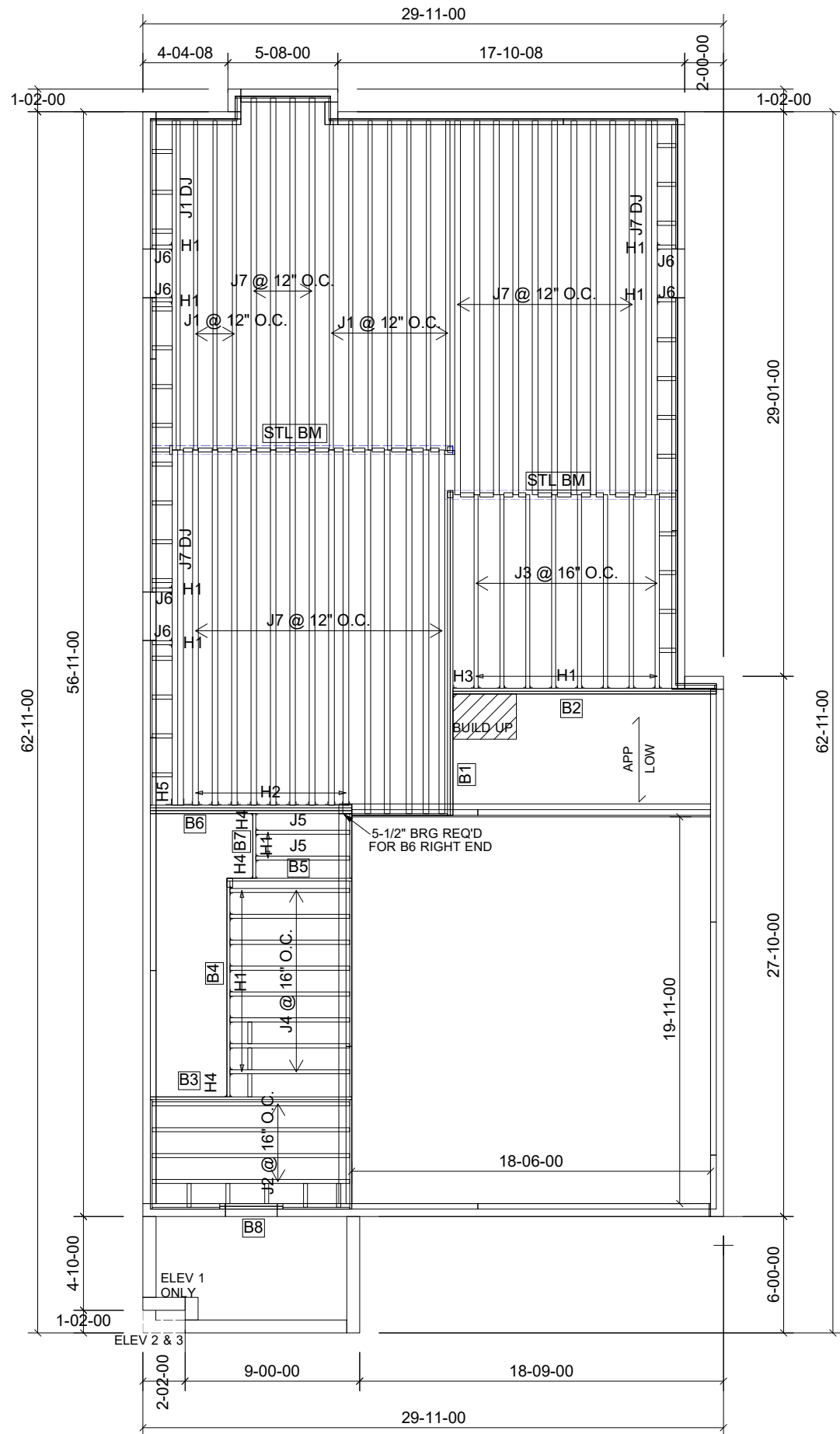




Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	10
J1 DJ	18-00-00	11 7/8" NI-40x	2	2
J2	12-00-00	11 7/8" NI-40x	1	4
J3	10-00-00	11 7/8" NI-40x	1	8
J4	8-00-00	11 7/8" NI-40x	1	8
J5	6-00-00	11 7/8" NI-40x	1	2
J6	2-00-00	11 7/8" NI-40x	1	6
J7	20-00-00	11 7/8" NI-80	1	28
J7 DJ	20-00-00	11 7/8" NI-80	2	4
B1	18-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	2	2
B2	14-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	2	2
B3	12-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B4	12-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B6	12-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	3	3
B5	8-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B7	4-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B8	4-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
8	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
9	H2	IUS3.56/11.88
1	H3	HGUS410
2	H4	HUS1.81/10
1	H4	HUS1.81/10
1	H5	HU412-2

DATE: 2023-09-12

1st FLOOR FRAMING



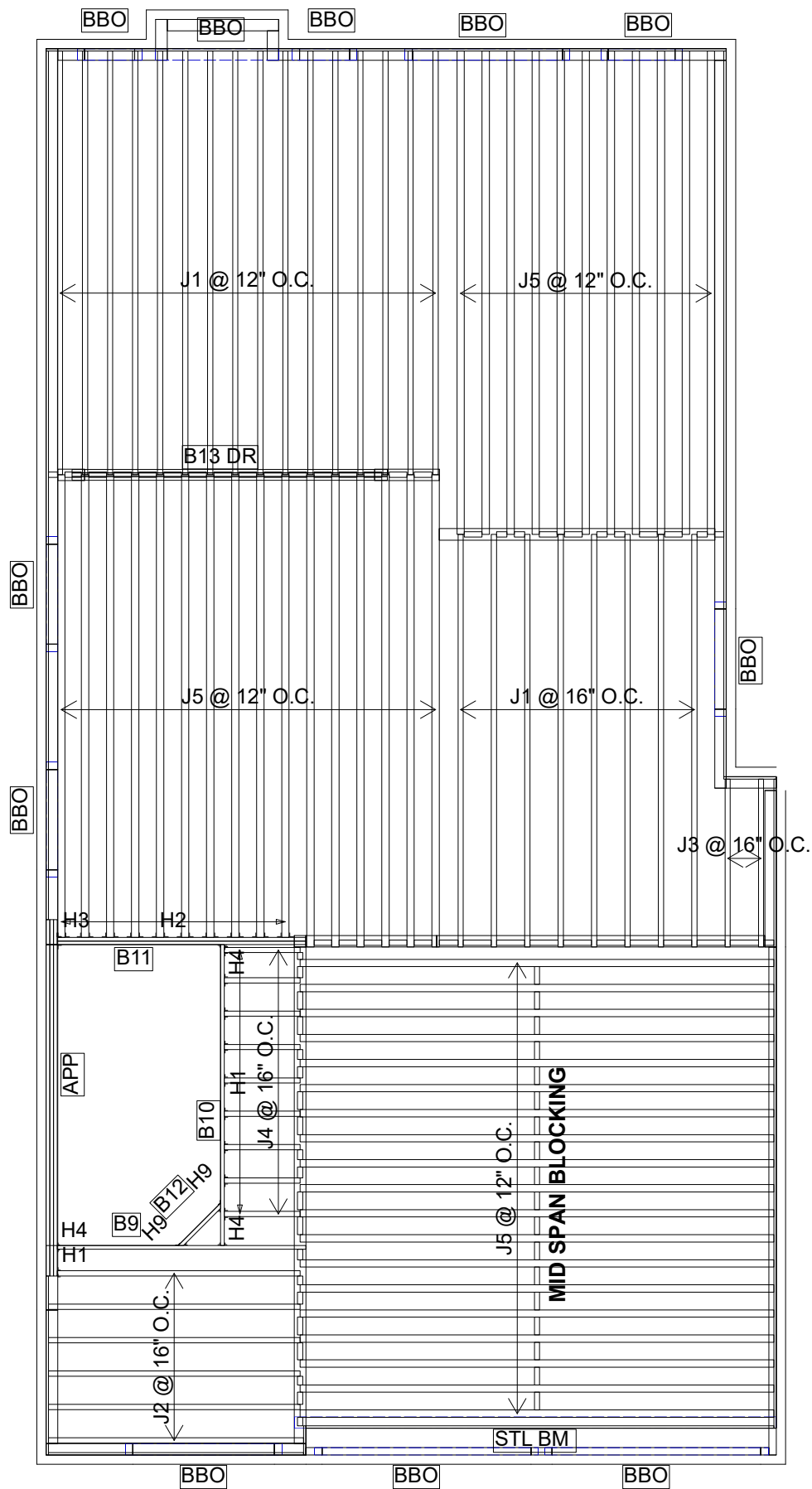
FROM PLAN DATED: 2023-07-18
BUILDER: GREENPARK HOMES
SITE: Trinigroup Developments Inc.
MODEL: VILLA 5
ELEVATION: 1 ,2,3
LOT:
CITY: RICHMOND HILL
SALESMAN: Rick DiCiano
DESIGNER: PL
REVISION:

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 SPF #2 REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1.
CANTILEVERED JOISTS INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4/5 FOR REINFORCEMENT REQUIREMENTS.
FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 6 AND TABLES 6.1/6.2.
CERAMIC TILE APPLICATION AS PER OBC 9.30.6.

ALL **CONNECTORS** MUST BE INSTALLED AS PER THE **MANUFACTURER'S SPECIFICATIONS** USING THE MANUFACTURER **SPECIFIED FASTENERS**.
ALL **BEAM HANGER FASTENERS** INSTALLED INTO THE **SUPPORTING MEMBER** **MUST** BE A MINIMUM OF **3.5"** IN LENGTH UNLESS OTHERWISE SPECIFIED BY THE SUPPORTING MEMBER ENGINEER OF RECORD.

LOADING:
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²
JOIST LL DEFLECTION LIMIT: L/480
SUBFLOOR: 3/4" GLUED AND NAILED

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
AND N/A



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	24
J2	12-00-00	11 7/8" NI-40x	1	6
J3	8-00-00	11 7/8" NI-40x	1	2
J4	4-00-00	11 7/8" NI-40x	1	9
J5	20-00-00	11 7/8" NI-80	1	46
APP	16-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	3	3
B10	14-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B13 DR	14-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	3	3
B9	10-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B11	10-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	2	2
B12	4-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
10	H2	IUS3.56/11.88
1	H3	HGUS410
1	H4	HUS1.81/10
1	H4	HUS1.81/10
1	H4	HUS1.81/10
1	H9	LS90
1	H9	LS90

DATE: 2023-09-12

2nd FLOOR FRAMING



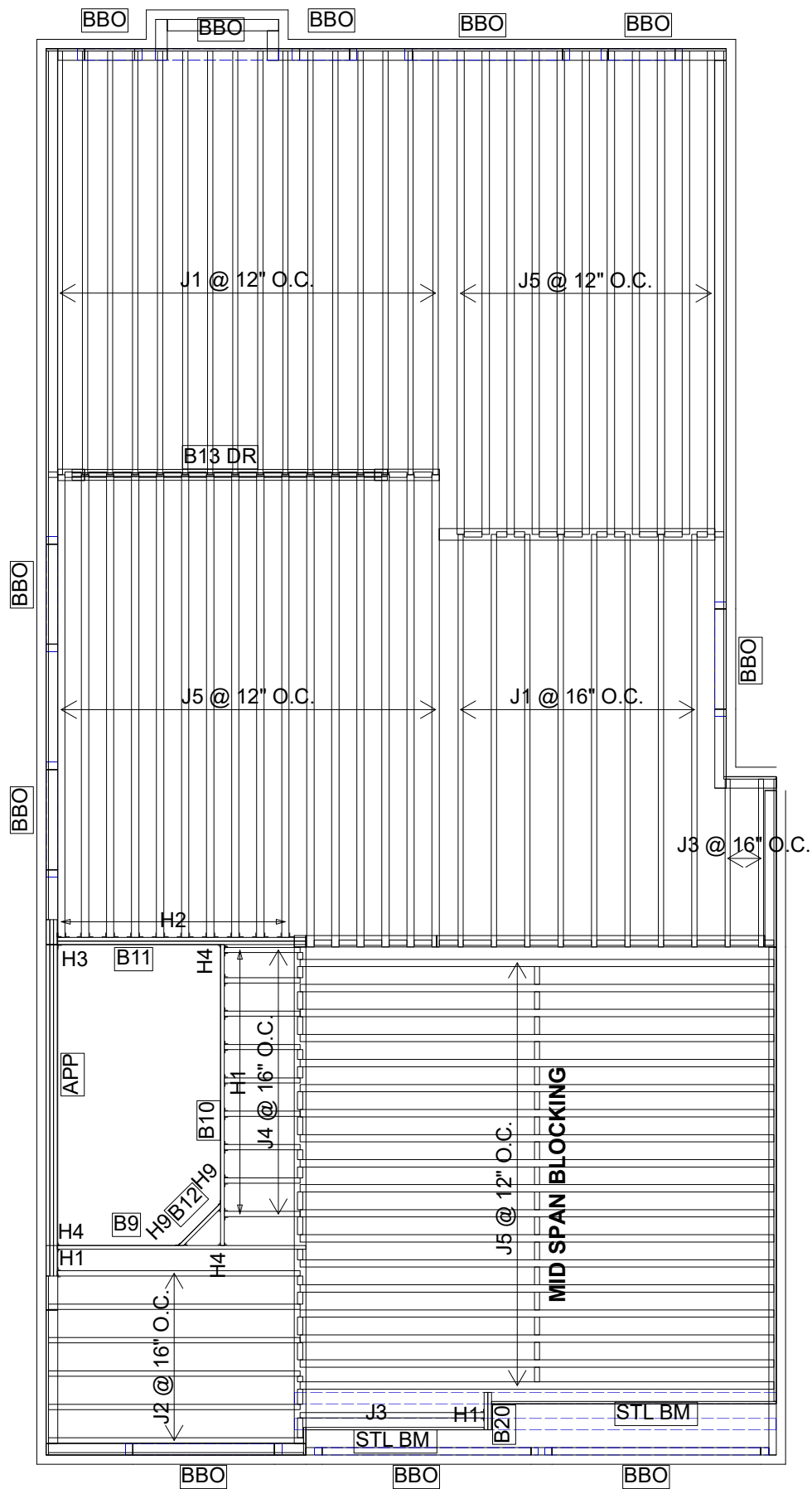
FROM PLAN DATED: 2023-07-18
BUILDER: GREENPARK HOMES
SITE: Trinigroup Developments Inc.
MODEL: VILLA 5
ELEVATION: 1
LOT:
CITY: RICHMOND HILL
SALESMAN: Rick DiCiano
DESIGNER: PL
REVISION:

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 SPF #2 REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1.
CANTILEVERED JOISTS INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4/5 FOR REINFORCEMENT REQUIREMENTS.
FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 6 AND TABLES 6.1/6.2.
CERAMIC TILE APPLICATION AS PER OBC 9.30.6.

ALL **CONNECTORS** MUST BE INSTALLED AS PER THE **MANUFACTURER'S SPECIFICATIONS** USING THE MANUFACTURER **SPECIFIED FASTENERS**.
ALL **BEAM HANGER FASTENERS** INSTALLED INTO THE **SUPPORTING MEMBER MUST** BE A MINIMUM OF **3.5"** IN LENGTH UNLESS OTHERWISE SPECIFIED BY THE SUPPORTING MEMBER ENGINEER OF RECORD.

LOADING:
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²
JOIST LL DEFLECTION LIMIT: L/480
SUBFLOOR: 5/8" GLUED AND NAILED

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	24
J2	12-00-00	11 7/8" NI-40x	1	6
J3	8-00-00	11 7/8" NI-40x	1	3
J4	4-00-00	11 7/8" NI-40x	1	9
J5	20-00-00	11 7/8" NI-80	1	45
APP	16-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	3	3
B10	14-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B13 DR	14-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	3	3
B9	10-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B11	10-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	2	2
B12	4-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B20	2-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	2	2

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
10	H2	IUS3.56/11.88
1	H3	HGUS410
1	H4	HUS1.81/10
1	H4	HUS1.81/10
1	H4	HUS1.81/10
1	H9	LS90
1	H9	LS90

DATE: 2023-09-12

2nd FLOOR FRAMING



FROM PLAN DATED: 2023-07-18
BUILDER: GREENPARK HOMES
SITE: Trinigroup Developments Inc.
MODEL: VILLA 5
ELEVATION: 2
LOT:
CITY: RICHMOND HILL
SALESMAN: Rick DiCiano
DESIGNER: PL
REVISION:

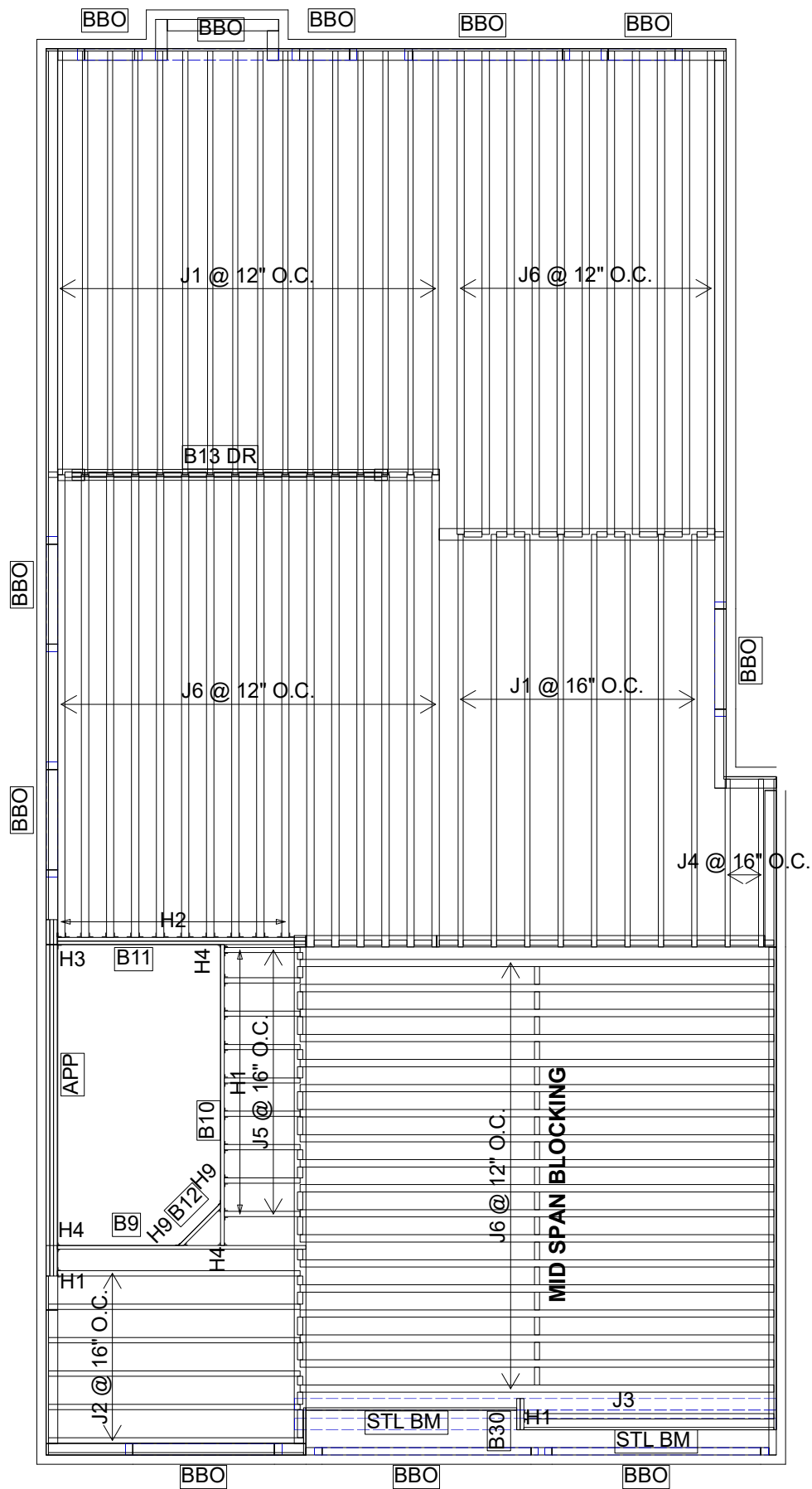
REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 SPF #2 REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1.
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CERAMIC TILE APPLICATION AS PER OBC 9.30.6.

ALL **CONNECTORS** MUST BE INSTALLED AS PER THE **MANUFACTURER'S SPECIFICATIONS** USING THE MANUFACTURER **SPECIFIED FASTENERS**.
ALL **BEAM HANGER FASTENERS** INSTALLED INTO THE **SUPPORTING MEMBER** **MUST** BE A MINIMUM OF **3.5"** IN LENGTH UNLESS OTHERWISE SPECIFIED BY THE SUPPORTING MEMBER ENGINEER OF RECORD.

LOADING:
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
AND NAILED

JOIST LL DEFLECTION LIMIT: L/480
SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	24
J2	12-00-00	11 7/8" NI-40x	1	6
J3	10-00-00	11 7/8" NI-40x	1	1
J4	8-00-00	11 7/8" NI-40x	1	2
J5	4-00-00	11 7/8" NI-40x	1	9
J6	20-00-00	11 7/8" NI-80	1	45
APP	16-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	3	3
B10	14-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B13 DR	14-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	3	3
B9	10-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B11	10-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	2	2
B12	4-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	1	1
B30	2-00-00	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	2	2

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
10	H2	IUS3.56/11.88
1	H3	HGUS410
1	H4	HUS1.81/10
1	H4	HUS1.81/10
1	H4	HUS1.81/10
1	H9	LS90
1	H9	LS90

DATE: 2023-09-12

2nd FLOOR FRAMING



FROM PLAN DATED: 2023-07-18
BUILDER: GREENPARK HOMES
SITE: Trinigroup Developments Inc.
MODEL: VILLA 5
ELEVATION: 3
LOT:
CITY: RICHMOND HILL
SALESMAN: Rick DiCiano
DESIGNER: PL
REVISION:

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 SPF #2 REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1.
CANTILEVERED JOISTS INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4/5 FOR REINFORCEMENT REQUIREMENTS.
FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 6 AND TABLES 6.1/6.2.
CERAMIC TILE APPLICATION AS PER OBC 9.30.6.

ALL **CONNECTORS** MUST BE INSTALLED AS PER THE **MANUFACTURER'S SPECIFICATIONS** USING THE **MANUFACTURER SPECIFIED FASTENERS**.
ALL **BEAM HANGER FASTENERS** INSTALLED INTO THE **SUPPORTING MEMBER MUST** BE A MINIMUM OF **3.5"** IN LENGTH UNLESS OTHERWISE SPECIFIED BY THE SUPPORTING MEMBER ENGINEER OF RECORD.

LOADING:
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: +5.0 lb/ft²
JOIST LL DEFLECTION LIMIT: L/480
SUBFLOOR: 5/8" GLUED AND NAILED

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
AND N/AILED



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **2ND FLOOR**
Label: **B9 - i3233**
Type: **Beam**

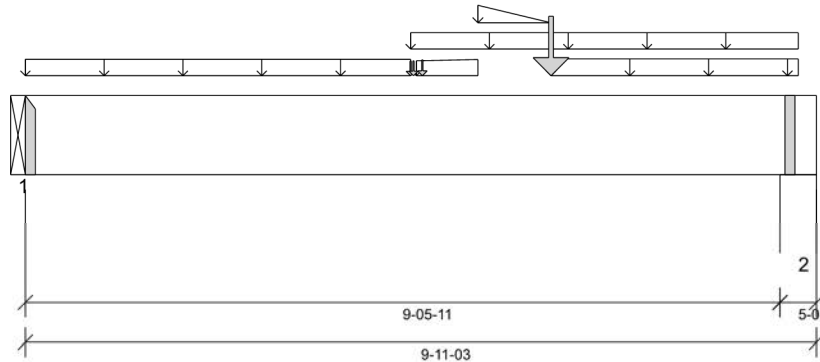
1 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 4'- 9 13/16"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 9'- 6 11/16"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 7 3/16"	1.25D + 1.5L	1.00	3068 lb ft	17672 lb ft	Passed - 17%
Factored Shear:	8'- 5 13/16"	1.25D + 1.5L	1.00	1082 lb	6908 lb	Passed - 16%
Live Load (LL) Pos. Defl.:	5'- 1 11/16"	L		0.040"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 1 9/16"	D + L		0.064"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	678 lb		2730 lb	-	Passed - 25%
2	5-08	1.25D + 1.5L	1.00	1215 lb		10010 lb	5921 lb	Passed - 21%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements	Other Information or Requirement for Reinforcement Accessories
			Top Face Member	
1	HUS1.81/10		- - -	Connector manually specified by the user.
* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.				

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	9'- 11 3/16"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	4'- 10 1/16"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	22 lb/ft	-	-
Uniform	4'- 10 1/16"	9'- 8 7/16"	FC2 Floor Decking (Plan View Fill)	Top	10 lb/ft	21 lb/ft	-	-
Uniform	6'- 7 3/16"	9'- 8 7/16"	FC2 Floor Decking (Plan View Fill)	Top	13 lb/ft	27 lb/ft	-	-
Tapered	4'- 10 15/16"	5'- 8 3/16"	FC2 Floor Decking (Plan View Fill)	Top	2 To 9 lb/ft	3 To 18 lb/ft	-	-
Tapered	5'- 8 3/16"	6'- 7 3/16"	FC2 Floor Decking (Plan View Fill)	Top	18 To 0 lb/ft	37 To 0 lb/ft	-	-
Point	4'- 11 13/16"	4'- 11 13/16"	B12(i3077)	Back	11 lb	8 lb	-	-
Point	6'- 7 3/16"	6'- 7 3/16"	B10(i3230)	Back	287 lb	494 lb	-	-
Point	4'- 10 1/16"	4'- 10 1/16"	FC2 Floor Decking (Plan View Fill)	Top	-	0 lb	-	-
Point	4'- 10 1/2"	4'- 10 1/2"	FC2 Floor Decking (Plan View Fill)	Top	-	0 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	APP(i3221)	191 lb	294 lb	-	-
2	9'- 5 11/16"	9'- 11 3/16"	2(i397)	329 lb	534 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



STRUCTURAL COMPONENT ONLY
DWG # TF23091238

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **2ND FLOOR**
Label: **B10 - i3230**
Type: **Beam**

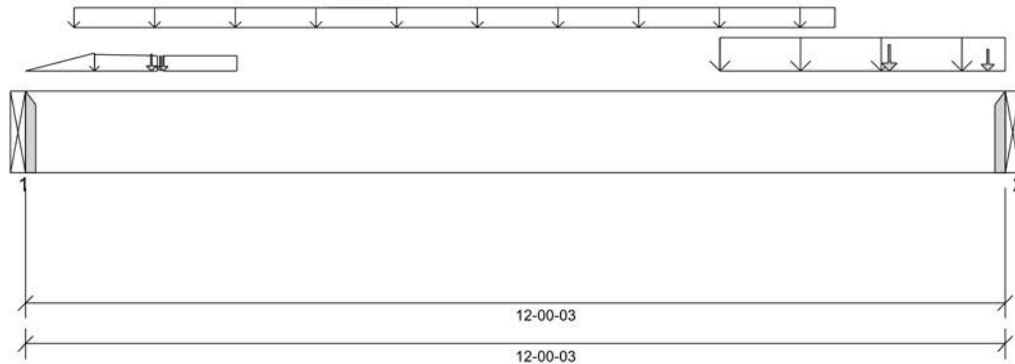
1 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 1 7/8"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Beam @ 12'- 3/16"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	7'- 11 1/8"	1.25D + 1.5L	1.00	4396 lb ft	17672 lb ft	Passed - 25%
Factored Shear:	11'- 5/16"	1.25D + 1.5L	1.00	2227 lb	6908 lb	Passed - 32%
Live Load (LL) Pos. Defl.:	6'- 3 7/8"	L		0.109"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	6'- 3 11/16"	D + L		0.170"	L/240	Passed - L/848

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	1101 lb		2730 lb	-	Passed - 40%
2	1-08	1.25D + 1.5L	1.00	2382 lb		2730 lb	-	Passed - 87%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories		
			Top	Face	Member			
1	HUS1.81/10		-	-	-	Connector manually specified by the user.		
2	HUS1.81/10		-	-	-	Connector manually specified by the user.		

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 3/16"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	1'- 8 5/16"	2'- 7 1/8"	FC2 Floor Decking (Plan View Fill)	Top	2 lb/ft	3 lb/ft	-	-
Uniform	8'- 6 3/16"	12'- 3/16"	User Load	Back	120 lb/ft	240 lb/ft	-	-
Tapered	0'	0'- 10 1/8"	FC2 Floor Decking (Plan View Fill)	Top	0 To 18 lb/ft	0 To 37 lb/ft	-	-
Tapered	0'- 7 1/8"	9'- 11 1/8"	Smoothed Load	Front	30 To 32 lb/ft	61 To 65 lb/ft	-	-
Tapered	0'- 10 1/8"	1'- 7 7/16"	FC2 Floor Decking (Plan View Fill)	Top	9 To 2 lb/ft	18 To 3 lb/ft	-	-
Point	10'- 7 1/8"	10'- 7 1/8"	J4(i3098)	Front	40 lb	81 lb	-	-
Point	11'- 9 5/8"	11'- 9 5/8"	J4(i2785)	Front	25 lb	50 lb	-	-
Point	1'- 6 1/2"	1'- 6 1/2"	B12(i3077)	Back	11 lb	8 lb	-	-
Point	1'- 7 7/8"	1'- 7 7/8"	FC2 Floor Decking (Plan View Fill)	Top	-	0 lb	-	-
Point	1'- 8 5/16"	1'- 8 5/16"	FC2 Floor Decking (Plan View Fill)	Top	-	0 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B9(i3233)	287 lb	494 lb	-	-
2	12'- 3/16"	12'- 3/16"	B11(i3240)	585 lb	1101 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



STRUCTURAL COMPONENT ONLY
DWG # TF23091239

CITY OF RICHMOND HILL
BUILDING DIVISION
03/01/2024
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **2ND FLOOR**
Label: **B11 - i3240**
Type: **Beam**

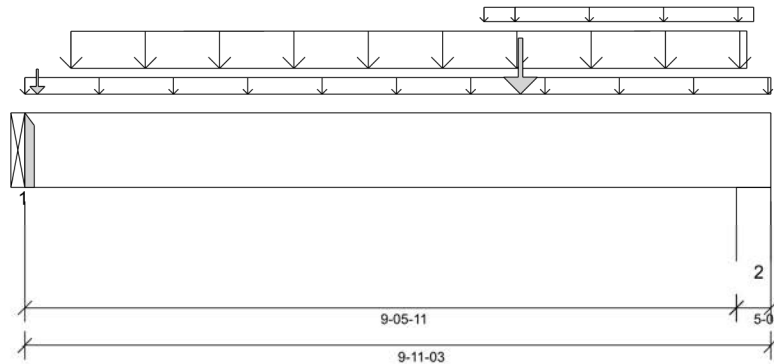
2 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 8 1/2"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 9'- 6 11/16"

PLY TO PLY CONNECTION:

4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 7 7/16"	1.25D + 1.5L	1.00	14010 lb ft	35345 lb ft	Passed - 40%
Factored Shear:	8'- 5 13/16"	1.25D + 1.5L	1.00	5850 lb	13815 lb	Passed - 42%
Live Load (LL) Pos. Defl.:	4'- 11"	L		0.105"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 10 7/8"	D + L		0.172"	L/240	Passed - L/660

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	5126 lb		5460 lb	-	Passed - 94%
2	5-08	1.25D + 1.5L	1.00	5999 lb		20022 lb	11844 lb	Passed - 51%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Top	Face	Member	Other Information or Requirement for Reinforcement Accessories
1	HGUS410		-	-	-	Connector manually specified by the user.

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	9'- 11 3/16"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	9'- 11 3/16"	User Load	Top	60 lb/ft	-	-	-
Uniform	6'- 1 3/8"	6'- 6 5/16"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Uniform	6'- 6 5/16"	9'- 8 7/16"	FC2 Floor Decking (Plan View Fill)	Top	4 lb/ft	7 lb/ft	-	-
Tapered	0'- 7 3/8"	9'- 7 3/8"	Smoothed Load	Back	186 To 188 lb/ft	373 To 377 lb/ft	-	-
Point	6'- 7 3/16"	6'- 7 3/16"	B10(i3230)	Front	585 lb	1101 lb	-	-
Point	0'- 2"	0'- 2"	J5(i3127)	Back	147 lb	294 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	APP(i3221)	1462 lb	2218 lb	-	-
2	9'- 5 11/16"	9'- 11 3/16"	9(i2518)	1682 lb	2578 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



STRUCTURAL COMPONENT ONLY
DWG # TF23091240

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **2ND FLOOR**
Label: **B12 - i3077**
Type: **Beam**

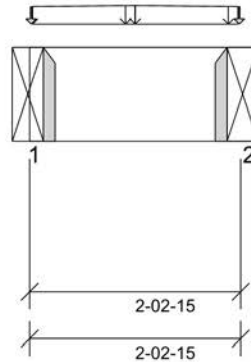
1 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0'- 1 3/4" Bottom: 1'- 11 7/16"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Beam @ 2'- 2 15/16"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 1 1/2"	1.25D + 1.5L	0.95	17 lb ft	16705 lb ft	Passed - 0%
Factored Shear:	0'- 11 7/8"	1.25D + 1.5L	0.95	4 lb	6529 lb	Passed - 0%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	0.95	26 lb		2580 lb	-	Passed - 1%
2	1-08	1.25D + 1.5L	0.95	26 lb		2580 lb	-	Passed - 1%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories		
			Top	Face	Member			
1	LS90		-	-	-	Connector manually specified by the user.		
2	LS90		-	-	-	Connector manually specified by the user.		

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	2'- 2 15/16"	Self Weight	Top	6 lb/ft	-	-	-
Tapered	0'- 3/8"	1'- 1 1/2"	FC2 Floor Decking (Plan View Fill)	Top	1 To 7 lb/ft	2 To 13 lb/ft	-	-
Tapered	1'- 1 1/2"	2'- 2 9/16"	FC2 Floor Decking (Plan View Fill)	Top	7 To 1 lb/ft	13 To 2 lb/ft	-	-
Point	0'- 3/16"	0'- 3/16"	FC2 Floor Decking (Plan View Fill)	Top	-	0 lb	-	-
Point	2'- 2 3/4"	2'- 2 3/4"	FC2 Floor Decking (Plan View Fill)	Top	-	0 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 1 3/4"	B9(i3233)	11 lb	8 lb	-	-
2	2'- 1 3/16"	2'- 2 15/16"	B10(i3230)	11 lb	8 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



STRUCTURAL COMPONENT ONLY
DWG # TF23091241

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **2ND FLOOR**
Label: **B13 DR - i3272**
Type: **Beam**

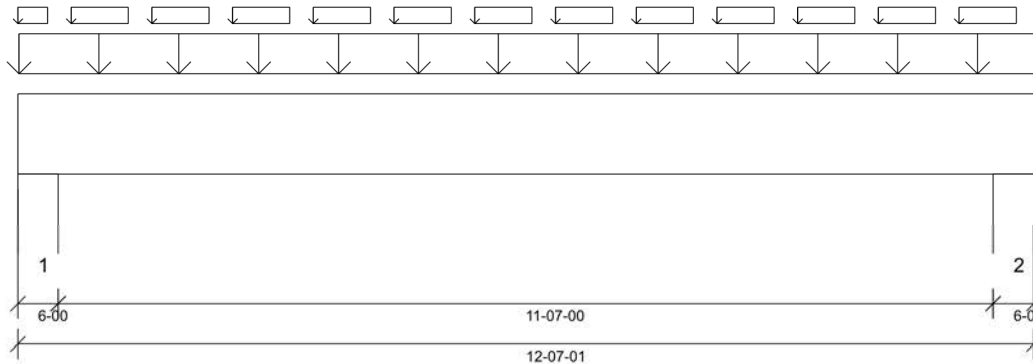
3 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0'- 10 11/16" Bottom: 12'- 7 1/16"

Factored Resistance of Support Material:

- 812 psi Wall @ 0'- 5"
- 812 psi Wall @ 12'- 1 15/16"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 12" O/C
NAIL FROM BOTH FACES (STAGGER 1/2 SPACE)

PLY TO PLY CONNECTION ASSUMES ANY
SUPPORTED BEAM HANGERS ARE FASTENED
TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 6 3/16"	1.25D + 1.5L	1.00	27404 lb ft	53017 lb ft	Passed - 52%
Factored Neg. Moment:	12'- 1 15/16"	1.25D + 1.5L	1.00	533 lb ft	53017 lb ft	Passed - 1%
Factored Shear:	11'- 1 1/16"	1.25D + 1.5L	1.00	8476 lb	20723 lb	Passed - 41%
Live Load (LL) Pos. Defl.:	6'- 3 3/8"	L		0.210"	L/360	Passed - L/660
Total Load (TL) Pos. Defl.:	6'- 3 3/8"	D + L		0.339"	L/240	Passed - L/410

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	6-00	1.25D + 1.5L	1.00	9985 lb		32614 lb	25464 lb	Passed - 39%
2	6-01	1.25D + 1.5L	1.00	10747 lb		33196 lb	25919 lb	Passed - 41%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 7 1/16"	Self Weight	Top	18 lb/ft	-	-	-
Uniform	-0'	0'- 4 7/16"	Bk1(i3269)	Top	60 lb/ft	-	-	-
Uniform	0'- 7 15/16"	1'- 4 7/16"	Bk1(i3270)	Top	60 lb/ft	-	-	-
Uniform	1'- 7 15/16"	2'- 4 7/16"	Bk1(i3300)	Top	60 lb/ft	-	-	-
Uniform	2'- 7 15/16"	3'- 4 7/16"	Bk1(i3286)	Top	60 lb/ft	-	-	-
Uniform	3'- 7 15/16"	4'- 4 7/16"	Bk1(i3277)	Top	60 lb/ft	-	-	-
Uniform	4'- 7 15/16"	5'- 4 7/16"	Bk1(i3244)	Top	60 lb/ft	-	-	-
Uniform	5'- 7 15/16"	6'- 4 7/16"	Bk1(i3289)	Top	60 lb/ft	-	-	-
Uniform	6'- 7 15/16"	7'- 4 7/16"	Bk1(i3246)	Top	60 lb/ft	-	-	-
Uniform	7'- 7 15/16"	8'- 4 7/16"	Bk1(i3259)	Top	60 lb/ft	-	-	-
Uniform	8'- 7 15/16"	9'- 4 7/16"	Bk1(i3303)	Top	60 lb/ft	-	-	-
Uniform	9'- 7 15/16"	10'- 4 7/16"	Bk1(i3251)	Top	60 lb/ft	-	-	-
Uniform	10'- 7 15/16"	11'- 4 7/16"	Bk1(i3266)	Top	60 lb/ft	-	-	-
Uniform	11'- 7 15/16"	12'- 4 7/16"	Bk1(i3290)	Top	60 lb/ft	-	-	-
Tapered	0'- 3/16"	12'- 7 1/16"	Smoothed Load	Top	385 To 380 lb/ft	726 To 735 lb/ft	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 6"	5(i400)	2640 lb	4316 lb	-	-
2	12'- 15/16"	12'- 7 1/16"	4(i399)	2926 lb	4867 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION



STRUCTURAL COMPONENT ONLY
DWG # TF23091242 PG 1/2

RECEIVED
Per: joshua.nabua
05/11/2024

	BUILDER:	GREENPARK HOMES	Job Name:	VILLA 5	3 Ply Member	Status:
	SITE:	Trinigroup Developments Inc.	Level:	2ND FLOOR	1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Design Passed
	MODEL:	VILLA 5	Label:	B13 DR - i3272		
	CITY:	RICHMOND HILL	Type:	Beam		

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **1ST FLOOR**
Label: **B1 - i3326**
Type: **Beam**

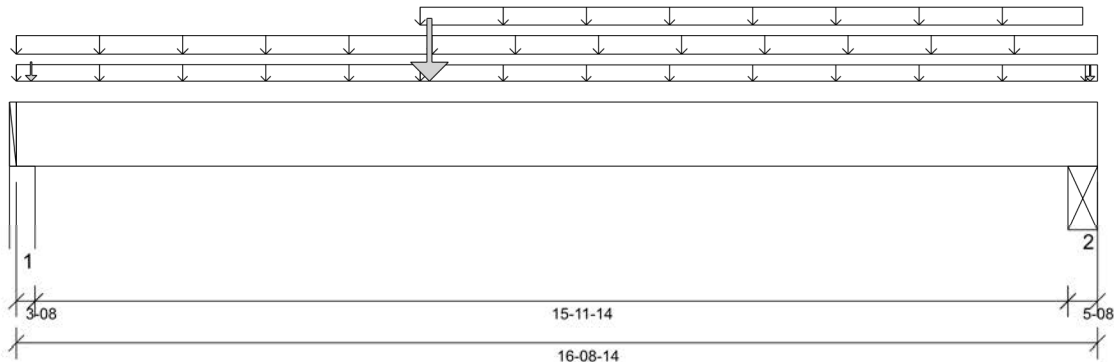
2 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 9'- 8 7/8"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Beam @ 16'- 4 3/8"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 4 3/4"	1.25D + 1.5L	0.92	17200 lb ft	32437 lb ft	Passed - 53%
Factored Shear:	1'- 3 3/8"	1.25D + 1.5L	0.92	3010 lb	12679 lb	Passed - 24%
Live Load (LL) Pos. Defl.:	7'- 10 5/8"	L		0.233"	L/360	Passed - L/823
Total Load (TL) Pos. Defl.:	7'- 11 3/8"	D + L		0.541"	L/240	Passed - L/354
Permanent Deflection:	7'- 11 15/16"			-	L/360	Passed - L/642

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3'-08"	1.25D + 1.5L	0.92	3410 lb		11692 lb	6916 lb	Passed - 49%
2	5'-08"	1.25D + 1.5L	0.92	2599 lb		18373 lb	10865 lb	Passed - 24%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	16'- 8 7/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	16'- 8 7/8"	User Load	Top	60 lb/ft	-	-	-
Uniform	0'	6'- 3"	FC1 Floor Decking (Plan View Fill)	Top	6 lb/ft	11 lb/ft	-	-
Uniform	6'- 3"	16'- 8 7/8"	FC1 Floor Decking (Plan View Fill)	Top	4 lb/ft	8 lb/ft	-	-
Uniform	6'- 3"	16'- 6 1/8"	FC1 Floor Decking (Plan View Fill)	Top	13 lb/ft	27 lb/ft	-	-
Point	6'- 4 3/4"	6'- 4 3/4"	B2(i3572)	Front	1143 lb	1265 lb	-	-
Point	0'- 2 3/4"	0'- 2 3/4"	8(i1542)	Top	76 lb	106 lb	-	-
Point	16'- 7 1/2"	16'- 7 1/2"	FC1 Floor Decking (Plan View Fill)	Top	1 lb	2 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	W18(i34)	1473 lb	1070 lb	-	-
2	16'- 3 3/8"	16'- 8 7/8"	STL BM (i42)	1166 lb	737 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing length at support 1 was calculated based on the actual bearing area divided by the supported member width and may not match expected value when bearing is not rectangular or when the supported member is not supported by its full width.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



STRUCTURAL COMPONENT ONLY
DWG # TF23091243

05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroupp Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **1ST FLOOR**
Label: **B2 - i3572**
Type: **Beam**

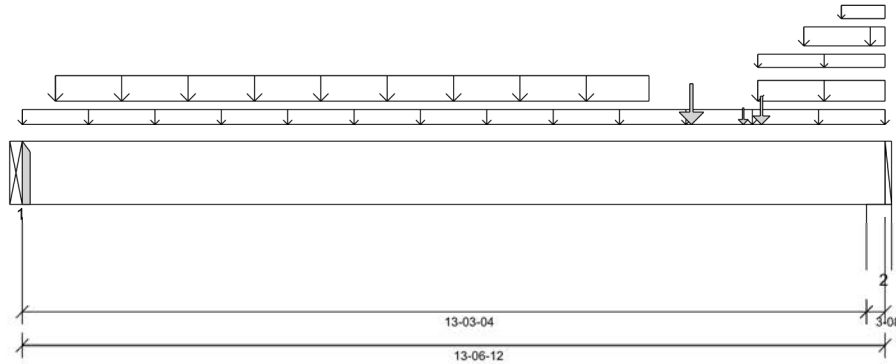
2 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 2'- 8 1/4"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 13'- 4 1/4"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY
SUPPORTED BEAM HANGERS ARE FASTENED
TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 6 1/4"	1.25D + 1.5L	0.99	11930 lb ft	34832 lb ft	Passed - 34%
Factored Shear:	0'- 11 7/8"	1.25D + 1.5L	0.99	3238 lb	13615 lb	Passed - 24%
Live Load (LL) Pos. Defl.:	6'- 7 7/8"	L		0.153"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	6'- 8 3/16"	D + L		0.291"	L/240	Passed - L/546

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	0.99	3327 lb		5381 lb	-	Passed - 62%
2	3-08	1.25D + 1.5L	0.99	3769 lb		12555 lb	7427 lb	Passed - 51%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements	Other Information or Requirement for Reinforcement Accessories
			Top Face Member	
1	HGUS410	-	-	Connector manually specified by the user.

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	13'- 6 3/4"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	13'- 6 3/4"	User Load	Top	60 lb/ft	-	-	-
Uniform	0'- 6 1/4"	9'- 10 1/4"	Smoothed Load	Back	104 lb/ft	208 lb/ft	-	-
Uniform	11'- 6 3/4"	13'- 6 3/4"	E7(i388)	Top	201 lb/ft	-	-	-
Uniform	11'- 6 3/4"	13'- 6 3/4"	FC1 Floor Decking (Plan View Fill)	Top	5 lb/ft	11 lb/ft	-	-
Uniform	12'- 3 7/16"	13'- 6 3/4"	E7(i388)	Top	52 lb/ft	104 lb/ft	-	-
Uniform	12'- 10 1/2"	13'- 6 3/4"	E7(i388)	Top	12 lb/ft	9 lb/ft	-	-
Point	10'- 6 1/4"	10'- 6 1/4"	J3(i3550)	Back	126 lb	251 lb	-	-
Point	11'- 4"	11'- 4"	E35(i425)	Top	45 lb	11 lb	-	-
Point	11'- 7 1/2"	11'- 7 1/2"	E7(i388)	Top	70 lb	141 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B1(i3326)	1143 lb	1265 lb	-	-
2	13'- 3 1/4"	13'- 6 3/4"	-	1532 lb	1237 lb	-	-
++>	13'- 5 1/4"	13'- 5 1/4"	W8(i30)	1314 lb	1061 lb	-	-
++>	13'- 6 1/2"	13'- 6 1/2"	W7(i25)	218 lb	176 lb	-	-

DESIGN NOTES

- CAUTION: One or more plies are not supported properly at 13-05-00. At least 75% of every ply must be contacting support.
- CAUTION: One or more plies are not supported properly at 13-05-00. At least 75% of every ply must be contacting support.
- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.



STRUCTURAL COMPONENT ONLY
DWG # TF23091244 PG 1/2

CITY OF RICHMOND HILL
RECEIVED
15/11/2024
Per: joshua.nabua



BUILDER:	GREENPARK HOMES	Job Name:	VILLA 5	2 Ply Member	Status:
SITE:	Trinigroup Developments Inc.	Level:	1ST FLOOR	1 3/4" x 11 7/8" (2.0E 3100)	Design
MODEL:	VILLA 5	Label:	B2 - i3572	WestFraser LVL	Passed
CITY:	RICHMOND HILL	Type:	Beam		

- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing length at support 2 was calculated based on the actual bearing area divided by the supported member width and may not match expected value when bearing is not rectangular or when the supported member is not supported by its full width.
- One or more plies are not properly supported at 2. Verify with structural engineer or EWP manufacturer if this condition is acceptable.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



STRUCTURAL COMPONENT ONLY
DWG # TF23091244 PG 2/2

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **1ST FLOOR**
Label: **B3 - i3519**
Type: **Beam**

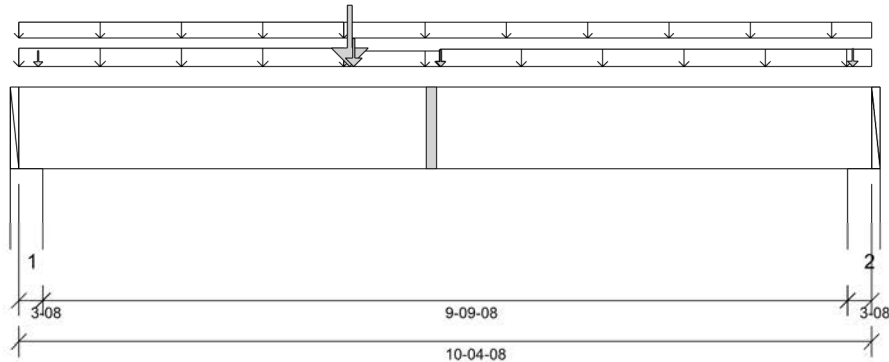
1 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 4'- 10 1/4"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Wall @ 10'- 2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 5/16"	1.25D + 1.5L	1.00	10368 lb ft	17672 lb ft	Passed - 59%
Factored Shear:	1'- 3 3/8"	1.25D + 1.5L	1.00	2797 lb	6908 lb	Passed - 40%
Live Load (LL) Pos. Defl.:	4'- 11"	L		0.137"	L/360	Passed - L/860
Total Load (TL) Pos. Defl.:	4'- 10 7/8"	D + L		0.229"	L/240	Passed - L/513

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3'-08"	1.25D + 1.5L	1.00	2959 lb		6370 lb	3768 lb	Passed - 79%
2	3'-08"	1.25D + 1.5L	1.00	2154 lb		6370 lb	3768 lb	Passed - 57%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 4 1/2"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	3'- 11 7/16"	User Load	Top	60 lb/ft	-	-	-
Uniform	0'	3'- 11 7/16"	FC1 Floor Decking (Plan View Fill)	Top	4 lb/ft	7 lb/ft	-	-
Uniform	3'- 11 7/16"	10'- 4 1/2"	FC1 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Uniform	3'- 11 7/16"	5'- 1 1/2"	FC1 Floor Decking (Plan View Fill)	Top	2 lb/ft	3 lb/ft	-	-
Uniform	5'- 1 1/2"	10'- 4 1/2"	FC1 Floor Decking (Plan View Fill)	Top	14 lb/ft	27 lb/ft	-	-
Point	4'- 5/16"	4'- 5/16"	B4(i3324)	Back	841 lb	1327 lb	-	-
Point	5'- 1 1/2"	5'- 1 1/2"	Bk1(i3506)	Back	25 lb	49 lb	-	-
Point	0'- 2 13/16"	0'- 2 13/16"	E10(i391)	Top	29 lb	-	-	-
Point	4'- 7/8"	4'- 7/8"	User Load	Top	200 lb	400 lb	-	-
Point	5'- 1 5/8"	5'- 1 5/8"	FC1 Floor Decking (Plan View Fill)	Top	18 lb	37 lb	-	-
Point	10'- 1 3/4"	10'- 1 3/4"	2(i397)	Top	50 lb	76 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	W17(i33)	963 lb	1192 lb	-	-
2	10'- 1"	10'- 4 1/2"	W79(i2548)	606 lb	909 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing length at support 2 was calculated based on the actual bearing area divided by the supported member width and may not match expected value when bearing is not rectangular or when the supported member is not supported by its full width.



STRUCTURAL COMPONENT ONLY
DWG # TF23091245

CITY OF RICHMOND HILL
BUILDING DEPARTMENT
05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroupp Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **1ST FLOOR**
Label: **B4 - i3324**
Type: **Beam**

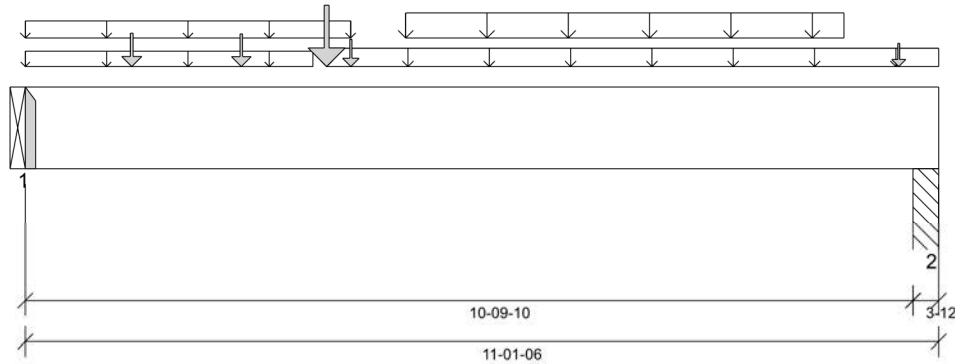
1 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:09



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 2 5/16"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Column @ 10'- 10 5/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 11 9/16"	1.25D + 1.5L	1.00	8830 lb ft	17672 lb ft	Passed - 50%
Factored Shear:	0'- 11 7/8"	1.25D + 1.5L	1.00	2979 lb	6908 lb	Passed - 43%
Live Load (LL) Pos. Defl.:	5'- 2 3/8"	L		0.159"	L/360	Passed - L/817
Total Load (TL) Pos. Defl.:	5'- 3 1/16"	D + L		0.272"	L/240	Passed - L/477

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-11	1.25D + 1.5L	1.00	3037 lb		3037 lb	-	Passed - 100%
2	3-12	1.25D + 1.5L	1.00	2525 lb		6825 lb	4036 lb	Passed - 63%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HUS1.81/10		-	-	-	Connector manually specified by the user.
* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.						

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	11'- 1 3/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	3'- 11 9/16"	FC1 Floor Decking (Plan View Fill)	Top	12 lb/ft	23 lb/ft	-	-
Uniform	0'	3'- 6"	FC1 Floor Decking (Plan View Fill)	Top	0 lb/ft	1 lb/ft	-	-
Uniform	3'- 8"	11'- 1 3/8"	User Load	Top	60 lb/ft	-	-	-
Uniform	4'- 7 9/16"	9'- 11 9/16"	Smoothed Load	Front	64 lb/ft	128 lb/ft	-	-
Point	1'- 3 9/16"	1'- 3 9/16"	J4(i3567)	Front	138 lb	274 lb	-	-
Point	2'- 7 9/16"	2'- 7 9/16"	J4(i3392)	Front	132 lb	263 lb	-	-
Point	3'- 11 9/16"	3'- 11 9/16"	J4(i3490)	Front	91 lb	181 lb	-	-
Point	10'- 7 9/16"	10'- 7 9/16"	J4(i3575)	Front	61 lb	122 lb	-	-
Point	3'- 8"	3'- 8"	User Load	Top	350 lb	700 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B3(i3519)	841 lb	1327 lb	-	-
2	10'- 9 5/8"	11'- 1 3/8"	PBO3(i66)	831 lb	987 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



STRUCTURAL COMPONENT ONLY
DWG # TF23091246

RECEIVED
Per: joshua.nabua
05/01/2024



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **1ST FLOOR**
Label: **B5 - i3547**
Type: **Beam**

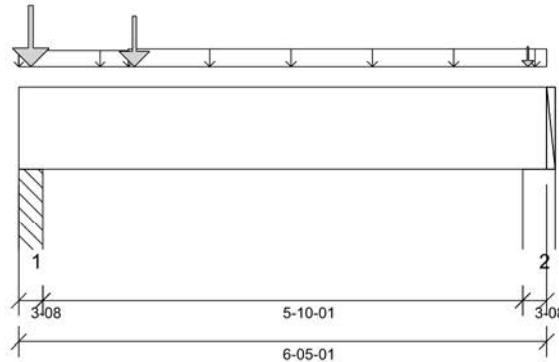
1 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
**Design
Passed**

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:10



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 4'- 7 13/16"

Factored Resistance of Support Material:

- 615 psi Column @ 0'- 2 1/2"
- 615 psi Wall @ 6'- 2 9/16"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 4 7/8"	1.25D + 1.5L	1.00	1219 lb ft	17672 lb ft	Passed - 7%
Factored Neg. Moment:	0'- 2 1/2"	1.25D + 1.5L	1.00	94 lb ft	9649 lb ft	Passed - 1%
Factored Shear:	1'- 3 3/8"	1.25D + 1.5L	1.00	1080 lb	6908 lb	Passed - 16%
Total Load (TL) Pos. Defl.:	2'- 11 1/2"	D + L		0.010"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3'-08"	1.25D + 1.5L	1.00	2611 lb		6370 lb	3767 lb	Passed - 69%
2	3'-08"	1.25D + 1.5L	1.00	609 lb		6370 lb	3768 lb	Passed - 16%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	6'- 5 1/16"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	1'- 4"	FC1 Floor Decking (Plan View Fill)	Top	6 lb/ft	13 lb/ft	-	-
Uniform	1'- 4"	6'- 5 1/16"	FC1 Floor Decking (Plan View Fill)	Top	17 lb/ft	33 lb/ft	-	-
Point	1'- 4 7/8"	1'- 4 7/8"	B7(i3516)	Back	274 lb	530 lb	-	-
Point	0'- 1 3/4"	0'- 1 3/4"	User Load	Top	350 lb	700 lb	-	-
Point	6'- 2 5/16"	6'- 2 5/16"	2(i397)	Top	44 lb	64 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	PB03(i66)	645 lb	1237 lb	-	-
2	6'- 1 9/16"	6'- 5 1/16"	W79(i2548)	155 lb	244 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing length at support 2 was calculated based on the actual bearing area divided by the supported member width and may not match expected value when bearing is not rectangular or when the supported member is not supported by its full width.



STRUCTURAL COMPONENT ONLY
DWG # TF23091247

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **1ST FLOOR**
Label: **B6 - i3591**
Type: **Beam**

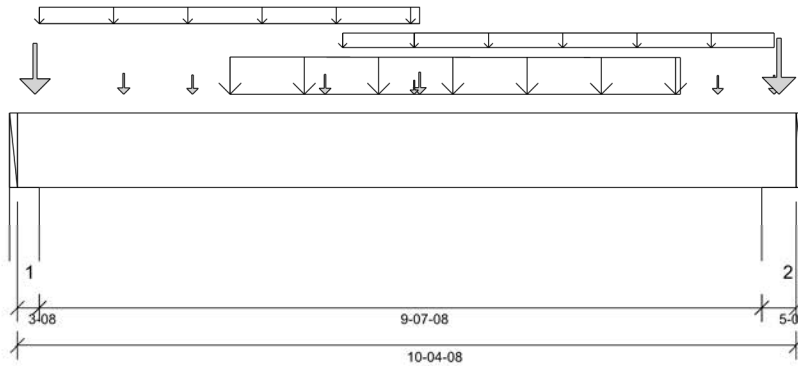
3 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:10



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
Top: 0' Bottom: 0'- 10"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Wall @ 10'

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN
NAILS (0.120"x3.25") @ 8" O/C
NAIL FROM BOTH FACES (STAGGER 1/2 SPACE)

PLY TO PLY CONNECTION ASSUMES ANY
SUPPORTED BEAM HANGERS ARE FASTENED
TO THIS BEAM WITH MIN. 3.5" FASTENERS.

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 4"	1.25D + 1.5L	1.00	14573 lb ft	53017 lb ft	Passed - 27%
Factored Neg. Moment:	10'	1.25D + 1.5L	1.00	943 lb ft	53017 lb ft	Passed - 2%
Factored Shear:	8'- 11 1/8"	1.25D + 1.5L	1.00	4996 lb	20723 lb	Passed - 24%
Live Load (LL) Pos. Defl.:	5'- 5/8"	L		0.075"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 1/2"	D + L		0.120"	L/240	Passed - L/962

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	1.00	10254 lb		19110 lb	11304 lb	Passed - 91%
2	5-08	1.25D + 1.5L	1.00	11809 lb		30030 lb	17764 lb	Passed - 66%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 4 1/2"	Self Weight	Top	18 lb/ft	-	-	-
Uniform	0'- 3 1/2"	5'- 4 5/16"	User Load	Top	60 lb/ft	-	-	-
Uniform	4'- 4"	5'- 3 7/16"	FC1 Floor Decking (Plan View Fill)	Top	4 lb/ft	9 lb/ft	-	-
Uniform	5'- 3 7/16"	10'- 1"	FC1 Floor Decking (Plan View Fill)	Top	5 lb/ft	11 lb/ft	-	-
Tapered	2'- 10"	8'- 10"	Smoothed Load	Back	189 To 185 lb/ft	379 To 369 lb/ft	-	-
Point	5'- 4 5/16"	5'- 4 5/16"	B7(i3516)	Front	283 lb	548 lb	-	-
Point	1'- 5"	1'- 5"	J7 DJ(i3339)	Back	239 lb	477 lb	-	-
Point	2'- 4"	2'- 4"	J7(i3574)	Back	182 lb	365 lb	-	-
Point	9'- 4"	9'- 4"	J7(i3494)	Back	163 lb	325 lb	-	-
Point	10'- 1"	10'- 1"	J7(i3577)	Back	174 lb	348 lb	-	-
Point	0'- 2 13/16"	0'- 2 13/16"	E69(i822)	Top	1560 lb	2223 lb	-	-
Point	4'- 1 3/16"	4'- 1 3/16"	User Load	Top	200 lb	400 lb	-	-
Point	5'- 3 7/16"	5'- 3 7/16"	FC1 Floor Decking (Plan View Fill)	Top	3 lb	5 lb	-	-
Point	10'- 1 3/4"	10'- 1 3/4"	9(i2518)	Top	1719 lb	2578 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	W17(i33)	3011 lb	4470 lb	-	-
2	9'- 11"	10'- 4 1/2"	W19(i20)	3151 lb	5103 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support.
At support 1. Required Load Area: L=1.500", W=5.250". LDF=1.00, Pf=5285 lb, Q'=8190 lb, Result=64.52%.
At support 2. Required Load Area: L=1.500", W=4.430". LDF=1.00, Pf=6016 lb, Q'=6910 lb, Result=67.06%.



STRUCTURAL COMPONENT ONLY
DWG # TF23091248 PG 1/2

CITY OF RICHMOND HILL
BUILDING DIVISION
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Per: joshua.nabua

	BUILDER: GREENPARK HOMES SITE: Trinigroup Developments Inc. MODEL: VILLA 5 CITY: RICHMOND HILL	Job Name: VILLA 5 Level: 1ST FLOOR Label: B6 - i3591 Type: Beam	3 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
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- Bearing length at support 2 was calculated based on the actual bearing area divided by the supported member width and may not match expected value when bearing is not rectangular or when the supported member is not supported by its full width.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



CITY OF RICHMOND HILL
 BUILDING DIVISION

05/01/2024

RECEIVED
 Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **1ST FLOOR**
Label: **B7 - i3516**
Type: **Beam**

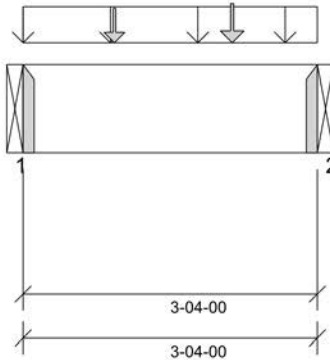
1 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:10



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Beam @ 3'- 4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 8 5/16"	1.25D + 1.5L	1.00	1012 lb ft	17672 lb ft	Passed - 6%
Factored Shear:	0'- 11 7/8"	1.25D + 1.5L	1.00	625 lb	6908 lb	Passed - 9%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	1137 lb		2730 lb	-	Passed - 42%
2	1-08	1.25D + 1.5L	1.00	1177 lb		2730 lb	-	Passed - 43%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HUS1.81/10		-	-	-	Connector manually specified by the user.
2	HUS1.81/10		-	-	-	Connector manually specified by the user.

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 4"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	3'- 4"	User Load	Top	120 lb/ft	240 lb/ft	-	-
Point	1'- 7/16"	1'- 7/16"	J5(i3399)	Front	61 lb	123 lb	-	-
Point	2'- 4 7/16"	2'- 4 7/16"	J5(i3484)	Front	77 lb	155 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B5(i3547)	274 lb	530 lb	-	-
2	3'- 4"	3'- 4"	B6(i3591)	283 lb	548 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



STRUCTURAL COMPONENT ONLY
DWG # TF23091249

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **1ST FLOOR**
Label: **B8 - i3569**
Type: **Beam**

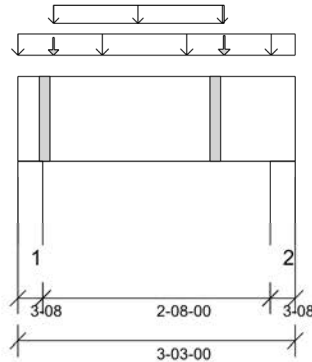
2 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.6.3.353.Update16.11

Report Version: 2021.03.26 09/27/2023 08:10



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Wall @ 3'- 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 7 7/8"	1.25D + 1.5L	0.69	212 lb ft	24252 lb ft	Passed - 1%
Factored Shear:	1'- 11 5/8"	1.25D + 1.5L	0.69	119 lb	9479 lb	Passed - 1%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	0.69	335 lb		8741 lb	5171 lb	Passed - 6%
2	3-08	1.25D + 1.5L	0.69	325 lb		8741 lb	5171 lb	Passed - 6%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 3"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	-0'	3'- 3"	E21(i411)	Top	100 lb/ft	-	-	-
Uniform	0'- 5"	2'- 5"	FC1 Floor Decking (Plan View Fill)	Top	14 lb/ft	29 lb/ft	-	-
Point	0'- 5"	0'- 5"	Bk1(i3487)	Back	7 lb	13 lb	-	-
Point	2'- 5"	2'- 5"	Bk1(i3523)	Back	13 lb	27 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	W26(i203)	209 lb	54 lb	-	-
2	2'- 11 1/2"	3'- 3"	W10(i21)	203 lb	43 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.

PLY TO PLY CONNECTION:

4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.



STRUCTURAL COMPONENT ONLY
DWG # TF23091250

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **2ND FLOOR**
Label: **B20 - i3586**
Type: **Beam**

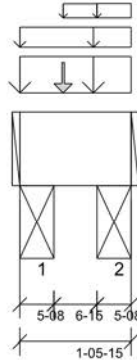
2 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
**Design
Passed**

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09-12-2023 09:05



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018,
ABC 2019, OBC 2012 (2019
Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports
must be laterally restrained. Top and bottom edges
of the member must be fully restrained or have the
following maximum unbraced length:

Top: 0' Bottom: 0'- 4 3/16"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'- 4 1/2"
- 615 psi Beam @ 1'- 1 7/16"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	0'- 7"	1.25D + 1.5L	0.72	38 lb ft	25351 lb ft	Passed - 0%
Factored Shear:	1'- 5 3/8"	1.25D + 1.5S	1.00	335 lb	13760 lb	Passed - 2%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5'-08	1.25D + 1.5S + L	1.00	819 lb		20020 lb	11839 lb	Passed - 7%
2	5'-08	1.25D + 1.5S + L	1.00	733 lb		20020 lb	11839 lb	Passed - 6%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	1'- 5 15/16"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	-0'	1'- 5 15/16"	E72(i3501)	Top	227 lb/ft	-	263 lb/ft	-
Uniform	0'	1'- 5 15/16"	User Load	Top	60 lb/ft	-	77 lb/ft	-
Uniform	0'- 7"	1'- 7/16"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Uniform	1'- 7/16"	1'- 5 15/16"	FC2 Floor Decking (Plan View Fill)	Top	5 lb/ft	9 lb/ft	-	-
Point	0'- 7"	0'- 7"	J3(i3587)	Back	67 lb	134 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	STL BM (i426)	291 lb	135 lb	254 lb	-
2	1'- 7/16"	1'- 5 15/16"	STL BM (i3572)	227 lb	6 lb	254 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



STRUCTURAL COMPONENT ONLY
DWG # TF23091251

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua



BUILDER: **GREENPARK HOMES**
SITE: **Trinigroup Developments Inc.**
MODEL: **VILLA 5**
CITY: **RICHMOND HILL**

Job Name: **VILLA 5**
Level: **2ND FLOOR**
Label: **B30 - i3585**
Type: **Beam**

2 Ply Member
1 3/4" x 11 7/8" (2.0E 3100)
WestFraser LVL

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version
8.6.3.353.Update16.11

Report Version: 2021.03.26 09-12-2023 09:16



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 1 3/4"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'- 4 1/2"
- 615 psi Beam @ 0'- 10 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	0'- 6 1/2"	1.25D + 1.5L	0.89	32 lb ft	31480 lb ft	Passed - 0%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L + S	0.98	500 lb		19669 lb	11631 lb	Passed - 4%
2	5-08	1.25D + 1.5S + L	0.99	325 lb		19743 lb	11675 lb	Passed - 3%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	1'- 3"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	1'- 3"	User Load	Top	60 lb/ft	-	77 lb/ft	-
Uniform	-0'	1'- 2 15/16"	E72(i3249)	Top	24 lb/ft	-	71 lb/ft	-
Uniform	-0'	0'- 10"	E72(i3249)	Top	100 lb/ft	-	-	-
Uniform	0'- 9 1/2"	1'- 3"	FC2 Floor Decking (Plan View Fill)	Top	6 lb/ft	11 lb/ft	-	-
Point	0'- 6 1/2"	0'- 6 1/2"	J3(i3592)	Front	84 lb	169 lb	-	-
Point	0'- 8"	0'- 8"	FC2 Floor Decking (Plan View Fill)	Top	1 lb	1 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	STL BM (i426)	213 lb	169 lb	92 lb	-
2	0'- 9 1/2"	1'- 3"	STL BM (i3546)	77 lb	6 lb	92 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
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- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (KL) = 1.00
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



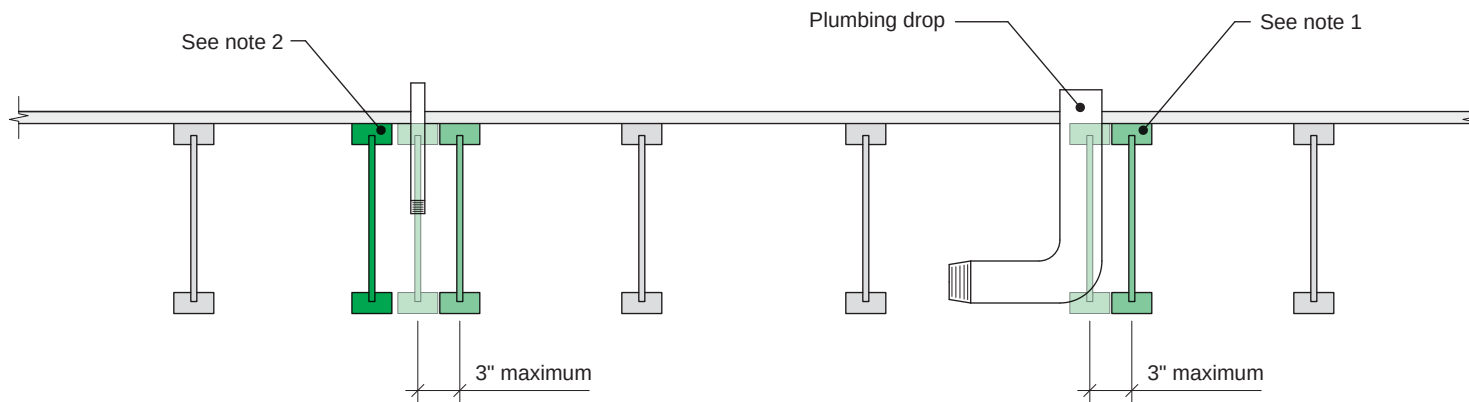
STRUCTURAL COMPONENT ONLY
DWG # TF23091252

CITY OF RICHMOND HILL
BUILDING DIVISION

05/01/2024

RECEIVED
Per: joshua.nabua

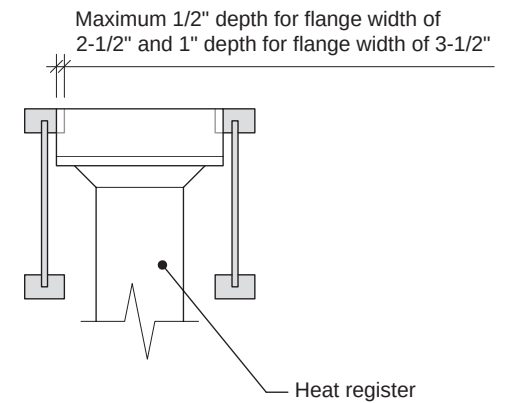
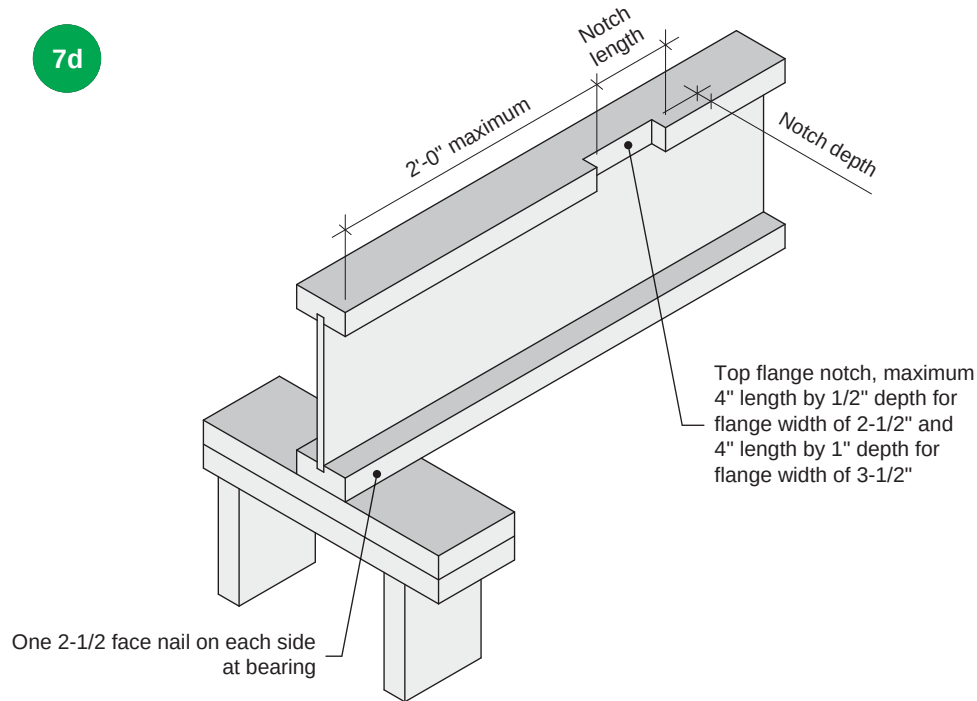
7c

**Notes:**

1. To prevent interference with plumbing, a joist may be shifted up to 3 inches if the edge of the floor panel is supported and the span rating is not exceeded.
2. In all other cases, an additional joist is required.

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.

7d



Notes:

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

Maximum Floor Spans – S2.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-3"	13'-10"	-	15'-7"	14'-9"	14'-3"	-
	NI-40x	16'-2"	15'-3"	14'-8"	-	16'-7"	15'-8"	15'-1"	-
	NI-60	16'-4"	15'-4"	14'-10"	-	16'-9"	15'-9"	15'-3"	-
	NI-80	17'-3"	16'-3"	15'-8"	-	17'-8"	16'-7"	16'-0"	-
11-7/8"	NI-20	17'-0"	16'-0"	15'-6"	-	17'-6"	16'-7"	16'-0"	-
	NI-40x	18'-2"	17'-1"	16'-6"	-	18'-9"	17'-6"	16'-11"	-
	NI-60	18'-5"	17'-3"	16'-8"	-	19'-0"	17'-8"	17'-1"	-
	NI-80	19'-9"	18'-3"	17'-7"	-	20'-4"	18'-10"	18'-0"	-
	NI-90	20'-2"	18'-8"	17'-10"	-	20'-9"	19'-2"	18'-4"	-
14"	NI-40x	20'-1"	18'-8"	17'-10"	-	20'-10"	19'-4"	18'-6"	-
	NI-60	20'-6"	18'-11"	18'-2"	-	21'-2"	19'-8"	18'-9"	-
	NI-80	21'-11"	20'-3"	19'-4"	-	22'-7"	20'-11"	20'-0"	-
	NI-90	22'-5"	20'-8"	19'-9"	-	23'-0"	21'-4"	20'-4"	-
16"	NI-60	22'-4"	20'-8"	19'-9"	-	23'-1"	21'-5"	20'-6"	-
	NI-80	23'-11"	22'-1"	21'-1"	-	24'-8"	22'-10"	21'-9"	-
	NI-90	24'-5"	22'-6"	21'-6"	-	25'-1"	23'-2"	22'-2"	-

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-8"	15'-3"	14'-5"	-	16'-8"	15'-3"	14'-5"	-
	NI-40x	17'-11"	17'-0"	16'-1"	-	18'-5"	17'-1"	16'-1"	-
	NI-60	18'-2"	17'-1"	16'-4"	-	18'-8"	17'-4"	16'-4"	-
	NI-80	19'-5"	18'-0"	17'-5"	-	19'-10"	18'-5"	17'-8"	-
11-7/8"	NI-20	19'-7"	18'-2"	17'-3"	-	19'-11"	18'-3"	17'-3"	-
	NI-40x	21'-1"	19'-7"	18'-8"	-	21'-8"	20'-2"	19'-2"	-
	NI-60	21'-4"	19'-9"	18'-11"	-	21'-11"	20'-5"	19'-6"	-
	NI-80	22'-9"	21'-1"	20'-2"	-	23'-3"	21'-8"	20'-8"	-
	NI-90	23'-3"	21'-6"	20'-6"	-	23'-9"	22'-0"	21'-0"	-
14"	NI-40x	23'-8"	21'-11"	20'-11"	-	24'-4"	22'-8"	21'-8"	-
	NI-60	24'-0"	22'-3"	21'-3"	-	24'-8"	22'-11"	21'-11"	-
	NI-80	25'-7"	23'-9"	22'-7"	-	26'-2"	24'-4"	23'-3"	-
	NI-90	26'-1"	24'-2"	23'-0"	-	26'-8"	24'-9"	23'-7"	-
16"	NI-60	26'-5"	24'-6"	23'-5"	-	27'-2"	25'-3"	24'-2"	-
	NI-80	28'-2"	26'-1"	24'-10"	-	28'-10"	26'-9"	25'-6"	-
	NI-90	28'-8"	26'-6"	25'-3"	-	29'-3"	27'-2"	25'-11"	-

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans – S4.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-7"	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-2"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	21'-1"	19'-6"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
14"	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
16"	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	NI-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"
	NI-60	22'-1"	20'-7"	19'-8"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
	NI-80	23'-8"	22'-0"	20'-11"	19'-10"	24'-1"	22'-6"	21'-6"	20'-0"
	NI-90	24'-1"	22'-5"	21'-4"	20'-2"	24'-7"	22'-11"	21'-10"	20'-7"
14"	NI-40x	24'-5"	22'-9"	21'-9"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"
	NI-60	24'-10"	23'-2"	22'-1"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"
	NI-80	26'-6"	24'-8"	23'-6"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90	27'-0"	25'-1"	23'-11"	22'-7"	27'-6"	25'-8"	24'-6"	23'-2"
16"	NI-60	27'-3"	25'-5"	24'-3"	22'-11"	28'-0"	26'-2"	24'-9"	23'-1"
	NI-80	29'-1"	27'-1"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90	29'-7"	27'-6"	26'-2"	24'-9"	30'-2"	28'-2"	26'-10"	25'-5"

Notes:

1. The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans – S6.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	14'-11"	14'-1"	13'-7"	-	15'-4"	14'-6"	14'-1"	-
	NI-40x	15'-11"	15'-0"	14'-6"	-	16'-4"	15'-5"	14'-11"	-
	NI-60	16'-1"	15'-2"	14'-8"	-	16'-6"	15'-7"	15'-1"	-
	NI-80	17'-1"	16'-1"	15'-6"	-	17'-5"	16'-5"	15'-10"	-
11-7/8"	NI-20	16'-9"	15'-10"	15'-4"	-	17'-4"	16'-4"	15'-10"	-
	NI-40x	17'-10"	16'-10"	16'-3"	-	18'-6"	17'-4"	16'-9"	-
	NI-60	18'-1"	17'-0"	16'-5"	-	18'-9"	17'-6"	16'-11"	-
	NI-80	19'-6"	18'-0"	17'-4"	-	20'-1"	18'-7"	17'-9"	-
	NI-90	19'-11"	18'-4"	17'-8"	-	20'-5"	18'-11"	18'-1"	-
14"	NI-40x	19'-10"	18'-4"	17'-8"	-	20'-6"	19'-1"	18'-3"	-
	NI-60	20'-2"	18'-8"	17'-11"	-	20'-10"	19'-4"	18'-6"	-
	NI-80	21'-8"	20'-0"	19'-1"	-	22'-4"	20'-8"	19'-9"	-
	NI-90	22'-1"	20'-5"	19'-6"	-	22'-9"	21'-0"	20'-1"	-
16"	NI-60	22'-0"	20'-4"	19'-6"	-	22'-9"	21'-1"	20'-2"	-
	NI-80	23'-7"	21'-10"	20'-10"	-	24'-4"	22'-6"	21'-6"	-
	NI-90	24'-1"	22'-2"	21'-2"	-	24'-9"	22'-11"	21'-10"	-

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-6"	15'-1"	14'-3"	-	16'-6"	15'-1"	14'-3"	-
	NI-40x	17'-9"	16'-10"	15'-11"	-	18'-2"	16'-11"	15'-11"	-
	NI-60	17'-11"	16'-11"	16'-2"	-	18'-5"	17'-2"	16'-2"	-
	NI-80	19'-3"	17'-10"	17'-3"	-	19'-8"	18'-3"	17'-7"	-
11-7/8"	NI-20	19'-4"	18'-0"	17'-1"	-	19'-9"	18'-1"	17'-1"	-
	NI-40x	20'-10"	19'-4"	18'-6"	-	21'-5"	19'-11"	19'-0"	-
	NI-60	21'-1"	19'-7"	18'-8"	-	21'-8"	20'-2"	19'-3"	-
	NI-80	22'-6"	20'-10"	19'-11"	-	23'-1"	21'-5"	20'-5"	-
	NI-90	23'-0"	21'-3"	20'-4"	-	23'-6"	21'-10"	20'-10"	-
14"	NI-40x	23'-5"	21'-8"	20'-9"	-	24'-0"	22'-5"	21'-5"	-
	NI-60	23'-9"	22'-0"	21'-0"	-	24'-5"	22'-8"	21'-8"	-
	NI-80	25'-4"	23'-6"	22'-5"	-	25'-11"	24'-1"	23'-0"	-
	NI-90	25'-10"	23'-11"	22'-9"	-	26'-5"	24'-6"	23'-4"	-
16"	NI-60	26'-2"	24'-3"	23'-2"	-	26'-11"	25'-0"	23'-11"	-
	NI-80	27'-11"	25'-10"	24'-7"	-	28'-7"	26'-6"	25'-3"	-
	NI-90	28'-5"	26'-3"	25'-0"	-	29'-0"	26'-11"	25'-8"	-

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans – S7.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	16'-11"	15'-11"	15'-4"	14'-9"	17'-4"	16'-4"	15'-9"	15'-1"
	NI-60	17'-1"	16'-1"	15'-6"	14'-10"	17'-6"	16'-6"	15'-11"	15'-3"
	NI-80	18'-1"	17'-0"	16'-4"	15'-8"	18'-7"	17'-4"	16'-8"	16'-0"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-7"	18'-5"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-3"	17'-10"	17'-2"	16'-6"	19'-10"	18'-5"	17'-8"	16'-11"
	NI-60	19'-6"	18'-1"	17'-4"	16'-8"	20'-1"	18'-8"	17'-10"	17'-1"
	NI-80	20'-11"	19'-4"	18'-5"	17'-7"	21'-5"	19'-10"	18'-11"	17'-11"
	NI-90	21'-4"	19'-9"	18'-9"	17'-10"	21'-10"	20'-3"	19'-3"	18'-3"
14"	NI-40x	21'-4"	19'-9"	18'-10"	17'-11"	22'-0"	20'-5"	19'-6"	18'-6"
	NI-60	21'-8"	20'-1"	19'-2"	18'-2"	22'-4"	20'-9"	19'-9"	18'-9"
	NI-80	23'-3"	21'-6"	20'-5"	19'-4"	23'-10"	22'-1"	21'-0"	19'-11"
	NI-90	23'-9"	21'-11"	20'-10"	19'-8"	24'-3"	22'-6"	21'-5"	20'-3"
16"	NI-60	23'-7"	21'-10"	20'-10"	19'-9"	24'-4"	22'-7"	21'-7"	20'-5"
	NI-80	25'-4"	23'-5"	22'-3"	21'-1"	26'-0"	24'-1"	22'-11"	21'-8"
	NI-90	25'-10"	23'-10"	22'-8"	21'-5"	26'-5"	24'-6"	23'-4"	22'-0"

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-7"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	NI-60	18'-10"	17'-6"	16'-6"	15'-5"	19'-1"	17'-6"	16'-6"	15'-5"
	NI-80	20'-2"	18'-9"	17'-11"	16'-10"	20'-7"	19'-2"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	NI-40x	21'-9"	20'-3"	19'-4"	17'-8"	22'-4"	20'-5"	19'-4"	17'-8"
	NI-60	22'-0"	20'-6"	19'-7"	18'-4"	22'-7"	20'-10"	19'-8"	18'-4"
	NI-80	23'-6"	21'-10"	20'-10"	19'-9"	24'-0"	22'-5"	21'-4"	20'-0"
	NI-90	24'-0"	22'-4"	21'-3"	20'-1"	24'-6"	22'-10"	21'-9"	20'-7"
14"	NI-40x	24'-4"	22'-8"	21'-8"	19'-5"	25'-0"	23'-2"	21'-9"	19'-5"
	NI-60	24'-9"	23'-0"	22'-0"	20'-9"	25'-5"	23'-8"	22'-4"	20'-10"
	NI-80	26'-5"	24'-6"	23'-4"	22'-1"	27'-0"	25'-2"	24'-0"	22'-8"
	NI-90	26'-11"	25'-0"	23'-10"	22'-6"	27'-5"	25'-7"	24'-5"	23'-1"
16"	NI-60	27'-2"	25'-4"	24'-2"	22'-10"	27'-11"	26'-1"	24'-9"	23'-1"
	NI-80	29'-0"	26'-11"	25'-8"	24'-3"	29'-7"	27'-7"	26'-4"	24'-11"
	NI-90	29'-6"	27'-5"	26'-1"	24'-8"	30'-1"	28'-1"	26'-9"	25'-4"

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans – M2.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-3"	13'-10"	-	15'-7"	14'-9"	14'-3"	-
	NI-40x	16'-2"	15'-3"	14'-8"	-	16'-7"	15'-8"	15'-1"	-
	NI-60	16'-4"	15'-4"	14'-10"	-	16'-9"	15'-9"	15'-3"	-
	NI-80	17'-3"	16'-3"	15'-8"	-	17'-8"	16'-7"	16'-0"	-
11-7/8"	NI-20	17'-0"	16'-0"	15'-6"	-	17'-6"	16'-7"	16'-0"	-
	NI-40x	18'-2"	17'-1"	16'-6"	-	18'-9"	17'-6"	16'-11"	-
	NI-60	18'-5"	17'-3"	16'-8"	-	19'-0"	17'-8"	17'-1"	-
	NI-80	19'-9"	18'-3"	17'-7"	-	20'-4"	18'-10"	18'-0"	-
	NI-90	20'-2"	18'-8"	17'-10"	-	20'-9"	19'-2"	18'-4"	-
14"	NI-40x	20'-1"	18'-8"	17'-10"	-	20'-10"	19'-4"	18'-6"	-
	NI-60	20'-6"	18'-11"	18'-2"	-	21'-2"	19'-8"	18'-9"	-
	NI-80	21'-11"	20'-3"	19'-4"	-	22'-7"	20'-11"	20'-0"	-
	NI-90	22'-5"	20'-8"	19'-9"	-	23'-0"	21'-4"	20'-4"	-
16"	NI-60	22'-4"	20'-8"	19'-9"	-	23'-1"	21'-5"	20'-6"	-
	NI-80	23'-11"	22'-1"	21'-1"	-	24'-8"	22'-10"	21'-9"	-
	NI-90	24'-5"	22'-6"	21'-6"	-	25'-1"	23'-2"	22'-2"	-

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-8"	15'-3"	14'-5"	-	16'-8"	15'-3"	14'-5"	-
	NI-40x	17'-11"	17'-0"	16'-1"	-	18'-5"	17'-1"	16'-1"	-
	NI-60	18'-2"	17'-1"	16'-4"	-	18'-8"	17'-4"	16'-4"	-
	NI-80	19'-5"	18'-0"	17'-5"	-	19'-10"	18'-5"	17'-8"	-
11-7/8"	NI-20	19'-7"	18'-2"	17'-3"	-	19'-11"	18'-3"	17'-3"	-
	NI-40x	21'-1"	19'-7"	18'-8"	-	21'-8"	20'-2"	19'-0"	-
	NI-60	21'-4"	19'-9"	18'-11"	-	21'-11"	20'-5"	19'-6"	-
	NI-80	22'-9"	21'-1"	20'-2"	-	23'-3"	21'-8"	20'-8"	-
	NI-90	23'-3"	21'-6"	20'-6"	-	23'-9"	22'-0"	21'-0"	-
14"	NI-40x	23'-8"	21'-11"	20'-11"	-	24'-4"	22'-8"	20'-11"	-
	NI-60	24'-0"	22'-3"	21'-3"	-	24'-8"	22'-11"	21'-11"	-
	NI-80	25'-7"	23'-9"	22'-7"	-	26'-2"	24'-4"	23'-3"	-
	NI-90	26'-1"	24'-2"	23'-0"	-	26'-8"	24'-9"	23'-7"	-
16"	NI-60	26'-5"	24'-6"	23'-5"	-	27'-2"	25'-3"	24'-2"	-
	NI-80	28'-2"	26'-1"	24'-10"	-	28'-10"	26'-9"	25'-6"	-
	NI-90	28'-8"	26'-6"	25'-3"	-	29'-3"	27'-2"	25'-11"	-

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans – M4.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing

Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	14'-11"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-7"	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	21'-1"	19'-6"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
14"	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
16"	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	14'-11"	18'-10"	17'-2"	16'-3"	14'-11"
	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-1"	20'-1"	18'-5"	17'-5"	16'-1"
	NI-40x	21'-10"	20'-4"	19'-0"	17'-0"	22'-5"	20'-6"	19'-0"	17'-0"
	NI-60	22'-1"	20'-7"	19'-8"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
	NI-80	23'-8"	22'-0"	20'-11"	19'-10"	24'-1"	22'-6"	21'-6"	20'-0"
	NI-90	24'-1"	22'-5"	21'-4"	20'-2"	24'-7"	22'-11"	21'-10"	20'-7"
14"	NI-40x	24'-5"	22'-9"	20'-11"	18'-8"	25'-1"	22'-11"	20'-11"	18'-8"
	NI-60	24'-10"	23'-2"	22'-1"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"
	NI-80	26'-6"	24'-8"	23'-6"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90	27'-0"	25'-1"	23'-11"	22'-7"	27'-6"	25'-8"	24'-6"	23'-2"
16"	NI-60	27'-3"	25'-5"	24'-3"	22'-11"	28'-0"	26'-2"	24'-9"	23'-1"
	NI-80	29'-1"	27'-1"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90	29'-7"	27'-6"	26'-2"	24'-9"	30'-2"	28'-2"	26'-10"	25'-5"

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans – M6.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	14'-11"	14'-1"	13'-7"	-	15'-4"	14'-6"	14'-1"	-
	NI-40x	15'-11"	15'-0"	14'-6"	-	16'-4"	15'-5"	14'-11"	-
	NI-60	16'-1"	15'-2"	14'-8"	-	16'-6"	15'-7"	15'-1"	-
	NI-80	17'-1"	16'-1"	15'-6"	-	17'-5"	16'-5"	15'-10"	-
11-7/8"	NI-20	16'-9"	15'-10"	15'-4"	-	17'-4"	16'-4"	15'-10"	-
	NI-40x	17'-10"	16'-10"	16'-3"	-	18'-6"	17'-4"	16'-9"	-
	NI-60	18'-1"	17'-0"	16'-5"	-	18'-9"	17'-6"	16'-11"	-
	NI-80	19'-6"	18'-0"	17'-4"	-	20'-1"	18'-7"	17'-9"	-
	NI-90	19'-11"	18'-4"	17'-8"	-	20'-5"	18'-11"	18'-1"	-
14"	NI-40x	19'-10"	18'-4"	17'-8"	-	20'-6"	19'-1"	18'-3"	-
	NI-60	20'-2"	18'-8"	17'-11"	-	20'-10"	19'-4"	18'-6"	-
	NI-80	21'-8"	20'-0"	19'-1"	-	22'-4"	20'-8"	19'-9"	-
	NI-90	22'-1"	20'-5"	19'-6"	-	22'-9"	21'-0"	20'-1"	-
16"	NI-60	22'-0"	20'-4"	19'-6"	-	22'-9"	21'-1"	20'-2"	-
	NI-80	23'-7"	21'-10"	20'-10"	-	24'-4"	22'-6"	21'-6"	-
	NI-90	24'-1"	22'-2"	21'-2"	-	24'-9"	22'-11"	21'-10"	-

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-6"	15'-1"	14'-3"	-	16'-6"	15'-1"	14'-3"	-
	NI-40x	17'-9"	16'-10"	15'-11"	-	18'-2"	16'-11"	15'-11"	-
	NI-60	17'-11"	16'-11"	16'-2"	-	18'-5"	17'-2"	16'-2"	-
	NI-80	19'-3"	17'-10"	17'-3"	-	19'-8"	18'-3"	17'-7"	-
11-7/8"	NI-20	19'-4"	18'-0"	17'-1"	-	19'-9"	18'-1"	17'-1"	-
	NI-40x	20'-10"	19'-4"	18'-6"	-	21'-5"	19'-11"	19'-0"	-
	NI-60	21'-1"	19'-7"	18'-8"	-	21'-8"	20'-2"	19'-3"	-
	NI-80	22'-6"	20'-10"	19'-11"	-	23'-1"	21'-5"	20'-5"	-
	NI-90	23'-0"	21'-3"	20'-4"	-	23'-6"	21'-10"	20'-10"	-
14"	NI-40x	23'-5"	21'-8"	20'-9"	-	24'-0"	22'-5"	20'-11"	-
	NI-60	23'-9"	22'-0"	21'-0"	-	24'-5"	22'-8"	21'-8"	-
	NI-80	25'-4"	23'-6"	22'-5"	-	25'-11"	24'-1"	23'-0"	-
	NI-90	25'-10"	23'-11"	22'-9"	-	26'-5"	24'-6"	23'-4"	-
16"	NI-60	26'-2"	24'-3"	23'-2"	-	26'-11"	25'-0"	23'-11"	-
	NI-80	27'-11"	25'-10"	24'-7"	-	28'-7"	26'-6"	25'-3"	-
	NI-90	28'-5"	26'-3"	25'-0"	-	29'-0"	26'-11"	25'-8"	-

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans – M7.1

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	16'-11"	15'-11"	15'-4"	14'-9"	17'-4"	16'-4"	15'-9"	14'-11"
	NI-60	17'-1"	16'-1"	15'-6"	14'-10"	17'-6"	16'-6"	15'-11"	15'-3"
	NI-80	18'-1"	17'-0"	16'-4"	15'-8"	18'-7"	17'-4"	16'-8"	16'-0"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-7"	18'-5"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-3"	17'-10"	17'-2"	16'-6"	19'-10"	18'-5"	17'-8"	16'-11"
	NI-60	19'-6"	18'-1"	17'-4"	16'-8"	20'-1"	18'-8"	17'-10"	17'-1"
	NI-80	20'-11"	19'-4"	18'-5"	17'-7"	21'-5"	19'-10"	18'-11"	17'-11"
	NI-90	21'-4"	19'-9"	18'-9"	17'-10"	21'-10"	20'-3"	19'-3"	18'-3"
14"	NI-40x	21'-4"	19'-9"	18'-10"	17'-11"	22'-0"	20'-5"	19'-6"	18'-6"
	NI-60	21'-8"	20'-1"	19'-2"	18'-2"	22'-4"	20'-9"	19'-9"	18'-9"
	NI-80	23'-3"	21'-6"	20'-5"	19'-4"	23'-10"	22'-1"	21'-0"	19'-11"
	NI-90	23'-9"	21'-11"	20'-10"	19'-8"	24'-3"	22'-6"	21'-5"	20'-3"
16"	NI-60	23'-7"	21'-10"	20'-10"	19'-9"	24'-4"	22'-7"	21'-7"	20'-5"
	NI-80	25'-4"	23'-5"	22'-3"	21'-1"	26'-0"	24'-1"	22'-11"	21'-8"
	NI-90	25'-10"	23'-10"	22'-8"	21'-5"	26'-5"	24'-6"	23'-4"	22'-0"

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-7"	17'-2"	16'-3"	14'-11"	18'-10"	17'-2"	16'-3"	14'-11"
	NI-60	18'-10"	17'-6"	16'-6"	15'-5"	19'-1"	17'-6"	16'-6"	15'-5"
	NI-80	20'-2"	18'-9"	17'-11"	16'-10"	20'-7"	19'-2"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-1"	20'-1"	18'-5"	17'-5"	16'-1"
	NI-40x	21'-9"	20'-3"	19'-0"	17'-0"	22'-4"	20'-5"	19'-0"	17'-0"
	NI-60	22'-0"	20'-6"	19'-7"	18'-4"	22'-7"	20'-10"	19'-8"	18'-4"
	NI-80	23'-6"	21'-10"	20'-10"	19'-9"	24'-0"	22'-5"	21'-4"	20'-0"
	NI-90	24'-0"	22'-4"	21'-3"	20'-1"	24'-6"	22'-10"	21'-9"	20'-7"
14"	NI-40x	24'-4"	22'-8"	20'-11"	18'-8"	25'-0"	22'-11"	20'-11"	18'-8"
	NI-60	24'-9"	23'-0"	22'-0"	20'-9"	25'-5"	23'-8"	22'-4"	20'-10"
	NI-80	26'-5"	24'-6"	23'-4"	22'-1"	27'-0"	25'-2"	24'-0"	22'-8"
	NI-90	26'-11"	25'-0"	23'-10"	22'-6"	27'-5"	25'-7"	24'-5"	23'-1"
16"	NI-60	27'-2"	25'-4"	24'-2"	22'-10"	27'-11"	26'-1"	24'-9"	23'-1"
	NI-80	29'-0"	26'-11"	25'-8"	24'-3"	29'-7"	27'-7"	26'-4"	24'-11"
	NI-90	29'-6"	27'-5"	26'-1"	24'-8"	30'-1"	28'-1"	26'-9"	25'-4"

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.