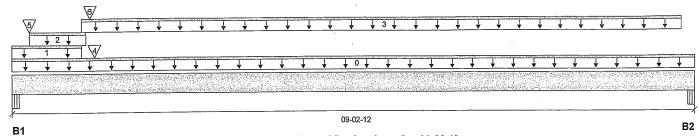
Description: 2ND FLR FRAMING\Flush Beams\B23 E(i33293)

Specifier:

Designer: L.D.

Wind

Company:



Total Horizontal Product Length = 09-02-12

Reaction Summary (Down / Uplift) (lbs)

Snow Dead Live 728 / 0 421/0 833 / 0 B1, 5-1/4" 172 / 0 61/0 146 / 0 B2, 4-1/2"

Los	Load Summary						Live	Dead	Snow	v Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-02-12	Тор		12			00-00-00
1	E101(i33036)	Unf. Lin. (lb/ft)	L	00-00-00	00-11-00	Тор		81			n\a
2	E101(i33036)	Unf. Lin. (lb/ft)	L	00-02-12	00-11-12	Тор		45	99		n\a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-11-00	09-00-08	Top .	27	14			n\a
4	-	Conc. Pt. (lbs)	L	01-01-02	01-01-02	Top	340	655	667		n\a
5	E101(i33036)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		14	30		n\a
6	ROOF	Conc. Pt. (lbs)	L	01-00-07	01-00-07	Тор	8		18		n\a

		Factored	Demand/	_	
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	1661 ft-lbs	35392 ft-lbs	4.7%	13	01-05-02
End Shear	1661 lbs	14464 lbs	11.5%	13	01-05-02
Total Load Deflection	L/999 (0.017")	n\a	n\a	35	04-02-15
Live Load Deflection	L/999 (0.009")	n\a	n\a	51	04-02-15
Max Defl.	0.017"	n\a	n\a	35	04-02-15
Snan / Denth	8.6				

Doori	ing Supports	Dine (Lyděl)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	ing Supports Beam	Dim. (LxW) 5-1/4" x 3-1/2"	2554 lbs	26.0%	11.4%	Unspecified
B2	Beam	4-1/2" x 3-1/2"	496 lbs	5.9%	2.6%	Unspecified

Cautions

Concentrated side load(s) 18 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B23 E(i33293) (Flush Beam)

BC CALC® Member Report

Build 7493 Job name:

Dry | 1 span | No cant.

September 3, 2020 12:15:41

Address:

City, Province, Postal Code: RICHMOND HILL

File name: Description: 4502 - EL B - STD GRD ...ROOM - 2ND FLOOR.mmdl

2ND FLR FRAMING\Flush Beams\B23 E(i33293)

Specifier:

L.D. Designer:

Company:

Customer: Code reports:

Notes

CCMC 12472-R

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

AMENDED 2020

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

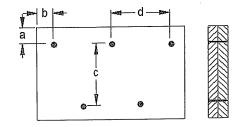
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d= # 8

Calculated Side Load = 190.5 lb/ft . 1

Connectors are:

Nails

ARDOX SPIRAL

NOWNCE OF AWAND. TAN 875 STRUCTURAL COMPONENT ONLY

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





PASSED

2ND FLR FRAMING\Flush Beams\B24 E(i33279) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 12:15:41

Build 7493

Job name: Address:

Customer:

Code reports:

City, Province, Postal Code: RICHMOND HILL

File name:

4502 - EL B - STD GRD ...ROOM - 2ND FLOOR.mmdl

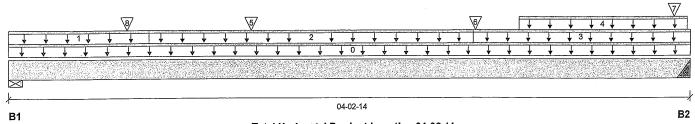
Description: 2ND FLR FRAMING\Flush Beams\B24 E(i33279)

Specifier:

CCMC 12472-R

Designer: L.D.

Company:



Total Horizontal Product Length = 04-02-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	222 / 0	397 / 0	245 / 0	
B2.4"	354 / 0	479 / 0	273 / 0	

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-02-14	Тор		12			00-00-00
1	E105(i33037)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-06	Top		81			n\a
2	E103(i33039)	Unf. Lin. (lb/ft)	L	00-10-06	02-10-06	Top		41			n\a
3	E102(i33038)	Unf. Lin. (lb/ft)	L	02-10-06	04-02-14	Тор		81			n\a
4	E102(i33038)	Unf. Lin. (lb/ft)	L	03-01-14	04-02-10	Тор		60	132		n\a
5	J5(i33260)	Conc. Pt. (lbs)	L	01-05-14	01-05-14	Top	226	113			n\a
6		Conc. Pt. (lbs)	L	02-10-09	02-10-09	Тор	220	205	167		n\a
7	J5(i33188)	Conc. Pt. (lbs)	L	04-01-10	04-01-10	Тор	130	65			n\a
8	-	Conc. Pt. (lbs)	L	00-08-12	00-08-12	Тор		111	211		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	960 ft-lbs	35392 ft-lbs	2.7%	1	02-09-14
End Shear	900 lbs	14464 lbs	6.2%	1	02-11-00
Total Load Deflection	L/999 (0.002")	n\a	n\a	35	02-01-14
Live Load Deflection	L/999 (0.001")	n\a	n\a	51	02-01-14
Max Defl.	0.002"	n\a	n\a	35	02-01-14
Span / Depth	3.7				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	1086 lbs	11.5%	5.8%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	1403 lbs	n\a	8.2%	HGUS410

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.

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



COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B24 E(i33279) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name:

Address: City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

Dry | 1 span | No cant.

September 3, 2020 12:15:41

File name: Description:

4502 - EL B - STD GRD ...ROOM - 2ND FLOOR.mmdl 2ND FLR FRAMING\Flush Beams\B24 E(i33279)

Specifier:

Designer:

L.D.

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.

CCMC 12472-R

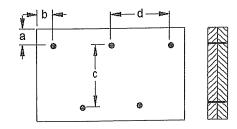
CONFORMS TO OBC 2012 AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

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

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

Connection Diagram: Full Length of Member

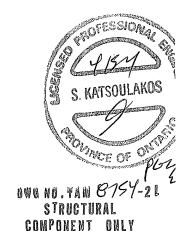


a minimum = 2" b minimum = 3" c = 7-7/8" 11 d = 200 0

Calculated Side Load = 240.1 lb/ft

Connectors are:

ARDOX SPIKAL



Disclosure

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





PASSED

2ND FLR FRAMING\Flush Beams\B25(i32997) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 3, 2020 15:25:15

Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

File name:

4502 - EL C.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B25(i32997)

Specifier:

Designer:

L.D.

Customer: Code reports:

CCMC 12472-R

Company:

 	4 4
	
	<u> </u>

Total Horizontal Product Length = 06-10-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	629 / 0	620 / 0	237 / 0	
B2. 4"	705 / 0	661 / 0	244 / 0	

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-10-14	Тор		12			00-00-00
1	E99(i32994)	Unf. Lin. (lb/ft)	, L	00-00-00	00-10-06	Тор		81			n\a
2	E99(i32994)	Unf. Lin. (lb/ft)	L	00-00-00	00-04-06	Тор			36		n\a
3	E98(i32995)	Unf. Lin. (lb/ft)	L	00-10-06	05-10-06	Top		41			n\a
4	E97(i32993)	Unf. Lin. (lb/ft)	L	05-10-06	06-10-14	Top		81			n\a
5	E97(i32993)	Unf. Lin. (lb/ft)	L	06-01-14	06-10-05	Тор	33	30	72		n\a
6	J5(i32923)	Conc. Pt. (lbs)	L	01-05-14	01-05-14	Top	319	159			n\a
7	J5(i32943)	Conc. Pt. (lbs)	L	02-09-14	02-09-14	Top	222	111			n\a
8	J5(i32940)	Conc. Pt. (lbs)	L	04-01-14	04-01-14	Top	222	111			n\a
9	-	Conc. Pt. (lbs)	L	05-08-15	05-08-15	Top	312	235	200		n\a
10	J5(i32988)	Conc. Pt. (lbs)	L	06-09-10	06-09-10	Top	130	65			n\a
11	-	Conc. Pt. (lbs)	L	00-09-04	00-09-04	Top	93	126	217		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2499 ft-lbs	35392 ft-lbs	7.1%	1	03-00-14
End Shear	1580 lbs	14464 lbs	10.9%	1	01-04-04
Total Load Deflection	L/999 (0.014")	n\a	n\a	35	03-05-14
Live Load Deflection	L/999 (0.008")	n\a	n\a	51	03-05-14
Max Defl.	0.014"	n\a	n\a	35	03-05-14
Span / Depth	6.4				

Bearing	y Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	1956 lbs	20.8%	10.5%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	2128 lbs	n\a	12.5%	HGUS410

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.

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



STRUCTURAL COMPONENT ONLY





PASSED

September 3, 2020 15:25:15

2ND FLR FRAMING\Flush Beams\B25(i32997) (Flush Beam) Dry | 1 span | No cant.

BC CALC® Member Report Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Customer: Code reports:

4502 - EL C.mmdl File name:

Description: 2ND FLR FRAMING\Flush Beams\B25(i32997)

Specifier: Designer: Ŀ.D.

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.

CONFORMS TO OBC 2012 AMENDED 2020

Hanger Manufacturer: Unassigned

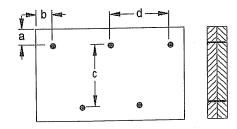
Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

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

Connection Diagram: Full Length of Member



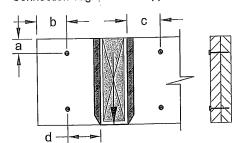
a minimum = 2" b minimum = 3"

c = 7-7/8" 8 d = 2

Calculated Side Load = 338.6 lb/ft Connectors are: 16d . A Nails ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to toad tag(s): 19+20



a minimum = 2" b minimum = 4"

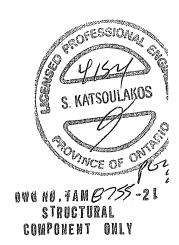
c minimum = 4"

d maximum = 12"

Connectors are:

Nails

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®,





PASSED

2ND FLR FRAMING\Flush Beams\B26(i32996) (Flush Beam)

Dry | 1 span | No cant.

September 3, 2020 15:25:15

Build 7493

Job name: Address:

4502 - EL C.mmdl File name:

Description: 2ND FLR FRAMING\Flush Beams\B26(i32996)

City, Province, Postal Code: RICHMOND HILL

BC CALC® Member Report

Specifier:

Designer:

L.D. Company:

Wind

Customer: Code reports:

CCMC 12472-R

09-00-08 B2 В1

Total Horizontal Product Length = 09-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1. 5-1/4"	755 / 0	1046 / 0	762 / 0
B2 2-1/4"	175 / 0	182 / 0	50 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-08	Тор		12			00-00-00
1	E96(i32990)	Unf. Lin. (lb/ft)	L	00-00-00	01-01-08	Top		81			n\a
2	E96(i32990)	Unf. Lin. (lb/ft)	L	00-02-12	00-11-12	Тор		45	99		n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-11-00	09-00-08	Top	27	14			n\a
4	-	Conc. Pt. (lbs)	L	01-00-03	01-00-03	Тор	688	850	656		n\a
	E96(i32990)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		14	30		n\a
5 6	E90(132990)	Conc. Pt. (lbs)	L	00-11-04	00-11-04	•	15	14	53		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1943 ft-lbs	35392 ft-lbs	5.5%	1	01-07-09
End Shear	1892 lbs	14464 lbs	13.1%	1	01-05-02
Total Load Deflection	L/999 (0.019")	n\a	n\a	35	04-02-15
Live Load Deflection	L/999 (0.011")	n\a	n\a	51	04-02-15
Max Defl.	0.019"	n\a	n\a	35	04-02-15
Span / Depth	8.6				

Beari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	3206 lbs	32.7%	14.3%	Unspecified
B2	Beam	2-1/4" x 3-1/2"	540 lbs	12.8%	5.6%	Unspecified

Cautions

Concentrated side load(s) 28 are closer than 18" from end of member. Please consult a technical 000 representative or Professional of Record.



COMPONENT ONLY





PASSED

September 3, 2020 15:25:15

2ND FLR FRAMING\Flush Beams\B26(i32996) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

4502 - EL C.mmdi

File name:

2ND FLR FRAMING\Flush Beams\B26(i32996) Description:

Specifier:

L.D. Designer:

Company:

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

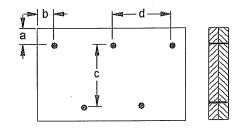
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member



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

Calculated Side Load = 182.3 lb/ft

Connectors are: .:

17) Nails

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®,



COMPANY Sep. 8, 2020 10:31

PROJECT
J1 1ST FLOOR

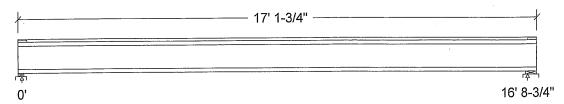
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

Lo	oad	Type	Distribution	Pat-	Location	[ft]	Magnitud	Э	Unit
				tern	Start	End	Start	End	
Lo	oad1	Dead	Full Area				20.00		psf
Lo	oad2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored: Dead	223 446	223
Live Factored:	440	
Total	948	948
Bearing:		,
Capacity	0100	2336
Joist	2102	
Support	3981	7744
Des ratio		
Joist	0.45	0.41
Support	0.24	0.12
Load case	#2	#2
Length	2-3/8	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	1.09	1.15

Nordic Joist 11-7/8" NI-40x Floor joist @ 16" o.c.

Supports: All - Lumber Sill plate, No.1/No.2

Total length: 17' 1-3/4"; Clear span: 16' 7"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

S. KATSOULANOS

S. KATSOULANOS

SOUTHURE OF ONTO

OWO NO. TAM B73(-21 STRUCTURAL COMPONENT ONLY

WoodWorks® Sizer

for NORDIC STRUCTURES

J1 1ST FLOOR

Nordic Sizer - Canada 7.2

Page 2

Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 948	Vr = 2336	lbs	Vf/Vr = 0.41
Moment(+)	Mf = 3964	Mr = 6255	lbs-ft	Mf/Mr = 0.63
Perm. Defl'n	0.12 = < L/999	0.56 = L/360	in	0.21
Live Defl'n	0.23 = L/860	0.42 = L/480	in	0.56
Total Defl'n	0.35 = L/573	0.84 = L/240	in	0.42
Bare Defl'n	0.28 = L/711	0.56 = L/360	in	0.51
Vibration	Lmax = 16'-8.8	Lv = 18'-1.3	ft	0.92
	= 0.030	= 0.038	in	0.78

Additional Data:

FACTORS:	f/E	KD	KH	KZ	\mathtt{KL}	KT	KS	KN	LC#
Vr	2336	1.00	1.00	_		-	-	_	#2
Mr+		1.00		_	1.000	_	-	-	#2
	371.1 m			_	_	_	-	_	#2

CRITICAL LOAD COMBINATIONS:

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:

Eleff = 459.76 lb-in² K= 6.18e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...) CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

- 1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
- 2. Please verify that the default deflection limits are appropriate for your application.
- 3. Refer to Nordic Structures 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.

OVINCE OF OUT POR OWO NO. TAW 873(-21 STRUCTURAL COMPONENT ONLY



COMPANY Sep. 8, 2020 10:50 **PROJECT** J1 2ND FLOOR

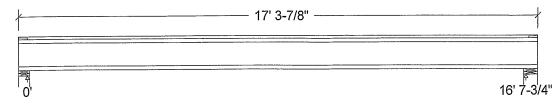
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

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

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored: Dead	222		222
			444
Live	444		444
Factored:			0.10
Total	943		943
Bearing:			
Capacity			
Joist	2336	·	2336
Support	7744		9724
Des ratio			
Joist	0.40		0.40
Support	0.12		0.10
Load case	#2		#2
Length	4-3/8		5-1/2
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

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

Nordic Joist 11-7/8" NI-40x Floor joist @ 16" o.c.

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

Total length: 17' 3-7/8"; Clear span: 16' 6"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling This section PASSES the design code check.

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

	T			AND THE PROPERTY OF THE PARTY O	1
Criterion	Analysis Value	Design Value	Unit	Analysis/Design	
Shear	Vf = 943	Vr = 2336	lbs	VEAVE 0.40	}
Moment(+)	Mf = 3925	Mr = 6255	lbs-ft	Mf/Mr. 63	
Perm. Defl'n	0.12 = < L/999	0.55 = L/360	in //%	Mf/Mr 0 63	
Live Defl'n	0.23 = L/851	0.42 = L/480	in 🕼		
Total Defl'n	0.35 = L/567	0.83 = L/240	in in	S. KATSOULAKOS 01 6	
	0.38 = L/721	0.55 = L/360	in l	0. 10.	
Bare Defl'n	Lmax = 16'-7.8	Lv = 17' - 8.1	ft	0.50	D6
Vibration		= 0.038	in \	20.83	
Defl'n	= 0.032	= 0.038	TIT 3		
		_		WEEDE OF O'DWU NU. I	11116170
				CTDIII	THRAL

STRUCTURAL COMPONENT ONLY

WoodWorks® Sizer

for NORDIC STRUCTURES

J1 2ND FLOOR

Nordic Sizer – Canada 7.2

Page 2

Additional Data: FACTORS: f/E KD KH KZ KL KT KS KN LC# Vr 2336 1.00 1.00 #2 Mr+ 6255 1.00 1.00 - 1.000 #2 EI 371.1 million #2 CRITICAL LOAD COMBINATIONS: Shear : LC #2 = 1.25D + 1.5L Moment(+) : LC #2 = 1.25D + 1.5L Deflection: LC #1 = 1.0D (permanent) LC #2 = 1.0D + 1.0L (live) LC #2 = 1.0D + 1.0L (total) LC #2 = 1.0D + 1.0L (bare joist) Bearing : Support 1 - LC #2 = 1.25D + 1.5L Support 2 - LC #2 = 1.25D + 1.5L Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake L=live(use, occupancy) Ls=live(storage, equipment) f=fire Load Patterns: s=S/2 L=L+Ls =no pattern load in this span All Load Combinations (LCs) are listed in the Analysis output CALCULATIONS: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) GONFORMS TO OBC 201												
Vr 2336 1.00 1.00 #2 Mr+ 6255 1.00 1.00 - 1.000 #2 EI 371.1 million #2 CRITICAL LOAD COMBINATIONS: Shear : LC #2 = 1.25D + 1.5L Moment(+): LC #2 = 1.25D + 1.5L Deflection: LC #1 = 1.0D (permanent)	Additional	l Data:										
Mr+ 6255 1.00 1.00 - 1.000 #2 EI 371.1 million #2 CRITICAL LOAD COMBINATIONS: Shear : LC #2 = 1.25D + 1.5L Moment(+) : LC #2 = 1.25D + 1.5L Deflection: LC #1 = 1.0D (permanent)	FACTORS:	f/E	KD	KH	KZ	\mathtt{KL}	KT	KS	KN			
EI 371.1 million #2 CRITICAL LOAD COMBINATIONS: Shear : LC #2 = 1.25D + 1.5L Moment(+): LC #2 = 1.25D + 1.5L Deflection: LC #1 = 1.0D (permanent) LC #2 = 1.0D + 1.0L (live) LC #2 = 1.0D + 1.0L (total) LC #2 = 1.0D + 1.0L (bare joist) Bearing : Support 1 - LC #2 = 1.25D + 1.5L Support 2 - LC #2 = 1.25D + 1.5L Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake L=live(use, occupancy) Ls=live(storage, equipment) f=fire Load Patterns: s=S/2 L=L+Ls =no pattern load in this span All Load Combinations (LCs) are listed in the Analysis output CALCULATIONS: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow)					-		-	-	****			
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow)				1.00	-	1.000	_	-	_			
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONFORMS TO OBC 201				_	-	-	-	-	-	#2		
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CANTORNS TO OBC 201	CRITICAL LO	OAD COMB	INATIONS	3:								
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONTORMS TO OBG 201	Shear	: LC #2	= 1.25									
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONFORMS TO OBG 201	Moment(+)) : LC #2	= 1.25	5D + 1.51	Ĺ							
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONFORMS TO OBG 201	Deflection	on: LC #1	= 1.01) (perma	anent)							
LC #2 = 1.0D + 1.0L (bare joist) Bearing : Support 1 - LC #2 = 1.25D + 1.5L												
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONFORMS TO OBG 201												
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONFORMS TO OBC 201												
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONFORMS TO OBC 201	Bearing											
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: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONFORMS TO OBC 201		Suppo	rt 2 - 1	LC #2 = 3	1.25D +	1.5L						
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: Eleff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow) CONFORMS TO OBC 201	Load Type	es: D=dea	d W=wir	nd S=sno	ow H=ea	arth,grou	ındwate	r E=ear	thquake			
All Load Combinations (LCs) are listed in the Analysis output CALCULATIONS: Eleff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow)		L=liv	e(use,o	ccupancy	Ls=l:	ive(stora	ge, equ	ipment)	f=fire			
CALCULATIONS: EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow)	Load Pati	terns: s=	S/2 L=1	[+Ls _=1	no patte	ern load	in this	s span				
EIeff = 447.63 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow)	All Load	Combinat	ions (L	Cs) are i	listed :	in the An	alysis	output				
"Live" deflection is due to all non-dead loads (live, wind, snow) [ONFORMS TO OBC 201												
	Eleff = 4	447.63 lb	-in^2 H	K = 6.186	e06 lbs					a ana ana badan		
	"Live" de	eflection	is due	to all a	non-dead	d loads (live,	wind, sn	ow)	Conporms	TO U	BG 2U
												

Design Notes:

AMENDED 2020

- 1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
- 2. Please verify that the default deflection limits are appropriate for your application.
- 3. Refer to Nordic Structures 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.

WAVE OF CAN BWO NO. TAN 8732-21 STRUCTURAL COMPONENT ONLY



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







			Ba	are		1	1/2" Gyp:	sum Ceiling	
Depth	Series		On Centr	e Spacing			On Cent	re Spacing	
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
44 7/00	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
4.611	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
16"	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

			Mid-Spar	n Blocking		Mid-S	pan Blocking ar	nd 1/2" Gypsum	Ceiling
Depth	Series		On Centr	e Spacing			On Cent	re Spacing	
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	· 16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
9-1/2"	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	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
	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
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	19'-6"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
4.611	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
16"	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

^{1.} Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 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.

^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

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

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

^{5.} This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

^{6.} Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



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







			B	are			1/2" Gyp:	sum Ceiling	
Depth	Series		On Centi	e Spacing			On Cent	re Spacing	
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
9-1/2"	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
44 7/00	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
11-7/8"	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	9" 18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
4.01	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
16"	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth			Mid-Spai	n Blocking	Mid-Span Blocking and 1/2" Gypsum Ceiling				
	Series		On Centr	e Spacing	On Centre Spacing				
•		12"	16"	19.2"	24"	12"	16"		24"
	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	re Spacing 19.2" 14'-6" 16'-3" 16'-6" 17'-10" 18'-2" 17'-5" 19'-4" 19'-8" 21'-2" 21'-5" 22'-0" 21'-9" 22'-4" 23'-9" 24'-1" 24'-8" 24'-9" 26'-1" 26'-5"	15'-5"
	NI-70	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"		16'-7"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	re Spacing 19.2" 14'-6" 16'-3" 16'-6" 17'-10" 18'-2" 17'-5" 19'-4" 19'-8" 21'-2" 21'-5" 22'-0" 21'-9" 22'-4" 23'-9" 24'-1" 24'-8" 24'-9" 26'-1"	16'-2"
	NI-40x	21'-10"	20'-4"	17'-9" 16'-7" 17'-11" 16'-10" 17'-5" 16'-2" 19'-4" 17'-8" 19'-7" 18'-4" 20'-8" 19'-7" 20'-11" 19'-9" 21'-6" 20'-4" 21'-8" 19'-5"		22'-5"	20'-6"	19'-4"	17'-8"
44.7/01	NI-60	22'-1"	20'-7"	19'-7"	18 -4"	22'-8"	20'-10"	Centre Spacing 19.2" 14'-6" 16'-3" 16'-6" " 17'-10" 18'-2" 17'-5" 19'-4" 19'-8" 21'-5" 22'-0" 21'-9" 22'-4" " 23'-9" 24'-1" " 24'-8" 26'-1"	18'-4"
11-7/8"	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"		19'-9"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"		20'-0"
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"		20'-9"
	N1-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	e Spacing 19.2" 14'-6" 16'-3" 16'-6" 17'-10" 18'-2" 17'-5" 19'-4" 19'-8" 21'-5" 22'-0" 21'-9" 22'-4" 23'-9" 24'-1" 24'-9" 26'-5"	19'-5"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"		20'-10"
14"	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"		22'-4"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"		22'-9"
	NI-90x	. 27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"
4.611	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"
16"	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	e Spacing 19.2" 14'-6" 16'-3" 16'-6" 17'-10" 18'-2" 17'-5" 19'-4" 19'-8" 21'-5" 22'-0" 21'-9" 22'-4" 23'-9" 24'-1" 24'-9" 26'-5"	25'-0"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"		25'-8"

^{1.} Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.

^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

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

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

^{5.} This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

^{6.} Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



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







			Ba	are			1/2" Gypsum Ceiling On Centre Spacing				
Depth	Series		On Centr	e Spacing							
•		12"	16"	19.2"	24"	12"	16"		24"		
	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A		
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A		
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	tre Spacing 19.2" 13'-3" 15'-1" 15'-3" 15'-10" 16'-0" 16'-11" 17'-1" 17'-11" 18'-5" 18'-6" 18'-9" 19'-8" 20'-6" 20'-6" 21'-5" 21'-9"	N/A		
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"		N/A		
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"		N/A		
	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A		
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A		
44.7/01	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	tre Spacing 19.2" 13'-3" 15'-1" 15'-3" 15'-10" 16'-0" 16'-0" 16'-11" 17'-1" 17'-9" 17'-11" 18'-5" 18'-6" 19'-8" 20'-6" 20'-6" 21'-5" 21'-9"	N/A		
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A		
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	re Spacing 19.2" 13'-3" 15'-1" 15'-3" 15'-10" 16'-0" 16'-11" 17'-1" 17'-9" 17'-11" 18'-5" 18'-6" 18'-9" 19'-8" 20'-0" 20'-6" 21'-5" 21'-9"	N/A		
	· NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"		N/A		
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	re Spacing 19.2" 13'-3" 15'-1" 15'-3" 15'-10" 16'-0" 16'-11" 17'-1" 17'-11" 18'-5" 18'-6" 18'-9" 19'-8" 20'-0" 20'-6" 20'-6" 21'-5" 21'-9"	N/A		
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A		
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A		
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A		
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A		
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A		
4.611	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A		
16"	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A		
•	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	19.2" 13'-3" 15'-1" 15'-3" 15'-10" 16'-0" 16'-0" 16'-11" 17'-1" 17'-11" 18'-5" 18'-6" 18'-9" 19'-8" 20'-0" 20'-6" 20'-6" 21'-5" 21'-9"	N/A		

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

^{1.} Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.

^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

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

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

^{5.} This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

^{6.} Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



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







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

Depth			Mid-Spa	n Blocking		Mid-Span Blocking and 1/2" Gypsum Ceiling					
	Series	On Centre Spacing				On Centre Spacing					
		12"	16"	19.2"	24"	12"	16"	e Spacing 19.2" 13'.4" 15'-1" 15'-5" 16'-9" 17'-1" 16'-0" 17'-9" 18-5" 20'-1" 20'-5" 21'-3" 19'-6" 21'-0" 22'-9" 23'-3" 24'-3" 25'-3" 25'-10"	24"		
	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"		
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"		
9-1/2"	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	re Spacing 19.2" 13'-4" 15'-1" 15'-5" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-1" 20'-5" 21'-3" 19'-6" 21'-0" 22'-9" 23'-3" 24'-3" 23'-5" 25'-3"	14'-3"		
	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"		15'-6"		
	NI-80	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"		
	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	ntre Spacing 19.2" 13'-4" 15'-1" 15'-5" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-5" 21'-3" 19'-6" 21'-0" 22'-9" 23'-3" 24'-3" 23'-5" 25'-3"	14'-10"		
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"		15'-10"		
44 7/08	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"		17'-1"		
11-7/8"	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"		18'-6"		
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"		18'-11"		
	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"	re Spacing 19.2" 13'-4" 15'-1" 15'-5" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-1" 20'-5" 21'-3" 19'-6" 21'-0" 22'-9" 23'-3" 24'-3" 25'-10"	17'-5"		
	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"		
14"	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	e Spacing 19.2" 13'.4" 15'.1" 15'.5" 16'.9" 17'.1" 16'.0" 17'.9" 18'.5" 20'.1" 20'.5" 21'.3" 19'.6" 21'.0" 22'.9" 23'.3" 24'.3" 23'.5" 25'.3"	21'-0"		
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"		21'-6"		
	NI-90x	27'-3"	25 ' -4"	24'-1"	22'-4"	27'-9"	25'-10"		22'-4"		
	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"		
1.511	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"		
16"	NI-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	e Spacing 19.2" 13'.4" 15'.1" 15'.5" 16'.9" 17'.1" 16'.0" 17'.9" 18'.5" 20'.1" 20'.5" 21'.3" 19'.6" 21'.0" 22'.9" 23'.3" 24'.3" 23'.5" 25'.3"	23'-10"		
	NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"		

^{1.} Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.

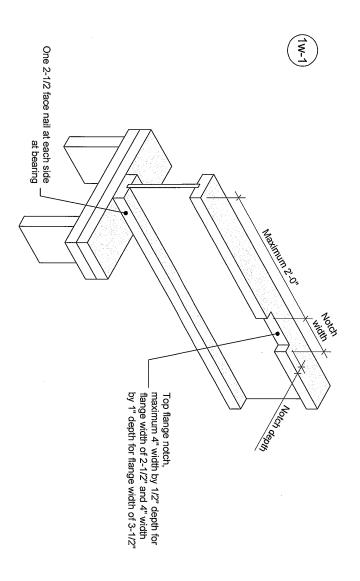
^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

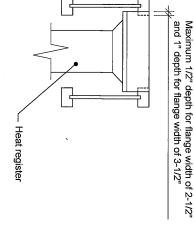
^{3.} Minimum bearing length shall be 1-3/4 inches for the end bearings.

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

^{5.} This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

^{6.} Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.





- Blocking required at bearing for lateral support, not shown for clarity.
 The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.
 This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
 For other applications, contact Nordic Structures.

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

STRUCTURES

T 514-871-8526 1 866 817-3418

nordic.ca

I-joist - Typical Floor Framing and Construction Details

Notch in I-joist for Heat Register

DOCUMENT

1₩-1 NUMBER

2018-04-10



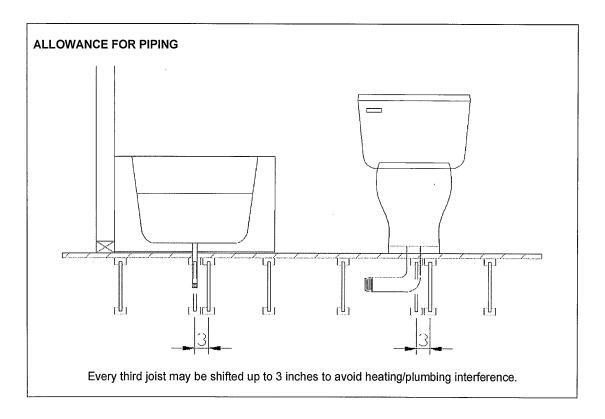
Limit States Design

Allowance for Piping (Installation Notes)

The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.

Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced for shorter spans; contact your distributor for additional information.

The detail below shows the 3-inch allowance for piping. Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference. For other applications, please contact your distributor.



Revised April 12, 2012