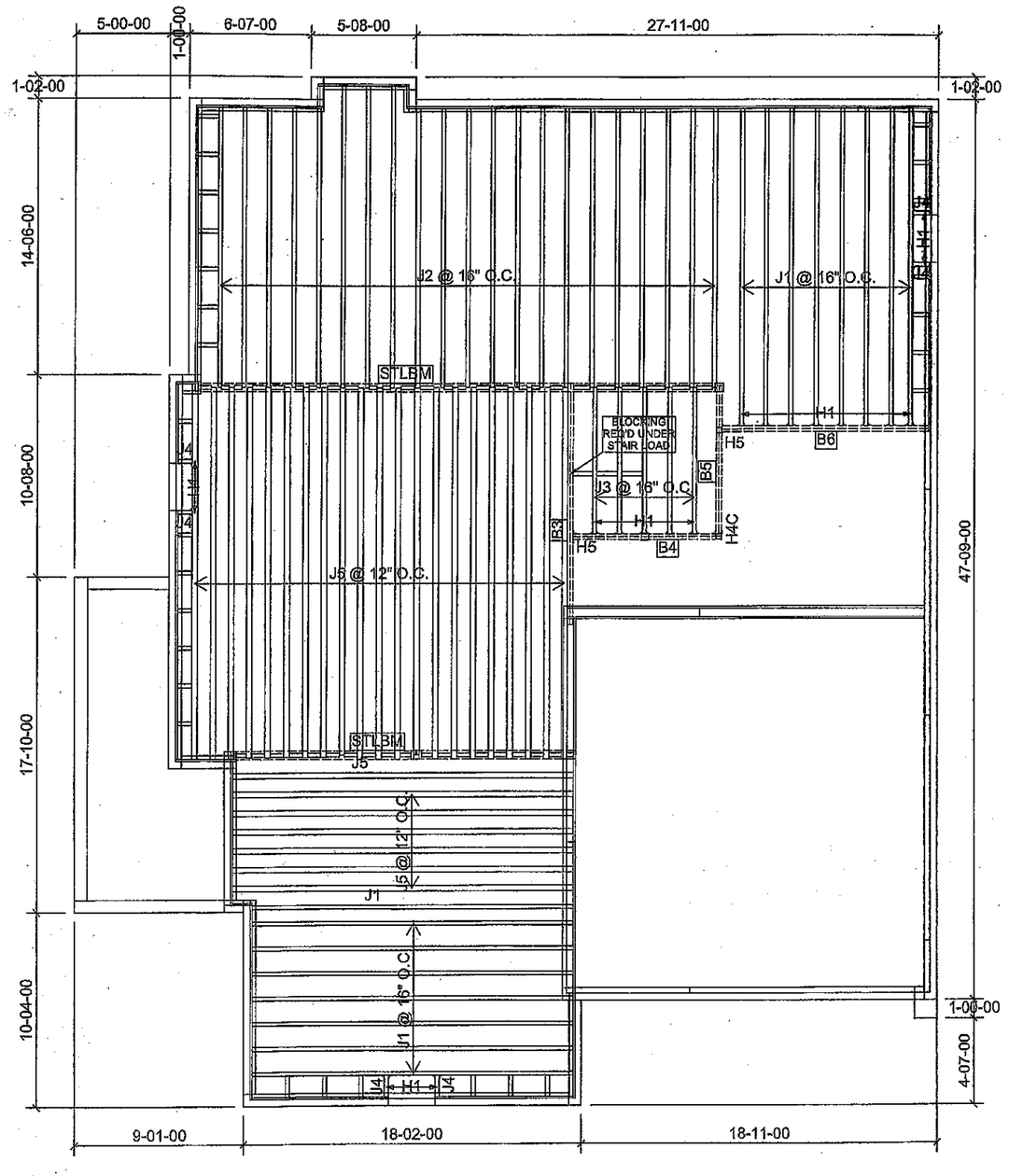


Connector Summary		
Qty	Manuf	Product
13	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H4C	HUC41
2	H5	HGUS41

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	16
J2	16-00-00	11 7/8" NI-40x	1	21
J3	8-00-00	11 7/8" NI-40x	1	5
J4	2-00-00	11 7/8" NI-40x	1	6
J5	20-00-00	11 7/8" NI-80	1	28
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 1
LOT:
CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

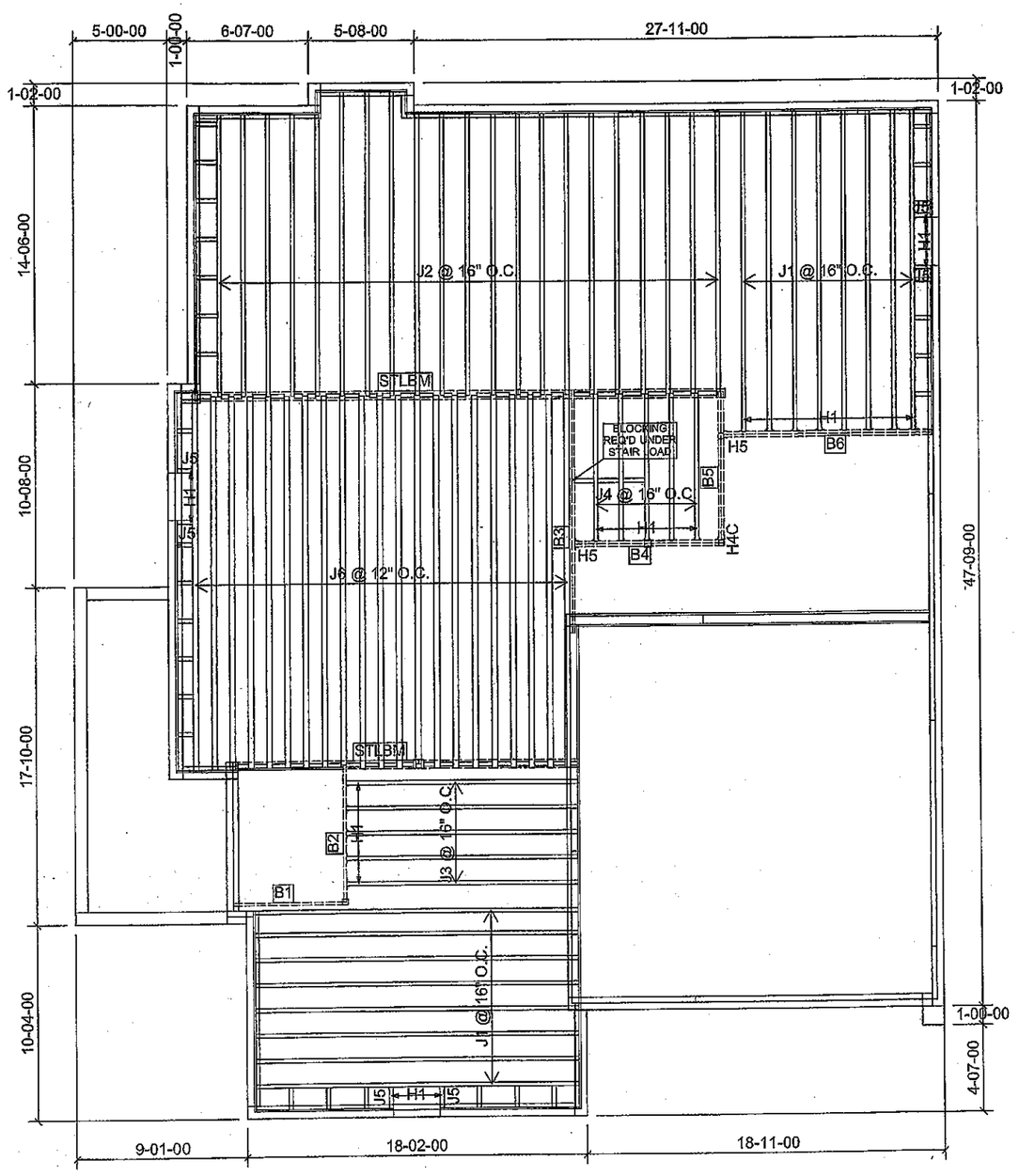
NOTES:
REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK**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

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

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-03-25

1st FLOOR



Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
13	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H4C	HUC41
2	H5	HGUS41

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	16
J2	16-00-00	11 7/8" NI-40x	1	21
J3	14-00-00	11 7/8" NI-40x	1	5
J4	8-00-00	11 7/8" NI-40x	1	5
J5	2-00-00	11 7/8" NI-40x	1	6
J6	20-00-00	11 7/8" NI-80	1	21
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 1
LOT:
CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

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

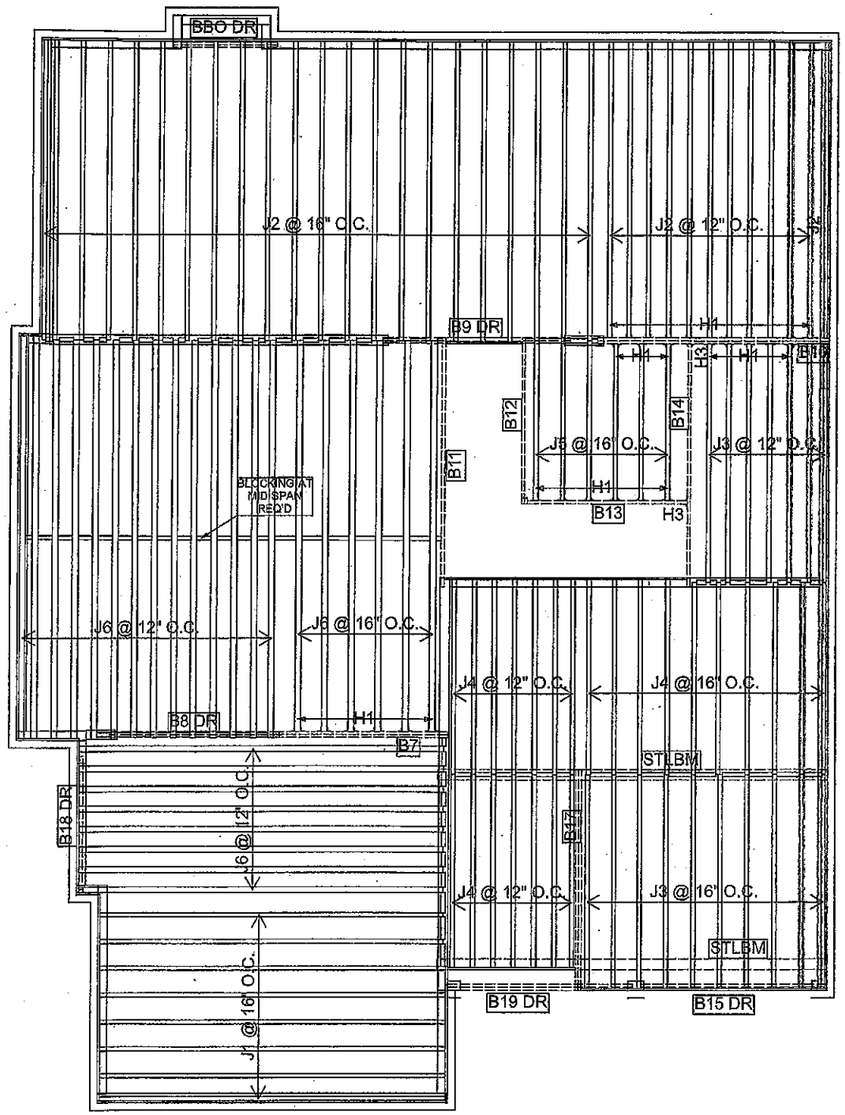
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-03-25

1st FLOOR

SUNKEN



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

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	8
J2	16-00-00	11 7/8" NI-40x	1	34
J3	12-00-00	11 7/8" NI-40x	1	17
J4	10-00-00	11 7/8" NI-40x	1	24
J5	8-00-00	11 7/8" NI-40x	1	6
J6	20-00-00	11 7/8" NI-80	1	28
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 DR	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 1
LOT:
CITY: HAMILTON

SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

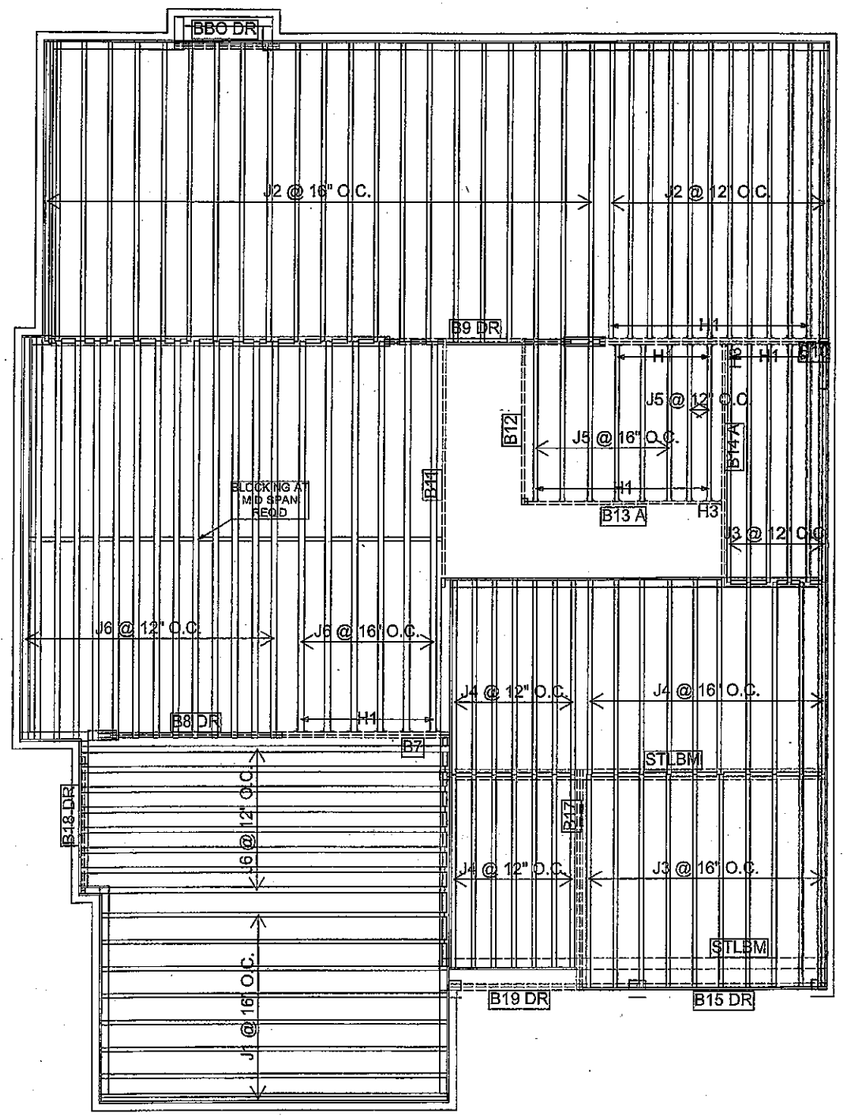
NOTES:
REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK**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

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

DATE: 2021-03-29

2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



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

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	8
J2	16-00-00	11 7/8" NI-40x	1	34
J3	12-00-00	11 7/8" NI-40x	1	16
J4	10-00-00	11 7/8" NI-40x	1	24
J5	8-00-00	11 7/8" NI-40x	1	8
J6	20-00-00	11 7/8" NI-80	1	28
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14 A	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13 A	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 DR	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 1
LOT:
CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

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

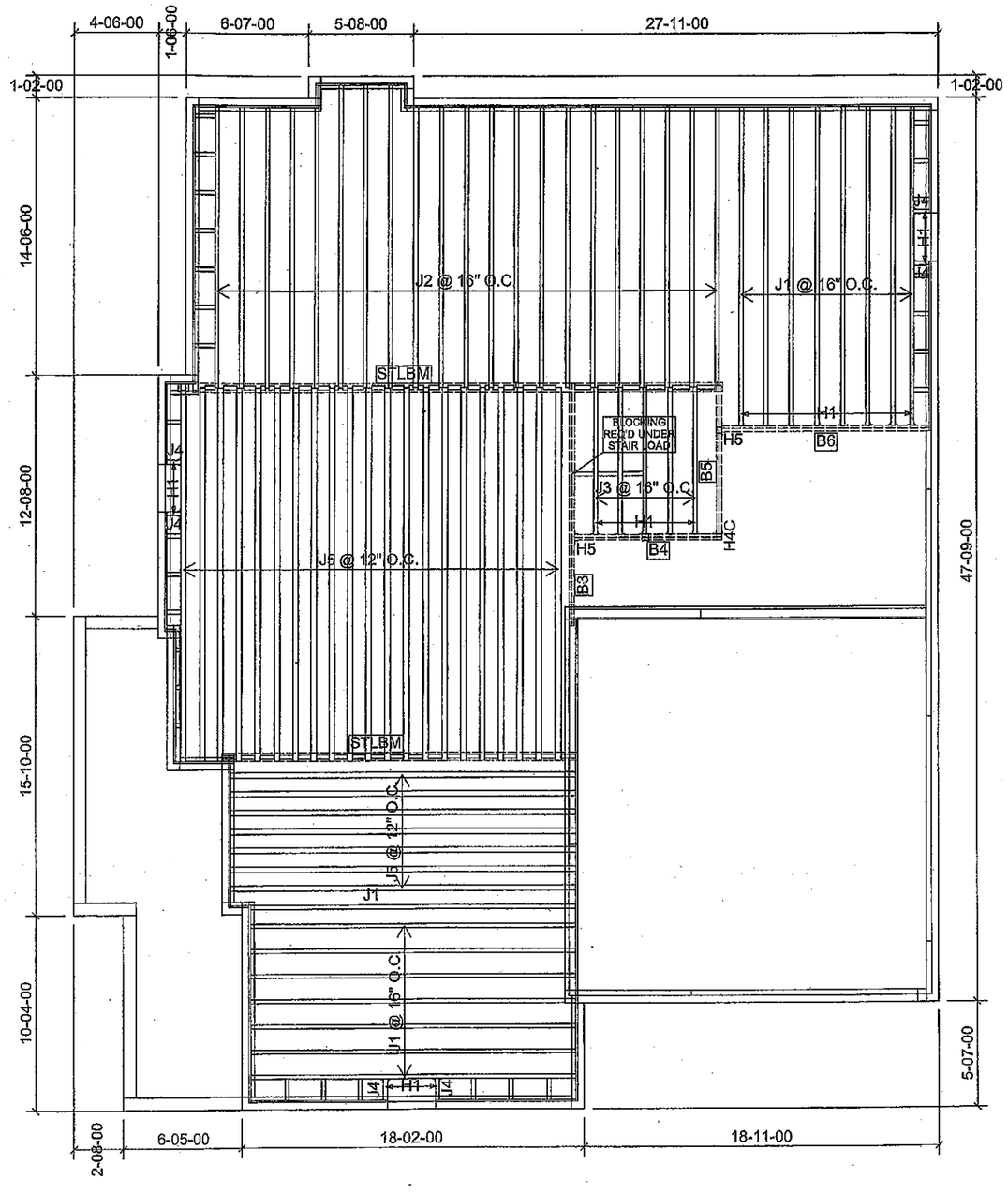
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-03-29

2ND FLOOR

OPT. HIGH CEILING



Connector Summary		
Qty	Manuf	Product
13	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H4C	HUC41
2	H5	HGUS41

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	16
J2	16-00-00	11 7/8" NI-40x	1	21
J3	8-00-00	11 7/8" NI-40x	1	5
J4	2-00-00	11 7/8" NI-40x	1	6
J5	20-00-00	11 7/8" NI-80	1	28
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 2
LOT:
CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

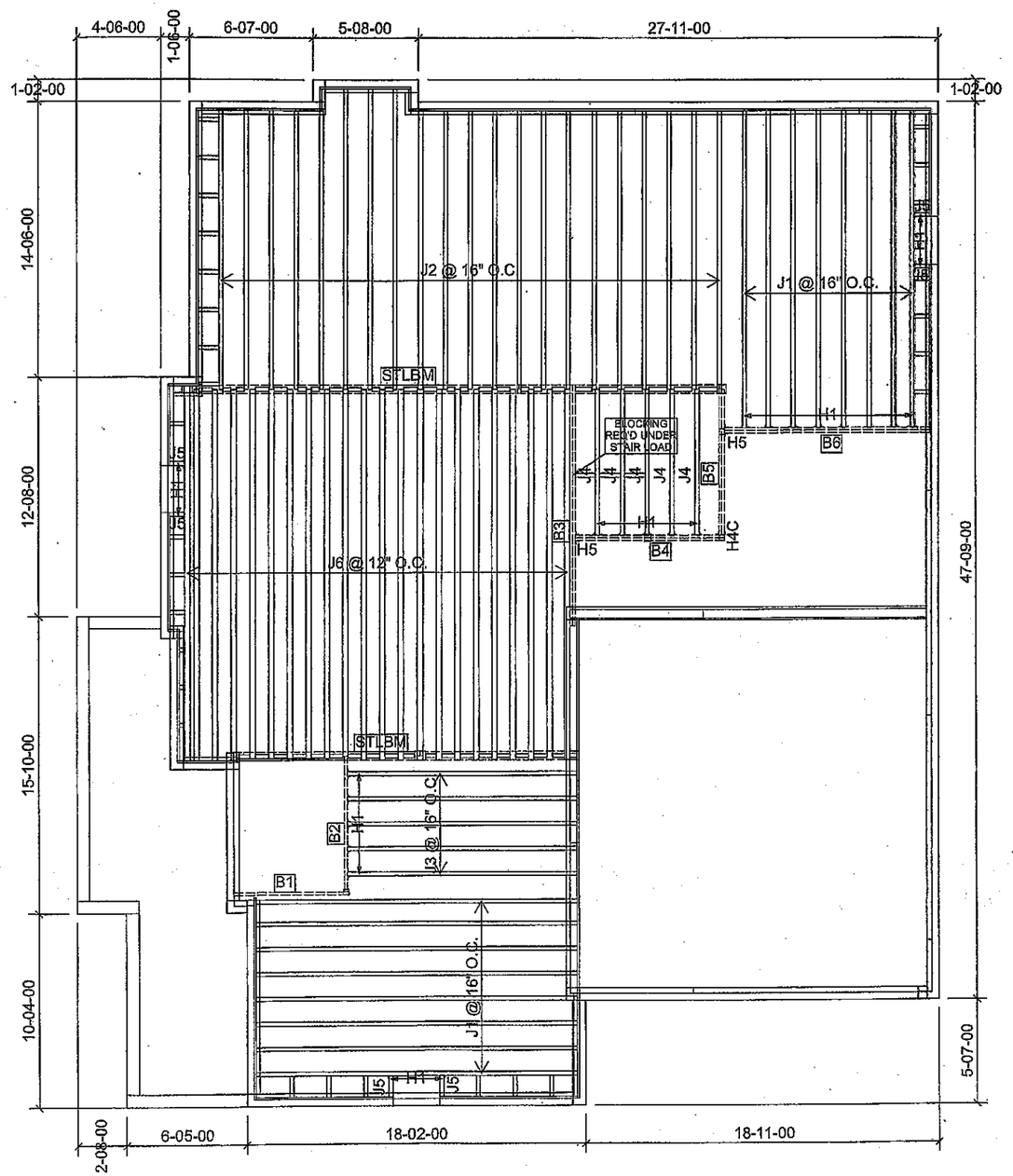
NOTES:
REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK**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

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

DATE: 2021-03-25

1st FLOOR

SUBFLOOR: 3/4" GLUED AND NAILED



Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
13	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H4C	HUC41Ø
2	H5	HGUS41Ø

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	16
J2	16-00-00	11 7/8" NI-40x	1	21
J3	14-00-00	11 7/8" NI-40x	1	5
J4	8-00-00	11 7/8" NI-40x	1	5
J5	2-00-00	11 7/8" NI-40x	1	6
J6	20-00-00	11 7/8" NI-80	1	22
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 2
LOT:
CITY: HAMILTON

SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

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

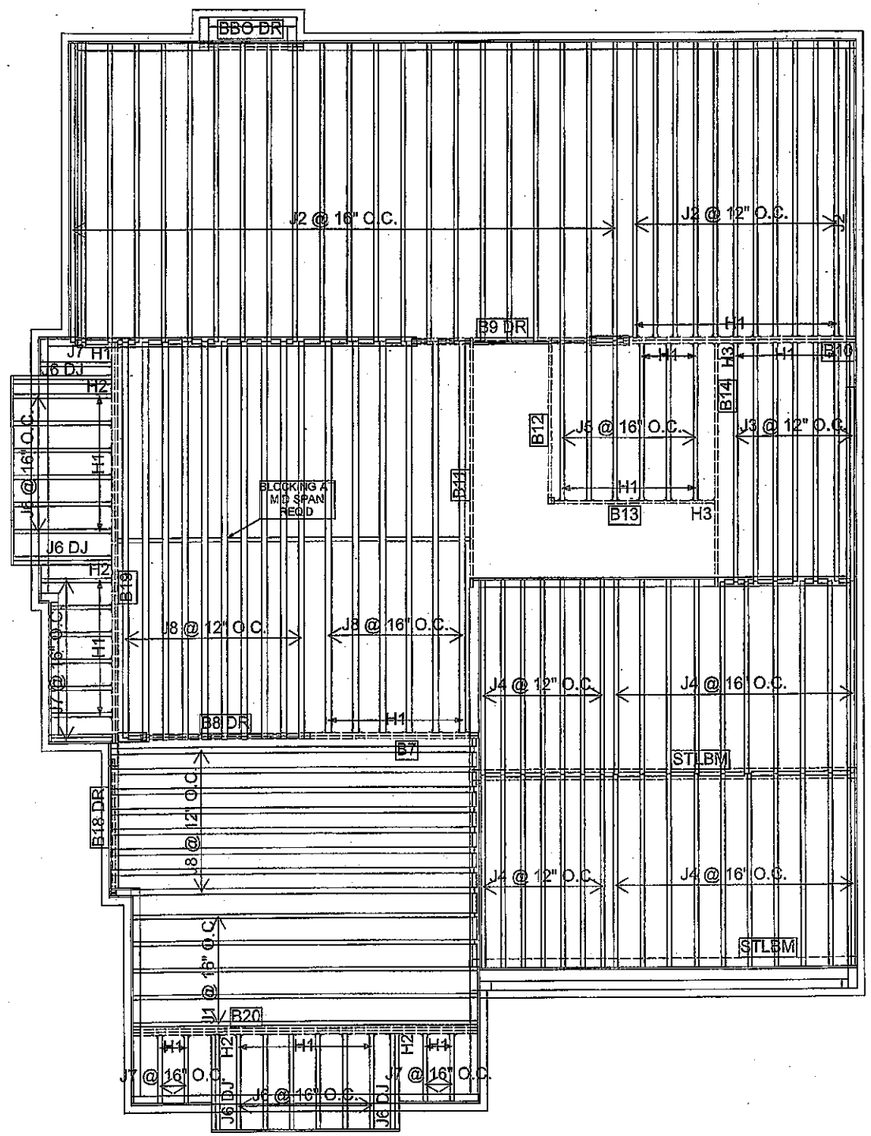
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-03-25

1st FLOOR

SUNKEN



Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/11.88
43	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
4	H2	MIU5.12/11
1	H3	HUS1.81/10
1	H3	HUS1.81/10

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	5
J2	16-00-00	11 7/8" NI-40x	1	34
J3	12-00-00	11 7/8" NI-40x	1	7
J4	10-00-00	11 7/8" NI-40x	1	34
J5	8-00-00	11 7/8" NI-40x	1	6
J6	6-00-00	11 7/8" NI-40x	1	12
J6 DJ	6-00-00	11 7/8" NI-40x	2	8
J7	4-00-00	11 7/8" NI-40x	1	12
J8	20-00-00	11 7/8" NI-80	1	24
B19	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B20	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 DR	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 2
LOT:
CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

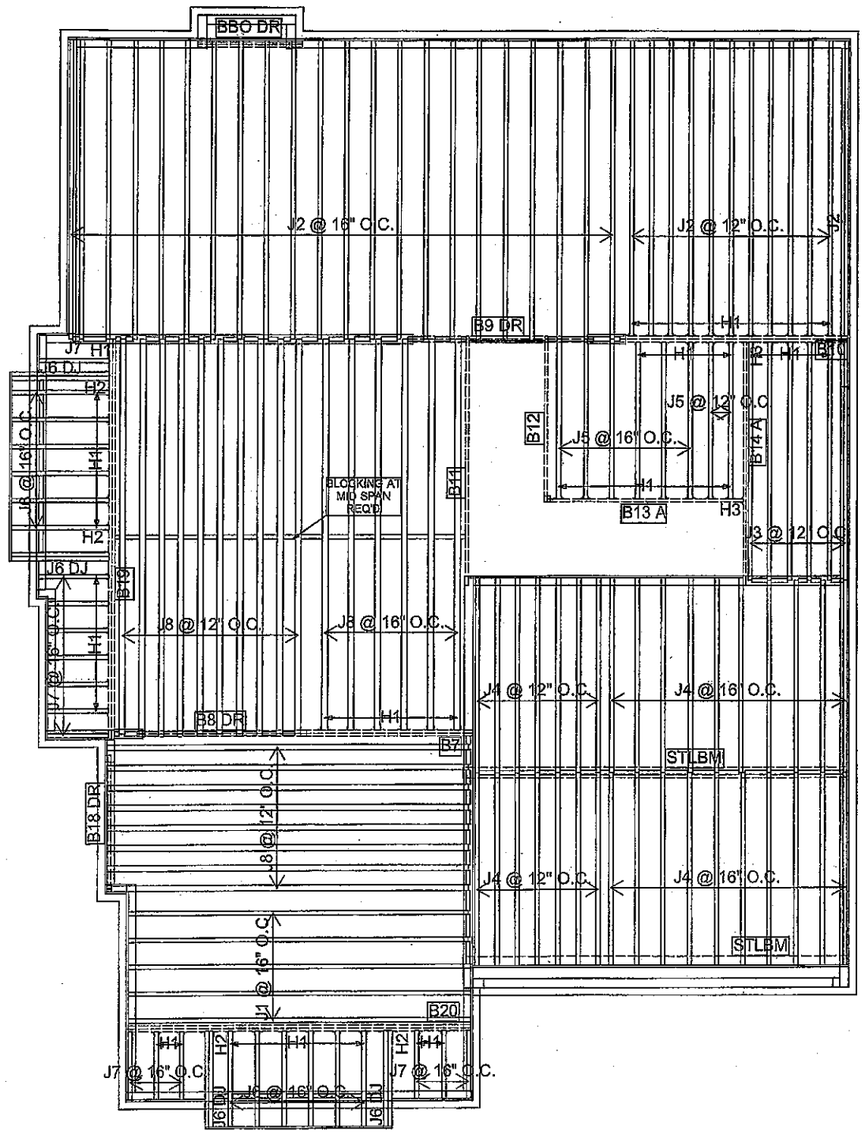
NOTES:
REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK**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

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

DATE: 2021-03-29

2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/11.88
44	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H2	MIU5.12/11
2	H2	MU5.12/11
1	H3	HUS1.81/10
1	H3	HUS1.81/10

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	5
J2	16-00-00	11 7/8" NI-40x	1	34
J3	12-00-00	11 7/8" NI-40x	1	6
J4	10-00-00	11 7/8" NI-40x	1	34
J5	8-00-00	11 7/8" NI-40x	1	8
J6	6-00-00	11 7/8" NI-40x	1	12
J6 DJ	6-00-00	11 7/8" NI-40x	2	8
J7	4-00-00	11 7/8" NI-40x	1	14
J8	20-00-00	11 7/8" NI-80	1	24
B19	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B20	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14 A	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13 A	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 DR	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 2
LOT:
CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

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

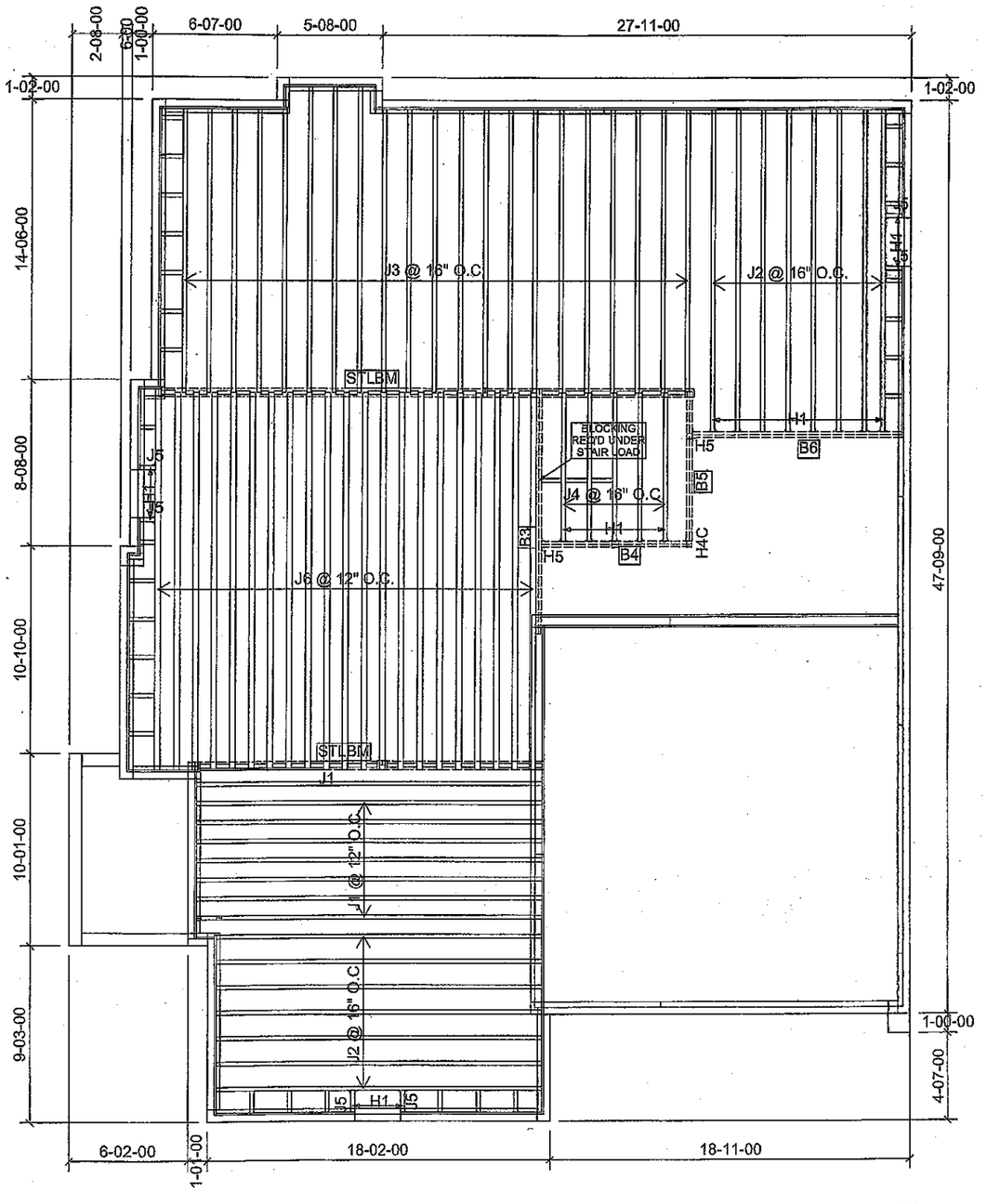
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-03-29

2ND FLOOR

OPT HIGH CEILING



Connector Summary		
Qty	Manuf	Product
13	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H4C	HUC41Ø
2	H5	HGUS41Ø

Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	8
J2	18-00-00	11 7/8" NI-40x	1	15
J3	16-00-00	11 7/8" NI-40x	1	21
J4	8-00-00	11 7/8" NI-40x	1	5
J5	2-00-00	11 7/8" NI-40x	1	6
J6	20-00-00	11 7/8" NI-80	1	21
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 3
LOT:
CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

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

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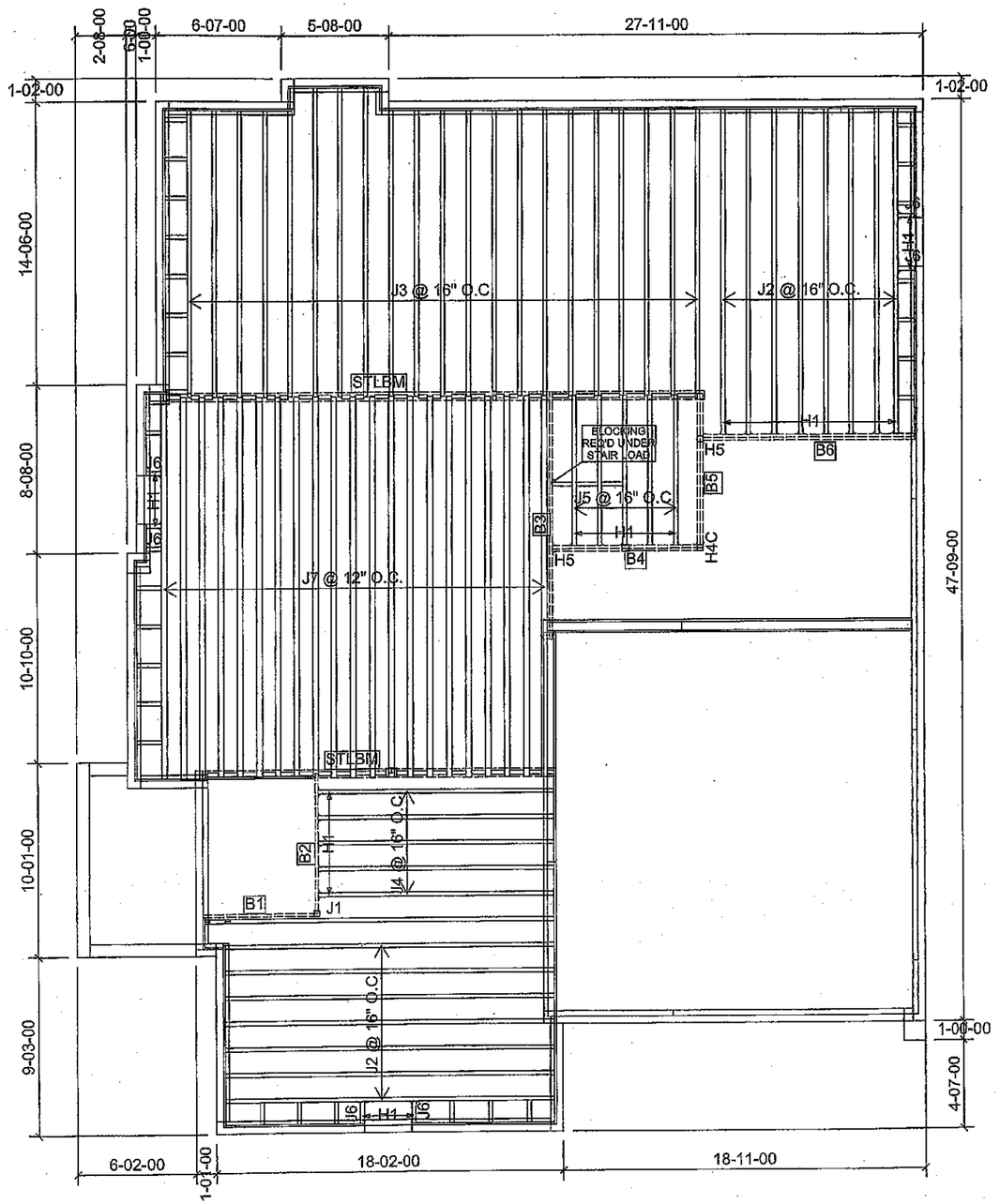
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-03-25

1st FLOOR



Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/11.88
13	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
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Products				
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J1	20-00-00	11 7/8" NI-40x	1	1
J2	18-00-00	11 7/8" NI-40x	1	15
J3	16-00-00	11 7/8" NI-40x	1	21
J4	14-00-00	11 7/8" NI-40x	1	5
J5	8-00-00	11 7/8" NI-40x	1	5
J6	2-00-00	11 7/8" NI-40x	1	6
J7	20-00-00	11 7/8" NI-80	1	21
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
BUILDER: GREENPARK HOMES
SITE: RUSSEL GARDENS PH 4
MODEL: SPRINGFIELD 11
ELEVATION: 3
LOT:
CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

NOTES:
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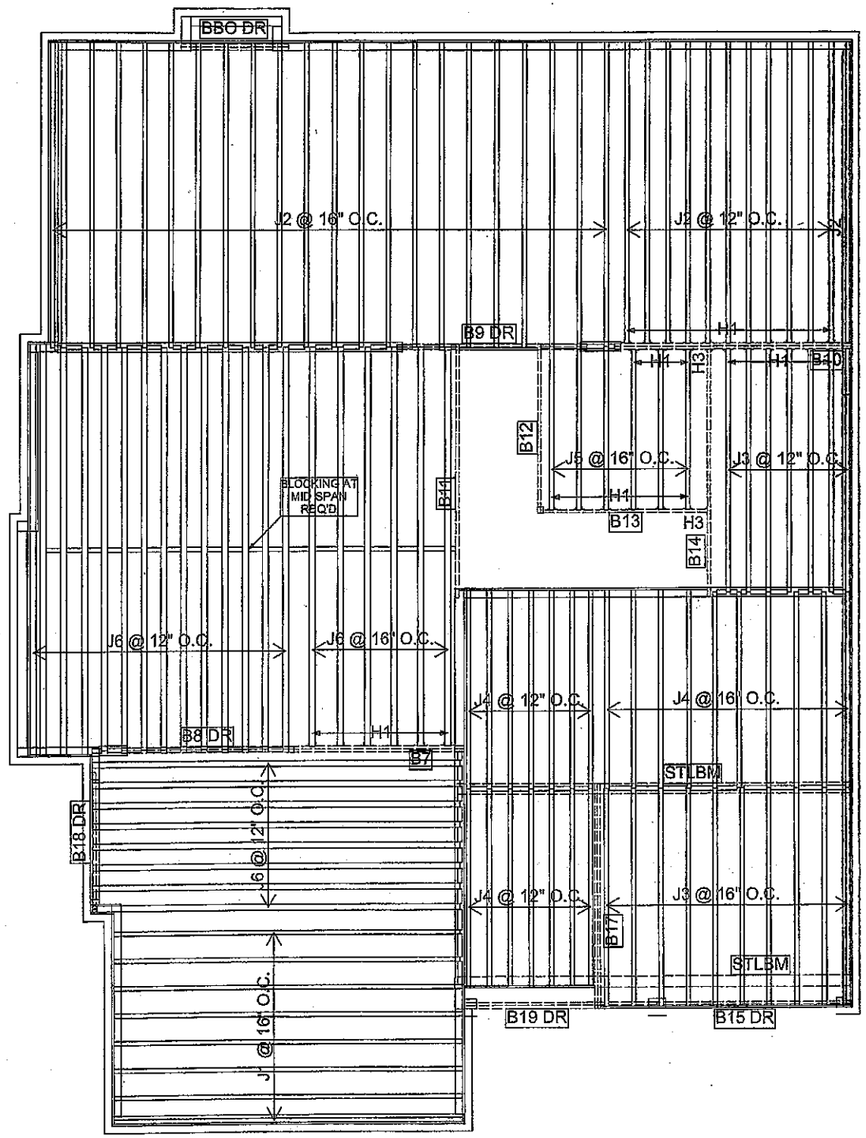
SUNKEN



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Qty	Manuf	Product
6	H1	IUS2.56/11.88
20	H1	IUS2.56/11.88
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Products				
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J4	10-00-00	11 7/8" NI-40x	1	24
J5	8-00-00	11 7/8" NI-40x	1	6
J6	20-00-00	11 7/8" NI-80	1	28
B11	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
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B19 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
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B8 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 DR	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

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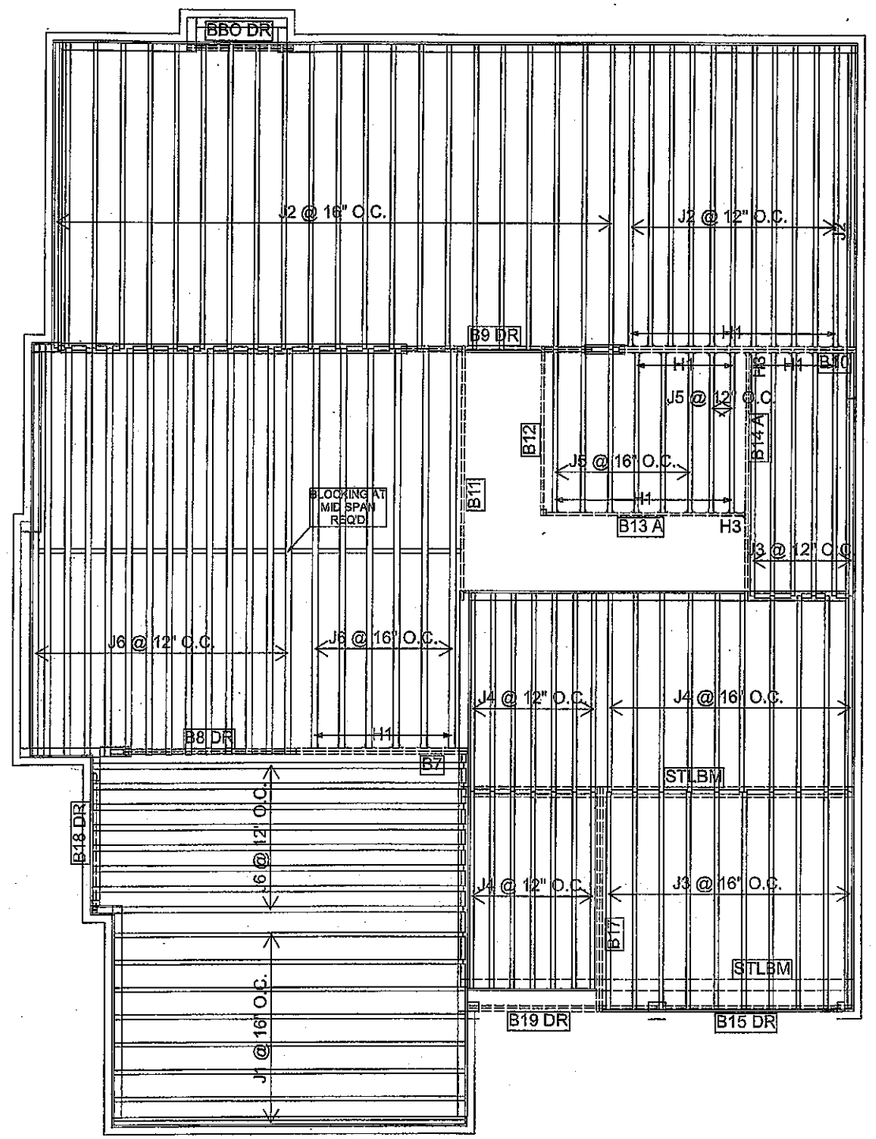

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/11.88
21	H1	IUS2.56/11.88
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Products				
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B14 A	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
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B13 A	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 DR	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: JANUARY 2021
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SITE: RUSSEL GARDENS PH 4
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ELEVATION: 3
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CITY: HAMILTON
SALESMAN: WILLIAM GARCIA
DESIGNER: EEO
REVISION:

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SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-03-29

2ND FLOOR

OPT HIGH CEILING

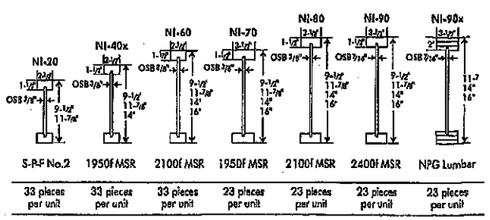
CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

N-C303 / April 2014

NORDIC ENGINEERED WOOD

www.nordicewp.com

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



WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

TABLE 1

LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)													
		Round Hole Diameter (in.)													
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
9-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	---	---	---	---	---	---	---	---	---
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	---	---	---	---	---	---	---	---	---
	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	---	---	---	---	---	---	---	---	---
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---	---	---	---
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---	---	---	---
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	---	---	---	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---	---	---	---
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	---	---	---	---	---	---
	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	---	---	---	---
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-6"	---	---	---	---	---	---
	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-3"	4'-4"	4'-9"	6'-3"	---	---	---	---	---	---	---	---
14"	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-5"	8'-3"	10'-2"	---	---	---
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"	---	---	---
	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"	---	---	---
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"	---	---	---
	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-5"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"	---	---	---
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-3"	7'-3"	8'-5"	9'-2"	---	---	---	---	---
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-8"	6'-4"	7'-0"	8'-5"	9'-8"	10'-2"	12'-2"	13'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-2"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"	14'-0"	15'-6"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-6"	11'-0"	12'-3"	12'-9"	14'-5"	16'-0"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3"	11'-9"	13'-9"	15'-4"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-0"	---	---

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of supports to centre of hole.
3. Distances in this chart are based on uniformly loaded joists.
4. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

TABLE 2

DUCT CHASE OPENING SIZES AND LOCATIONS

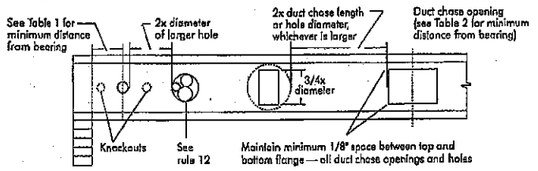
Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)									
		Duct Chase Length (in.)									
		8	10	12	14	16	18	20	22	24	
9-1/2"	NI-20	4'-1"	4'-6"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"	
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-5"	8'-9"	
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"	
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	
11-7/8"	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"	
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-5"	8'-9"	9'-1"	9'-6"	10'-1"	
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"	
	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"	
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"	
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"	
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"	
14"	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"	
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	12'-3"	13'-0"	
	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"	
	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"	
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"	
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"	
16"	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-0"	14'-1"	14'-10"	
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	14'-0"	
	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"	
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"	
	NI-90x	11'-1"	11'-5"	11'-10"	12'-4"	12'-10"	13'-2"	13'-9"	14'-4"	15'-2"	

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

FIGURE 7

FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS

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

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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

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

CHANTIERS CHIBOUGAMAU

PRODUCT WARRANTY

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

Furthermore, Chantiers Chibougamau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

1a NI blocking panel

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

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

Attach I-joist to top plate per detail 1b

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

1b

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

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

Rim board

One 2-1/2" face nail at each side at bearing

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

Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

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

1d NI or rim board blocking panel per detail 1a

+ 1/16" for squash blocks

Squash block

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

Provide lateral bracing per detail 1a or 1b

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

1g Joist attachment per detail 1b

2-1/2" nails at 6" o.c. to top plate

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

Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

NI blocking panel per detail 1a

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

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

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

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

Top- or face-mount hanger

Double I-joist header

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

Filler block per detail 1p

Backer block required (both sides for face-mount hangers)

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

1i Nordic Lam or Structural Composite Lumber (SCL)

For nailing schedules for multiple beams, see the manufacturer's recommendations.

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

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

1k 2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

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

Top-mount hanger installed per manufacturer's recommendations

1m Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Filler block per detail 1p

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1n Do not bevel-cut joist beyond inside face of wall

Attach I-joist per detail 1b

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

1r Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.

NI blocking panel

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

1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Filler block

Offset nails from opposite face by 6"

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

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

Flange Size	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"
	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"

1s One 2-1/2" nail at top and bottom flange

2x4 min. (1/8" gap minimum)

Rim board

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

1.5"

2-1/2" nails at 6" o.c.

I-joist blocking panel

One 2-1/2" nail one side only

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

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

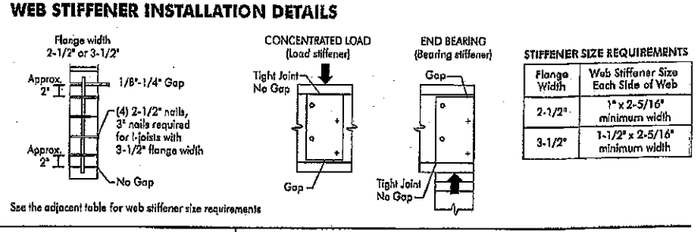
WEB STIFFENERS

RECOMMENDATIONS:

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

FIGURE 2

WEB STIFFENER INSTALLATION DETAILS



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

See the adjacent table for web stiffener size requirements

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

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

NI blocking panel or rim board blocking, attach per detail 1g

Attach I-joist to plate per detail 1b

6"

2-1/2" nails

3-1/2" min. bearing required

Sheathing edge

6" o.c. maximum

6" o.c. minimum

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

Sheathing edge

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

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

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

(1) 2-1/2" nail top and bottom (typical)

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

Rim board joint

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

Rim Board Joint at Corner

1-1/2"

2-1/2" nails

h

Rim board joint

1-1/2"

8b TOE-NAIL CONNECTION AT RIM BOARD

Rim board

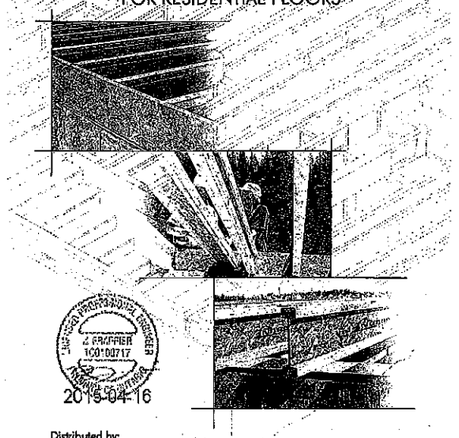
30°

Top or sole plate

2/3

NORDIC
ENGINEERED WOOD

INSTALLATION GUIDE
FOR RESIDENTIAL FLOORS



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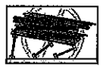
SAFETY AND CONSTRUCTION PRECAUTIONS

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



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

WARNING

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

Avoid Accidents by Following these Important Guidelines:

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

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

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joint spacing of 19.2 inches or less, or 3/4 inch for joint spacing of 24 inches. Adhesive shall meet the requirements given in CSA-O86-01.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
   1 foot = 0.305 m

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

Joint Depth	Joint Series	Simple spans — On centre spacing 12"	16"	19.2"	24"	Multiple spans — On centre spacing 12"	16"	19.2"	24"
9-1/2"	NI-20	16'-1"	15'-2"	13'-9"	12'-6"	16'-3"	15'-4"	14'-10"	14'-7"
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-9"
	NI-60	16'-3"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	16'-1"
	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-2"	17'-4"	16'-9"	16'-10"
	NI-80	17'-3"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	17'-0"
11-7/8"	NI-20	18'-11"	18'-0"	15'-5"	15'-6"	18'-4"	17'-3"	16'-8"	16'-7"
	NI-40x	18'-1"	17'-0"	16'-5"	16'-6"	20'-0"	18'-6"	17'-9"	17'-7"
	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-2"	18'-9"	18'-0"	18'-1"
	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-1"
	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"
	NI-90	20'-2"	18'-7"	17'-10"	17'-11"	22'-0"	20'-7"	19'-8"	19'-9"
	NI-90x	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"
14"	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-4"
	NI-60	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-1"
	NI-70	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2"
	NI-80	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5"	21'-6"
	NI-90	22'-3"	20'-8"	19'-9"	19'-10"	24'-8"	22'-10"	21'-10"	21'-10"
	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2"
16"	NI-60	22'-3"	20'-8"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9"	21'-10"
	NI-70	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-2"	22'-11"	23'-0"
	NI-80	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	23'-4"
	NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"
	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-2"	25'-2"	24'-0"	24'-1"

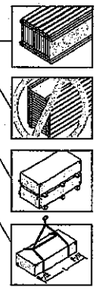
CCMC EVALUATION REPORT 13032-R

I-JOIST HANGERS

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

STORAGE AND HANDLING GUIDELINES

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



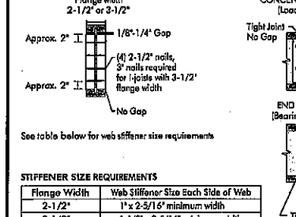
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

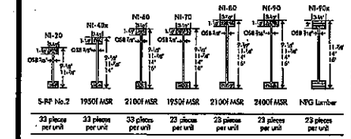


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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

NORDIC I-JOIST SERIES



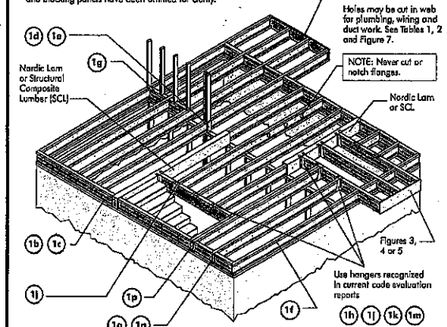
Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to finished product, reflects our commitment to quality.

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

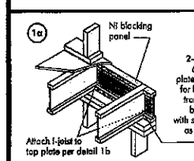
INSTALLING NORDIC I-JOISTS

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

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

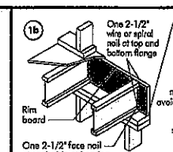


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



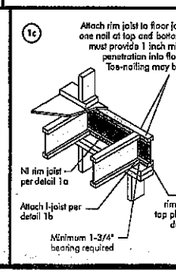
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

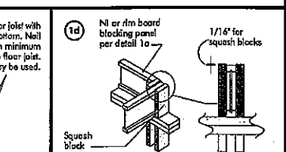
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



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

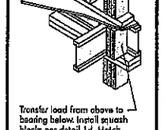
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

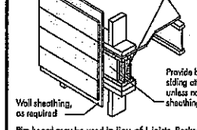


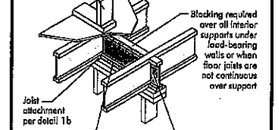


Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,800
1-1/8" Rim Board Plus	4,300	6,600

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





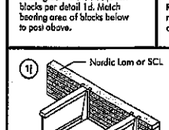


For hanger capacity see hanger manufacturer's recommendations. Verify double-I-joist capacity to support concentrated loads.

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

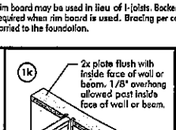
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

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

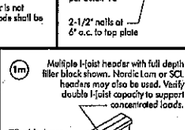


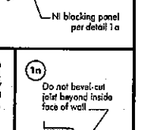
For nailing schedules for multiple beams, see the manufacturer's recommendations.

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



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



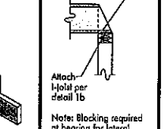


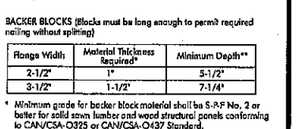
Note: Blocking required at bearing for lateral support, not shown for clarity.

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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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

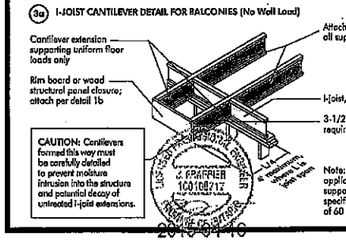




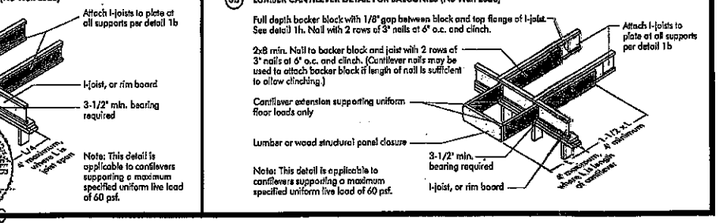
Notes:
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of this blocking.
- All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

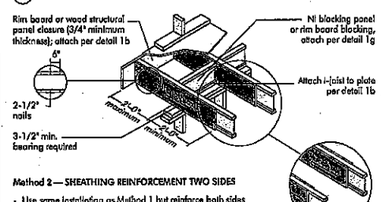


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

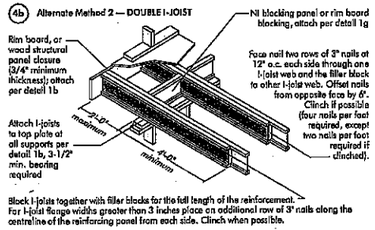


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

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

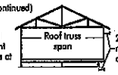
4b Alternate Method 2 — DOUBLE I-JOIST



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

FIGURE 4 (continued)

See table below for NI reinforcement requirements at cantilever.



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

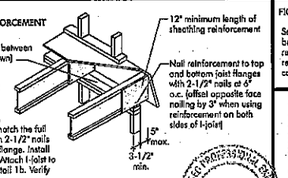
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED) LL = 30 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24	LL = 40 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24	LL = 50 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24
9-1/2"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	1	1	X	N	1	2	X	N	2	X	X
	30	N	1	1	X	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	2	X	X	1	X	X	X
	34	N	1	2	X	N	2	X	X	1	X	X	X
	36	N	1	2	X	1	2	X	X	1	X	X	X
11-7/8"	26	N	N	N	1	N	N	1	2	N	N	1	2
	28	N	N	N	1	N	N	1	2	N	1	2	X
	30	N	N	N	1	N	N	1	2	N	1	2	X
	32	N	N	1	1	N	N	1	2	N	1	2	X
	34	N	N	1	2	N	1	1	X	N	1	2	X
	36	N	N	1	2	N	1	2	X	N	2	X	X
	38	N	N	1	2	N	1	2	X	N	2	X	X
14"	26	N	N	N	N	N	N	N	1	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	1	2
	30	N	N	N	1	N	N	N	1	N	N	1	2
	32	N	N	N	1	N	N	N	1	N	N	1	2
	34	N	N	N	1	N	N	1	2	N	1	1	X
	36	N	N	N	1	N	N	1	2	N	1	2	X
	38	N	N	N	1	N	N	1	2	N	1	2	X
	40	N	N	N	1	N	N	1	2	N	1	2	X
16"	26	N	N	N	N	N	N	N	N	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	N	1
	30	N	N	N	N	N	N	N	1	N	N	N	1
	32	N	N	N	N	N	N	N	1	N	N	1	1
	34	N	N	N	N	N	N	N	1	N	N	1	2
	36	N	N	N	1	N	N	N	1	N	N	1	2
	38	N	N	N	1	N	N	1	2	N	N	1	2
	40	N	N	N	1	N	N	1	2	N	N	1	X
	42	N	N	N	1	N	N	1	2	N	1	1	X

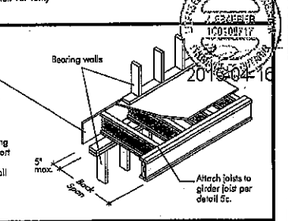
1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be: 15 psf roof dead load, 65 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. Where the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

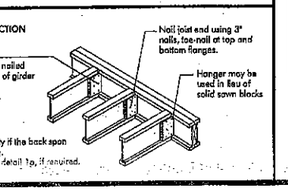
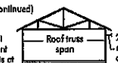


FIGURE 5 (continued)

See table below for NI reinforcement requirements at cantilever.



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED) LL = 30 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24	LL = 40 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24	LL = 50 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24
9-1/2"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	X	X	X	X
	32	2	X	X	X	2	X	X	X	X	X	X	X
	34	2	X	X	X	X	X	X	X	X	X	X	X
	36	2	X	X	X	X	X	X	X	X	X	X	X
11-7/8"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	2	X	X	X
	30	1	2	X	X	1	X	X	X	2	X	X	X
	32	1	2	X	X	1	X	X	X	2	X	X	X
	34	1	X	X	X	2	X	X	X	2	X	X	X
	36	1	X	X	X	2	X	X	X	X	X	X	X
	38	1	X	X	X	2	X	X	X	X	X	X	X
14"	26	N	1	2	X	N	2	X	X	1	X	X	X
	28	N	1	2	X	1	2	X	X	1	X	X	X
	30	N	2	X	X	1	2	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	2	X	X	X
	34	N	2	X	X	1	X	X	X	2	X	X	X
	36	1	2	X	X	1	X	X	X	2	X	X	X
	38	1	2	X	X	1	X	X	X	2	X	X	X
	40	1	X	X	X	2	X	X	X	2	X	X	X
16"	26	N	1	2	X	N	1	X	X	N	2	X	X
	28	N	1	2	X	N	2	X	X	1	2	X	X
	30	N	1	2	X	N	2	X	X	1	X	X	X
	32	N	1	2	X	N	2	X	X	1	X	X	X
	34	N	2	X	X	1	2	X	X	1	X	X	X
	36	N	2	X	X	1	X	X	X	1	X	X	X
	38	N	2	X	X	1	X	X	X	2	X	X	X
	40	N	2	X	X	1	X	X	X	2	X	X	X
	42	1	2	X	X	1	X	X	X	2	X	X	X

1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. Where the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (mm) — Round hole diameter (in.) 3	4	5	6	6-1/4	7	8	8-5/8	10	10-3/4	11-3/4	12	12-3/4	Span adjustment factor, SAF
9-1/2"	NI-58	0'-7"	1'-0"	2'-10"	4'-5"	5'-0"	---	---	---	---	---	---	---	---	1'-5"
	NI-60s	0'-7"	1'-0"	3'-0"	4'-8"	5'-3"	---	---	---	---	---	---	---	---	1'-6"
	NI-60	0'-7"	1'-0"	3'-2"	4'-11"	5'-6"	---	---	---	---	---	---	---	---	1'-6"
	NI-70	0'-7"	1'-1"	3'-4"	5'-3"	5'-8"	---	---	---	---	---	---	---	---	1'-7"
	NI-80	0'-7"	1'-1"	3'-5"	5'-5"	6'-0"	---	---	---	---	---	---	---	---	1'-8"
11-7/8"	NI-58	0'-7"	0'-8"	1'-5"	2'-8"	3'-0"	4'-0"	5'-3"	---	---	---	---	---	---	1'-5"
	NI-58s	0'-7"	0'-8"	1'-5"	2'-8"	3'-0"	4'-0"	5'-3"	---	---	---	---	---	---	1'-5"
	NI-60s	0'-7"	0'-8"	1'-5"	2'-8"	3'-0"	4'-0"	5'-3"	---	---	---	---	---	---	1'-5"
	NI-60	0'-7"	0'-8"	1'-5"	2'-8"	3'-0"	4'-0"	5'-3"	---	---	---	---	---	---	1'-5"
	NI-70	0'-7"	0'-8"	1'-5"	2'-8"	3'-0"	4'-0"	5'-3"	---	---	---	---	---	---	1'-5"
	NI-80	0'-7"	0'-8"	1'-5"	2'-8"	3'-0"	4'-0"	5'-3"	---	---	---	---	---	---	1'-5"
14"	NI-58	0'-7"	0'-8"	0'-8"	1'-6"	2'-0"	2'-9"	3'-7"	4'-6"	6'-8"	8'-3"	10'-0"	---	---	1'-11"
	NI-58s	0'-7"	0'-8"	0'-8"	1'-6"	2'-0"	2'-9"	3'-7"	4'-6"	6'-8"	8'-3"	10'-0"	---	---	1'-11"
	NI-60s	0'-7"	0'-8"	1'-0"	2'-0"	2'-5"	3'-2"	4'-2"	5'-3"	7'-9"	9'-6"	11'-4"	---	---	1'-11"
	NI-60	0'-7"	0'-8"	1'-0"	2'-0"	2'-5"	3'-2"	4'-2"	5'-3"	7'-9"	9'-6"	11'-4"	---	---	1'-11"
	NI-70	0'-7"	0'-8"	1'-0"	2'-0"	2'-5"	3'-2"	4'-2"	5'-3"	7'-9"	9'-6"	11'-4"	---	---	1'-11"
	NI-80	0'-7"	0'-8"	1'-0"	2'-0"	2'-5"	3'-2"	4'-2"	5'-3"	7'-9"	9'-6"	11'-4"	---	---	1'-11"
16"	NI-58	0'-7"	0'-8"	0'-8"	1'-0"	1'-4"	2'-0"	2'-9"	3'-5"	5'-1"	6'-3"	7'-6"	8'-9"	10'-0"	2'-0"
	NI-58s	0'-7"	0'-8"	0'-8"	1'-0"	1'-4"	2'-0"	2'-9"	3'-5"	5'-1"	6'-3"	7'-6"	8'-9"	10'-0"	2'-0"
	NI-60s	0'-7"	0'-8"	0'-8"	1'-0"	1'-4"	2'-0"	2'-9"	3'-5"	5'-1"	6'-3"	7'-6"	8'-9"	10'-0"	2'-0"
	NI-60	0'-7"	0'-8"	0'-8"	1'-0"	1'-4"	2'-0"	2'-9"	3'-5"	5'-1"	6'-3"	7'-6"	8'-9"	10'-0"	2'-0"
	NI-70	0'-7"	0'-8"	0'-8"	1'-0"	1'-4"	2'-0"	2'-9"	3'-5"	5'-1"	6'-3"	7'-6"	8'-9"	10'-0"	2'-0"
	NI-80	0'-7"	0'-8"	0'-8"	1'-0"	1'-4"	2'-0"	2'-9"	3'-5"	5'-1"	6'-3"	7'-6"	8'-9"	10'-0"	2'-0"

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

OPTIONAL:

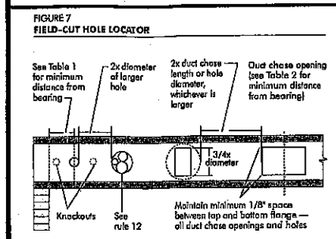
The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Spans tables), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$D_{reduced} = \frac{I_{actual}}{SAF} \times D$$

Where: $D_{reduced}$ = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications. This distance shall not be less than 6 inches from the face of the support to edge of the hole.
I_{actual} = The actual measured span distance between the inside faces of supports (ft).
SAF = Span Adjustment Factor given in this table.
D = The minimum distance from the inside face of any support to centre of hole from this table.

If $\frac{I_{actual}}{SAF}$ is greater than 1, use 1 in the above calculation for $\frac{I_{actual}}{SAF}$.

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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

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

Holes in webs should be cut with a sharp saw.

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

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in.) — Duct chase length (in.) 8	10	12	14	16	18	20	22	24
9-1/2"	NI-58	6'-1"	6'-5"	6'-10"	7'-4"	7'-8"	8'-1"	8'-5"	8'-9"	9'-1"
	NI-58s	6'-1"	6'-5"	6'-10"	7'-4"	7'-8"	8'-1"	8'-5"	8'-9"	9'-1"
	NI-60s	6'-4"	6'-8"	6'-11"	7'-5"	7'-9"	8'-0"	8'-5"	8'-9"	9'-1"
	NI-60	6'-4"	6'-8"	6'-11"	7'-5"	7'-9"	8'-0"	8'-5"	8'-9"	9'-1"
	NI-70	6'-7"	6'-11"	7'-2"	7'-6"	7'-11"	8'-4"	8'-7"	8'-11"	9'-4"
	NI-80	6'-7"	6'-11"	7'-2"	7'-6"	7'-11"	8'-4"	8'-7"	8'-11"	9'-4"
11-7/8"	NI-58	6'-8"	6'-9"	7'-0"	7'-3"	7'-6"	7'-9"	8'-0"	10'-1"	10'-5"
	NI-58s	6'-8"	6'-9"	7'-0"	7'-3"	7'-6"	7'-9"	8'-0"	10'-1"	10'-5"
	NI-60s	7'-2"	7'-4"	7'-6"	7'-8"	8'-0"	8'-3"	8'-6"	10'-7"	10'-11"
	NI-60	7'-2"	7'-4"	7'-6"	7'-8"	8'-0"	8'-3"	8'-6"	10'-7"	10'-11"
	NI-70	7'-5"	7'-7"	7'-9"	8'-0"	8'-3"	8'-6"	8'-9"	10'-11"	11'-3"
	NI-80	7'-5"	7'-7"	7'-9"	8'-0"	8'-3"	8'-6"	8'-9"	10'-11"	11'-3"
14"	NI-58	7'-3"	7'-5"	7'-7"	7'-9"	7'-11"	8'-1"	8'-3"	8'-5"	8'-7"
	NI-58s	7'-3"	7'-5"	7'-7"	7'-9"	7'-11"	8'-1"	8'-3"	8'-5"	8'-7"
	NI-60s	7'-8"	7'-9"	7'-11"	8'-1"	8'-3"	8'-5"	8'-7"	8'-9"	8'-11"
	NI-60	7'-8"	7'-9"	7'-11"	8'-1"	8'-3"	8'-5"	8'-7"	8'-9"	8'-11"
	NI-70	7'-11"	8'-1"	8'-3"	8'-4"	8'-6"	8'-8"	8'-10"	9'-0"	9'-2"
	NI-80	7'-11"	8'-1"	8'-3"	8'-4"	8'-6"	8'-8"	8'-10"	9'-0"	9'-2"
16"	NI-58	7'-9"	7'-11"	8'-1"	8'-3"	8'-5"	8'-7"	8'-9"	8'-11"	9'-1"
	NI-58s	7'-9"	7'-11"	8'-1"	8'-3"	8'-5"	8'-7"	8'-9"	8'-11"	9'-1"
	NI-60s	8'-2"	8'-4"	8'-5"	8'-7"	8'-9"	8'-11"	9'-1"	9'-3"	9'-5"
	NI-60	8'-2"	8'-4"	8'-5"	8'-7"	8'-9"	8'-11"	9'-1"	9'-3"	9'-5"
	NI-70	8'-5"	8'-7"	8'-8"	8'-10"	9'-0"	9'-2"	9'-4"	9'-6"	9'-8"
	NI-80	8'-5"	8'-7"	8'-8"	8'-10"	9'-0"	9'-2"	9'-4"	9'-6"	9'-8"

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span I-joists only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

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

FASTENERS FOR SHEATHING AND SUBFLOORING[1]

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Nail Size and Type — Common Wire or Spiral Nails	Ring Turned Shank Nails or Screws	Staples	Maximum Spacing of Fasteners — Edges	Intermediate Supports
16	5/8	2"	1-3/4"	2"	6"	12"
20	5/8	2"	1-3/4"	2"	6"	12"
24	3/4	2"	1-3/4"	2"	6"	12"

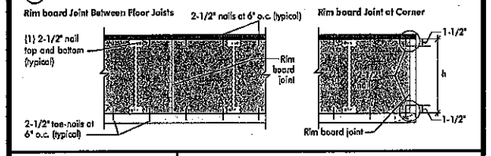
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CSA-O 81.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

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

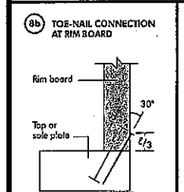
IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

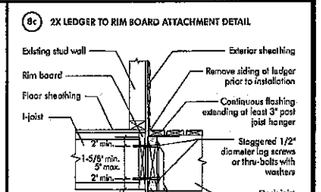
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

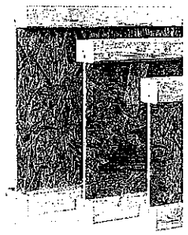


CHANTIERS CHIBOUGAMAU

PRODUCT WARRANTY

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

Furthermore, Chantiers Chibougamau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.



NORDIC STRUCTURES	COMPANY Mar. 25, 2021 15:11	PROJECT J1 GROUND FLOOR

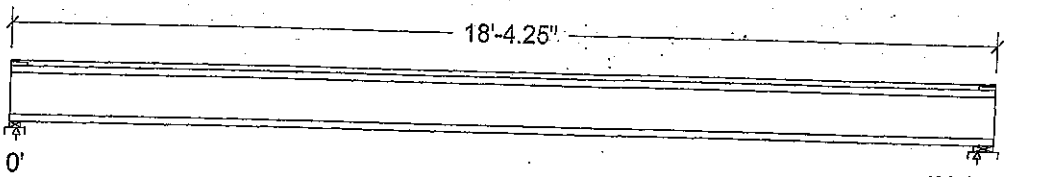
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	179		179
Live	359		359
Factored:			
Total	762		762
Bearing:			
Capacity			
Joist	2102		2336
Support	3981		7744
Des ratio			
Joist	0.36		0.33
Support	0.19		0.10
Load case	#2		#2
Length	2-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.09		1.15

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

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

Total length: 18'-4.25"; Clear span: 17'-9.49"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

DWG NO. TAM 7992-21
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 762	Vr = 2336	lbs	Vf/Vr = 0.33
Moment(+)	Mf = 3418	Mr = 6255	lbs-ft	Mf/Mr = 0.55
Perm. Defl'n	0.12 = < L/999	0.60 = L/360	in	0.20
Live Defl'n	0.24 = L/915	0.45 = L/480	in	0.52
Total Defl'n	0.35 = L/610	0.90 = L/240	in	0.39
Bare Defl'n	0.28 = L/779	0.60 = L/360	in	0.46
Vibration	Lmax = 17'-11.3	Lv = 19'-6.3	ft	0.92
Defl'n	= 0.028	= 0.035	in	0.81

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

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

CALCULATIONS:

EIeff = 443.45 lb-in^2 K= 6.18e06 lbs
"Live" deflection is due to all non-dead loads (live, wind, snow…)

CONFORMS TO OBC 2012
AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM7992-2
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY	PROJECT
Mar. 25, 2021 15:11	J1 SECOND FLOOR

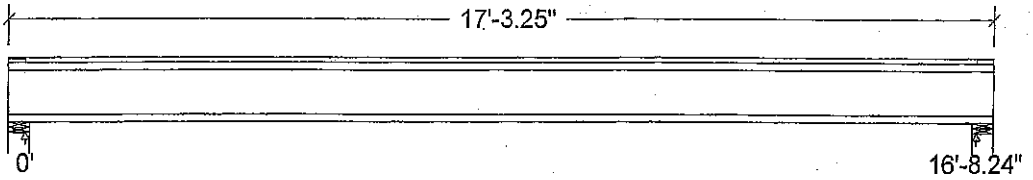
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	222		222
Live	445		445
Factored:			
Total	946		946
Bearing:			
Capacity			
Joist	2336		2336
Support	7744		7744
Des ratio			
Joist	0.40		0.40
Support	0.12		0.12
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

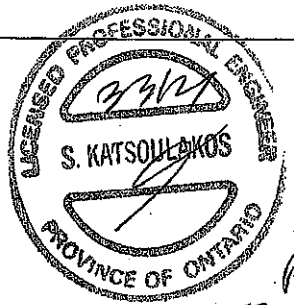
Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

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

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

Total length: 17'-3.25"; Clear span: 16'-6.49"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.



DWG NO. TAM7993-2E
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 946	Vr = 2336	lbs	Vf/Vr = 0.40
Moment(+)	Mf = 3945	Mr = 6255	lbs-ft	Mf/Mr = 0.63
Perm. Defl'n	0.12 = < L/999	0.56 = L/360	in	0.21
Live Defl'n	0.24 = L/846	0.42 = L/480	in	0.57
Total Defl'n	0.36 = L/564	0.83 = L/240	in	0.43
Bare Defl'n	0.28 = L/716	0.56 = L/360	in	0.50
Vibration	Lmax = 16'-8.3	Lv = 17'-8.1	ft	0.94
Defl'n	= 0.032	= 0.038	in	0.83

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

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

CALCULATIONS:

```
EIeff = 447.63 lb-in^2  K=  6.18e06 lbs
"Live" deflection is due to all non-dead loads (live, wind, snow…)
```

CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 7993-21
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES	COMPANY Mar. 25, 2021 15:11	PROJECT J2 GROUND FLOOR

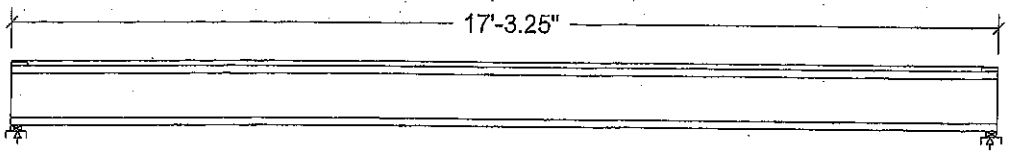
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	227		227
Live	454		454
Factored:			
Total	964		964
Bearing:			
Capacity			
Joist	2102		2102
Support	3981		3981
Des ratio			
Joist	0.46		0.46
Support	0.24		0.24
Load case	#2		#2
Length	2-3/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.09		1.09

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

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

Total length: 17'-3.25"; Clear span: 16'-10.49"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM-2994-21
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 964	Vr = 2336	lbs	Vf/Vr = 0.41
Moment(+)	Mf = 4104	Mr = 6255	lbs-ft	Mf/Mr = 0.66
Perm. Defl'n	0.12 = < L/999	0.57 = L/360	in	0.22
Live Defl'n	0.25 = L/820	0.43 = L/480	in	0.59
Total Defl'n	0.37 = L/546	0.85 = L/240	in	0.44
Bare Defl'n	0.30 = L/677	0.57 = L/360	in	0.53
Vibration	Lmax = 17'-0.3	Lv = 18'-1.3	ft	0.94
Defl'n	= 0.031	= 0.037	in	0.82

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

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

CALCULATIONS:

```
EIeff = 459.76 lb-in^2  K=  6.18e06 lbs
"Live" deflection is due to all non-dead loads (live, wind, snow...)
```

CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 7994-21
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES	COMPANY Mar. 25, 2021 15:12	PROJECT J6 GROUND FLOOR

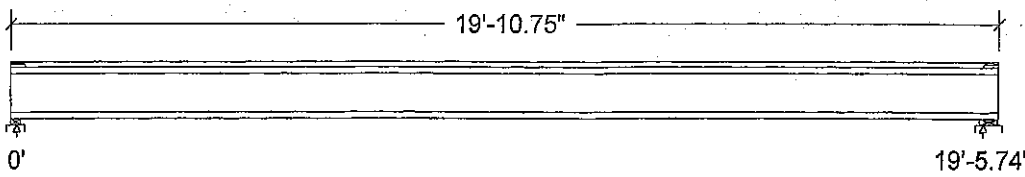
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	195		195
Live	390		390
Factored:			
Total	828		828
Bearing:			
Capacity			
Joist	2188		2336
Support	5573		10841
Des ratio			
Joist	0.38		0.35
Support	0.15		0.08
Load case	#2		#2
Length	2-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.09		1.15

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

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

Total length: 19'-10.75"; Clear span: 19'-3.99"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 2995-21
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 828	Vr = 2336	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 4031	Mr = 11609	lbs-ft	Mf/Mr = 0.35
Perm. Defl'n	0.12 = < L/999	0.65 = L/360	in	0.18
Live Defl'n	0.24 = L/987	0.49 = L/480	in	0.49
Total Defl'n	0.35 = L/658	0.97 = L/240	in	0.36
Bare Defl'n	0.27 = L/877	0.65 = L/360	in	0.41
Vibration	Lmax = 19'-5.8	Lv = 21'-2.7	ft	0.92
Defl'n	= 0.027	= 0.033	in	0.81

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

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

CALCULATIONS:

EIeff = 625.37 lb-in^2 K= 6.18e06 lbs
"Live" deflection is due to all non-dead loads (live, wind, snow...) CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. YAM 7995-2L
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Mar. 25, 2021 15:12

PROJECT
J6 SECOND FLOOR

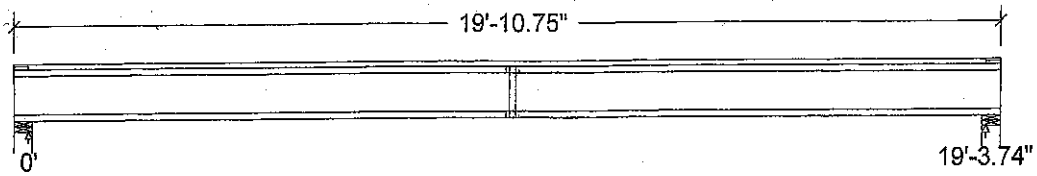
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	193		193
Live	386		386
Factored:			
Total	821		821
Bearing:			
Capacity			
Joist	2336		2336
Support	10841		10841
Des ratio			
Joist	0.35		0.35
Support	0.08		0.08
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

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

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

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

Total length: 19'-10.75"; Clear span: 19'-1.99"; 5/8" nailed and glued OSB sheathing with 1 row of blocking and 1/2" gypsum ceiling

This section PASSES the design code check.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. YAM 2996-2L
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 821	Vr = 2336	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 3963	Mr = 11609	lbs-ft	Mf/Mr = 0.34
Perm. Defl'n	0.12 = < L/999	0.64 = L/360	in	0.18
Live Defl'n	0.23 = L/994	0.48 = L/480	in	0.48
Total Defl'n	0.35 = L/662	0.97 = L/240	in	0.36
Bare Defl'n	0.26 = L/898	0.64 = L/360	in	0.40
Vibration	Lmax = 19'-3.8	Lv = 23'-5.6	ft	0.82
Defl'n	= 0.021	= 0.033	in	0.65

Additional Data:

FACTORS:

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

CRITICAL LOAD COMBINATIONS:

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

CALCULATIONS:

EIeff = 613.27 lb-in^2 K= 6.18e06 lbs
"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012 AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

pg 2

DWG NO. TAM 2996-21
STRUCTURAL
COMPONENT ONLY

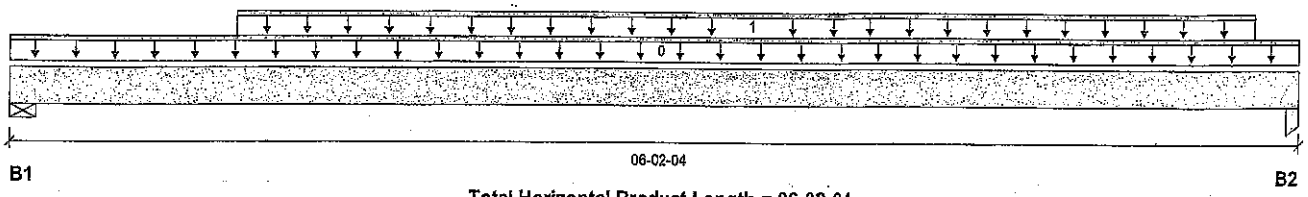
Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B1(I3774) (Flush Beam)

BC CALC® Member Report
Build 7773
Dry | 1 span | No cant.
March 24, 2021 16:48:25

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B1(I3774)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 06-02-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	21 / 0	29 / 0		
B2, 3-1/2"	28 / 0	33 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-02-04	Top		6			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	01-01-00	05-11-10	Top	10	5			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	115 ft-lbs	17696 ft-lbs	0.7%	1	03-01-13
End Shear	58 lbs	7232 lbs	0.8%	1	01-03-06
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	03-01-02
Live Load Deflection	L/999 (0")	n\a	n\a	5	03-01-02
Max Defl.	0.001"	n\a	n\a	4	03-01-02
Span / Depth	5.8				

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	68 lbs	1.8%	0.9%	Spruce-Pine-Fir
B2	Column	3-1/2" x 1-3/4"	84 lbs	1.7%	1.1%	Unspecified

DWG NO. YAM 7997-2L
STRUCTURAL
COMPONENT ONLY

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-07-08, Bottom: 05-06-02.

CONFORMS TO OBC 2012
AMENDED 2020

Disclosure

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

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

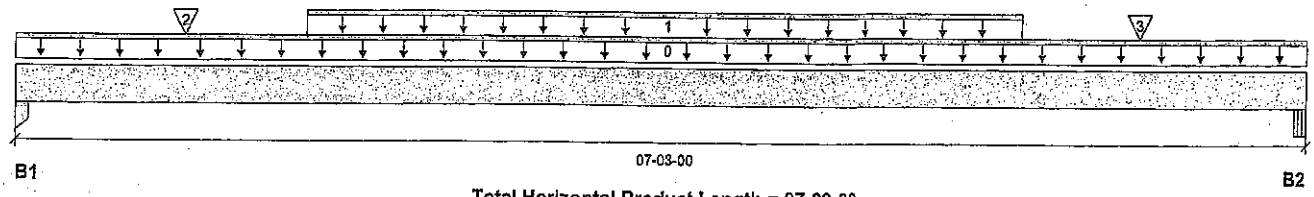
1ST FLR FRAMING\Flush Beams\B2(i4606) (Flush Beam)

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 24, 2021 16:48:26

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B2(i4606)
Specifier:
Designer: EEO
Company:



Total Horizontal Product Length = 07-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	824 / 0	433 / 0		
B2, 2-5/8"	799 / 0	421 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-03-00	Top		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-07-08	05-07-08	Top	247	123			n\a
2	J5(i4476)	Conc. Pt. (lbs)	L	00-11-08	00-11-08	Top	345	173			n\a
3	J5(i4603)	Conc. Pt. (lbs)	L	06-03-08	06-03-08	Top	289	145			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3355 ft-lbs	17696 ft-lbs	19.0%	1	03-07-08
End Shear	1637 lbs	7232 lbs	22.6%	1	01-01-10
Total Load Deflection	L/999 (0.042")	n\a	n\a	4	03-06-08
Live Load Deflection	L/999 (0.028")	n\a	n\a	5	03-06-08
Max Defl.	0.042"	n\a	n\a	4	03-06-08
Span / Depth	7.1				

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PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 1-3/4"	1777 lbs	71.4%	47.5%	Unspecified
B2	Beam	2-5/8" x 1-3/4"	1724 lbs	70.3%	30.8%	Unspecified

DWG NO. TAM 799B-21
STRUCTURAL
COMPONENT ONLY

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
CONFORMS TO OBC 2012
Resistance Factor phi has been applied to all presented results per CSA O86.
AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

Disclosure

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

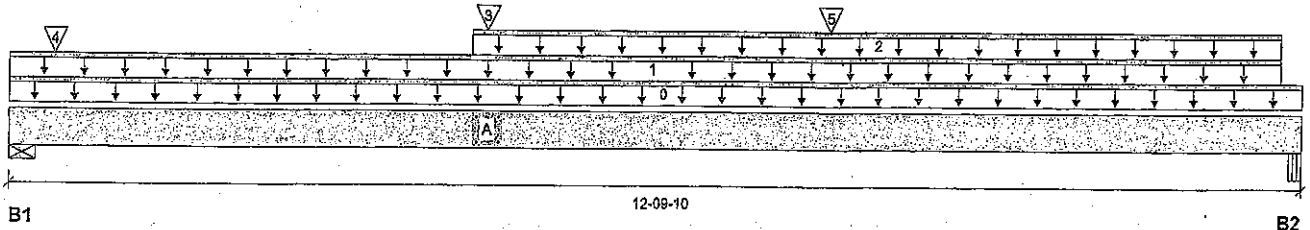
1ST FLR FRAMING\Flush Beams\B3(i4565) (Flush Beam)

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 24, 2021 16:48:26

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B3(i4565)
Specifier:
Designer: EEO
Company:



Total Horizontal Product Length = 12-09-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 10-1/2"	1092 / 0	999 / 0		
B2, 5-1/4"	672 / 0	540 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-09-10	Top		12			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	12-07-00	Top	6	3			n\a
2	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-06-08	12-07-00	Top	22	11			n\a
3	B4(i4605)	Conc. Pt. (lbs)	L	04-08-04	04-08-04	Top	1309	1042			n\a
4	-	Conc. Pt. (lbs)	L	00-05-07	00-05-07	Top	69	150			n\a
5	STAIR	Conc. Pt. (lbs)	L	08-00-08	08-00-08	Top	132	66			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9744 ft-lbs	35392 ft-lbs	27.5%	1	04-08-04
End Shear	2539 lbs	14464 lbs	17.6%	1	01-10-06
Total Load Deflection	L/952 (0.146")	n\a	25.2%	4	06-03-00
Live Load Deflection	L/999 (0.081")	n\a	n\a	5	06-03-00
Max Defl.	0.146"	n\a	n\a	4	06-03-00
Span / Depth	11.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	10-1/2" x 3-1/2"	2887 lbs	12.8%	6.4%	Spruce-Pine-Fir
B2	Beam	5-1/4" x 3-1/2"	1683 lbs	17.2%	7.5%	Unspecified

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 7999-21
STRUCTURAL
COMPONENT ONLY

CONFORMS TO OBC 2012
AMENDED 2020

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 04-02-12.

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

1ST FLR FRAMING\Flush Beams\B3(I4565) (Flush Beam)

Dry | 1 span | No cant.

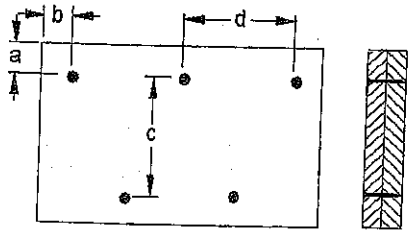
PASSED

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

March 24, 2021 16:48:26

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdi
Description: 1ST FLR FRAMING\Flush Beams\B3(I4565)
Specifier:
Designer: EEO
Company:

Connection Diagram: Full Length of Member

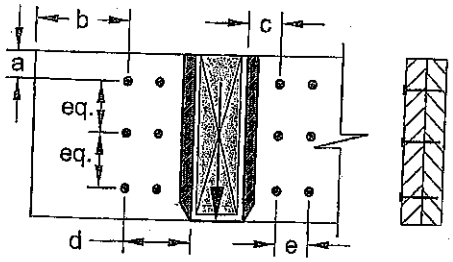


a minimum = 2"
b minimum = 3"
c = 7-7/8"
d = 8"

Connectors are: 1 Nails
3-1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 7



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"
e minimum = 4"
Connectors are: 1
Nails
3-1/2" ARDOX SPIRAL

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

OWN NO. TAM 7999-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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

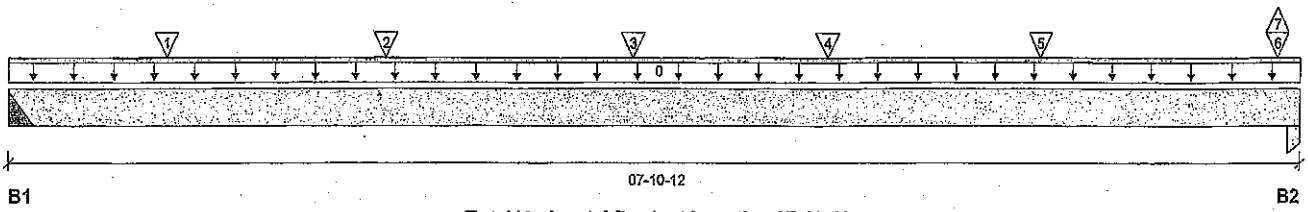
Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B4(i4605) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 24, 2021 16:48:26
Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B4(i4605)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 07-10-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1363 / 0	1082 / 0		
B2, 3-1/2"	1106 / 1	972 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-10-12	Top		12			00-00-00
1	J6(i4621)	Conc. Pt. (lbs)	L	00-11-08	00-11-08	Top	369	185			n\a
2	J6(i4454)	Conc. Pt. (lbs)	L	02-03-08	02-03-08	Top	404	202			n\a
3	-	Conc. Pt. (lbs)	L	03-09-06	03-09-06	Top	1155	1256			n\a
4	J6(i4637)	Conc. Pt. (lbs)	L	04-11-08	04-11-08	Top	220	110			n\a
5	J6(i4457)	Conc. Pt. (lbs)	L	06-03-08	06-03-08	Top	240	120			n\a
6	B5(i4614)	Conc. Pt. (lbs)	L	07-09-00	07-09-00	Top	81	86			n\a
7	B5(i4614)	Conc. Pt. (lbs)	L	07-09-00	07-09-00	Top	-1				n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8254 ft-lbs	35392 ft-lbs	23.3%	1	03-09-14
End Shear	3087 lbs	14464 lbs	21.3%	1	01-03-14
Total Load Deflection	L/999 (0.053")	n\a	n\a	6	03-10-12
Live Load Deflection	L/999 (0.028")	n\a	n\a	8	03-10-12
Max Defl.	0.053"	n\a	n\a	6	03-10-12
Span / Depth	7.5				

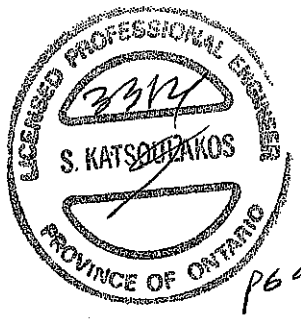
Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	3396 lbs	n\a	19.9%	HGUS412
B2	Column	3-1/2" x 3-1/2"	2875 lbs	28.9%	19.2%	Unspecified

Cautions

Header for the hanger HGUS412 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity. ok



P6 4/4

DWG NO. TAM 8000-2L
STRUCTURAL
COMPONENT ONLY

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

PASSED

1ST FLR FRAMING\Flush Beams\B4(i4605) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26

Build 7773

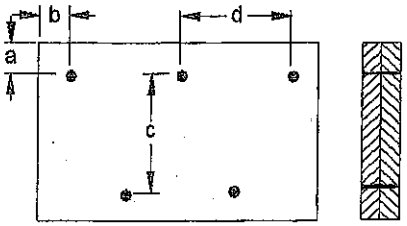
Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B4(i4605)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-02-08.

CONFORMS TO OBC 2012
AMENDED 2020

Connection Diagram: Full Length of Member



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

Calculated Side Load = 783.4 lb/ft
Connectors are: 16d [illegible] Nails
3-1/2" ARDOX SPIRAL

BWG NO. TAM 8000-2L
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

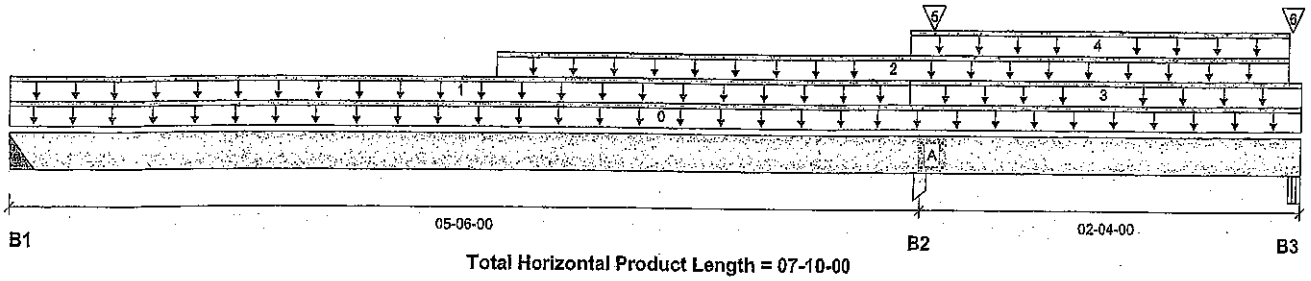
1ST FLR FRAMING\Flush Beams\B5(i4614) (Flush Beam)

Dry | 2 spans | No cant.

March 24, 2021 16:48:26

BC CALC® Member Report
Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B5(i4614)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 07-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	75 / 2	85 / 0		
B2, 3-1/2"	1945 / 0	1344 / 0		
B3, 3-5/8"	2867 / 39	1727 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-10-00	Top		12			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	05-05-02	Top	32	16			n\a
2	WALL	Unf. Lin. (lb/ft)	L	02-11-00	07-09-00	Top		60			n\a
3	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	05-05-02	07-10-00	Top	24				n\a
4	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	05-05-02	07-09-00	Top	29	15			n\a
5	B6(i4371)	Conc. Pt. (lbs)	L	05-06-14	05-06-14	Top	1741	934			n\a
6	4(i633)	Conc. Pt. (lbs)	L	07-09-04	07-09-04	Top	2805	1688			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	256 ft-lbs	35392 ft-lbs	0.7%	2	02-07-12
Neg. Moment	-349 ft-lbs	-30458 ft-lbs	1.1%	1	05-06-00
End Shear	115 lbs	9401 lbs	1.2%	0	06-06-08
Cont. Shear	174 lbs	9401 lbs	1.9%	0	04-04-06
Total Load Deflection	L/999 (0.001")	n\a	n\a	9	02-07-12
Live Load Deflection	L/999 (0")	n\a	n\a	12	02-07-02
Total Neg. Defl.	L/999 (0")	n\a	n\a	9	06-03-08
Max Defl.	0.001"	n\a	n\a	9	02-07-12
Span / Depth	5.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2-1/2" x 3-1/2"	219 lbs	n\a	2.0%	HUC41@
B2	Column	3-1/2" x 3-1/2"	4597 lbs	46.2%	30.8%	Unspecified
B3	Beam	3-5/8" x 3-1/2"	6460 lbs	95.4%	41.7%	Unspecified

Cautions

Header for the hanger HUC41@ is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC41@ and seat length were input by the user. Hanger has not been analyzed for adequate capacity. ok

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

P6/4

UWO NO. YAM 8001-21
STRUCTURAL
COMPONENT ONLY

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

PASSED

1ST FLR FRAMING\Flush Beams\B5(i4614) (Flush Beam)

BC CALC® Member Report — Dry | 2 spans | No cant. — March 24, 2021 16:48:26

Build 7773

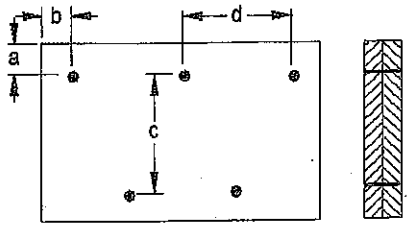
Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B5(i4614)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 05-05-02.

CONFORMS TO OBC 2012
AMENDED 2020

Connection Diagram: Full Length of Member



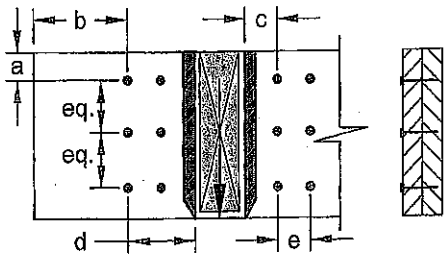
a minimum = 2" c = 7-7/8"
b minimum = 3" d = [illegible] 8"

Connectors are: [illegible] Nails
3-1/2" ARDOX SPIRAL

DWG NO. YAM 8001-2L
STRUCTURAL
COMPONENT ONLY

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 5



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"
e minimum = 4"
Connectors are: 16d [illegible] Nails
3-1/2" ARDOX SPIRAL

Disclosure

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

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

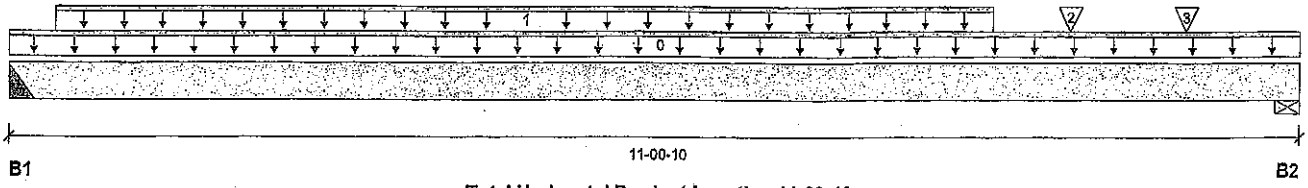
PASSED

1ST FLR FRAMING\Flush Beams\B6(I4371) (Flush Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN:mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B6(I4371)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 11-00-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1782 / 0	956 / 0		
B2, 2-3/8"	1746 / 0	938 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-00-10	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-12	08-04-12	Top	344	171			n\a
2	J2(i4465)	Conc. Pt. (lbs)	L	09-00-12	09-00-12	Top	401	201			n\a
3	J2(i4562)	Conc. Pt. (lbs)	L	10-00-12	10-00-12	Top	379	189			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	10595 ft-lbs	35392 ft-lbs	29.9%	1	05-00-12
End Shear	3613 lbs	14464 lbs	25.0%	1	09-10-06
Total Load Deflection	L/816 (0.157")	n\a	29.4%	4	05-06-12
Live Load Deflection	L/999 (0.102")	n\a	n\a	5	05-06-12
Max Defl.	0.157"	n\a	n\a	4	05-06-12
Span / Depth	10.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	3868 lbs	n\a	22.6%	HGUS41@
B2	Wall/Plate	2-3/8" x 3-1/2"	3792 lbs	74.1%	37.4%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS41@ is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS41@ and seat length were input by the user. Hanger has not been analyzed for adequate capacity. ok

Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012
AMENDED 2020

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 8002-21
STRUCTURAL
COMPONENT ONLY

Boise Cascade ENGINEERED WOOD PRODUCTS

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

PASSED

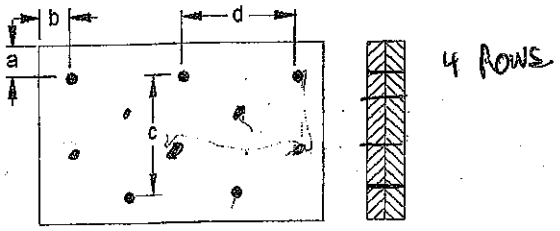
1ST FLR FRAMING\Flush Beams\B6(i4371) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	1ST FLR FRAMING\Flush Beams\B6(i4371)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	

Connection Diagram: Full Length of Member



4 Rows

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

Calculated Side Load = 974.8 lb/ft
Connectors are: 1 .. Nails
3-1/2" ARDOX SPIRAL

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 8002-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

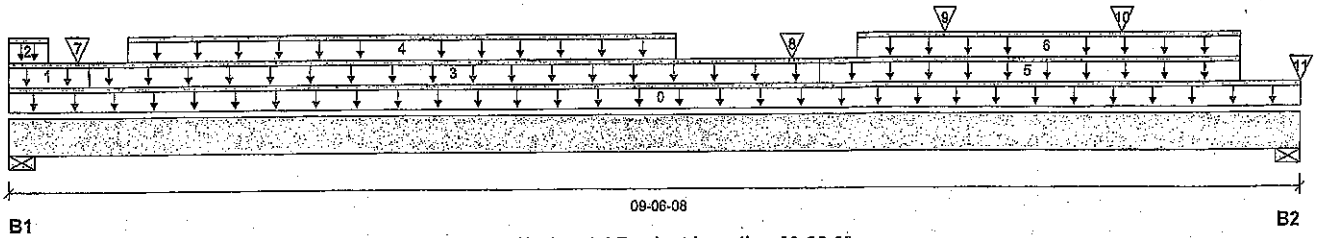
PASSED

2ND FLR FRAMING\Dropped Beams\B15 DR(i4122) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B15 DR(i4122)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 09-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	797 / 0	944 / 0	214 / 0	
B2, 9-1/2"	907 / 0	1033 / 0	226 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-06-08	Top		12			00-00-00
1	R1(i4109)	Unf. Lin. (lb/ft)	L	00-00-00	00-07-00	Top		81			n\a
2	R1(i4109)	Unf. Lin. (lb/ft)	L	00-00-00	00-03-08	Top			46		n\a
3	R1(i4109)	Unf. Lin. (lb/ft)	L	00-07-00	05-11-00	Top		61			n\a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-08	04-10-08	Top	215	107			n\a
5	R1(i4109)	Unf. Lin. (lb/ft)	L	05-11-00	09-01-00	Top		81			n\a
6	R1(i4109)	Unf. Lin. (lb/ft)	L	06-02-08	09-01-00	Top		28	46		n\a
7	R1(i4109)	Conc. Pt. (lbs)	L	00-06-00	00-06-00	Top		128	137		n\a
8	-	Conc. Pt. (lbs)	L	05-08-09	05-08-09	Top	286	270	136		n\a
9	J4(i3755)	Conc. Pt. (lbs)	L	06-10-08	06-10-08	Top	286	143			n\a
10	J4(i3749)	Conc. Pt. (lbs)	L	08-02-08	08-02-08	Top	265	133			n\a
11	R1(i4068)	Conc. Pt. (lbs)	L	09-06-08	09-06-08	Top		30	21		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5471 ft-lbs	35392 ft-lbs	15.5%	1	04-08-08
End Shear	2266 lbs	14464 lbs	15.7%	1	07-09-02
Total Load Deflection	L/999 (0.054")	n\a	n\a	35	04-08-08
Live Load Deflection	L/999 (0.029")	n\a	n\a	51	04-08-08
Max Defl.	0.054"	n\a	n\a	35	04-08-08
Span / Depth	8.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5" x 3-1/2"	2590 lbs	18.2%	12.1%	Unspecified
B2	Wall/Plate	9-1/2" x 3-1/2"	2877 lbs	10.7%	7.1%	Unspecified

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM8003-21
STRUCTURAL
COMPONENT ONLY

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

PASSED

2ND FLR FRAMING\Dropped Beams\B15 DR(i4122) (Dropped Beam)

Dry | 1 span | No cant.

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

March 24, 2021 16:48:26

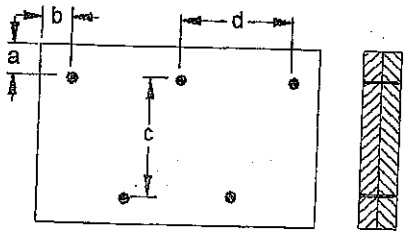
File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B15 DR(i4122)
Specifier:
Designer: EEO
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 01-02-05, Bottom: 09-01-00.

CONFORMS TO OBC 2012
AMENDED 2020

Connection Diagram: Full Length of Member



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

Connectors are: 1 - [illegible]. Nails
3-1/2" ARDOX SPIRAL

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 8003-2L
STRUCTURAL
COMPONENT ONLY

Disclosure

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

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

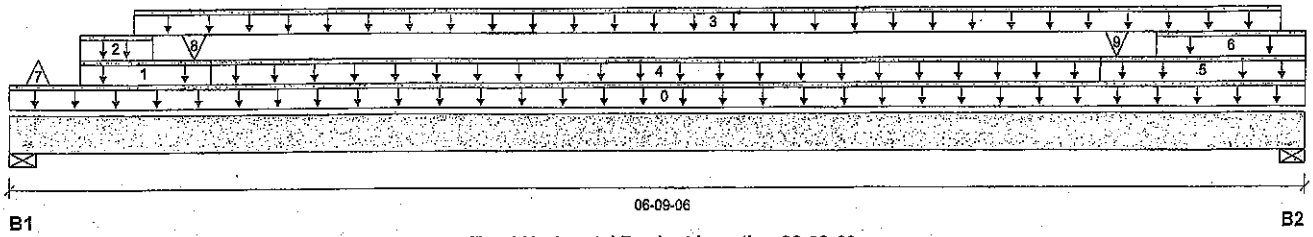
PASSED

2ND FLR FRAMING\Dropped Beams\B18 DR(i3224) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B18 DR(i3224)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 06-09-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1046 / 1234	1099 / 0	1474 / 0	
B2, 4"	1196 / 0	1902 / 0	1625 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-09-06	Top		12			00-00-00
1	R1(i3293)	Unf. Lin. (lb/ft)	L	00-04-06	01-00-06	Top		81			n\a
2	R1(i3293)	Unf. Lin. (lb/ft)	L	00-04-06	00-08-14	Top		294	483		n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-12	06-07-12	Top	370	185			n\a
4	R1(i3293)	Unf. Lin. (lb/ft)	L	01-00-06	05-08-06	Top		61			n\a
5	R1(i3293)	Unf. Lin. (lb/ft)	L	05-08-06	06-09-06	Top		81			n\a
6	R1(i3293)	Unf. Lin. (lb/ft)	L	05-11-14	06-09-06	Top		294	483		n\a
7	J8(i3562)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	-1234	-600			n\a
8	R1(i3293)	Conc. Pt. (lbs)	L	00-11-06	00-11-06	Top		815	1274		n\a
9	R1(i3293)	Conc. Pt. (lbs)	L	05-09-06	05-09-06	Top		807	1262		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5949 ft-lbs	35392 ft-lbs	16.8%	1	03-01-12
End Shear	4222 lbs	14464 lbs	29.2%	25	05-05-08
Total Load Deflection	L/999 (0.034")	n\a	n\a	58	03-04-12
Live Load Deflection	L/999 (0.02")	n\a	n\a	85	03-04-12
Max Defl.	0.034"	n\a	n\a	58	03-04-12
Span / Depth	6.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	4630 lbs	22.7%	24.8%	Spruce-Pine-Fir
B1	Uplift		862 lbs			
B2	Wall/Plate	4" x 3-1/2"	6011 lbs	32.2%	35.2%	Spruce-Pine-Fir

Cautions

Uplift of 862 lbs found at bearing B1. (Simpson 2-H2.5A @ AB1) ok

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

BCIN NO. TAM 8004-21
STRUCTURAL COMPONENT ONLY

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

PASSED

2ND FLR FRAMING\Dropped Beams\B18 DR(i3224) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26
Build 7773

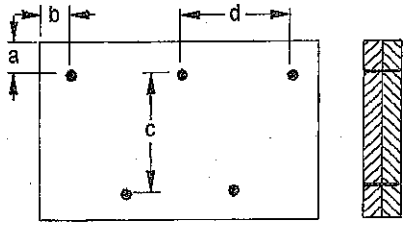
Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B18 DR(i3224)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-09-10, Bottom: 06-05-00.

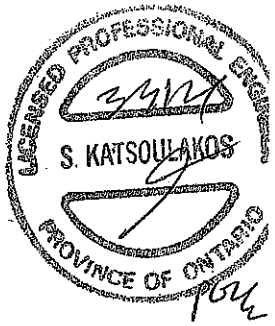
CONFORMS TO OBC 2012
AMENDED 2020

Connection Diagram: Full Length of Member



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

Connectors are: 1 Nails
3-1/2" ARDOX SPIRAL



BWG NO. TAM 8004.21
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade® ENGINEERED WOOD PRODUCTS

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

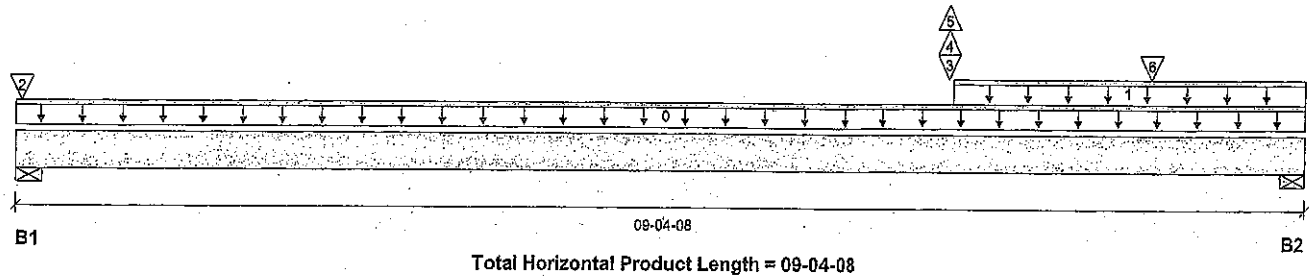
PASSED

2ND FLR FRAMING\Dropped Beams\B19 DR(i4072) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B19 DR(i4072)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 09-04-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 7-1/2"	77 / 72	115 / 0	54 / 0	
B2, 5"	410 / 167	454 / 0	201 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-08	Top		12			00-00-00
1	R1(i4109)	Unf. Lin. (lb/ft)	L	06-09-08	09-04-08	Top		109	46		n\a
2	R1(i3628)	Conc. Pt. (lbs)	L	00-00-08	00-00-08	Top		11			n\a
3	-	Conc. Pt. (lbs)	L	06-09-01	06-09-01	Top	200	97	136		n\a
4	-	Conc. Pt. (lbs)	L	06-09-01	06-09-01	Top		-76			n\a
5	-	Conc. Pt. (lbs)	L	06-09-01	06-09-01	Top	-239				n\a
6	J4(i3755)	Conc. Pt. (lbs)	L	08-03-00	08-03-00	Top	286	143			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1517 ft-lbs	28761 ft-lbs	5.3%	1	06-11-00
Neg. Moment	-309 ft-lbs	-21325 ft-lbs	1.5%	24	06-05-12
End Shear	933 lbs	14464 lbs	6.5%	1	07-11-10
Total Load Deflection	L/999 (0.013")	n\a	n\a	58	05-03-02
Live Load Deflection	L/999 (0.008")	n\a	n\a	85	05-04-01
Max Defl.	0.013"	n\a	n\a	58	05-03-02
Span / Depth	8.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	7-1/2" x 3-1/2"	315 lbs	1.5%	1.0%	Unspecified
B2	Wall/Plate	5" x 3-1/2"	1383 lbs	5.9%	6.5%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 06-03-08, Bottom: 09-04-00.

CONFORMS TO OBC 2012
AMENDED 2020

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

BWB NO. TAM 8005-21
STRUCTURAL
COMPONENT ONLY

Boise Cascade ENGINEERED WOOD PRODUCTS

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

PASSED

2ND FLR FRAMING\Dropped Beams\B19 DR(i4072) (Dropped Beam)

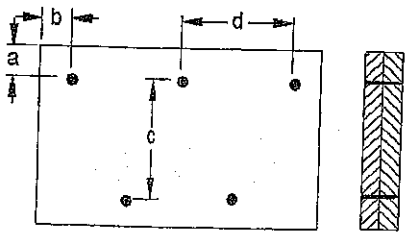
Dry | 1 span | No cant.

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

March 24, 2021 16:48:26

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B19 DR(i4072)
Specifier:
Designer: EEO
Company:

Connection Diagram: Full Length of Member



a minimum = 2" c = 7-7/8"
b minimum = 3" d = [illegible] 0"

Connectors are: [illegible] 1 [illegible] n Nails
3-1/2" ARDOX SPIRAL

DWG NO. TAM 8005-2L
STRUCTURAL
COMPONENT ONLY

Disclosure

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

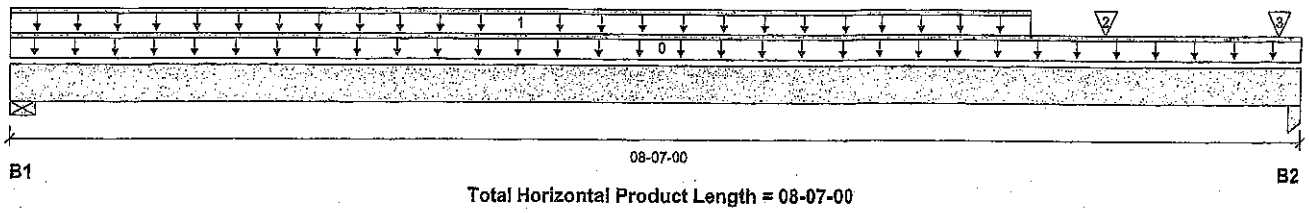
PASSED

2ND FLR FRAMING\Dropped Beams\B8 DR(i3521) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B8 DR(i3521)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 08-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1827 / 0	965 / 0		
B2, 3-1/2"	3320 / 0	1762 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-07-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	06-09-00	Top	407	203			n\a
2	J7(I3659)	Conc. Pt. (lbs)	L	07-03-00	07-03-00	Top	368	184			n\a
3	-	Conc. Pt. (lbs)	L	08-05-03	08-05-03	Top	1950	1025			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7205 ft-lbs	35392 ft-lbs	20.4%	1	04-03-00
End Shear	3076 lbs	14464 lbs	21.3%	1	07-03-10
Total Load Deflection	L/999 (0.061")	n\a	n\a	4	04-03-00
Live Load Deflection	L/999 (0.04")	n\a	n\a	5	04-03-00
Max Defl.	0.061"	n\a	n\a	4	04-03-00
Span / Depth	8.2				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	3946 lbs	24.1%	26.4%	Spruce-Pine-Fir
B2	Column	3-1/2" x 3-1/2"	7183 lbs	72.2%	48.1%	Unspecified

Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012
AMENDED 2020

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

PEG NO. FAM 80062 21
STRUCTURAL
COMPONENT ONLY

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

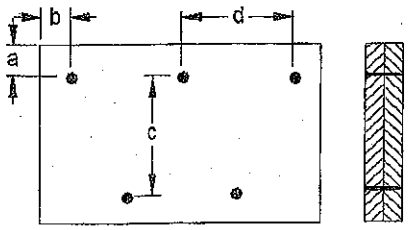
PASSED

2ND FLR FRAMING\Dropped Beams\B8 DR(i3521) (Dropped Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26
Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Dropped Beams\B8 DR(i3521)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 7-7/8"
d = 20' 0"

Connectors are: 1 Nails
3-1/2" ARDOX SPIRAL

DWG NO. YAM 8006-2 L
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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

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

PASSED

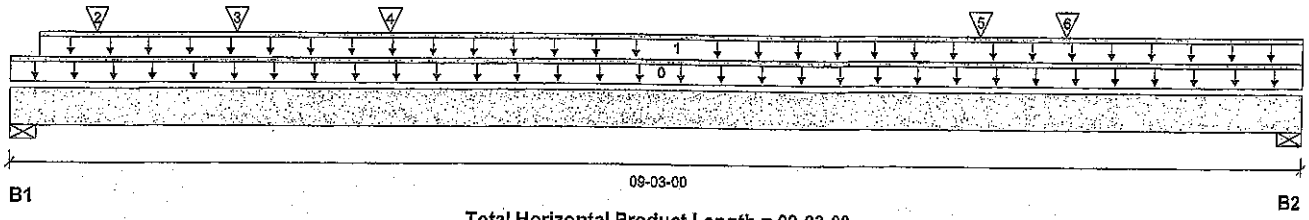
2ND FLR FRAMING\Dropped Beams\B9 DR(i4642) (Dropped Beam)

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 24, 2021 16:48:26

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B9 DR(i4642)
Specifier:
Designer: EEO
Company:



Total Horizontal Product Length = 09-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	2248 / 0	1268 / 0		
B2, 4"	2028 / 0	1289 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-03-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-08	09-03-00	Top	324	162			n\a
2	J7(i3579)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Top	389	195			n\a
3	J7(i3579)	Conc. Pt. (lbs)	L	01-07-08	01-07-08	Top	389	195			n\a
4	-	Conc. Pt. (lbs)	L	02-08-07	02-08-07	Top	348	210			n\a
5	B12(i4641)	Conc. Pt. (lbs)	L	06-11-00	06-11-00	Top	55	298			n\a
6	J6(i4314)	Conc. Pt. (lbs)	L	07-06-08	07-06-08	Top	162	81			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8599 ft-lbs	35392 ft-lbs	24.3%	1	03-06-08
End Shear	4124 lbs	14464 lbs	28.5%	1	01-02-14
Total Load Deflection	L/999 (0.09")	n\a	n\a	4	04-06-08
Live Load Deflection	L/999 (0.055")	n\a	n\a	5	04-06-08
Max Defl.	0.09"	n\a	n\a	4	04-06-08
Span / Depth	8.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3" x 3-1/2"	4958 lbs	35.4%	38.7%	Spruce-Pine-Fir
B2	Wall/Plate	4" x 3-1/2"	4653 lbs	24.9%	27.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 01-02-12, Bottom: 09-03-00.

CONFORMS TO OBC 2012
AMENDED 2020

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM8607-21
STRUCTURAL
COMPONENT ONLY

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

2ND FLR FRAMING\Dropped Beams\B9 DR(i4642) (Dropped Beam)

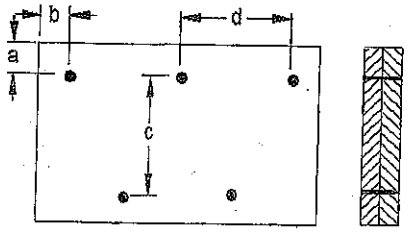
Dry | 1 span | No cant.

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

March 24, 2021 16:48:26

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B9 DR(i4642)
Specifier:
Designer: EEO
Company:

Connection Diagram: Full Length of Member



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

Connectors are: [illegible] Nails

3-1/2" ARDOX SPIRAL

LICENSED PROFESSIONAL ENGINEER
S. KATSOULIDIS
PROVINCE OF ONTARIO

DWG NO. TAM 8007-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

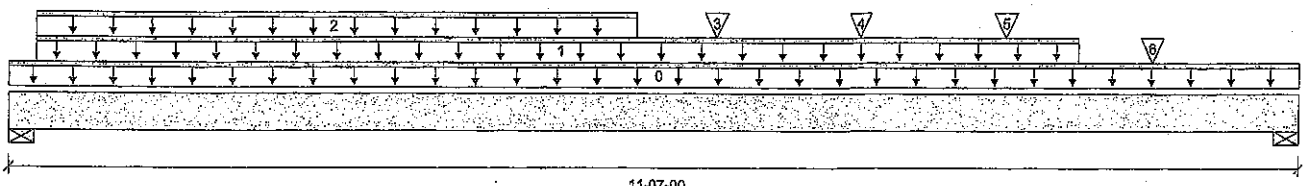
PASSED

2ND FLR FRAMING\Flush Beams\B10(i4643) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B10(i4643)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 11-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2740 / 0	1644 / 0		
B2, 5-1/2"	2820 / 0	1757 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-07-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-00	09-07-00	Top	291	146			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-00	05-07-00	Top	162	81			n\a
3	B14 A(i4644)	Conc. Pt. (lbs)	L	06-03-08	06-03-08	Top	694	803			n\a
4	J3(i4065)	Conc. Pt. (lbs)	L	07-07-00	07-07-00	Top	314	157			n\a
5	J3(i4108)	Conc. Pt. (lbs)	L	08-11-00	08-11-00	Top	319	159			n\a
6	-	Conc. Pt. (lbs)	L	10-03-00	10-03-00	Top	654	327			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	19730 ft-lbs	35392 ft-lbs	55.7%	1	06-03-08
End Shear	6213 lbs	14464 lbs	43.0%	1	10-01-10
Total Load Deflection	L/441 (0.298")	n\a	54.4%	4	05-09-00
Live Load Deflection	L/724 (0.182")	n\a	49.7%	5	05-09-00
Max Defl.	0.298"	n\a	n\a	4	05-09-00
Span / Depth	11.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	6165 lbs	81.8%	41.3%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	6426 lbs	54.3%	27.4%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012
AMENDED 2020

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

P614

DWG NO. TAM 8808-21
STRUCTURAL
COMPONENT ONLY

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

2ND FLR FRAMING\Flush Beams\B10(i4643) (Flush Beam)

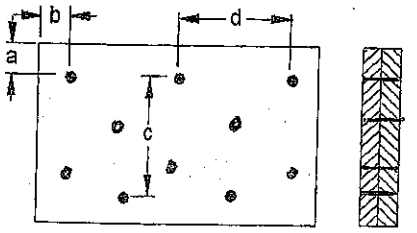
Dry | 1 span | No cant.

March 24, 2021 16:48:26

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B10(i4643)
Specifier:
Designer: EEO
Company:

Connection Diagram: Full Length of Member



4 ROWS.

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

Calculated Side Load = 1356.0 lb/ft
Connectors are: 16d [illegible] Nails

3-1/2" ARDOX SPIRAL

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. FAM8008-2L
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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

PASSED

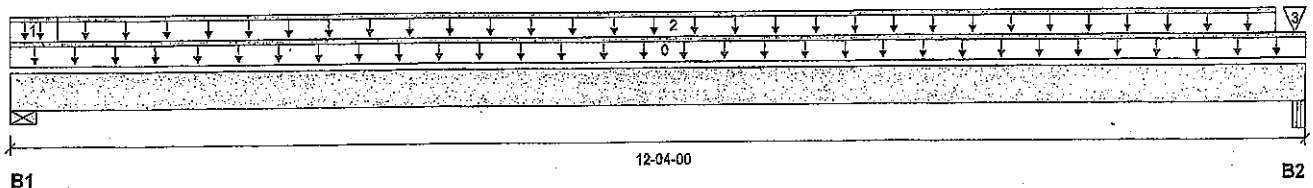
2ND FLR FRAMING\Flush Beams\B11(i3529) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 16:48:26

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B11(i3529)
Specifier:
Designer: EEO
Company:



Total Horizontal Product Length = 12-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	54 / 0	65 / 0		
B2, 3-1/2"	55 / 0	64 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-04-00	Top		6			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	00-05-08	Top	7	4			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-05-08	12-00-08	Top	9	4			n\a
3	-	Conc. Pt. (lbs)	L	12-02-11	12-02-11	Top	3	1			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	448 ft-lbs	17696 ft-lbs	2.5%	1	06-03-00
End Shear	125 lbs	7232 lbs	1.7%	1	01-05-06
Total Load Deflection	L/999 (0.017")	n\a	n\a	4	06-03-00
Live Load Deflection	L/999 (0.008")	n\a	n\a	5	06-03-00
Max Defl.	0.017"	n\a	n\a	4	06-03-00
Span / Depth	11.8				

DWG NO. TAM8029 -2L
STRUCTURAL
COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	162 lbs	2.7%	1.4%	Spruce-Pine-Fir
B2	Beam	3-1/2" x 1-3/4"	162 lbs	2.2%	2.2%	VL 2.0 3100 SP

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 11-07-00.

CONFORMS TO OBC 2012
AMENDED 2020

Disclosure

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

PASSED

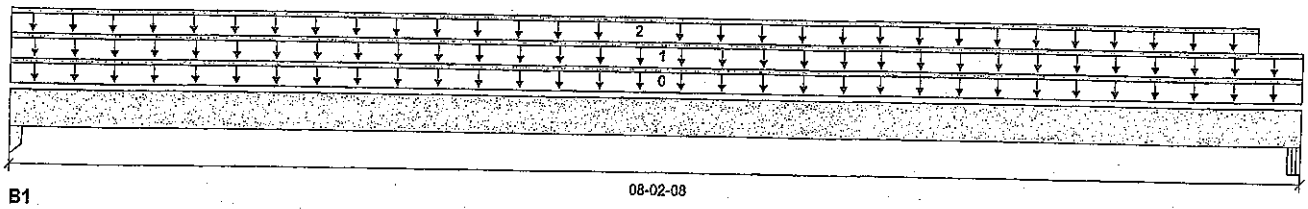
2ND FLR FRAMING\Flush Beams\B12(i4641) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 16:48:26

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B12(i4641)
Specifier:
Designer: EEO
Company:



Total Horizontal Product Length = 08-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	57 / 0	300 / 0		
B2, 3-1/2"	54 / 0	298 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-02-08	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	08-02-08	Top		60			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	07-11-00	Top	14	7			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	768 ft-lbs	11502 ft-lbs	6.7%	0	04-01-04
End Shear	289 lbs	4701 lbs	6.1%	0	01-03-06
Total Load Deflection	L/999 (0.014")	n\a	n\a	4	04-01-04
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	04-01-04
Max Defl.	0.014"	n\a	n\a	4	04-01-04
Span / Depth	7.8				

DWG NO. YAM 8010-21
STRUCTURAL
COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	419 lbs	13.1%	8.7%	Unspecified
B2	Beam	3-1/2" x 1-3/4"	417 lbs	8.6%	8.6%	VL 2.0 3100 SP

Notes

Design meets Code minimum (L/240) Total load deflection criteria. CONFORMS TO OBC 2012
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 07-09-04.

Disclosure

Boise Cascade ENGINEERED WOOD PRODUCTS

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

PASSED

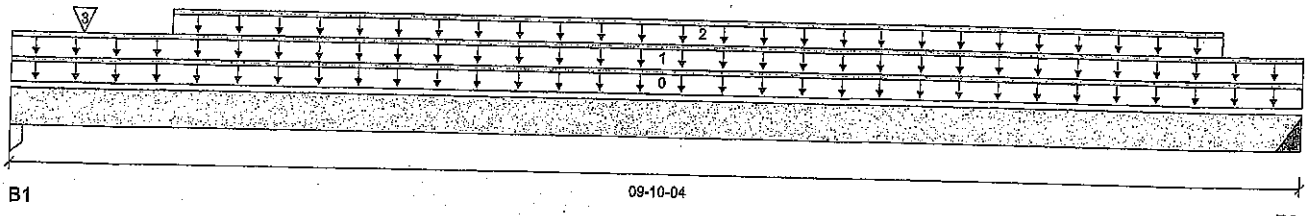
2ND FLR FRAMING\Flush Beams\B13 A(i4645) (Flush Beam)

Dry | 1 span | No cant.

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

March 24, 2021 16:48:26

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B13 A(i4645)
Specifier:
Designer: EEO
Company:



Total Horizontal Product Length = 09-10-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	758 / 0	701 / 0		
B2, 3"	702 / 0	681 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-10-04	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	09-10-04	Top		60			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-10	09-02-10	Top	162	81			n\a
3	J6(i4314)	Conc. Pt. (lbs)	L	00-06-10	00-06-10	Top	165	82			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4896 ft-lbs	17696 ft-lbs	27.7%	1	04-06-10
End Shear	1802 lbs	7232 lbs	24.9%	1	08-07-06
Total Load Deflection	L/999 (0.119")	n\a	n\a	4	04-10-10
Live Load Deflection	L/999 (0.062")	n\a	n\a	5	04-10-10
Max Defl.	0.119"	n\a	n\a	4	04-10-10
Span / Depth	9.7				

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 1-3/4"	2013 lbs	79.7%	53.1%	Unspecified
B2	Hanger	3" x 1-3/4"	1904 lbs	n\a	29.7%	HUS1.81/10

DWG NO. TAM8011-21
STRUCTURAL COMPONENT ONLY

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

OK

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-02-06.

CONFORMS TO OBC 2012 AMENDED 2020

Disclosure

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

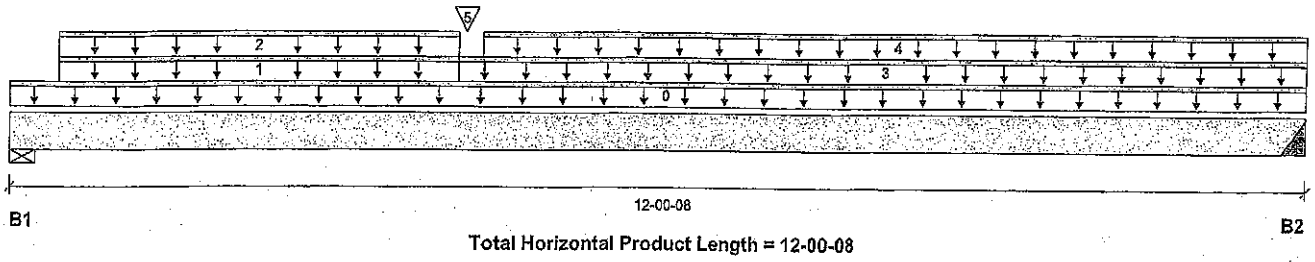
PASSED

2ND FLR FRAMING\Flush Beams\B14 A(i4644) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B14 A(i4644)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 12-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1422 / 0	1114 / 0		
B2, 3"	676 / 0	796 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-08	Top		6			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	04-01-08	Top	240	120			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-05-08	04-01-08	Top	27	14			n\a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-01-08	12-00-08	Top	53	27			n\a
4	WALL	Unf. Lin. (lb/ft)	L	04-04-02	12-00-08	Top		60			n\a
5	B13 A(i4645)	Conc. Pt. (lbs)	L	04-02-06	04-02-06	Top	695	674			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9363 ft-lbs	17696 ft-lbs	52.9%	1	04-02-06
End Shear	2950 lbs	7232 lbs	40.8%	1	01-05-06
Total Load Deflection	L/468 (0.294")	n\a	51.3%	4	05-09-01
Live Load Deflection	L/923 (0.149")	n\a	39.0%	5	05-09-01
Max Defl.	0.294"	n\a	n\a	4	05-09-01
Span / Depth	11.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	3526 lbs	59.5%	30.0%	Spruce-Pine-Fir
B2	Hanger	3" x 1-3/4"	2009 lbs	n\a	31.4%	HUS1.81/10

Cautions

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

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

OK

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM8012-21

STRUCTURAL COMPONENT ONLY

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

2ND FLR FRAMING\Flush Beams\B14 A(i4644) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 16:48:26

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B14 A(i4644)
Specifier:
Designer: EEO
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 07-09-04.

CONFORMS TO OBC 2012
AMENDED 2020

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

PGL

GWG NO. FAM 2021-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

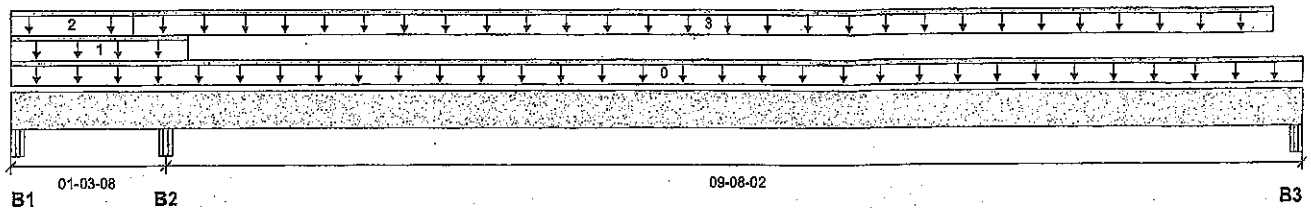
PASSED

2ND FLR FRAMING\Flush Beams\B17(I3591) (Flush Beam)

BC CALC® Member Report | Dry | 2 spans | No cant. | March 24, 2021 16:48:26

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B17(I3591)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 10-11-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	9 / 239	0 / 93	118 / 0	
B2, 6-1/2"	400 / 0	505 / 0	120 / 0	
B3, 6-1/4"	101 / 0	99 / 0	0 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-11-10	Top		12			00-00-00
1	E39(I2059)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-12	Top		165	160		n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-04	Top	12	6			n\a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	01-00-04	10-08-08	Top	27	13			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	457 ft-lbs	35392 ft-lbs	1.3%	45	06-11-11
Neg. Moment	-695 ft-lbs	-22400 ft-lbs	3.1%	19	01-03-08
End Shear	542 lbs	14464 lbs	3.7%	45	00-03-08
Cont. Shear	758 lbs	14464 lbs	5.2%	1	01-00-04
Total Load Deflection	L/999 (0.004")	n\a	n\a	108	06-06-09
Live Load Deflection	L/999 (0.002")	n\a	n\a	160	06-06-09
Total Neg. Defl.	L/999 (0")	n\a	n\a	108	00-10-03
Max Defl.	0.004"	n\a	n\a	108	06-06-09
Span / Depth	9.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-1/2" x 3-1/2"	103 lbs	0.7%	0.7%	VL 2.0 3100 SP
B1	Uplift		475 lbs			
B2	Beam	6-1/2" x 3-1/2"	1351 lbs	11.1%	4.9%	Unspecified
B3	Beam	6-1/4" x 3-1/2"	274 lbs	2.3%	1.0%	Unspecified

Cautions

Uplift of 475 lbs found at bearing B1. (Simpson 2-HZ.5A @ B1)

ok

BWB NO. TAM 8013 -21
STRUCTURAL
COMPONENT ONLY

Boise Cascade ENGINEERED WOOD PRODUCTS

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

PASSED

2ND FLR FRAMING\Flush Beams\B17(I3591) (Flush Beam)

Dry | 2 spans | No cant.

March 24, 2021 16:48:26

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

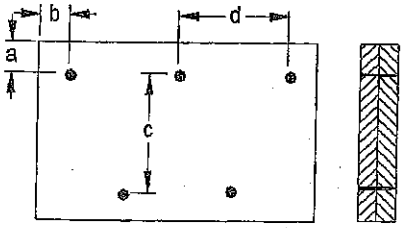
File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B17(I3591)
Specifier:
Designer: EEO
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 08-10-10.

CONFORMS TO OBC 2012
AMENDED 2020

Connection Diagram: Full Length of Member



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

Connectors are: [illegible] Nails
3-1/2" ARDOX SPIRAL

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. YAM 8013-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

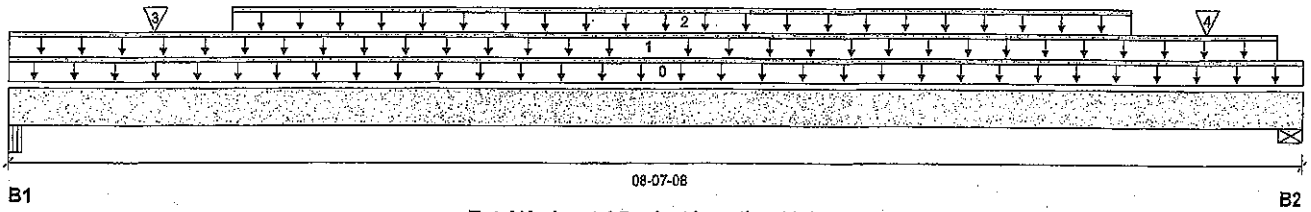
2ND FLR FRAMING\Flush Beams\B7(i3603) (Flush Beam)

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 24, 2021 16:48:26

File name: SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B7(i3603)
Specifier:
Designer: EEO
Company:



Total Horizontal Product Length = 08-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1559 / 0	830 / 0		
B2, 5"	1658 / 0	880 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-07-08	Top		12			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	08-05-04	Top	14	7			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-08	07-05-08	Top	392	195			n\a
3	J7(i3522)	Conc. Pt. (lbs)	L	00-11-08	00-11-08	Top	411	206			n\a
4	J7(i3681)	Conc. Pt. (lbs)	L	07-11-08	07-11-08	Top	339	169			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7130 ft-lbs	35392 ft-lbs	20.1%	1	03-11-08
End Shear	3034 lbs	14464 lbs	21.0%	1	01-03-06
Total Load Deflection	L/999 (0.06")	n\a	n\a	4	04-02-08
Live Load Deflection	L/999 (0.039")	n\a	n\a	5	04-02-08
Max Defl.	0.06"	n\a	n\a	4	04-02-08
Span / Depth	8.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-1/2" x 3-1/2"	3376 lbs	22.6%	22.6%	VL 2.0 3100 SP
B2	Wall/Plate	5" x 3-1/2"	3587 lbs	33.3%	16.8%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-09-12.

CONFORMS TO OBC 2012
AMENDED 2020

DWG NO. 7AM5014-21
STRUCTURAL
COMPONENT ONLY

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

2ND FLR FRAMING\Flush Beams\B7(I3603) (Flush Beam)

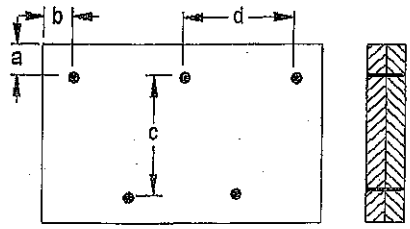
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 24, 2021 16:48:26

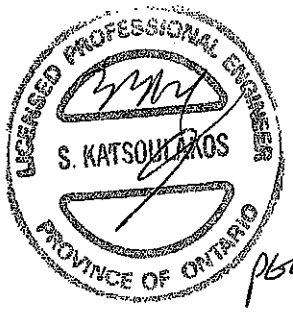
Job name:		File name:	SPRINGFIELD 11 EL 1 SUNKEN.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B7(I3603)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 7-7/8"
d = 9"

Calculated Side Load = 834.5 lb/ft
Connectors are: 16d Nails
3-1/2" ARDOX SPIRAL



DWG NO. TAM 8014-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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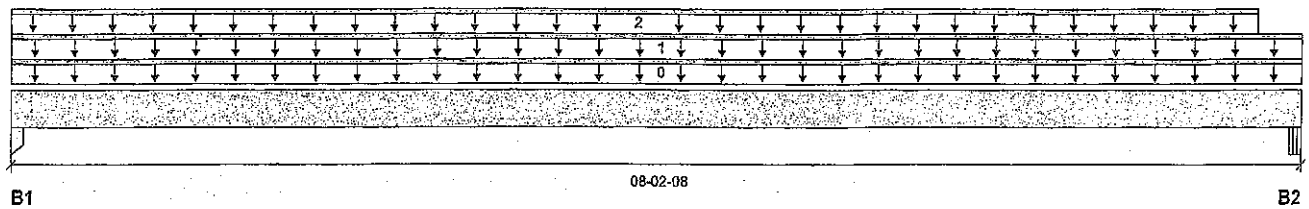
Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B12(i5127) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 17:05:37
Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 STD.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B12(i5127)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 08-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	57 / 0	300 / 0		
B2, 3-1/2"	54 / 0	298 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-02-08	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	08-02-08	Top		60			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	07-11-00	Top	14	7			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	768 ft-lbs	11502 ft-lbs	6.7%	0	04-01-04
End Shear	289 lbs	4701 lbs	6.1%	0	01-03-06
Total Load Deflection	L/999 (0.014")	n\a	n\a	4	04-01-04
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	04-01-04
Max Defl.	0.014"	n\a	n\a	4	04-01-04
Span / Depth	7.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	419 lbs	13.1%	8.7%	Unspecified
B2	Beam	3-1/2" x 1-3/4"	417 lbs	8.6%	8.6%	VL 2.0 3100 SP

DWG NO. TAM 8025-2E
STRUCTURAL
COMPONENT ONLY

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 07-09-04.

CONFORMS TO OBC 2012
AMENDED 2020

Disclosure

Boise Cascade ENGINEERED WOOD PRODUCTS

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

PASSED

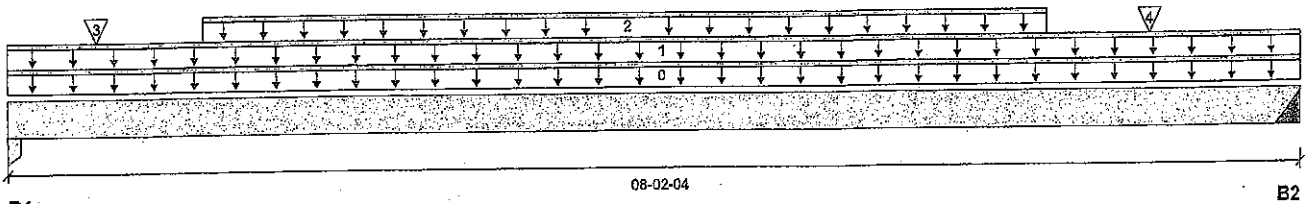
2ND FLR FRAMING\Flush Beams\B13(i5131) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 17:05:37

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 11 EL 1 STD.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B13(i5131)
Specifier:
Designer: EEO
Company:



Total Horizontal Product Length = 08-02-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	623 / 0	578 / 0		
B2, 3"	595 / 0	572 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-02-04	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	08-02-04	Top		60			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-10	06-06-10	Top	162	81			n\a
3	J6(i3809)	Conc. Pt. (lbs)	L	00-06-10	00-06-10	Top	165	82			n\a
4	J6(i3663)	Conc. Pt. (lbs)	L	07-02-10	07-02-10	Top	191	96			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3307 ft-lbs	17696 ft-lbs	18.7%	1	04-06-10
End Shear	1395 lbs	7232 lbs	19.3%	1	06-11-06
Total Load Deflection	L/999 (0.055")	n\a	n\a	4	04-00-10
Live Load Deflection	L/999 (0.029")	n\a	n\a	5	04-00-10
Max Defl.	0.055"	n\a	n\a	4	04-00-10
Span / Depth	8.0				

DWG NO. TAM 8016-2L
STRUCTURAL
COMPONENT ONLY

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 1-3/4"	1657 lbs	65.6%	43.7%	Unspecified
B2	Hanger	3" x 1-3/4"	1608 lbs	n\a	25.1%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

ok

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012
AMENDED 2020

Disclosure

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

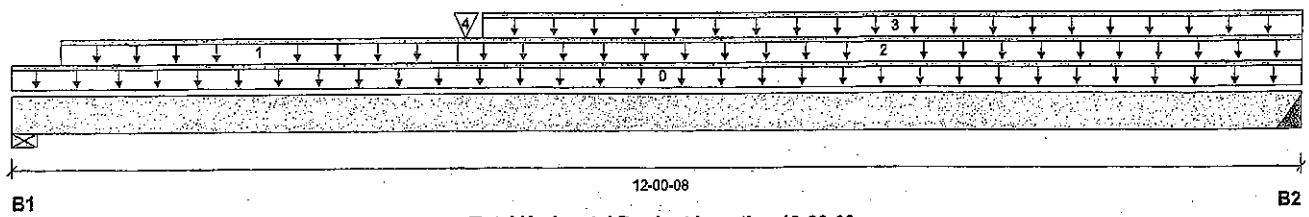
PASSED

2ND FLR FRAMING\Flush Beams\B14(i5130) (Flush Beam)

BC CALC® Member Report — Dry | 1 span | No cant. — March 24, 2021 17:05:37

Build 7773

Job name:		File name:	SPRINGFIELD 11 EL 1 STD.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B14(i5130)
City, Province, Postal Code:	HAMILTON	Specifier:	
Customer:		Designer:	EEO
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 12-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1209 / 0	970 / 0		
B2, 3"	484 / 0	682 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-08	Top		6			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	04-01-08	Top	240	120			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-01-08	12-00-08	Top	27	13			n\a
3	WALL	Unf. Lin. (lb/ft)	L	04-04-02	12-00-08	Top		60			
4	B13(i5131)	Conc. Pt. (lbs)	L	04-02-06	04-02-06	Top	588	565			

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7807 ft-lbs	17696 ft-lbs	44.1%	1	04-02-06
End Shear	2497 lbs	7232 lbs	34.5%	1	01-05-06
Total Load Deflection	L/567 (0.242")	n\a	42.3%	4	05-09-01
Live Load Deflection	L/999 (0.118")	n\a	n\a	5	05-06-11
Max Defl.	0.242"	n\a	n\a	4	05-09-01
Span / Depth	11.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	3025 lbs	51.1%	25.8%	Spruce-Pine-Fir
B2	Hanger	3" x 1-3/4"	1579 lbs	n\a	24.6%	HUS1.81/10

Cautions

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

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

OK

Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 07-09-04.

CONFORMS TO OBC 2012 AMENDED 2020

LICENSED PROFESSIONAL ENGINEER S. KATSOULAKOS PROVINCE OF ONTARIO

BCIN NO. TAM 8017-21 STRUCTURAL COMPONENT ONLY

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Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

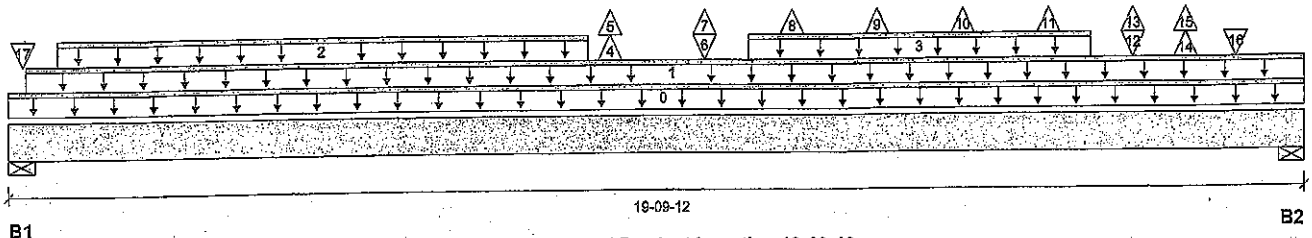
2ND FLR FRAMING\Flush Beams\B19(i4416) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 17:27:07

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 11 EL 2 STD.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B19(i4416)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 19-09-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	713 / 44	501 / 0	221 / 65	
B2, 2-3/4"	787 / 95	204 / 0	0 / 139	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	19-09-12	Top		12			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-03-04	19-09-12	Top	10	5			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-00	08-09-00	Top	60	30			n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	11-02-04	16-06-04	Top	74	12			n\a
4	J6 DJ(i4395)	Conc. Pt. (lbs)	L	09-01-00	09-01-00	Top	91	-87	-102		n\a
5	J6 DJ(i4395)	Conc. Pt. (lbs)	L	09-01-00	09-01-00	Top	-13				n\a
6	J6(i4444)	Conc. Pt. (lbs)	L	10-06-04	10-06-04	Top	103	8			n\a
7	J6(i4444)	Conc. Pt. (lbs)	L	10-06-04	10-06-04	Top	-21				n\a
8	J6(i4503)	Conc. Pt. (lbs)	L	11-10-04	11-10-04	Top	-20				n\a
9	J6(i4283)	Conc. Pt. (lbs)	L	13-02-04	13-02-04	Top	-20				n\a
10	J6(i4225)	Conc. Pt. (lbs)	L	14-06-04	14-06-04	Top	-20				n\a
11	J6(i4218)	Conc. Pt. (lbs)	L	15-10-04	15-10-04	Top	-20				n\a
12	J6(i4356)	Conc. Pt. (lbs)	L	17-02-04	17-02-04	Top	80	18			n\a
13	J6(i4356)	Conc. Pt. (lbs)	L	17-02-04	17-02-04	Top	-16				n\a
14	J6 DJ(i4450)	Conc. Pt. (lbs)	L	18-00-00	18-00-00	Top	58	-93	-102		n\a
15	J6 DJ(i4450)	Conc. Pt. (lbs)	L	18-00-00	18-00-00	Top	-9				n\a
16	J7(i4454)	Conc. Pt. (lbs)	L	18-09-00	18-09-00	Top	84	42			n\a
17	E36(i1050)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		172	221		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7048 ft-lbs	35392 ft-lbs	19.9%	9	10-06-04
Neg. Moment	-252 ft-lbs	-35392 ft-lbs	0.7%	66	18-00-00
End Shear	1425 lbs	14464 lbs	9.8%	9	01-05-06
Total Load Deflection	L/686 (0.337")	n\a	35.0%	116	10-01-15
Live Load Deflection	L/907 (0.255")	n\a	39.7%	168	10-01-15
Max Defl.	0.337"	n\a	n\a	116	10-01-15
Span / Depth	19.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	1916 lbs	16.2%	8.2%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/4" x 3-1/2"	1436 lbs	24.2%	12.2%	Spruce-Pine-Fir
B2	Uplift		121 lbs			

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

P6 of 6

DWG NO. TAM8010-2L
STRUCTURAL
COMPONENT ONLY

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

2ND FLR FRAMING\Flush Beams\B19(i4416) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 17:27:07

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 11 EL 2 STD.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B19(i4416)
Specifier:
Designer:
Company:

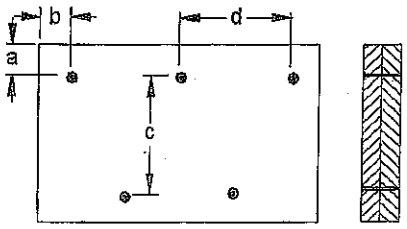
Cautions

Uplift of 121 lbs found at bearing B2. (Simpson 2-H2.5A @ B2)

Notes

Design meets Code minimum (L/240) Total load deflection criteria. CONFORMS TO OBC 2012
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

Connection Diagram: Full Length of Member



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

Calculated Side Load = 172.9 lb/ft
Connectors are: 1 Nails
3-1/2" ARDOX SPIRAL

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 8018-21
STRUCTURAL
COMPONENT ONLY

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Boise Cascade ENGINEERED WOOD PRODUCTS

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

PASSED

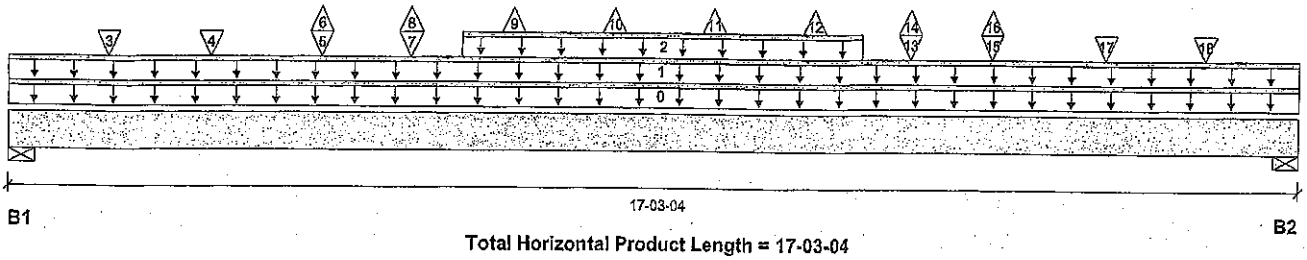
2ND FLR FRAMING\Flush Beams\B20(i4522) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 17:27:07

BC CALC® Member Report
Build 7773
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 11 EL 2 STD.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B20(i4522)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 17-03-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	622 / 73	360 / 0		
B2, 4-3/8"	625 / 74	358 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	17-03-04	Top		12			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	17-03-04	Top	8	4			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	06-00-00	11-04-00	Top	71	27			n\a
3	J7(i4523)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	92	37			n\a
4	J7(i4532)	Conc. Pt. (lbs)	L	02-08-00	02-08-00	Top	94	37			n\a
5	J6 DJ(i4534)	Conc. Pt. (lbs)	L	04-01-14	04-01-14	Top	94	43			n\a
6	J6 DJ(i4534)	Conc. Pt. (lbs)	L	04-01-14	04-01-14	Top	-12				n\a
7	J6(i4527)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	88	34			n\a
8	J6(i4527)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	-20				n\a
9	J6(i4531)	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	-21				n\a
10	J6(i4530)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	-21				n\a
11	J6(i4525)	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	-21				n\a
12	J6(i4533)	Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top	-21				n\a
13	J6(i4528)	Conc. Pt. (lbs)	L	12-00-00	12-00-00	Top	86	33			n\a
14	J6(i4528)	Conc. Pt. (lbs)	L	12-00-00	12-00-00	Top	-19				n\a
15	J6 DJ(i4529)	Conc. Pt. (lbs)	L	13-01-06	13-01-06	Top	94	43			n\a
16	J6 DJ(i4529)	Conc. Pt. (lbs)	L	13-01-06	13-01-06	Top	-12				n\a
17	J7(i4526)	Conc. Pt. (lbs)	L	14-08-00	14-08-00	Top	96	38			n\a
18	J7(i4524)	Conc. Pt. (lbs)	L	16-00-00	16-00-00	Top	90	33			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5946 ft-lbs	35392 ft-lbs	16.8%	1	08-06-00
End Shear	1336 lbs	14464 lbs	9.2%	1	01-04-04
Total Load Deflection	L/925 (0.216")	n\a	25.9%	6	08-08-00
Live Load Deflection	L/1445 (0.138")	n\a	24.9%	8	08-08-00
Max Defl.	0.216"	n\a	n\a	6	08-08-00
Span / Depth	16.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	1383 lbs	14.7%	7.4%	Spruce-Pine-Fir
B2	Wall/Plate	4-3/8" x 3-1/2"	1385 lbs	14.7%	7.4%	Spruce-Pine-Fir

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM8019-21
STRUCTURAL
COMPONENT ONLY

Boise Cascade® ENGINEERED WOOD PRODUCTS

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

PASSED

2ND FLR FRAMING\Flush Beams\B20(i4522) (Flush Beam)

BC CALC® Member Report
Build 7773
Dry | 1 span | No cant.
March 24, 2021 17:27:07

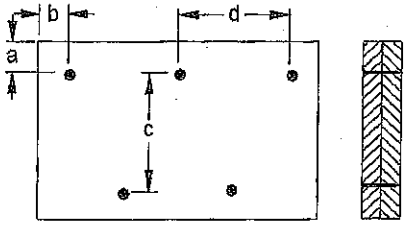
Job name:		File name:	SPRINGFIELD 11 EL 2 STD.mmdl
Address:		Description:	2ND FLR FRAMING\Flush Beams\B20(i4522)
City, Province, Postal Code:		Specifier:	
Customer:		Designer:	
Code reports:	CCMC 12472-R	Company:	

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-02-14.

CONFORMS TO OBC 2012
AMENDED 2020

Connection Diagram: Full Length of Member



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

Calculated Side Load = 193.1 lb/ft
Connectors are: [illegible] Common Nails
3-1/2" ARDOX SPIRAL

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 8019-2L
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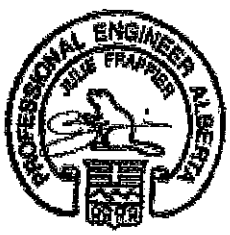
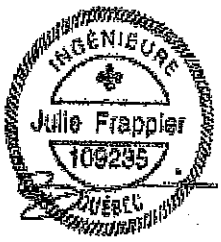




Maximum Floor Spans

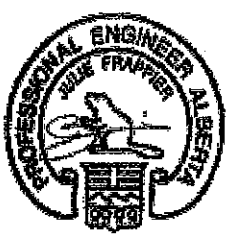
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

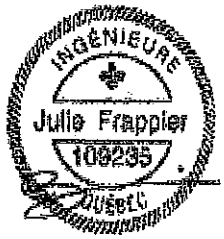
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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

NORDIC ENGINEERED WOOD





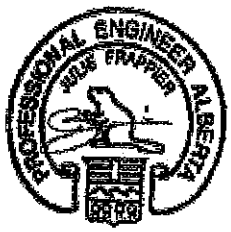
Maximum Floor Spans

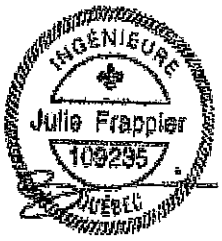
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

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

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

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.5OL + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.





Maximum Floor Spans

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

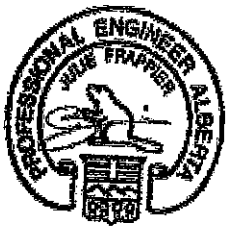
Depth	Series	Bare, On Centre Spacing 12"	16"	19.2"	24"	1/2" Gypsum Ceiling, On Centre Spacing 12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"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

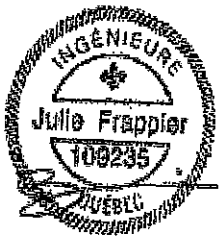
Depth	Series	Mid-Span Blocking, On Centre Spacing 12"	16"	19.2"	24"	Mid-Span Blocking and 1/2" Gypsum Ceiling, On Centre Spacing 12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A
	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"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

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

Maximum Floor Spans

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



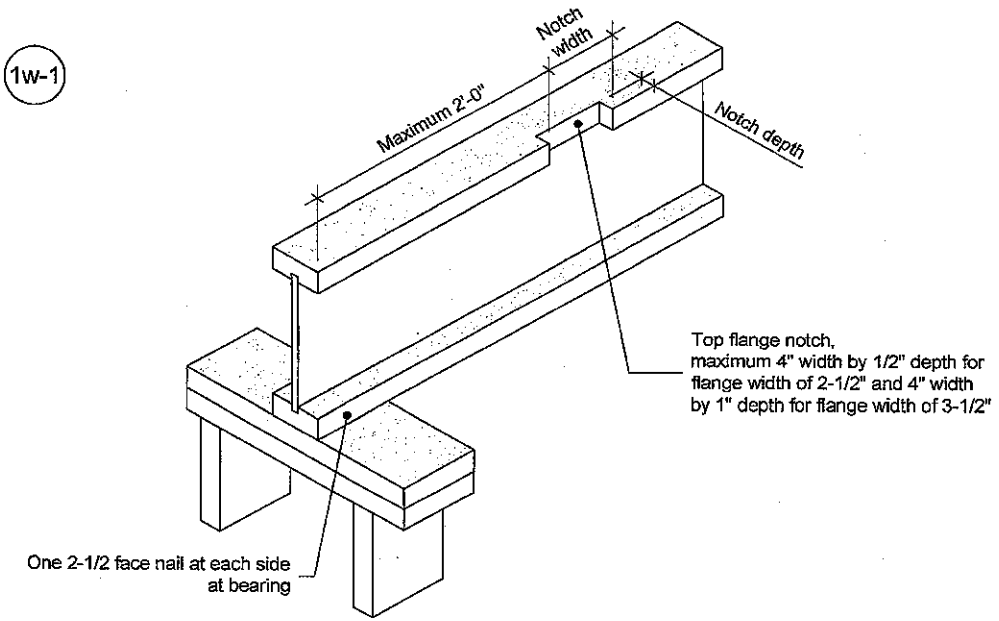


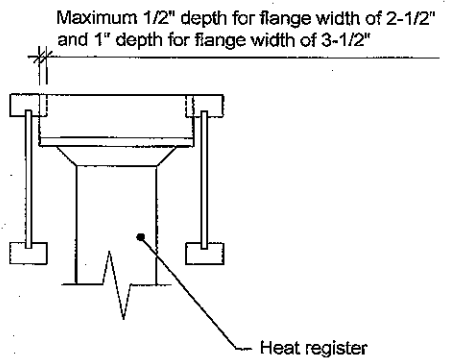
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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

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

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

1w-1





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 width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.
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.

NORDIC STRUCTURES

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TITLE
Notch in I-joist for Heat Register

DOCUMENT
-

CATEGORY
I-joist - Typical Floor Framing and Construction Details

DATE
2018-04-10

NUMBER
1w-1

Construction Detail
Limit States Design

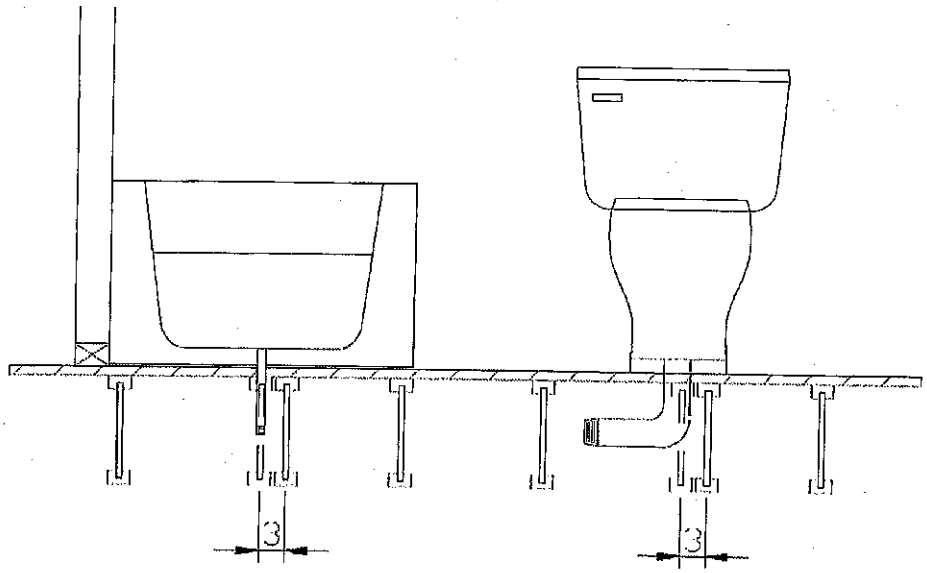
Allowance for Piping (Installation Notes)

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

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

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

ALLOWANCE FOR PIPING



Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference.

Revised April 12, 2012