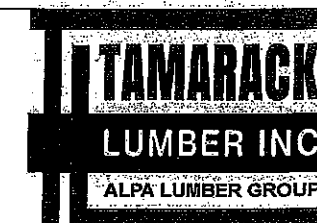


Products				
PlotID	Length	Product	Plies	Net Qty
J1	20'-00-00	11 7/8" NI-40x	1	25
J2	18'-00-00	11 7/8" NI-40x	1	15
J3	16'-00-00	11 7/8" NI-40x	1	3
J4	14'-00-00	11 7/8" NI-40x	1	18
J5	10'-00-00	11 7/8" NI-40x	1	16
J6	4'-00-00	11 7/8" NI-40x	1	2
J7	2'-00-00	11 7/8" NI-40x	1	6
B10	20'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	20'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1A	12'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3A	8'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2A	6'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/11.88
14	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H2	HUS1.81/10
4	H4	HGUS412



FROM PLAN DATED: 2021/02
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 1
 ELEVATION: 1
 LOT:

CITY: HAMILTON

SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

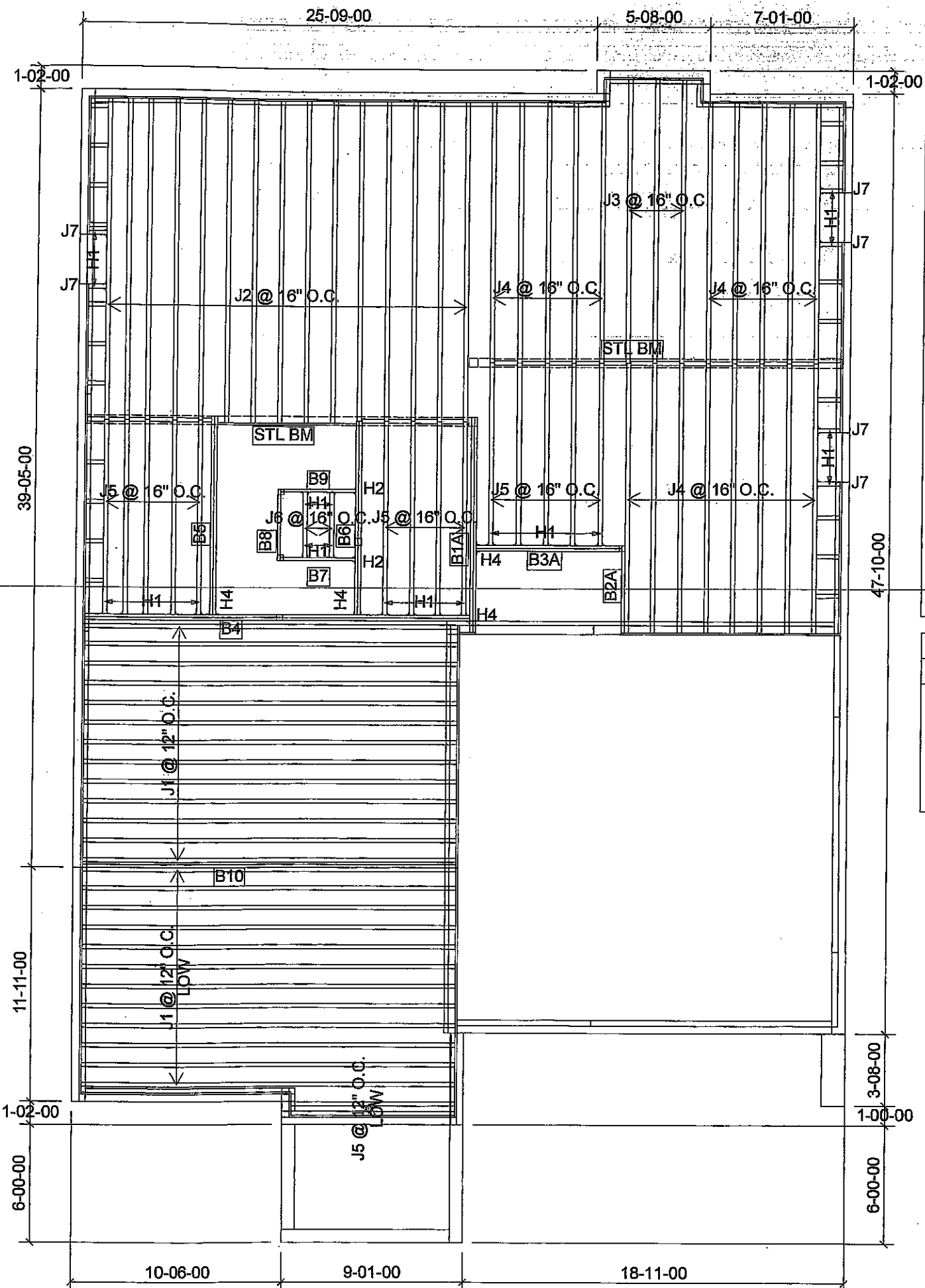
NOTES:
 REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
 SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 REQ'D UNDER INTERIOR UNIFORM LOADING BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATE LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK I-JOIST BLOCKING ALONG BEARING AN RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENING 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: 2021-03-16

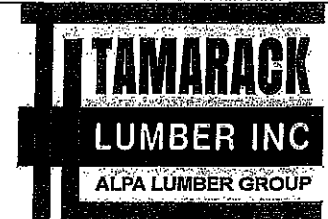
1st FLOOR OPT GUEST SUITE

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	25
J2	18-00-00	11 7/8" NI-40x	1	15
J3	16-00-00	11 7/8" NI-40x	1	3
J4	14-00-00	11 7/8" NI-40x	1	18
J5	10-00-00	11 7/8" NI-40x	1	16
J6	4-00-00	11 7/8" NI-40x	1	2
J7	2-00-00	11 7/8" NI-40x	1	6
B10	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1A	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2A	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/11.88
14	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H2	HUS1.81/10
4	H4	HGUS412



FROM PLAN DATED: 2021/02
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 1
 ELEVATION: 2
 LOT:
 CITY: HAMILTON

SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

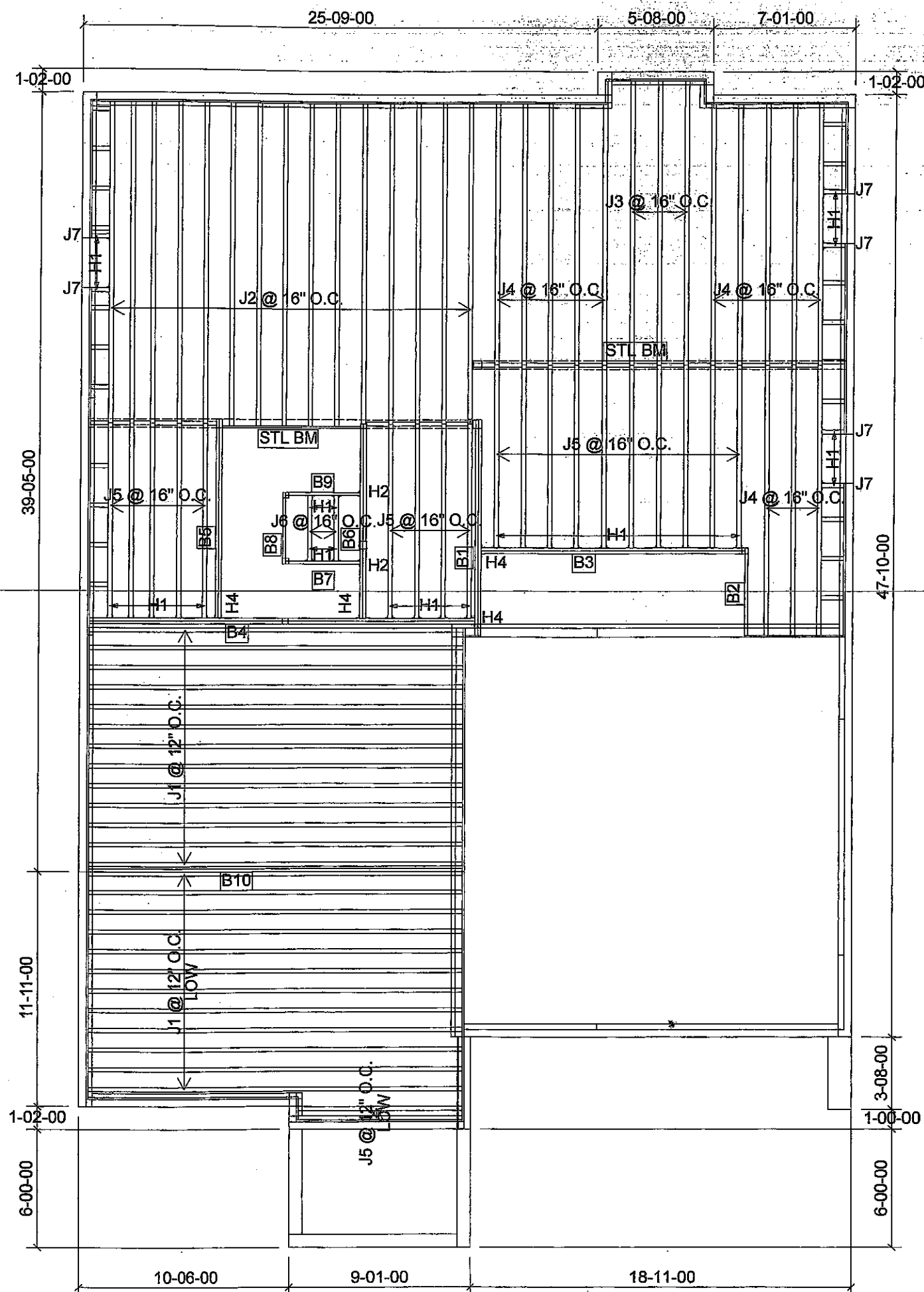
NOTES:
 REFER TO THE **NORDIC INSTALLATION**
 GUIDE FOR PROPER STORAGE AND
 INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S
 REQ'D UNDER INTERIOR UNIFORM LOA
 BEARING WALLS. **MULTIPLE SQUASH**
BLOCKS REQ'D UNDER CONCENTRATE
 LOADS. SEE FIGURE 1. **CANTILEVERED**
JOISTS INCLUDING CANT' OVER BRICK
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

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

DATE: 2021-03-16

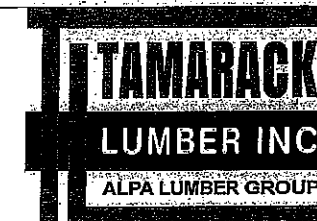
1st FLOOR OPT GUEST
 SUITE

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	25
J2	18-00-00	11 7/8" NI-40x	1	15
J3	16-00-00	11 7/8" NI-40x	1	3
J4	14-00-00	11 7/8" NI-40x	1	13
J5	10-00-00	11 7/8" NI-40x	1	21
J6	4-00-00	11 7/8" NI-40x	1	2
J7	2-00-00	11 7/8" NI-40x	1	6
B10	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/11.88
19	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H2	HUS1.81/10
4	H4	HGUS412



FROM PLAN DATED: 2021/02
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 1
 ELEVATION: 2
 LOT:
 CITY: HAMILTON

SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

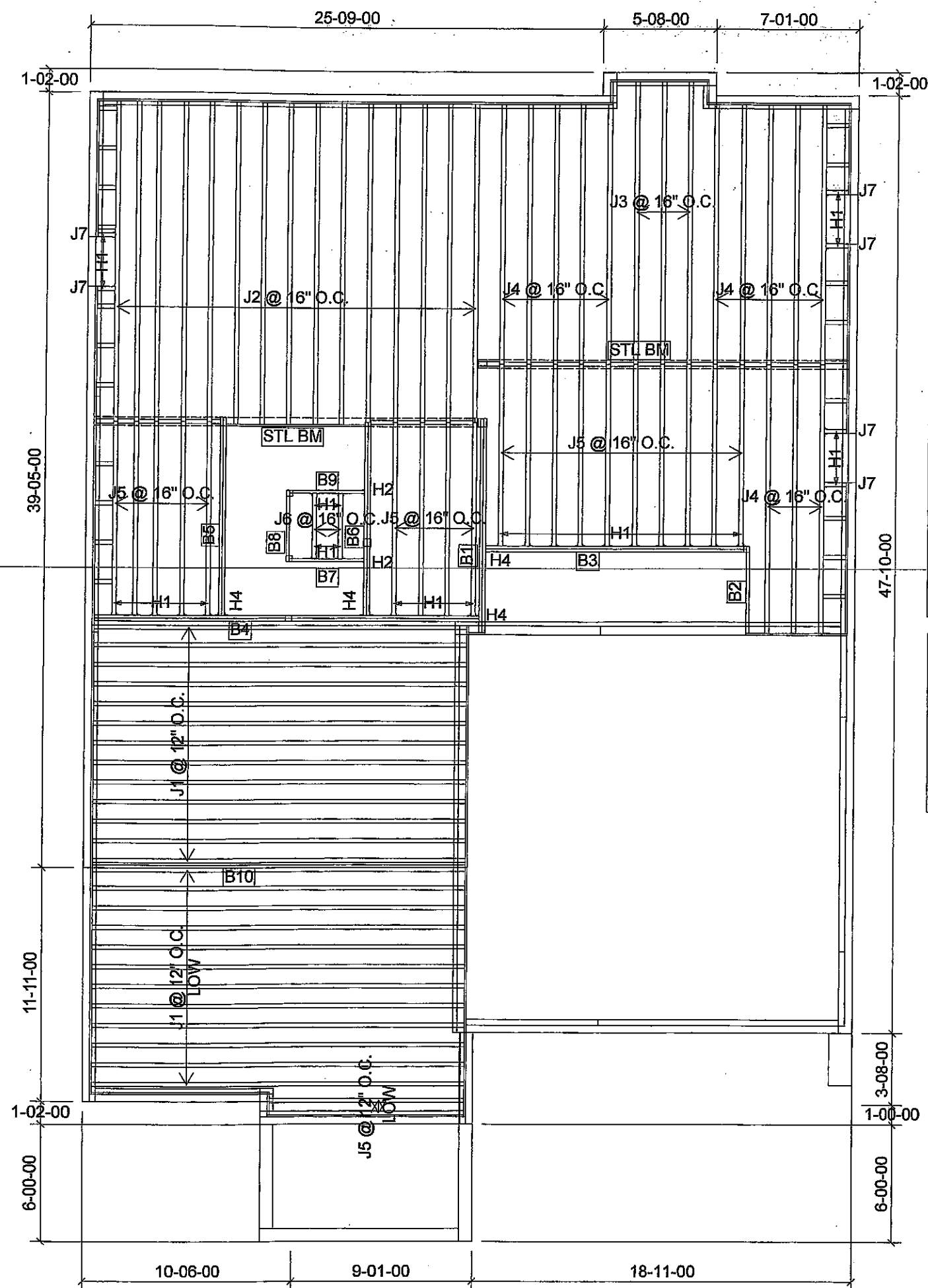
NOTES:
 REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
 SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S REQ'D UNDER INTERIOR UNIFORM LOA BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATE LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK I-JOIST BLOCKING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

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

DATE: 2021-03-16

1st FLOOR SUNKEN MUD ROOM

SUBFLOOR: 3/4" GLUED AND NAILED

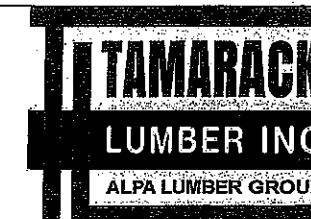


Products				
PlotID	Length	Product	Plies	Net Qty
J1	20'-00-00	11 7/8" NI-40x	1	25
J2	18'-00-00	11 7/8" NI-40x	1	15
J3	16'-00-00	11 7/8" NI-40x	1	3
J4	14'-00-00	11 7/8" NI-40x	1	13
J5	10'-00-00	11 7/8" NI-40x	1	21
J6	4'-00-00	11 7/8" NI-40x	1	2
J7	2'-00-00	11 7/8" NI-40x	1	6
B10	20'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	20'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	14'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	12'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/11.88
19	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H2	HUS1.81/10
4	H4	HGUS412

DATE: 2021-03-16

1st FLOOR SUNKEN MUD ROOM



FROM PLAN DATED: 2021/02

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH4

MODEL: SPRINGFIELD 1

ELEVATION: 3

LOT:

CITY: HAMILTON

SALESMAN: RICK DICIANO

DESIGNER: AJ

REVISION:

NOTES:

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S 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 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 OPENING** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC APPLICATION** AS PER O.B.C 9.30.6.

LOADING:

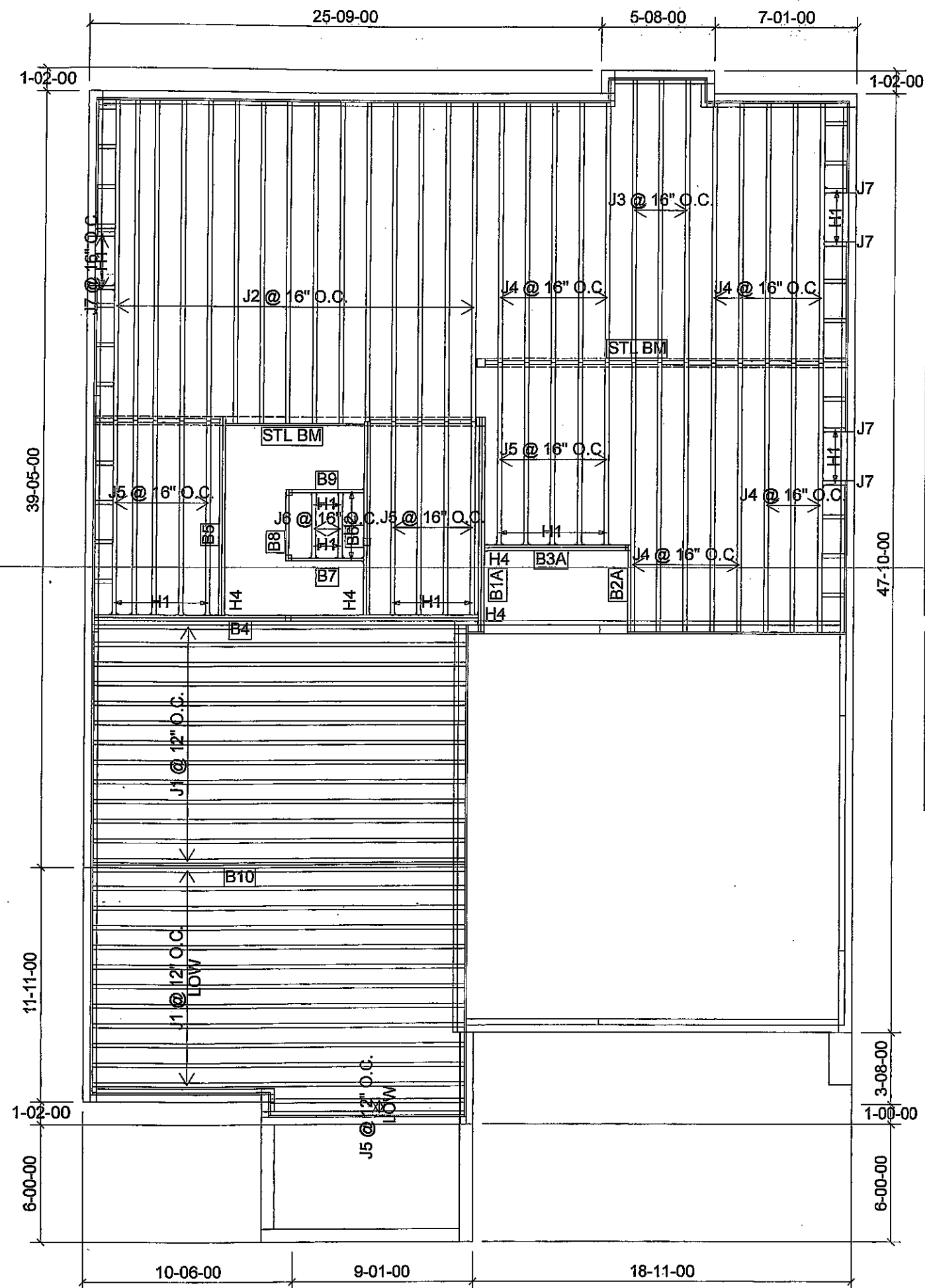
DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

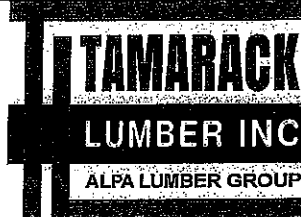


Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	25
J2	18-00-00	11 7/8" NI-40x	1	15
J3	16-00-00	11 7/8" NI-40x	1	3
J4	14-00-00	11 7/8" NI-40x	1	18
J5	10-00-00	11 7/8" NI-40x	1	16
J6	4-00-00	11 7/8" NI-40x	1	2
J7	2-00-00	11 7/8" NI-40x	1	6
B10	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1A	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2A	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/11.88
14	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H2	HUS1.81/10
4	H4	HGUS412

DATE: 2021-03-16

1st FLOOR OPT GUEST
SUITE



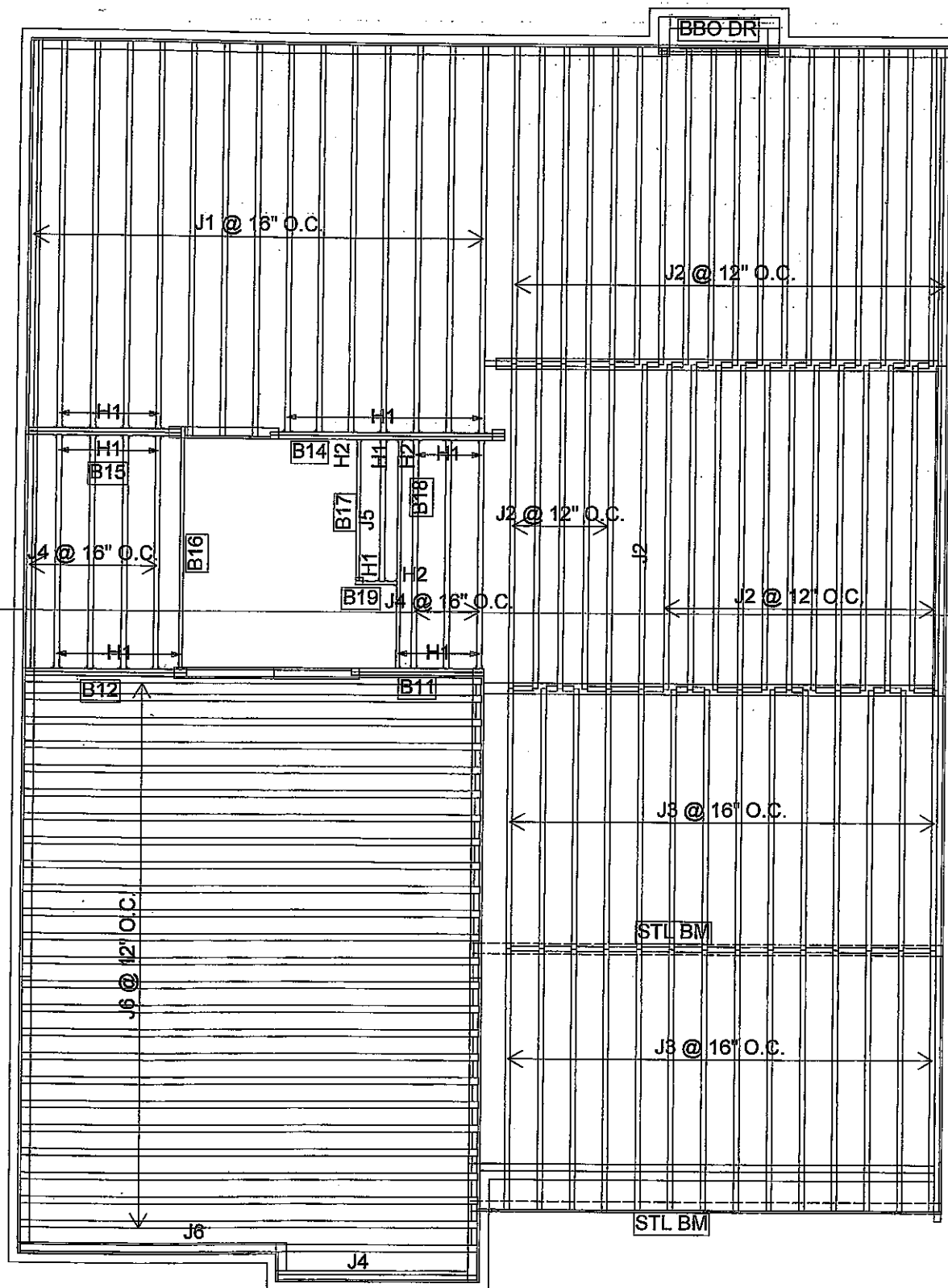
FROM PLAN DATED: 2021/02
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH4
MODEL: SPRINGFIELD 1
ELEVATION: 3
LOT:

CITY: HAMILTON
SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION:

NOTES:
REFER TO THE NORDIC INSTALLATION
GUIDE FOR PROPER STORAGE AND
INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S
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
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 OPENING
SEE FIGURE 7, TABLES 1 & 2. CERAMIC
APPLICATION AS PER O.B.C 9.30.6.

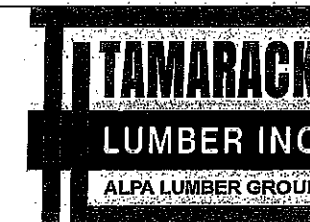
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	15
J2	14-00-00	11 7/8" NI-40x	1	37
J3	12-00-00	11 7/8" NI-40x	1	28
J4	10-00-00	11 7/8" NI-40x	1	9
J5	6-00-00	11 7/8" NI-40x	1	1
J6	20-00-00	11 7/8" NI-80	1	25
B16	12-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B18	10-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B14	10-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B12	8-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B15	8-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B17	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B11	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B19	2-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
1	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
26	H1	IUS2.56/11.88
1	H2	HUS1.81/10
2	H2	HUS1.81/10



FROM PLAN DATED: 2021/02
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 1
 ELEVATION: 1
 LOT:

CITY: HAMILTON
 SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

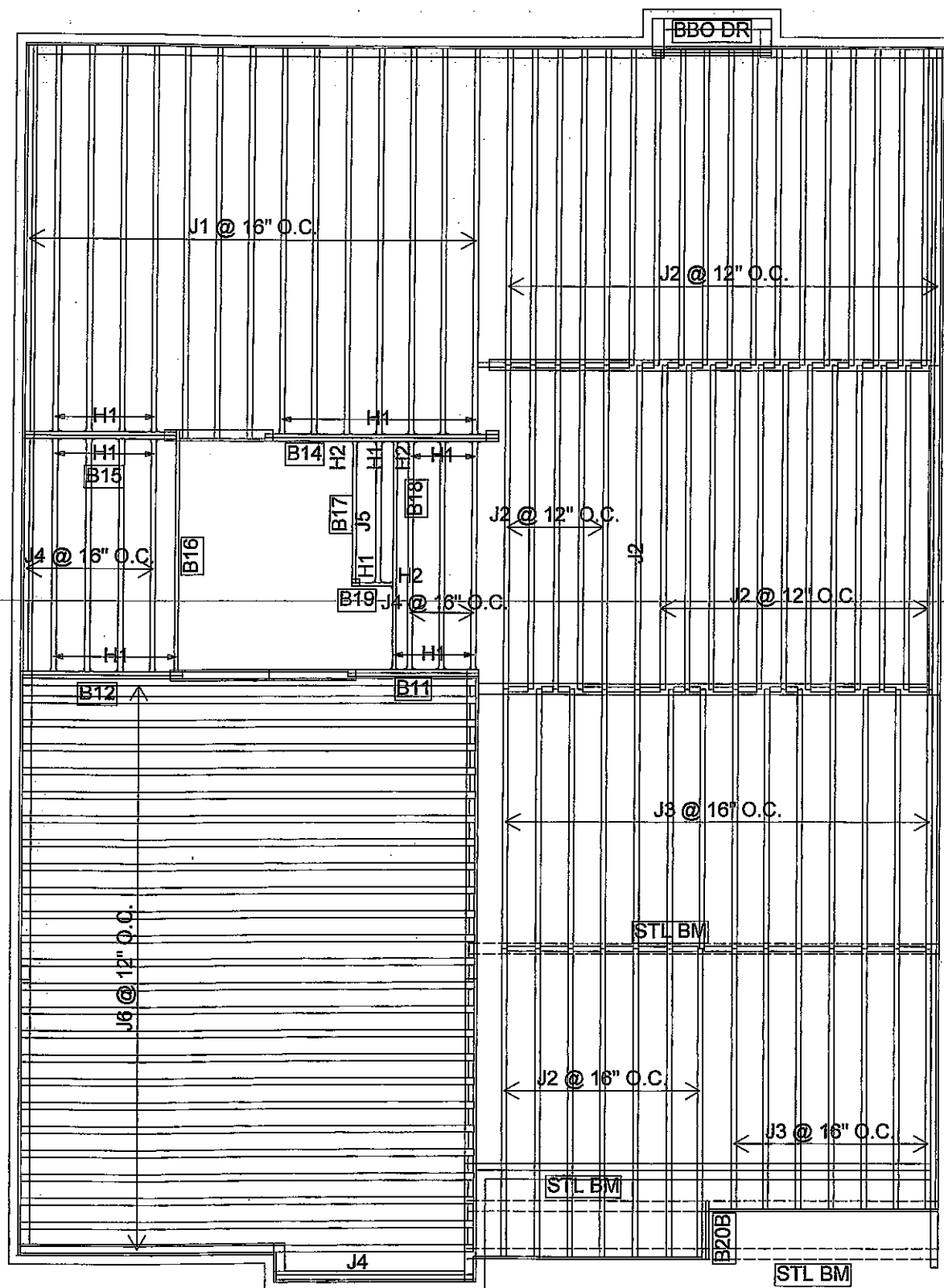
NOTES:
 REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S REQ'D UNDER INTERIOR UNIFORM LOA BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATE LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK I-JOIST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

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

DATE: 2021-03-16

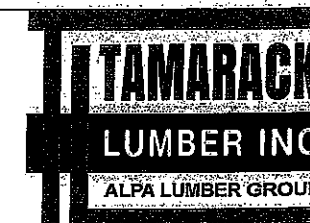
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	15
J2	14-00-00	11 7/8" NI-40x	1	44
J3	12-00-00	11 7/8" NI-40x	1	21
J4	10-00-00	11 7/8" NI-40x	1	9
J5	6-00-00	11 7/8" NI-40x	1	1
J6	20-00-00	11 7/8" NI-40x	1	25
B16	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B18	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B15	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B20B	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
1	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
26	H1	IUS2.56/11.88
1	H2	HUS1.81/10
2	H2	HUS1.81/10



FROM PLAN DATED: 2021/02

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH4

MODEL: SPRINGFIELD 1

ELEVATION: 2

LOT:

CITY: HAMILTON

SALESMAN: RICK DICIANO

DESIGNER: AJ

REVISION:

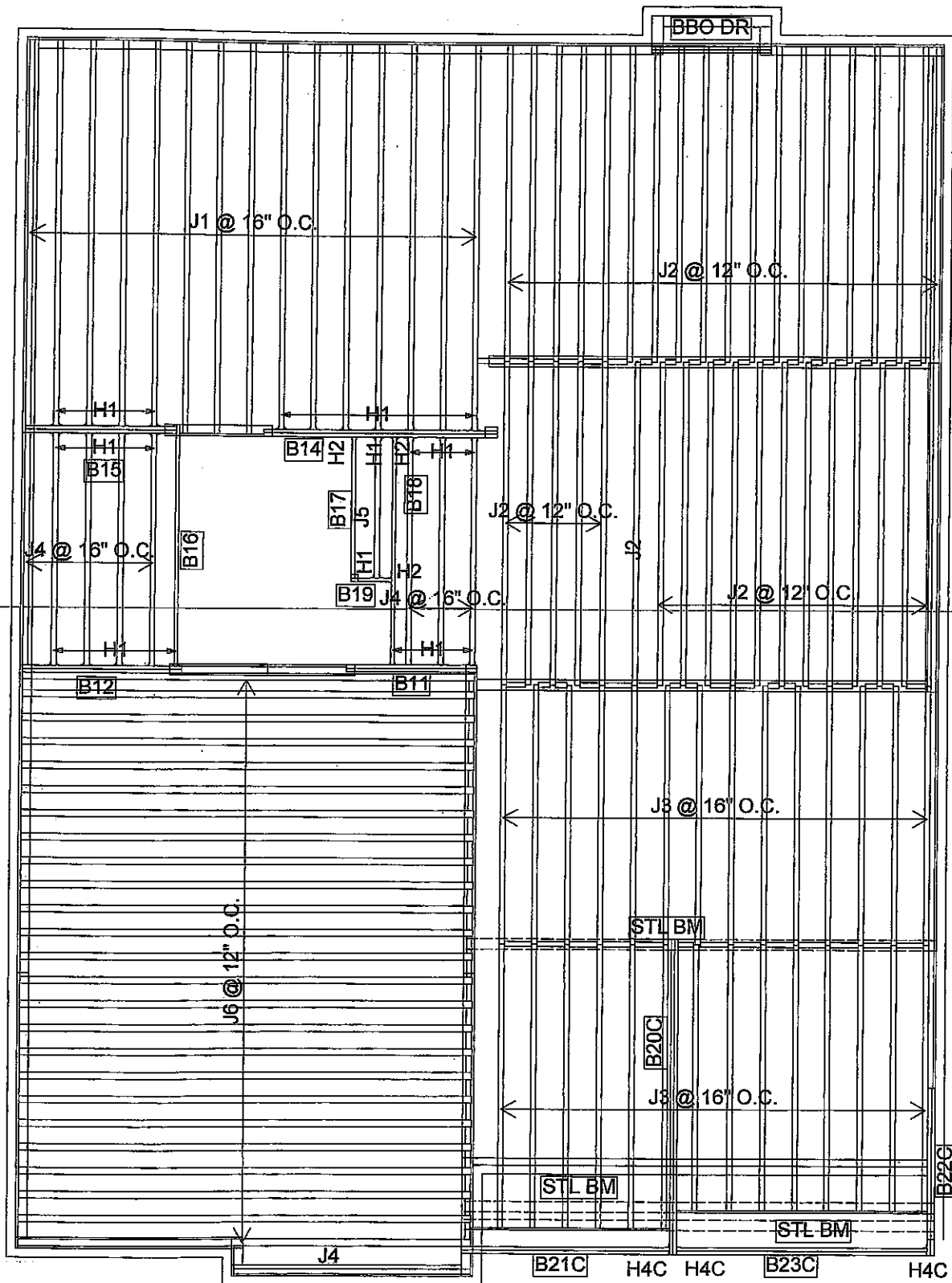
NOTES:
REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S REQ'D UNDER INTERIOR UNIFORM LOA BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATE LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** I-JOIST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

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

DATE: 2021-03-16

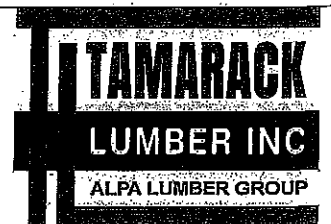
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	15
J2	14-00-00	11 7/8" NI-40x	1	37
J3	12-00-00	11 7/8" NI-40x	1	28
J4	10-00-00	11 7/8" NI-40x	1	9
J5	6-00-00	11 7/8" NI-40x	1	1
J6	20-00-00	11 7/8" NI-80 H0	1	25
B20C	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B16	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B23C	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B21C	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B15	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B22C	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
1	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
26	H1	IUS2.56/11.88
1	H2	HUS1.81/10
2	H2	HUS1.81/10
3	H4C	HUC412



FROM PLAN DATED: 2021/02
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 1
 ELEVATION: 3
 LOT:

CITY: HAMILTON
 SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

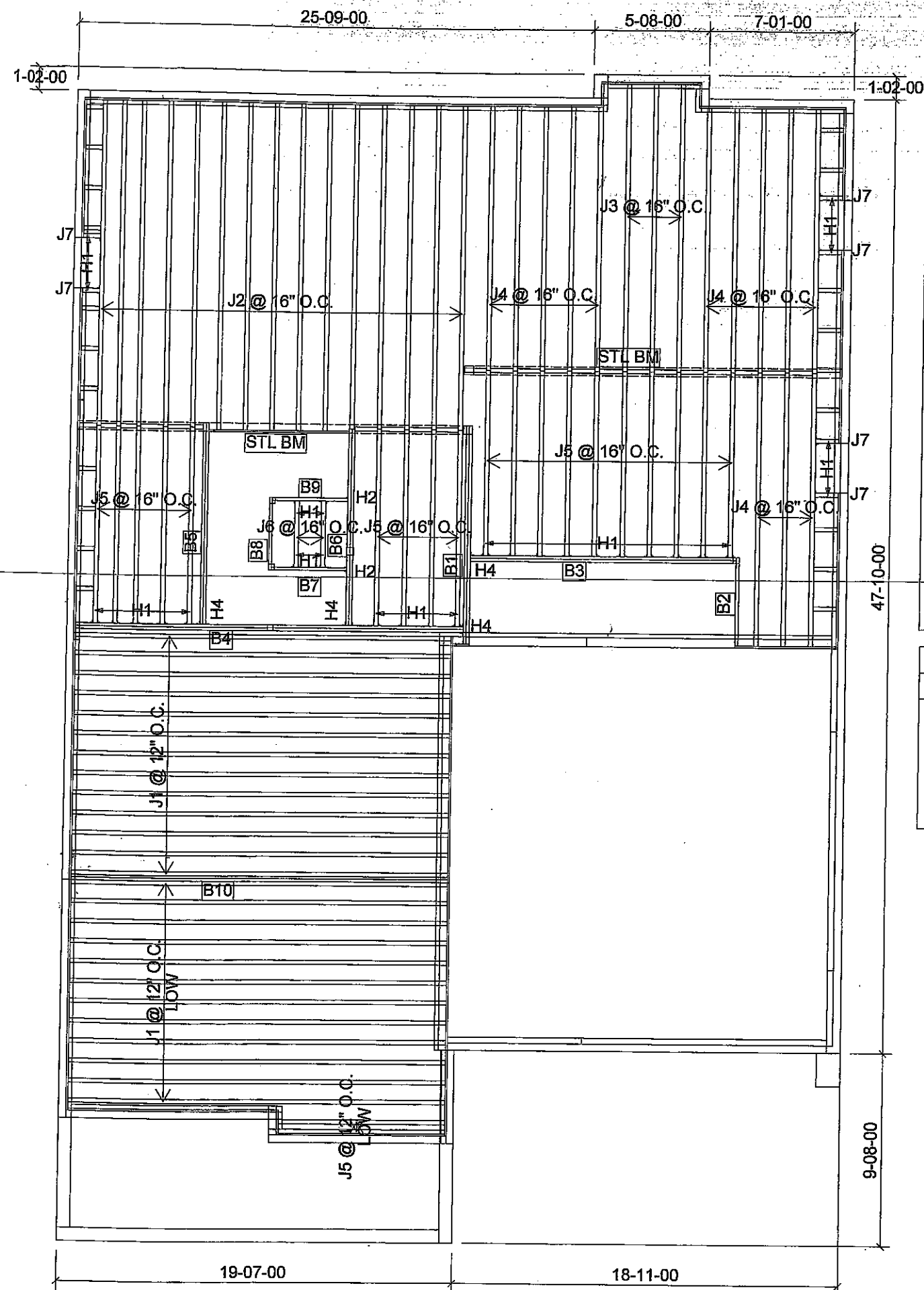
NOTES:
 REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S REQ'D UNDER INTERIOR UNIFORM LOA BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATE LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK I-JOIST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

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

DATE: 2021-03-16

2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



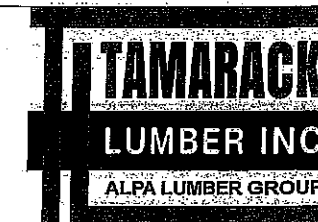
Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	25
J2	18-00-00	11 7/8" NI-40x	1	15
J3	16-00-00	11 7/8" NI-40x	1	3
J4	14-00-00	11 7/8" NI-40x	1	13
J5	10-00-00	11 7/8" NI-40x	1	21
J6	4-00-00	11 7/8" NI-40x	1	2
J7	2-00-00	11 7/8" NI-40x	1	6
B10	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/11.88
19	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H2	HUS1.81/10
4	H4	HGUS412

CITY OF HAMILTON
Building Division
Permit No. **21-58902**
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
[Signature] DATE **03/21/21**
FOR CHIEF BUILDING OFFICIAL

DATE: 2021-03-16

1st FLOOR SUNKEN MUD ROOM



FROM PLAN DATED: 2021/02
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH4
MODEL: SPRINGFIELD 1
ELEVATION: 1
LOT:

CITY: HAMILTON

SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION:

NOTES:
REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.I 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 F** 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 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

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B1(i2538) (Flush Beam)**

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

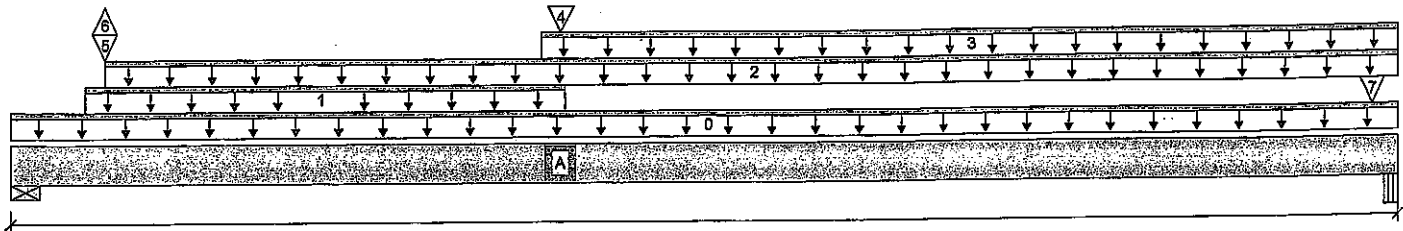
File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i2538)

Specifier:

Designer: AJ

Company:



B1

B2

Total Horizontal Product Length = 10-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	2558 / 148	1900 / 0		
B2, 5-1/4"	924 / 6	802 / 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	10-11-08	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-06-14	04-04-01	Top		60			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-08-10	10-11-08	Top	9	5			n/a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-01-14	10-11-08	Top	18	9			n/a
4	B3(i2434)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	Top	1202	1067			n/a
5	B4(i2545)	Conc. Pt. (lbs)	L	00-08-10	00-08-10	Top	1779	986			n/a
6	B4(i2545)	Conc. Pt. (lbs)	L	00-08-10	00-08-10	Top	154				n/a
7	B(i828)	Conc. Pt. (lbs)	L	10-09-00	10-09-00	Top	246	164			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9817 ft-lbs	35392 ft-lbs	27.7%	1	04-03-10
End Shear	3650 lbs	14464 lbs	25.2%	1	01-04-04
Total Load Deflection	L/999 (0.116")	n/a	n/a	6	05-01-13
Live Load Deflection	L/999 (0.06")	n/a	n/a	8	05-01-13
Max Defl.	0.116"	n/a	n/a	6	05-01-13
Span / Depth	10.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	6212 lbs	65.9%	33.3%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	2389 lbs	24.3%	10.7%	Unspecified

Cautions

Concentrated side load(s) 4 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



OWB NO. TAN 9515-21
STRUCTURAL
COMPONENT ONLY



BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1(i2538)

City, Province, Postal Code: HAMILTON

Specifier:

Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

Notes

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

CONFORMS TO UBC 2012

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

AMENDED 2020

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

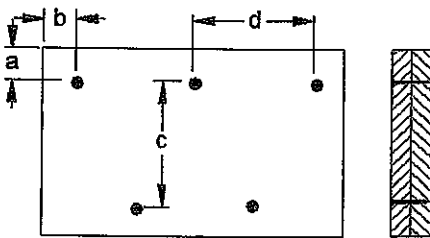
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 06-00-14.

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

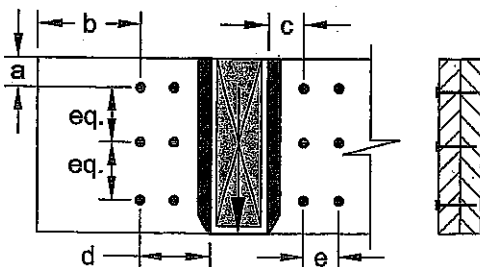
Calculated Side Load = 115.5 lb/ft

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 8



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

e minimum = 4"

Connectors are:

Nails

3 1/2" ARDOX SPIRAL



DWG NO. YAM 9515 -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®



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

PASSED

1ST FLR FRAMING\Flush Beams\B10(i2581) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report
Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B10(i2581)

City, Province, Postal Code: HAMILTON

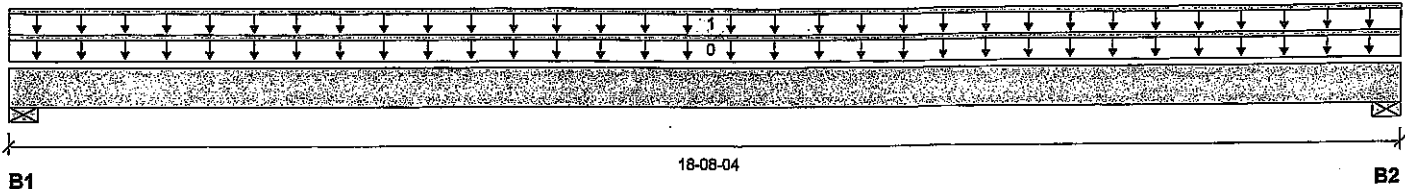
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 18-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	69 / 0	90 / 0		
B2, 4-3/8"	71 / 0	92 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-08-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	18-08-04	Top	8	4			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	977 ft-lbs	17696 ft-lbs	5.5%	1	09-03-02
End Shear	189 lbs	7232 lbs	2.6%	1	01-02-04
Total Load Deflection	L/999 (0.088")	n/a	n/a	4	09-03-02
Live Load Deflection	L/999 (0.038")	n/a	n/a	5	09-03-02
Max Defl.	0.088"	n/a	n/a	4	09-03-02
Span / Depth	18.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 1-3/4"	217 lbs	8.5%	4.3%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 1-3/4"	221 lbs	4.7%	2.4%	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. 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: 18-01-08.

CONFORMS TO OBC 2012



DWG NO. YAM 9516-21
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®, AJST®, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



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

PASSED

1ST FLR FRAMING\Flush Beams\B2(i2482) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B2(i2482)

City, Province, Postal Code: HAMILTON

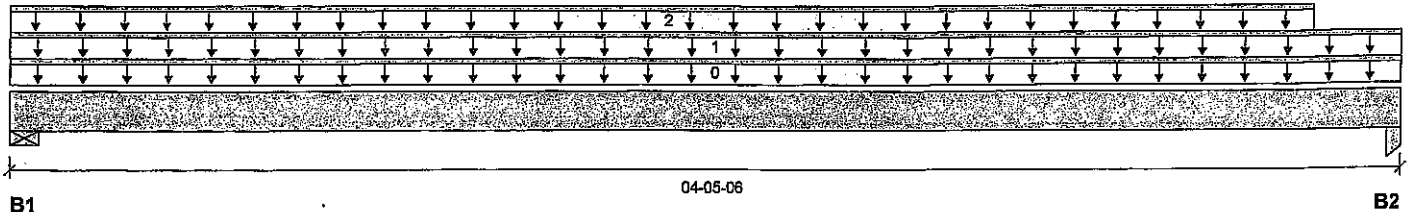
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	47 / 0	173 / 0		
B2, 3-1/2"	40 / 0	164 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-05-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-05-06	Top		60			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	04-01-14	Top	21	10			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	205 ft-lbs	11502 ft-lbs	1.8%	0	02-03-02
End Shear	97 lbs	4701 lbs	2.1%	0	01-04-04
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-03-02
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-03-02
Max Defl.	0.001"	n/a	n/a	4	02-03-02
Span / Depth	4.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 1-3/4"	242 lbs	7.9%	4.0%	Spruce-Pine-Fir
B2	Column 3-1/2" x 1-3/4"	230 lbs	7.1%	4.7%	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: 00-00-00, Bottom: 03-09-08.

CONFORMS TO OBC 2012

AMENDED 2020



0406 NO. YAM 9517 -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®, AJSTM, ALLJOIST®, BC RIM BOARD™, BCIO®, 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\B3(i2434) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

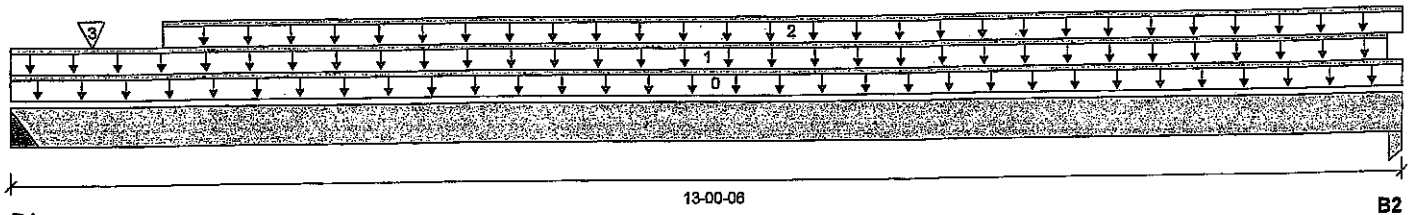
File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(i2434)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 13-00-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1234 / 0	1094 / 0		
B2, 1-3/4"	1325 / 0	1116 / 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	13-00-06	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	12-10-10	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-14	13-00-06	Top	201	101			n/a
3	J5(i2407)	Conc. Pt. (lbs)	L	00-08-14	00-08-14	Top	219	110			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	10106 ft-lbs	35392 ft-lbs	28.6%	1	06-00-14
End Shear	2824 lbs	14464 lbs	19.5%	1	01-03-14
Total Load Deflection	L/703 (0.216")	n/a	34.2%	4	06-06-14
Live Load Deflection	L/999 (0.116")	n/a	n/a	5	06-06-14
Max Defl.	0.216"	n/a	n/a	4	06-06-14
Span / Depth	12.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	4" x 3-1/2"	3218 lbs	n/a	18.8%	HGUS412
B2 Column	1-3/4" x 3-1/2"	3383 lbs	68.0%	45.3%	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.

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.

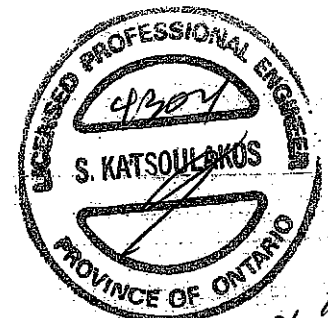
Design based on Dry Service Condition.

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



OWG NO. YAW 9518-21
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B3(i2434) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

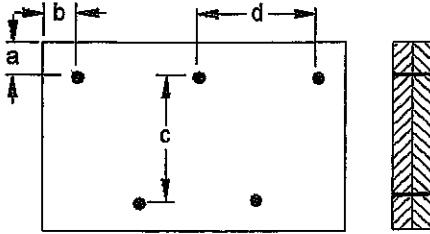
Description: 1ST FLR FRAMING\Flush Beams\B3(i2434)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 552.5 lb/ft

Connectors are: 16d Nails

3/4" ARDOX SPIRAL



DWG NO. YAM 9518-21
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®;



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

PASSED

1ST FLR FRAMING\Flush Beams\B4(i2545) (Flush Beam)

Dry | 2 spans | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report
Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B4(i2545)

City, Province, Postal Code: HAMILTON

Specifier:

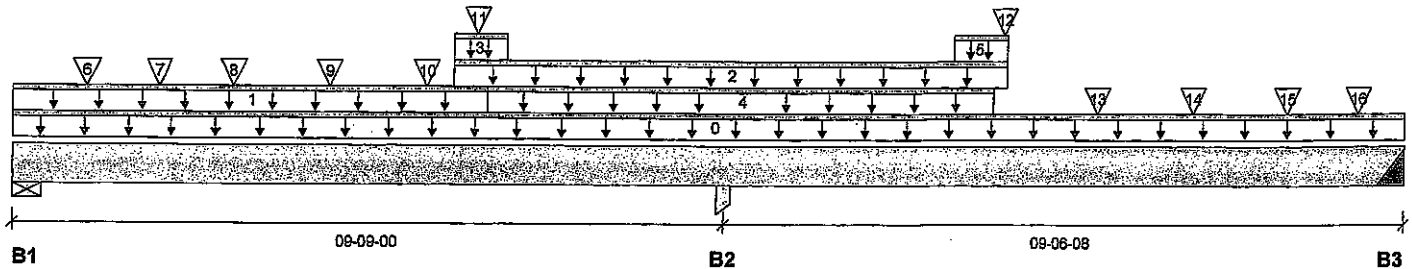
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 19-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	916 / 227	490 / 0		
B2, 3-1/2"	3113 / 0	2858 / 0		
B3, 4"	1873 / 160	1042 / 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	19-03-08	Top		12			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	06-06-02	Top	9				n/a
2	-	Unf. Lin. (lb/ft)	L	06-00-06	13-08-06	Top		81			n/a
3	3(i820)	Unf. Lin. (lb/ft)	L	06-00-06	06-09-06	Top	862	910			n/a
4	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	06-06-02	13-06-02	Top	12	6			n/a
5	4(i821)	Unf. Lin. (lb/ft)	L	12-11-06	13-08-06	Top	947	647			n/a
6	J5(i2561)	Conc. Pt. (lbs)	L	00-11-14	00-11-14	Top	209	104			n/a
7	J5(i2472)	Conc. Pt. (lbs)	L	01-11-14	01-11-14	Top	201	100			n/a
8	J5(i2527)	Conc. Pt. (lbs)	L	02-11-14	02-11-14	Top	234	117			n/a
9	J5(i2486)	Conc. Pt. (lbs)	L	04-03-14	04-03-14	Top	267	134			n/a
10	J5(i2540)	Conc. Pt. (lbs)	L	05-07-14	05-07-14	Top	216	108			n/a
11	B5(i2536)	Conc. Pt. (lbs)	L	06-04-06	06-04-06	Top	82	100			n/a
12	B6(i2584)	Conc. Pt. (lbs)	L	13-07-14	13-07-14	Top	1076	672			n/a
13	J5(i2524)	Conc. Pt. (lbs)	L	14-11-14	14-11-14	Top	285	143			n/a
14	J5(i2466)	Conc. Pt. (lbs)	L	16-03-14	16-03-14	Top	267	134			n/a
15	J5(i2466)	Conc. Pt. (lbs)	L	17-07-14	17-07-14	Top	267	134			n/a
16	-	Conc. Pt. (lbs)	L	18-07-12	18-07-12	Top	783	467			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8176 ft-lbs	35392 ft-lbs	23.1%	3	13-07-14
Neg. Moment	-9215 ft-lbs	-27184 ft-lbs	33.9%	1	09-09-00
End Shear	2900 lbs	14464 lbs	20.1%	3	17-11-10
Cont. Shear	4522 lbs	14464 lbs	31.3%	1	10-10-10
Total Load Deflection	L/999 (0.075")	n/a	n/a	10	14-08-00
Live Load Deflection	L/999 (0.052")	n/a	n/a	13	14-06-01
Total Neg. Defl.	L/999 (-0.013")	n/a	n/a	10	07-06-10
Max Defl.	0.075"	n/a	n/a	10	14-08-00
Span / Depth	9.7				



OWN NO. YAM 9519-21
STRUCTURAL
COMPONENT ONLY

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(i2545)

Specifier:

Designer: AJ

Company:

Bearing Supports	Dim. (LxW)	Demand	Demand/	Demand/	Material	
			Resistance	Resistance		
Support			Support	Member		
B1	Wall/Plate	2-3/8" x 3-1/2"	1985 lbs	38.8%	19.6%	Spruce-Pine-Fir
B2	Column	3-1/2" x 3-1/2"	8242 lbs	82.9%	55.1%	Unspecified
B3	Hanger	4" x 3-1/2"	4112 lbs	n/a	24.1%	HGUS412

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*

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.

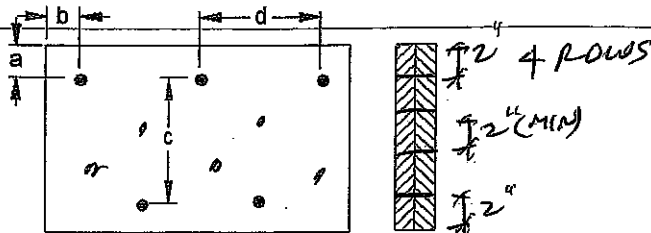
Importance Factor: Normal Part code: Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

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

Calculated Side Load = 1530.1 lb/ft
Connectors are: 16d Nails

3/2" ARDOX SPIRAL



ENG NO. YAM 9519-21
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®, AJST™, 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\B5(i2536) (Flush Beam)**

Dry | 1 span | No cant

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B5(i2536)

City, Province, Postal Code: HAMILTON

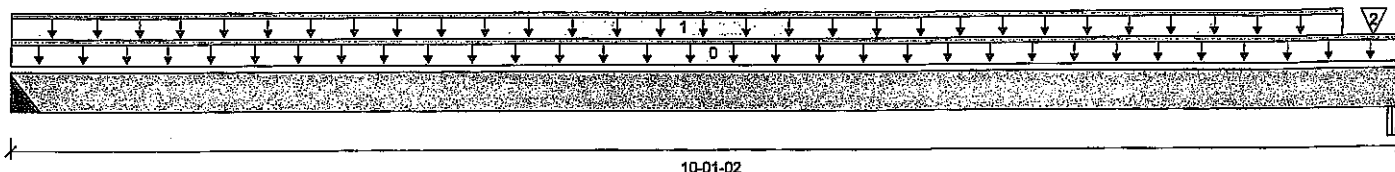
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



B1 10-01-02 B2

Total Horizontal Product Length = 10-01-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	85 / 0	103 / 0		
B2, 5-1/4"	203 / 0	267 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-01-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	09-07-14	Top	17	9			n/a
2	5(i827)	Conc. Pt. (lbs)	L	09-10-10	09-10-10	Top	123	166			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	573 ft-lbs	35392 ft-lbs	1.6%	1	04-11-15
End Shear	189 lbs	14464 lbs	1.3%	1	01-03-14
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	04-11-15
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	04-11-15
Max Defl.	0.007"	n/a	n/a	4	04-11-15
Span / Depth	9.5				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	256 lbs	n/a	1.5%	HGUS412
B2	Beam 5-1/4" x 3-1/2"	638 lbs	6.5%	2.8%	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.

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: 09-07-14.

CONFORMS TO OBC 2012

AMENDED 2020



OWS NO. YAM 9520-21
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B5(i2536) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B5(i2536)

City, Province, Postal Code: HAMILTON

Specifier:

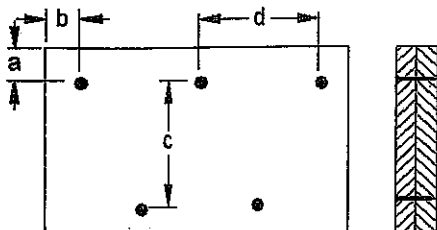
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Connectors are: 1 Nails

3/4" ARDOX SPIRAL



OWG NO. TAM 9510-21
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®, AJSTM®, ALLJOIST®, BC RIM BOARD™, BCIO®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

BC CALC® Member Report
 Build 7773

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B6(i2584)

City, Province, Postal Code: HAMILTON

Specifier:

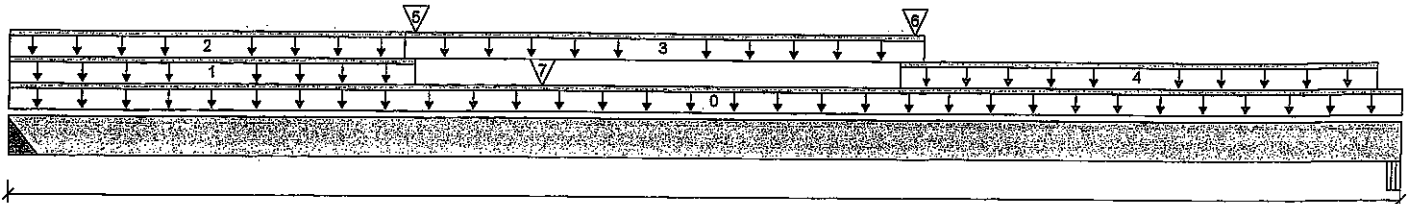
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1110 / 0	693 / 0		
B2, 2-5/8"	1005 / 0	609 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-10-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	02-10-00	Top	240	120			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	02-09-02	Top	30	15			n/a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	02-09-02	06-04-12	Top	53	27			n/a
4	User Load	Unf. Lin. (lb/ft)	L	06-02-12	09-08-05	Top	240	120			n/a
5	B7(i2444)	Conc. Pt. (lbs)	L	02-10-00	02-10-00	Top	99	60			n/a
6	B9(i2502)	Conc. Pt. (lbs)	L	06-03-14	06-03-14	Top	99	60			n/a
7	PBO6(i905)	Conc. Pt. (lbs)	L	03-08-12	03-08-12	Top	111	160			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4765 ft-lbs	35392 ft-lbs	13.5%	1	04-11-12
End Shear	1754 lbs	14464 lbs	12.1%	1	01-03-14
Total Load Deflection	L/999 (0.059")	n/a	n/a	4	04-11-12
Live Load Deflection	L/999 (0.035")	n/a	n/a	5	04-11-12
Max Defl.	0.059"	n/a	n/a	4	04-11-12
Span / Depth	9.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	2531 lbs	n/a	14.8%	HGUS412
B2	Beam 2-5/8" x 3-1/2"	2268 lbs	46.2%	20.2%	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.


 BWS NO. TAM 9521-21
 STRUCTURAL
 COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B6(i2584) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report
Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(i2584)

Specifier:

Designer: AJ

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.

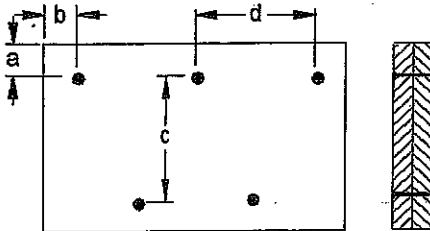
Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 03-04-02.

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Calculated Side Load = 510.0 lb/ft

Connectors are: 1 in Nails

3/4" ARDOX SPIRAL



ONE NO. TAM 9521 -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®,

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B7(i2444)

City, Province, Postal Code: HAMILTON

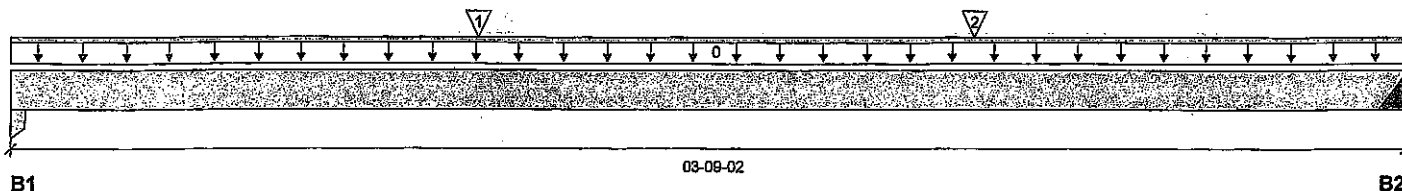
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 03-09-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	96 / 0	59 / 0		
B2, 2"	100 / 0	61 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	J6(i2484)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	99	49			n/a
2	J6(i2490)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	97	48			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	246 ft-lbs	17696 ft-lbs	1.4%	1	01-02-14
End Shear	217 lbs	7232 lbs	3.0%	1	02-07-04
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-10-06
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-10-06
Max Defl.	0.001"	n/a	n/a	4	01-10-06
Span / Depth	3-6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	218 lbs	8.8%	5.8%	Unspecified
B2	Hanger 2" x 1-3/4"	225 lbs	n/a	5.3%	HUS1.81/10

Cautions

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

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

Notes

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

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

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: 01-01-10.

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.

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



ENG NO. TAM 9512-21
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B8(i2526) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report
Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B8(i2526)

City, Province, Postal Code: HAMILTON

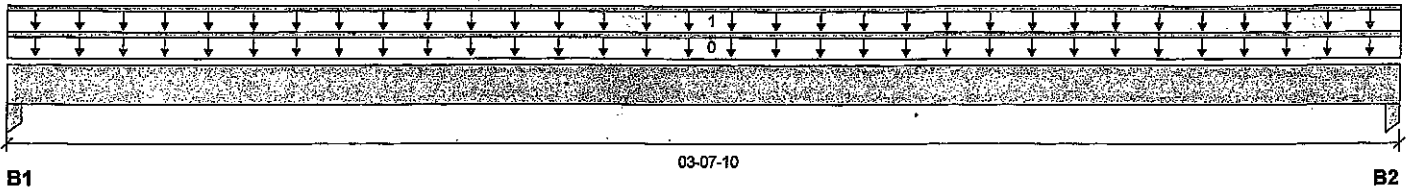
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 03-07-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	50 / 0	36 / 0		
B2, 3-1/2"	50 / 0	36 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-07-10	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	03-07-10	Top	28	14			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	84 ft-lbs	17696 ft-lbs	0.5%	1	01-09-13
End Shear	36 lbs	7232 lbs	0.5%	1	01-03-06
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-09-13
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-09-13
Max Defl.	0"	n/a	n/a	4	01-09-13
Span / Depth	3.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	121 lbs	2.4%	1.6%	Unspecified
B2	Column 3-1/2" x 1-3/4"	121 lbs	2.4%	1.6%	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: 00-00-00, Bottom: 03-04-02.

CONFORMS TO CBC 2012

AMENDED 2020



OWG NO. YAM 9523-21
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®, AJST™,
 ALLJOIST®, BC RIM BOARD™, BCI®,
 BOISE GLULAM™, BC FloorValue®,
 VERSA-LAM®, VERSA-RIM PLUS®



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

PASSED

1ST FLR FRAMING\Flush Beams\B9(i2502) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B9(i2502)

City, Province, Postal Code: HAMILTON

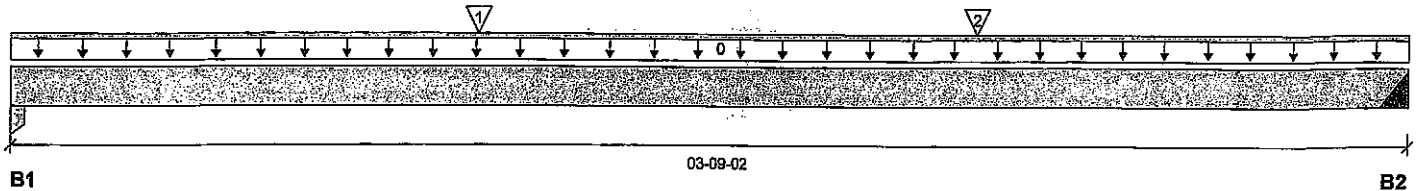
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	96 / 0	59 / 0		
B2, 2"	100 / 0	61 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	J6(i2484)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	99	49			n/a
2	J6(i2490)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	97	48			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	246 ft-lbs	17696 ft-lbs	1.4%	1	01-02-14
End Shear	217 lbs	7232 lbs	3.0%	1	02-07-04
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-10-06
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-10-06
Max Defl.	0.001"	n/a	n/a	4	01-10-06
Span / Depth	3.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	218 lbs	8.8%	5.8%	Unspecified
B2	Hanger 2" x 1-3/4"	225 lbs	n/a	5.3%	HUS1.81/10

Cautions

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

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

Notes

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

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

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: 01-01-10.

CONFORMS TO OBC 2012

AMENDED 2020


 OBC NO. 9524-21
 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®



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

PASSED

2ND FLR FRAMING\Flush Beams\B11(i2582) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

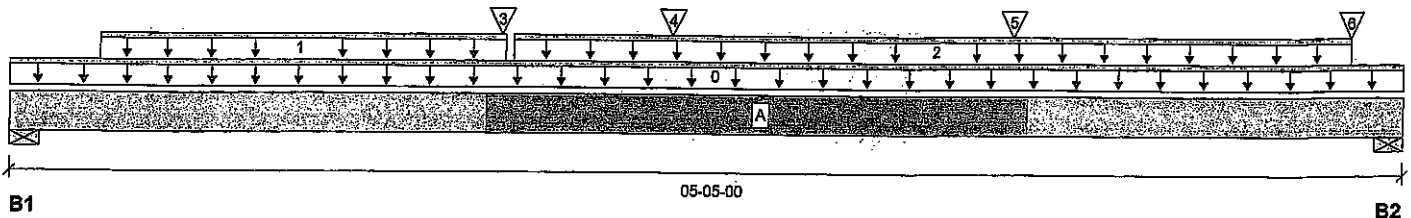
File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B11(i2582)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	719 / 0	489 / 0		
B2, 5-1/2"	855 / 0	489 / 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	05-05-00	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-04-00	01-10-13	Top		60			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	01-11-03	05-02-08	Top	8	4			n/a
3	B18(i885)	Conc. Pt. (lbs)	L	01-10-10	01-10-10	Top	820	442			n/a
4	J4(i943)	Conc. Pt. (lbs)	L	02-06-08	02-06-08	Top	199	99			n/a
5	J4(i930)	Conc. Pt. (lbs)	L	03-10-08	03-10-08	Top	263	132			n/a
6	J4(i955)	Conc. Pt. (lbs)	L	05-02-08	05-02-08	Top	263	132			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2611 ft-lbs	35392 ft-lbs	7.4%	1	01-10-10
End Shear	1596 lbs	14464 lbs	11.0%	1	01-03-14
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	02-06-08
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-06-08
Max Defl.	0.007"	n/a	n/a	4	02-06-08
Span / Depth	4.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	1690 lbs	19.6%	9.9%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	1894 lbs	16.0%	8.1%	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: 01-09-12.

CONFORMS TO OBC 2012

AMENDED 2020





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B11(i2582) (Flush Beam)

PASSED

BC CALC® Member Report
 Build 7773

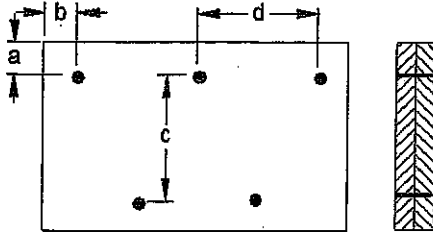
Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:
 Address:
 City, Province, Postal Code: HAMILTON
 Customer:
 Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B11(i2582)
 Specifier:
 Designer: AJ
 Company:

Connection Diagram: Full Length of Member



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

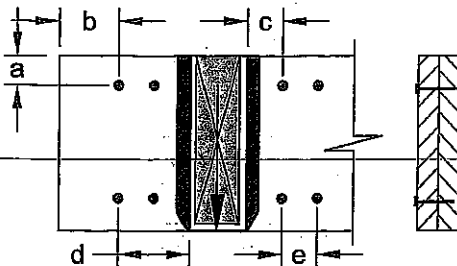
Calculated Side Load = 279.8 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 3+5+6



a minimum = 2"
 b minimum = 4"
 c minimum = 4"
 d maximum = 12"
 e minimum = 4"

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



OWG NO. YAN 9525-21

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®, AJST®, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

BC CALCO Member Report
Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B12(i2571)

City, Province, Postal Code: HAMILTON

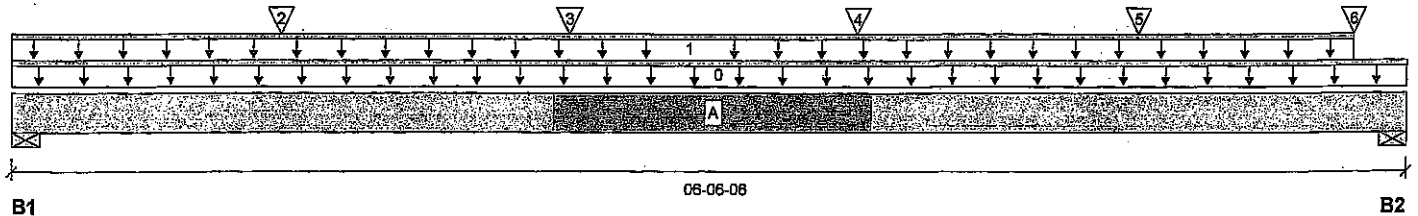
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 06-06-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	525 / 0	302 / 0		
B2, 6"	647 / 0	683 / 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	06-06-06	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	06-03-04	Top	6	3			n/a
2	J4(i963)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	247	124			n/a
3	J4(i964)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	267	134			n/a
4	J4(i964)	Conc. Pt. (lbs)	L	03-10-14	03-10-14	Top	267	134			n/a
5	J4(i965)	Conc. Pt. (lbs)	L	05-02-14	05-02-14	Top	239	120			n/a
6	B16(i2578)	Conc. Pt. (lbs)	L	06-03-04	06-03-04	Top	106	371			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1853 ft-lbs	35392 ft-lbs	5.2%	1	02-06-14
End Shear	1066 lbs	14464 lbs	7.4%	1	01-04-04
Total Load Deflection	L/999 (0.008")	n/a	n/a	4	03-01-14
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	03-01-14
Max Defl.	0.008"	n/a	n/a	4	03-01-14
Span / Depth	5.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	1165 lbs	12.4%	6.2%	Spruce-Pine-Fir
B2	Wall/Plate 6" x 3-1/2"	1825 lbs	14.1%	7.1%	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 CALCO 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



OWN NO. YAW 952621
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B12(i2571) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

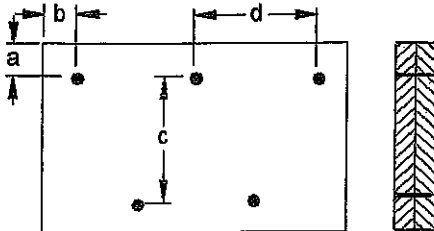
Description: 2ND FLR FRAMING\Flush Beams\B12(i2571)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



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

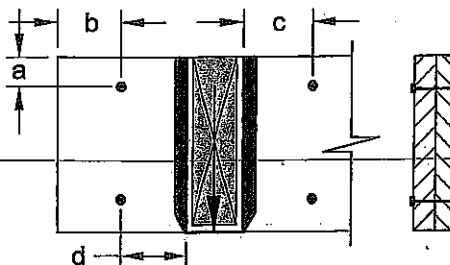
Calculated Side Load = 259.7 lb/ft

Connectors are: 16d Nails

3/4" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 4+5



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"

Connectors are:
Nails

3/4" ARDOX SPIRAL



DWG NO. TAM 9526-21

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®,



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

2ND FLR FRAMING\Flush Beams\B14(i2544) (Flush Beam)

PASSED

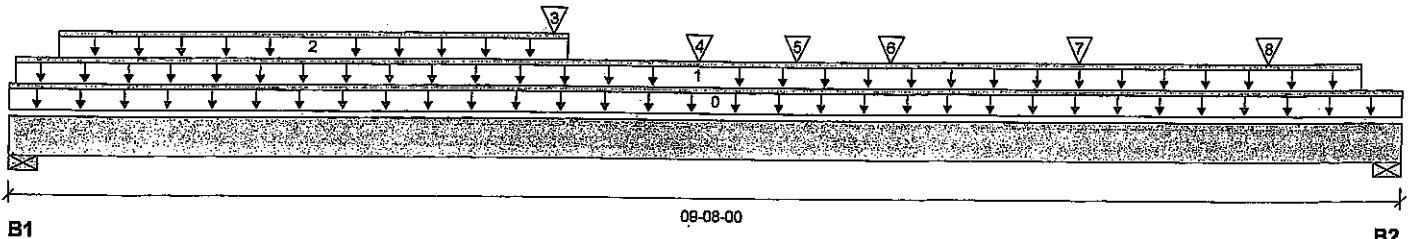
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B14(i2544)
Specifier:
Designer: AJ
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1900 / 0	1199 / 0		
B2, 6"	2329 / 0	1291 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-08-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-08	09-04-08	Top	325	162			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-04-00	03-09-12	Top		60			n/a
3	B17(i884)	Conc. Pt. (lbs)	L	03-08-10	03-08-10	Top	62	49			n/a
4	J5(i933)	Conc. Pt. (lbs)	L	04-08-08	04-08-08	Top	105	53			n/a
5	B18(i885)	Conc. Pt. (lbs)	L	05-04-10	05-04-10	Top	301	181			n/a
6	J4(i943)	Conc. Pt. (lbs)	L	06-00-08	06-00-08	Top	197	99			n/a
7	J4(i930)	Conc. Pt. (lbs)	L	07-04-08	07-04-08	Top	263	132			n/a
8	J4(i955)	Conc. Pt. (lbs)	L	08-08-08	08-08-08	Top	263	132			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10845 ft-lbs	35392 ft-lbs	30.6%	1	04-08-08
End Shear	4294 lbs	14464 lbs	29.7%	1	08-02-02
Total Load Deflection	L/999 (0.112")	n/a	n/a	4	04-10-09
Live Load Deflection	L/999 (0.071")	n/a	n/a	5	04-10-09
Max Defl.	0.112"	n/a	n/a	4	04-10-09
Span / Depth	9.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	4349 lbs	50.5%	25.5%	Spruce-Pine-Fir
B2	Wall/Plate 6" x 3-1/2"	5107 lbs	39.5%	19.9%	Spruce-Pine-Fir

Notes

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



OWB NO. TAM 9527-21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B14(i2544) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14(i2544)

City, Province, Postal Code: HAMILTON

Specifier:

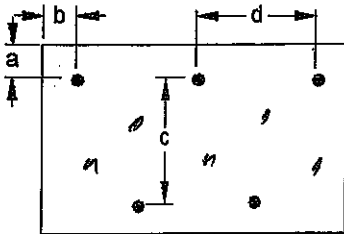
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



4 Rows
2" MIN
2"

a minimum = 2"

c = 7-7/8"

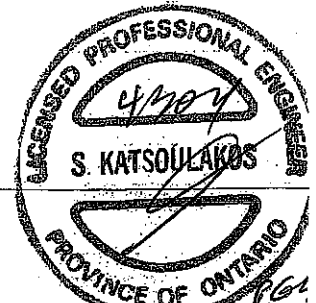
b minimum = 3"

d = 8"

Calculated Side Load = 926.5 lb/ft

Connectors are:

3/4" ARDOX SPIRAL Nails



9527-28

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\Flush Beams\B15(i830) (Flush Beam)

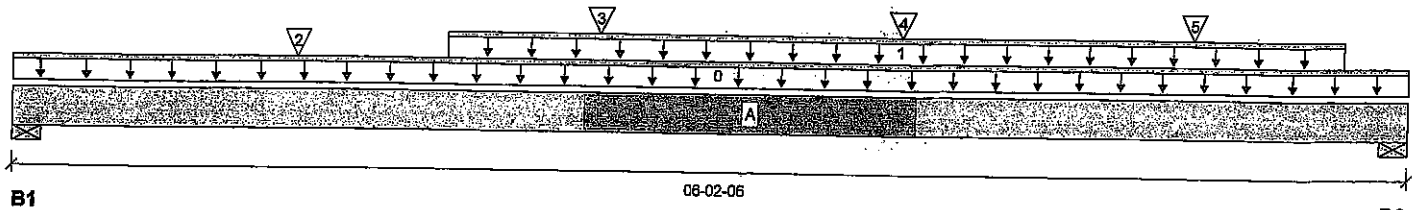
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B15(i830)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 06-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1239 / 0	657 / 0		
B2, 6"	1470 / 0	774 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-02-06	Top	1.00	0.65	1.00	1.15	
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-14	05-10-14	Top		12			00-00-00
2	-	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	321	161			n/a
3	J4(i964)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	643	322			n/a
4	J4(i962)	Conc. Pt. (lbs)	L	03-10-14	03-10-14	Top	267	134			n/a
5	J4(i965)	Conc. Pt. (lbs)	L	05-02-14	05-02-14	Top	267	134			n/a
							239	120			n/a

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4209 ft-lbs	35392 ft-lbs	11.9%	1	02-06-14
End Shear	2499 lbs	14464 lbs	17.3%	1	01-04-04
Total Load Deflection	L/999 (0.016")	n/a	n/a	4	03-00-14
Live Load Deflection	L/999 (0.011")	n/a	n/a	5	03-00-14
Max Defl.	0.016"	n/a	n/a	4	03-00-14
Span / Depth	5.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	2679 lbs	28.4%	14.3%	Spruce-Pine-Fir
B2	Wall/Plate 6" x 3-1/2"	3173 lbs	24.6%	12.4%	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



OWG NO. TAM 9528-21
STRUCTURAL
COMPONENT ONLY

BC CALC® Member Report
Build 7773

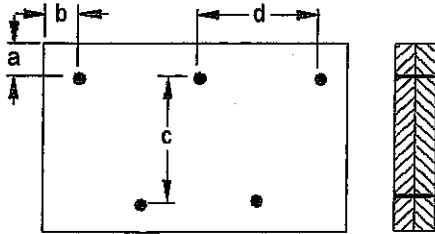
Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B15(i830)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



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

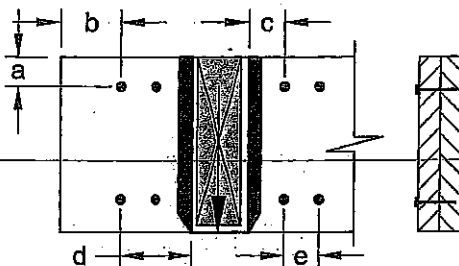
Calculated Side Load = 454.8 lb/ft

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 5+4+6+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



SWG NO. TAN 9518-21

STRUCTURAL

Disclosure COMPONENT ONLY

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

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



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

2ND FLR FRAMING\Flush Beams\B16(i2578) (Flush Beam)

PASSED

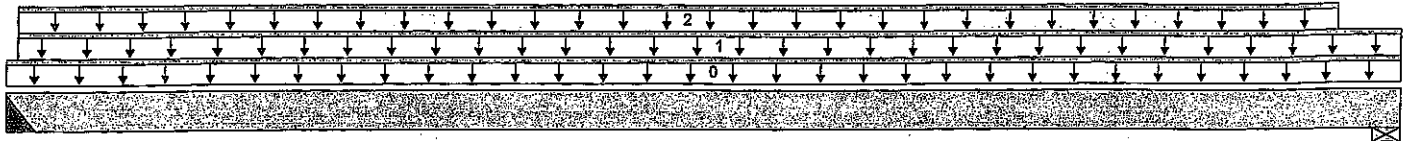
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B16(i2578)
Specifier:
Designer: AJ
Company:



B1 10-01-06 B2
Total Horizontal Product Length = 10-01-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	107 / 0	373 / 0		
B2, 5-1/2"	105 / 0	396 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-01-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-01-00	10-01-06	Top		60			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-01-00	09-07-14	Top	22	11			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1247 ft-lbs	11502 ft-lbs	10.8%	0	04-10-15
End Shear	405 lbs	4701 lbs	8.6%	0	01-01-14
Total Load Deflection	L/999 (0.039")	n/a	n/a	4	04-10-15
Live Load Deflection	L/999 (0.009")	n/a	n/a	5	04-10-15
Max Defl.	0.039"	n/a	n/a	4	04-10-15
Span / Depth	9.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	522 lbs	n/a	18.8%	IUS2.56/11.88
B2	Wall/Plate 5-1/2" x 1-3/4"	554 lbs	14.4%	7.3%	Spruce-Pine-Fir

Cautions

Header for the hanger IUS2.56/11.88 is a Double 1-3/4" x 11-7/8" LVL Beam.
Hanger model IUS2.56/11.88 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor: Normal Part code: Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 09-06-14.



OWB NO. YAM 9529 -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®,



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B17(i884) (Flush Beam)

PASSED

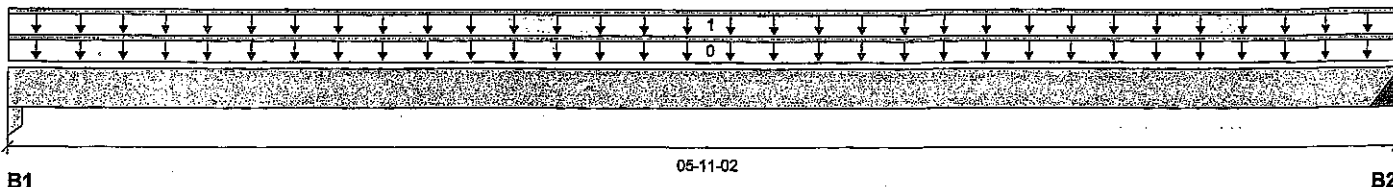
BC CALC® Member Report
 Build 7773

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:
 Address:
 City, Province, Postal Code: HAMILTON
 Customer:
 Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B17(i884)
 Specifier:
 Designer: AJ
 Company:



Total Horizontal Product Length = 05-11-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	63 / 0	49 / 0		
B2, 2"	63 / 0	49 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-11-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	05-11-02	Top	21	11			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	217 ft-lbs	17696 ft-lbs	1.2%	1	02-11-07
End Shear	96 lbs	7232 lbs	1.3%	1	01-01-10
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-11-07
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-11-07
Max Defl.	0.002"	n/a	n/a	4	02-11-07
Span-/Depth	5.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Column	1-3/4" x 1-3/4"	156 lbs	6.3%	4.2%	Unspecified
B2 Hanger	2" x 1-3/4"	157 lbs	n/a	3.7%	HUS1.81/10

Cautions

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

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

Notes

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

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

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: 05-11-02.

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAN 9530-21
 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®



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B18(1885) (Flush Beam)

PASSED

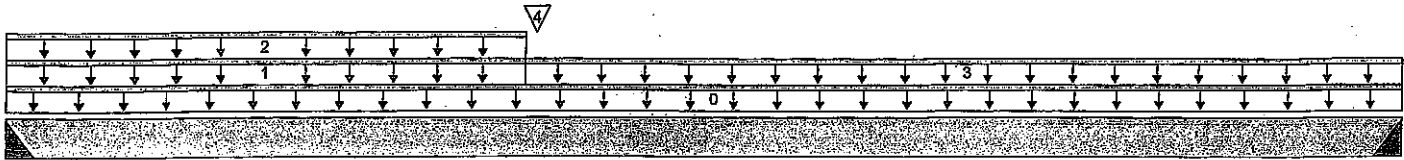
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B18(1885)
Specifier:
Designer: AJ
Company:



09-06-14

Total Horizontal Product Length = 09-06-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	825 / 0	445 / 0		
B2, 2"	292 / 0	176 / 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	09-06-14	Top		6			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	240	120			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	15	7			n/a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	03-06-00	09-06-14	Top	27	13			n/a
4	B19(1892)	Conc. Pt. (lbs)	L	03-06-14	03-06-14	Top	64	37			n/a

Controls Summary

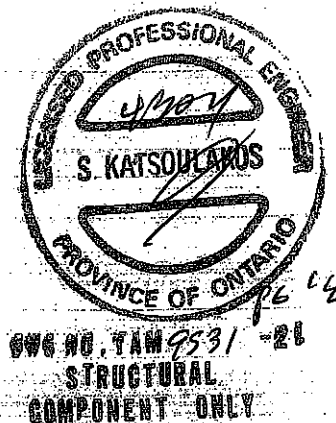
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2748 ft-lbs	17696 ft-lbs	15.5%	1	03-02-08
End Shear	1159 lbs	7232 lbs	16.0%	1	01-01-14
Total Load Deflection	L/999 (0.057")	n/a	n/a	4	04-04-14
Live Load Deflection	L/999 (0.036")	n/a	n/a	5	04-04-14
Max Defl.	0.057"	n/a	n/a	4	04-04-14
Span / Depth	9.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	1794 lbs	n/a	42.0%	IUS2.56/11.88
B2 Hanger	2" x 1-3/4"	658 lbs	n/a	15.4%	HUS1.81/10

Cautions

Header for the hanger IUS2.56/11.88 is a Double 1-3/4" x 11-7/8" LVL Beam.
Hanger model IUS2.56/11.88 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger HUS1.81/10 is a 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.





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

2ND FLR FRAMING\Flush Beams\B18(i885) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 16, 2021 10:58:46

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B18(i885)

City, Province, Postal Code: HAMILTON

Specifier:

Customer:

Designer: AJ

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: 05-11-02.

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM 9531-21
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®



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

PASSED

2ND FLR FRAMING\Flush Beams\B19(i892) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 10:58:46

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 1 SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B19(i892)

City, Province, Postal Code: HAMILTON

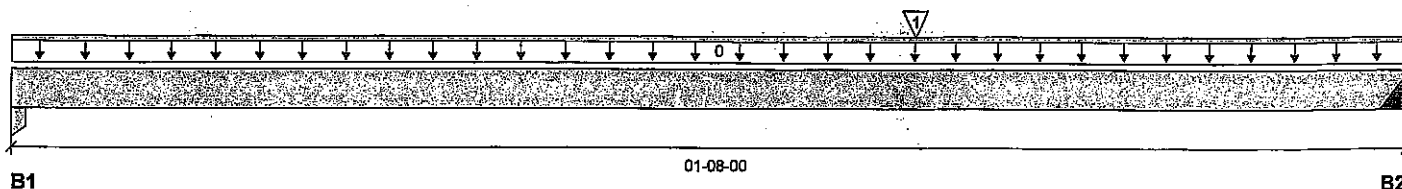
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	41 / 0	26 / 0		
B2, 2"	67 / 0	38 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-08-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	J5(i933)	Conc. Pt. (lbs)	L	01-00-12	01-00-12	Top	108	54			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	73 ft-lbs	17696 ft-lbs	0.4%	1	01-00-12
End Shear	32 lbs	7232 lbs	0.4%	1	01-03-06
Span / Depth	1.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	93 lbs	1.9%	1.2%	Unspecified
B2	Hanger 2" x 1-3/4"	149 lbs	n/a	3.5%	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.

Notes

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: 00-09-12.

CONFORMS TO OBC 2012

AMENDED 2020


 OWC NO. TAN 9332-21
 STRUCTURAL
 COMPONENT ONLY

Disclosure

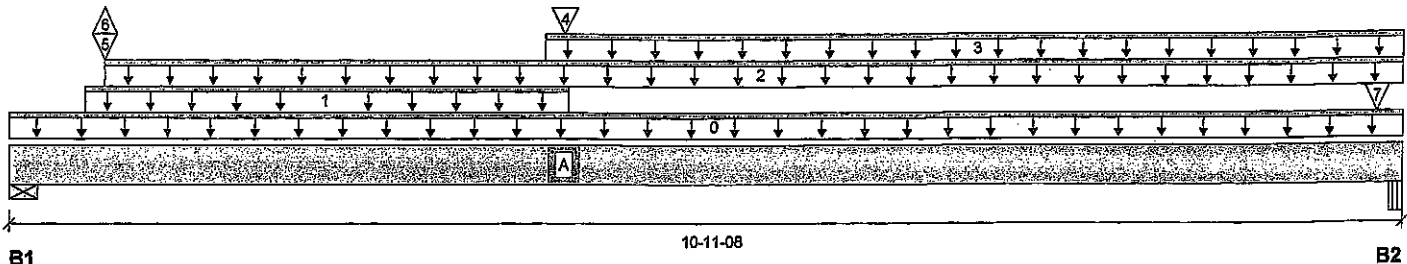
Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability 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®

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED**BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 16, 2021 11:25:13

Job name:
Address:
City, Province, Postal Code: HAMILTON
Customer:
Code reports: CCMC 12472-RFile name: SPRINGFIELD 1 EL 1 OPT GUEST SUITE.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B1A(i2590) (Flush Beam)
Specifier:
Designer: AJ
Company:

Total Horizontal Product Length = 10-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	2215 / 148	1601 / 0		
B2, 5-1/4"	706 / 6	611 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-11-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-06-14	04-04-01	Top		60			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-08-10	10-11-08	Top	9	5			n/a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-01-14	10-11-08	Top	18	9			n/a
4	B3A(i2585)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	Top	640	558			n/a
5	B4(i2662)	Conc. Pt. (lbs)	L	00-08-10	00-08-10	Top	1779	986			n/a
6	B4(i2662)	Conc. Pt. (lbs)	L	00-08-10	00-08-10	Top	154				n/a
7	6(i828)	Conc. Pt. (lbs)	L	10-09-00	10-09-00	Top	246	164			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6259 ft-lbs	35392 ft-lbs	17.7%	1	04-03-10
End Shear	2760 lbs	14464 lbs	19.1%	1	01-04-04
Total Load Deflection	L/999 (0.076")	n/a	n/a	6	05-01-13
Live Load Deflection	L/999 (0.039")	n/a	n/a	8	05-01-13
Max Defl.	0.076"	n/a	n/a	6	05-01-13
Span / Depth	10.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	5323 lbs	56.5%	28.5%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	1823 lbs	18.6%	8.1%	Unspecified

Cautions

Concentrated side load(s) 4 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



UWG NO. 9533-21
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B1A(I2590) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 11:25:13

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 OPT GUEST SUITE.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1A(I2590)

Specifier:

Designer: AJ

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.

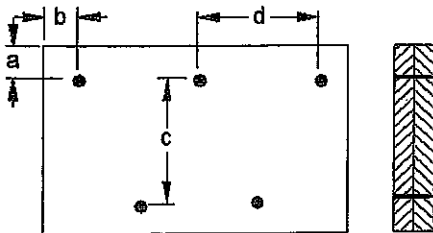
Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 06-00-14.

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Calculated Side Load = 115.5 lb/ft

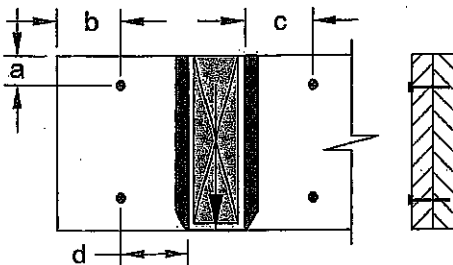
Connectors are:

3 1/2" ARDOX SPIRAL

Nails

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 8



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



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®,



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

PASSED

1ST FLR FRAMING\Flush Beams\B2A(i2596) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 11:25:13

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

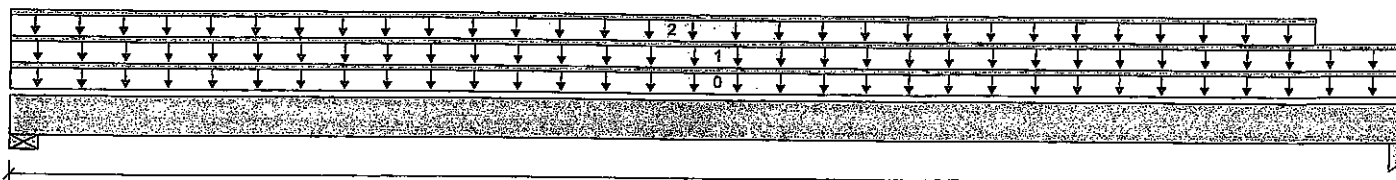
File name: SPRINGFIELD 1 EL 1 OPT GUEST SUITE.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2A(i2596)

Specifier:

Designer: AJ

Company:



B1

04-05-06

B2

Total Horizontal Product Length = 04-05-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	15 / 0	157 / 0		
B2, 3-1/2"	12 / 0	151 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-05-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-05-06	Top		60			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	04-01-14	Top	7	3			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	186 ft-lbs	11502 ft-lbs	1.6%	0	02-03-02
End Shear	88 lbs	4701 lbs	1.9%	0	01-04-04
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-03-02
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-03-02
Max Defl.	0.001"	n/a	n/a	4	02-03-02
Span / Depth	4.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 1-3/4"	219 lbs	7.2%	3.6%	Spruce-Pine-Fir
B2	Column 3-1/2" x 1-3/4"	211 lbs	6.5%	4.3%	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: 00-00-00, Bottom: 03-09-08.

CONFORMS TO OBC 2012

AMENDED 2020


 SW6 NO. TAN 9534-21
 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®, AJST™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



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

1ST FLR FRAMING\Flush Beams\B3A(i2585) (Flush Beam)

Dry | 1 span | No cant.

PASSED

March 16, 2021 11:25:13

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

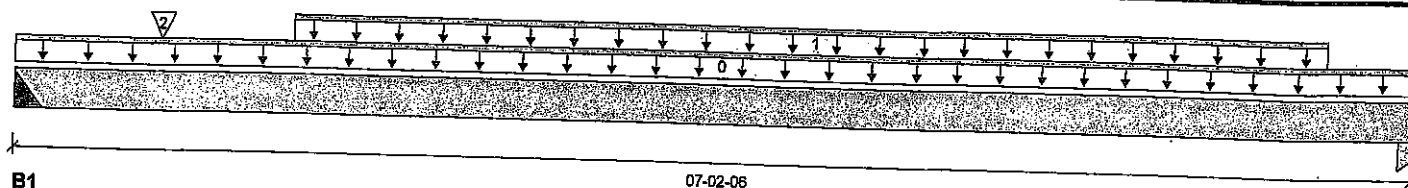
File name: SPRINGFIELD 1 EL 1 OPT GUEST SUITE.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3A(i2585)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	667 / 0	582 / 0		
B2, 1-3/4"	596 / 0	523 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-02-06	Top	1.00	0.65	1.00	1.15	
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-14	06-08-14	Top		12			00-00-00
2	J5(i2591)	Conc. Pt. (lbs)	L	00-08-14	00-08-14	Top	196	158			n/a
							219	176			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2998 ft-lbs	35392 ft-lbs	8.5%	1	03-04-14
End Shear	1523 lbs	14464 lbs	10.5%	1	06-00-12
Total Load Deflection	L/999 (0.018")	n/a	n/a	4	03-07-14
Live Load Deflection	L/999 (0.01")	n/a	n/a	5	03-07-14
Max Defl.	0.018"	n/a	n/a	4	03-07-14
Span-/Depth	6.9				

Bearing Supports

Bearing Supports			Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	1728 lbs	n/a	10.1%	HGUS412	
B2	Column	1-3/4" x 3-1/2"	1547 lbs	31.1%	20.7%	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.

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



ONE NO. YAM 9535-21
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B3A(i2585) (Flush Beam)

Dry | 1 span | No cant.

March 16, 2021 11:25:13

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 1 OPT GUEST SUITE.mmdl

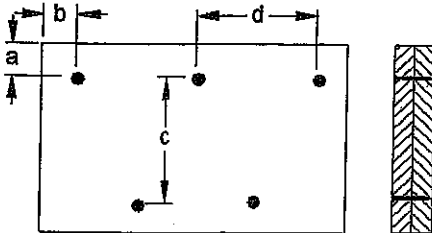
Description: 1ST FLR FRAMING\Flush Beams\B3A(i2585)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 6"

Calculated Side Load = 652.5 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



OWB NO. TAM 9535 -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®



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B20B(i2635) (Flush Beam)

PASSED

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 16, 2021 13:34:15

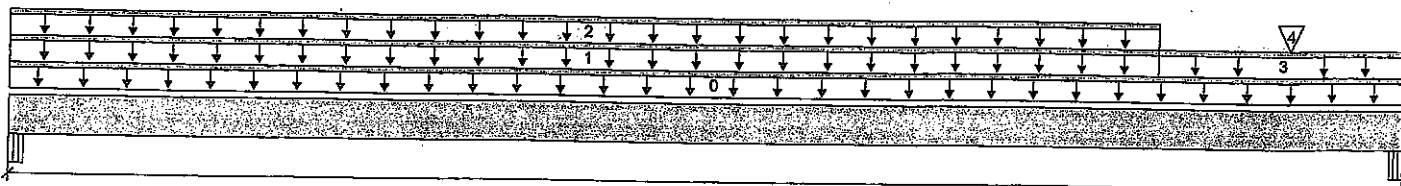
File name: SPRINGFIELD 1 EL 2 SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B20B(i2635)

Specifier:

Designer: AJ

Company:



B1

02-05-04

B2

Total Horizontal Product Length = 02-05-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	10 / 0	271 / 0	252 / 0	
B2, 5-1/4"	8 / 0	262 / 0	257 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-05-04	Top	1.00	0.65	1.00	1.15	
1	E22(i3027)	Unf. Lin. (lb/ft)	L	00-00-00	02-00-00	Top		12			00-00-00
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	02-00-00	Top	8	4	207		n/a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	02-00-00	02-05-04	Top	5				n/a
4	E19(i3024)	Conc. Pt. (lbs)	L	02-02-12	02-02-12	Top		81	95		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	212 ft-lbs	35392 ft-lbs	0.6%	13	01-02-10
End Shear	125 lbs	14464 lbs	0.9%	13	01-05-02
Total Load Deflection	L/999 (0")	n/a	n/a	35	01-02-10
Live Load Deflection	L/999 (0")	n/a	n/a	51	01-02-10
Max Defl.	0"	n/a	n/a	35	01-02-10
Span / Depth	1.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 3-1/2"	727 lbs	7.4%	3.2%	Unspecified
B2	Beam 5-1/4" x 3-1/2"	720 lbs	7.3%	3.2%	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.

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: 01-06-12.

CONFORMS TO OBC 2012

AMENDED 2020



OWNED BY: TAM 9536 -21
STRUCTURAL
COMPONENT ONLY



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 1 EL 2 SUNKEN.mmdl

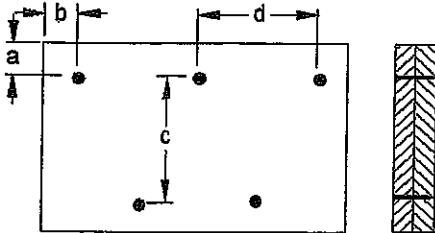
Description: 2ND FLR FRAMING\Flush Beams\B20B(i2635)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 6"

Connectors are:

3 1/2" ARDOX SPIRAL

Nails



DWG NO. TAN 9536-21
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™, BCIO®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®



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

2ND FLR FRAMING\Dropped Beams\B23C(i3620) (Dropped Beam)

PASSED

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 16, 2021 16:26:36

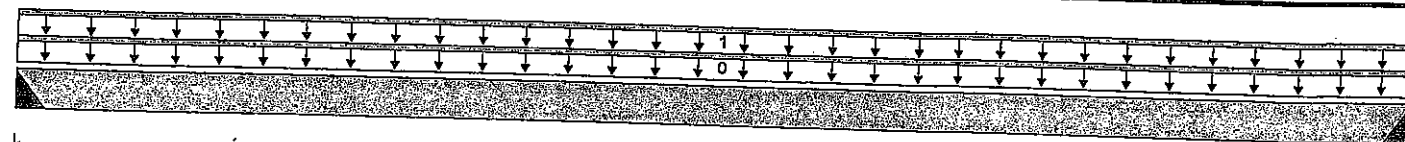
File name: SPRINGFIELD 1 EL 3 SUNKEN.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B23C(i3620)

Specifier:

Designer: AJ

Company:



B1

10-03-00

Total Horizontal Product Length = 10-03-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"		205 / 0	236 / 0	
B2, 2"		205 / 0	236 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-03-00	Top	1.00	0.65	1.00	1.15	
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	10-03-00	Top		28	46		00-00-00
											n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Moment	1500 ft-lbs	19418 ft-lbs	7.7%	1	05-01-08
End Shear	472 lbs	14464 lbs	3.3%	1	01-01-14
Total Load Deflection	L/999 (0.02")	n/a	n/a	12	05-01-08
Live Load Deflection	L/999 (0.011")	n/a	n/a	17	05-01-08
Max Defl.	0.02"	n/a	n/a	12	05-01-08
Span / Depth	10.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	610 lbs	n/a	7.1%	HUC412
B2	Hanger 2" x 3-1/2"	610 lbs	n/a	7.1%	HUC412

Cautions

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

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

Notes

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

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

Hanger Manufacturer: Unassigned

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 10-03-00, Bottom: 10-03-00.

CONFORMS TO OBC 2012

AMENDED 2020



OWG NO. TAM 9537 -21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Dropped Beams\B23C(i3620) (Dropped 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

File name: SPRINGFIELD 1 EL 3 SUNKEN.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B23C(i3620)

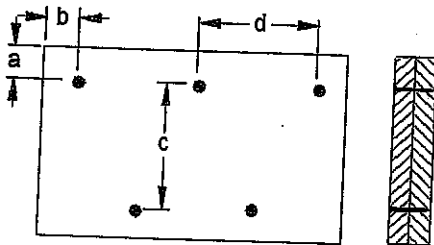
Specifier:

Designer: AJ

Company:

March 16, 2021 16:26:36

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 0"

Connectors are:

3 1/2" ARDOX SPIRAL

Nails



OWG NO. TAM 9537-21

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®, AJST™, 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
2ND FLR FRAMING\Flush Beams\B20C(i3653) (Flush Beam)
Dry | 2 spans | L cant.

PASSED

March 16, 2021 16:26:36

BC CALC® Member Report
Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

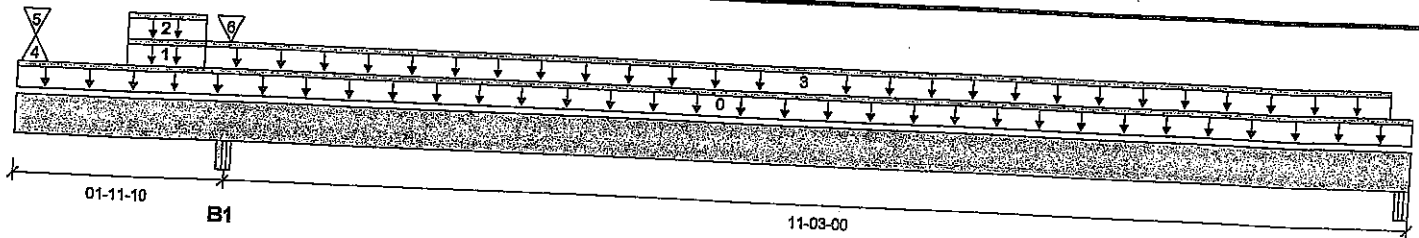
File name: SPRINGFIELD 1 EL 3 SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B20C(i3653)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Total Horizontal Product Length = 13-02-10

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	152 / 0	732 / 0	565 / 0	
B2, 5-1/4"	142 / 0	71 / 0	0 / 75	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-02-10	Top	1.00	0.65	1.00	1.15	
1	E24(i3631)	Unf. Lin. (lb/ft)	L	01-00-00	01-09-00	Top		12			00-00-00
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	01-00-00	01-09-00	Top	11	109	46		n/a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	01-09-00	13-00-00	Top	25	13			n/a
4	-	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	0	366	421		n/a
5	LOW ROOF	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top		8	13		n/a
6	E21(i3628)	Conc. Pt. (lbs)	L	01-11-12	01-11-12	Top		42	21		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	602 ft-lbs	35392 ft-lbs	1.7%	45	08-08-06
Neg. Moment	-2171 ft-lbs	-22666 ft-lbs	9.6%	49	01-11-10
End Shear	215 lbs	14464 lbs	1.5%	43	11-09-08
Cont. Shear	1297 lbs	14464 lbs	9.0%	50	00-09-02
Total Load Deflection	2xL/1998 (0.019")	n/a	n/a	110	00-00-00
Live Load Deflection	2xL/1998 (0.012")	n/a	n/a	162	00-00-00
Total Neg. Defl.	L/999 (-0.014")	n/a	n/a	122	06-00-01
Max Defl.	-0.014"	n/a	n/a	122	06-00-01
Span / Depth	11.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 3-1/2"	1915 lbs	19.5%	8.5%	Unspecified
B2	Beam 5-1/4" x 3-1/2"	303 lbs	3.1%	1.3%	Unspecified



OWB NO. YAM 9538 -21
STRUCTURAL
COMPONENT ONLY



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

2ND FLR FRAMING\Flush Beams\B20C(i3653) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

Dry | 2 spans | L cant.

March 16, 2021 16:26:36

File name: SPRINGFIELD 1 EL 3 SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B20C(i3653)

Specifier:

Designer: AJ

Company:

Notes

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

Design meets User specified (2xL/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

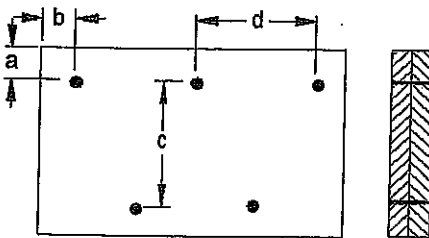
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Calculations assume unbraced length of Top: 00-08-08, Bottom: 08-09-06.

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Calculated Side Load = 305.1 lb/ft

Connectors are: 16d, 4 Nails

3 1/2" ARDOX SPIRAL



PROV. OF ONT. 9538-21

**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®,



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B21C(i3618) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 16, 2021 16:26:36

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 3 SUNKEN.mmd

Address:

Description: 2ND FLR FRAMING\Flush Beams\B21C(i3618)

City, Province, Postal Code: HAMILTON

Specifier:

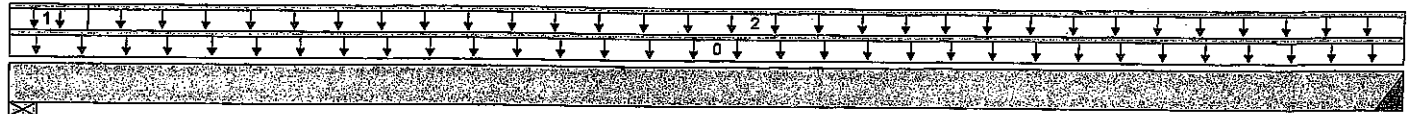
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

08-06-00

Total Horizontal Product Length = 08-06-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	3 / 0	165 / 0	181 / 0	
B2, 2"	0 / 0	164 / 0	189 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-06-00	Top	1.00	0.65	1.00	1.15	
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	00-05-08	Top	6				00-00-00 n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-05-08	08-06-00	Top		28	46		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	952 ft-lbs	24560 ft-lbs	3.9%	13	04-04-12
End Shear	351 lbs	14464 lbs	2.4%	13	01-05-06
Total Load Deflection	L/999 (0.008")	n/a	n/a	35	04-04-12
Live Load Deflection	L/999 (0.004")	n/a	n/a	51	04-04-12
Max Defl.	0.008"	n/a	n/a	35	04-04-12
Span / Depth	8.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	480 lbs	4.1%	2.0%	Spruce-Pine-Fir
B2	Hanger 2" x 3-1/2"	489 lbs	n/a	5.7%	HUC412

Cautions

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

Hanger model HUC412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.) 01/29

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.

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: 08-00-08, Bottom: 08-00-08.

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM 9539-21
STRUCTURAL
COMPONENT ONLY



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

2ND FLR FRAMING\Flush Beams\B21C(I3618) (Flush Beam)

PASSED

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 16, 2021 16:26:36

File name: SPRINGFIELD 1 EL 3 SUNKEN.mmdl

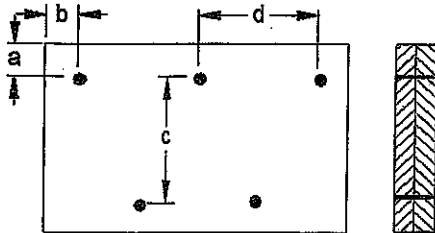
Description: 2ND FLR FRAMING\Flush Beams\B21C(I3618)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Connectors are: 1, Nails

3/4" ARDOX SPIRAL



DWG NO. TAM 9539-21
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®



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B22C(i3619) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | L cant.

March 16, 2021 16:26:36

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 3 SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B22C(i3619)

City, Province, Postal Code: HAMILTON

Specifier:

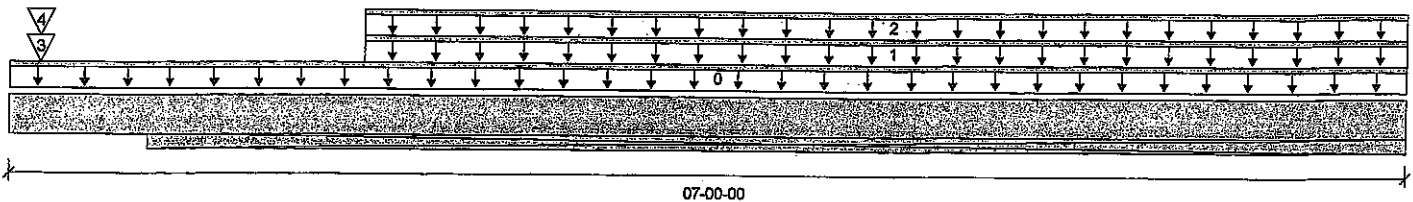
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 76"	44 / 0	744 / 0	249 / 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	07-00-00	Top		12			00-00-00
1	E22(i3626)	Unf. Lin. (lb/ft)	L	01-09-00	07-00-00	Top		81			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	01-09-00	07-00-00	Top	8	4			n/a
3	B23C(i3620)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top		205	236		n/a
4	LOW ROOF	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top		8	13		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	0 ft-lbs	35392 ft-lbs	n/a	18	00-00-00
Neg. Moment	-338 ft-lbs	-31513 ft-lbs	1.1%	13	00-08-00
End Shear	651 lbs	14464 lbs	4.5%	13	00-08-00
Total Load Deflection	2xL/1998 (0")	n/a	n/a	35	00-00-00
Span / Depth	0.7				
Dist. Load (B1)	119.09 lb/ft	37469.32 lb/ft	0.3%		

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 76" x 3-1/2"	1042 lbs	1.0%	0.5%	Spruce-Pine-Fir

Notes

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

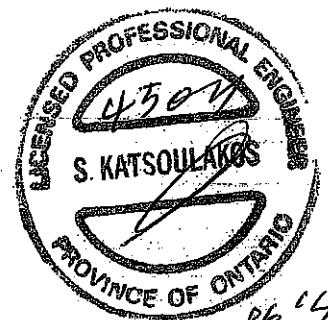
Importance Factor : Normal Part code : Part 9

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

Calculations assume unbraced length of Top: 01-05-08, Bottom: 04-09-12.

CONFORMS TO OBC 2012

AMENDED 2020



OWB NO. TAM 9540-21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B22C(13619) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | L cant.

March 16, 2021 16:26:36

Build 7773

Job name:

File name: SPRINGFIELD 1 EL 3 SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B22C(13619)

City, Province, Postal Code: HAMILTON

Specifier:

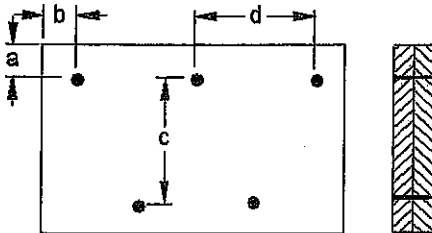
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 305.1 lb/ft

Connectors are: 16d, 4 Nails

3 1/2" ARDOX SPIRAL



**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®,

NORDIC STRUCTURES

COMPANY
Mar. 23, 2021 14:47

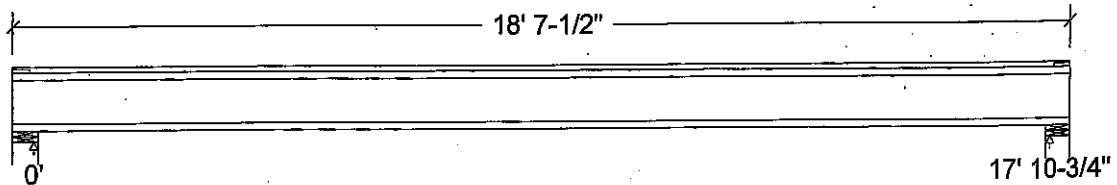
PROJECT
Beam1

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	358		358
Factored:			
Total	761		761
Bearing:			
Capacity			
Joist	2336		2336
Support	9282		9282
Des ratio			
Joist	0.33		0.33
Support	0.08		0.08
Load case	#2		#2
Length	5-1/4		5-1/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

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

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

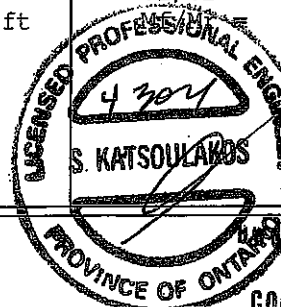
Supports: All - Lumber Wall, No.1/No.2

Total length: 18' 7-1/2"; Clear span: 17' 9"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 761	Vr = 2336	lbs	Vf/Vr = 0.33
Moment (+)	Mf = 3403	Mr = 6255	lbs-ft	Mf/Mr = 0.54
Perm. Defl'n	0.12 = < L/999	0.60 = L/360	in	0.20
Live Defl'n	0.24 = L/901	0.45 = L/480	in	0.53
Total Defl'n	0.36 = L/601	0.89 = L/240	in	0.40
Bare Defl'n	0.27 = L/784	0.60 = L/360	in	0.46
Vibration	Lmax = 17'-10.8	Lv = 18'-11.1	ft	0.95
Defl'n	= 0.030	= 0.035	in	0.87



NO. YAM9512-21
STRUCTURAL
COMPONENT DIV

Beam1

Nordic Sizer – Canada 7.2

Page 2

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live (use, occupancy) Ls=live (storage, equipment) f=fire

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

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

CALCULATIONS:E_{leff} = 432.91 lb-in² K= 6.18e06 lbs

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

Design Notes:

AMENDED 2020

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



DWG NO. YAW 9512 -21
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Mar. 23, 2021 14:38

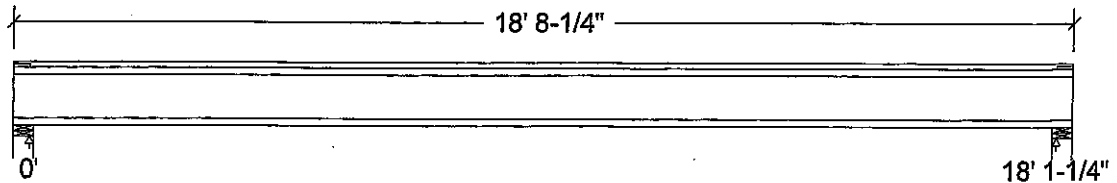
PROJECT
Beam1

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	181		181
Live	362		362
Factored:			
Total	769		769
Bearing:			
Capacity			
Joist	2336		2336
Support	7744		7744
Des ratio			
Joist	0.33		0.33
Support	0.10		0.10
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 Joist 11-7/8" NI-40x Floor joist @ 12" o.c.

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

Total length: 18' 8-1/4"; Clear span: 17' 11-1/2"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.



OWN NO. YAM9513 -21

STRUCTURAL

REGISTERED CIVIL

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 769	Vr = 2336	lbs	Vf/Vr = 0.33
Moment(+)	Mf = 3482	Mr = 6255	lbs-ft	Mf/Mr = 0.56
Perm. Defl'n	0.12 = < L/999	0.60 = L/360	in	0.21
Live Defl'n	0.25 = L/873	0.45 = L/480	in	0.55
Total Defl'n	0.37 = L/582	0.91 = L/240	in	0.41
Bare Defl'n	0.29 = L/759	0.60 = L/360	in	0.47
Vibration	Lmax = 18'-1.3	Lv = 18'-11.1	ft	0.96
Defl'n	= 0.031	= 0.034	in	0.90

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:

EI_{eff} = 432.91 lb-in² K= 6.18e06 lbs

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

CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

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



OWN NO. YAM 9513 -21
 STRUCTURAL
 COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Mar. 16, 2021 11:08

PROJECT
J6 2ND FLOOR ABOVE GARAGE.wwb

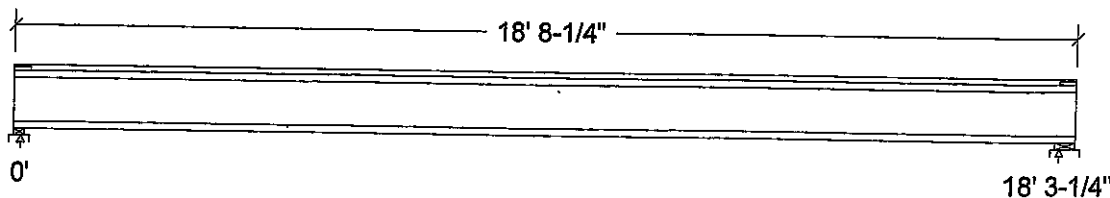
Design Check Calculation Sheet

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	183		183
Live	365		365
Factored:			
Total	776		776
Bearing:			
Capacity			
Joist	2188		2336
Support	5573		10841
Des ratio			
Joist	0.35		0.33
Support	0.14		0.07
Load case	#2		#2
Length	2-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.09		1.15

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

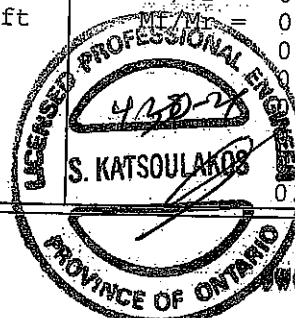
Supports: All - Lumber Sill plate, No.1/No.2

Total length: 18' 8-1/4"; Clear span: 18' 1-1/2"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 776	Vr = 2336	lbs	Vf/Vr = 0.33
Moment(+)	Mf = 3547	Mr = 11609	lbs-ft	Mf/Mr = 0.31
Perm. Defl'n	0.09 = < L/999	0.61 = L/360	in	0.16
Live Defl'n	0.19 = < L/999	0.46 = L/480	in	0.41
Total Defl'n	0.28 = L/771	0.91 = L/240	in	0.31
Bare Defl'n	0.21 = < L/999	0.61 = L/360	in	0.34
Vibration	Lmax = 18'-3.3	Lv = 19'-11	ft	0.92
Defl'n	= 0.028	= 0.034	in	0.81



NO. 9514
STRUCTURAL
PERMANENT ONLY

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:E_Ieff = 613.27 lb-in² K= 6.18e06 lbs

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

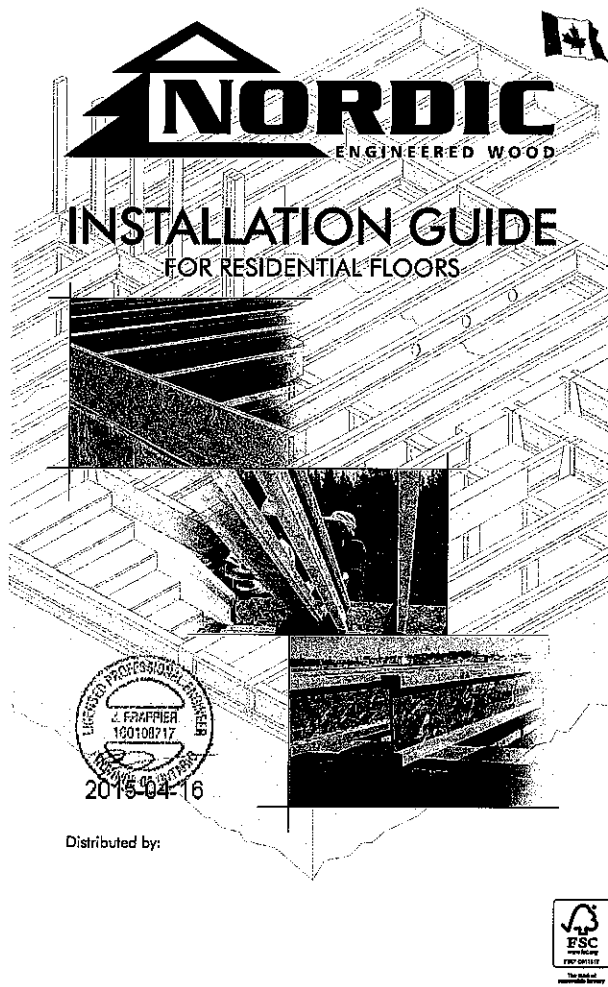
Design Notes:

AMENDED 2020

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



OWB NO. 74W 9514-21
STRUCTURAL
COMPONENT ONLY



SAFETY AND CONSTRUCTION PRECAUTIONS

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-bracing 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-bracing.
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.

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 flatwires.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
 - Pick I-joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
8. Do not handle I-joists in a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.5L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.

2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum end/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 C86-09 Standard, and NBC 2010.

7. SI units conversion: 1 inch = 25.4 mm, 1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

Simple and Multiple Spans

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

I-JOIST HANGERS

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

WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the 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

Charliers Châteauguay 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 logging to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed lumber and solid supporting 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, 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 applications 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

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

NOTE: Never cut or notch flanges.

Use hangers recognized in current code evolution reports.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (10.22" dia.) common spiral nails may be substituted for 2-1/2" (10.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

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

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

11a Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

11b Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support.

11c 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.

11d Double I-joist header.

11e Top- or face-mount hanger.

11f Filler block per detail 1p.

11g Backer block required (both sides for face-mount hangers).

11h For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

11i 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 products 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".

11j Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

11k Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

11l 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.

11m Filler block attached per detail 1h. Nail with twelve 3" nails, clinch when possible. Maximum support capacity = 1,620 lbs.

11n Do not bevel-cut joist beyond inside face of wall.

11o Attach I-joist per detail 1b.

11p Note: Blocking required at bearing for lateral support, not shown for clarity.

11q Optional: Minimum 1x4 inch strip applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joist.

FIGURE 3 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", 11-7/8", 14", 16"	2-1/8" x 6", 2-1/8" x 8", 2-1/8" x 10", 2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2", 11-7/8", 14", 16"	3" x 6", 3" x 8", 3" x 10", 3" x 12"
3-1/2" x 2"	11-7/8", 14", 16"	3" x 7", 3" x 9", 3" x 11"

12 One 2-1/2" nails at top and bottom flange. Two 2-1/2" nails from each web to lumber piece. 2x4 min. (1/8" gap minimum).

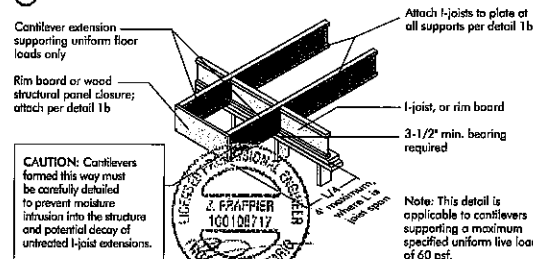
12a One 2-1/2" nails one side only. 2-1/2" nails at 6" o.c.

12b Note: 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.

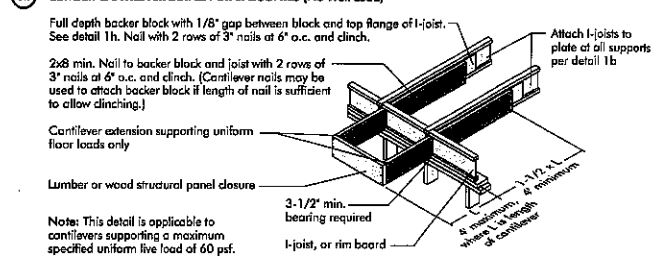
12c All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

3a 1-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

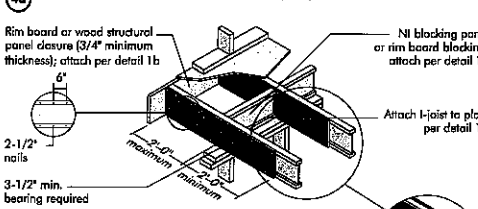


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

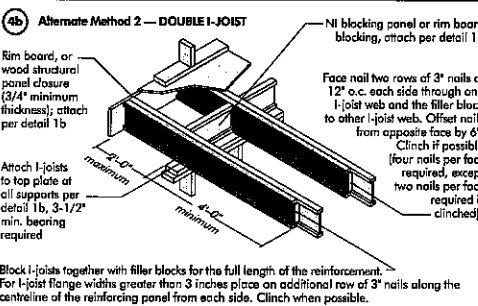
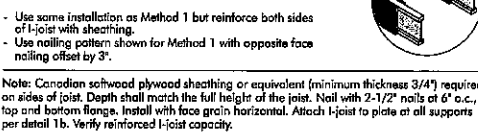


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

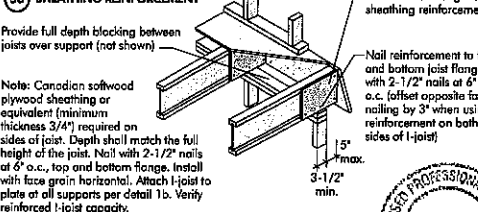


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

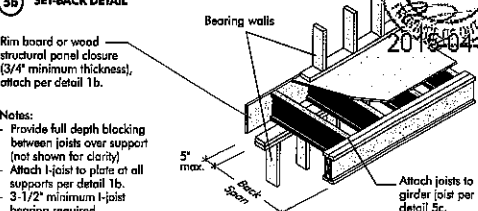


BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

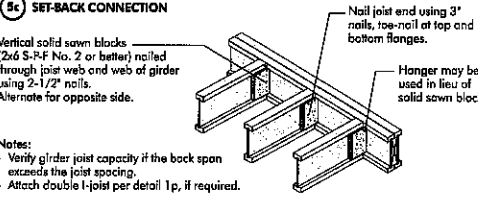
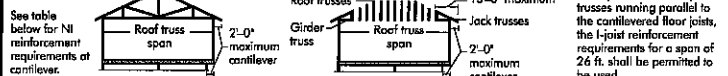


FIGURE 4 (continued)

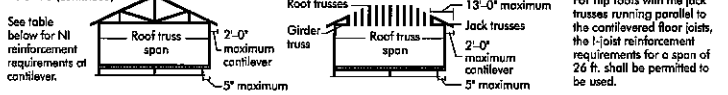


CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	X	N	1	2	X	N	2	X	X
	30	N	N	1	2	N	1	2	X	N	2	X	X
	32	N	1	2	X	N	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	N	1	2
	30	N	N	N	1	N	N	1	2	N	N	1	2
	32	N	N	N	1	N	N	1	2	N	N	1	2
14"	26	N	N	N	1	N	N	1	2	N	N	1	2
	28	N	N	N	1	N	N	1	2	N	N	1	2
	30	N	N	N	1	N	N	1	2	N	N	1	2
	32	N	N	N	1	N	N	1	2	N	N	1	2
16"	26	N	N	N	1	N	N	1	2	N	N	1	2
	28	N	N	N	1	N	N	1	2	N	N	1	2
	30	N	N	N	1	N	N	1	2	N	N	1	2
	32	N	N	N	1	N	N	1	2	N	N	1	2

- 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-joint.
- X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 55 psf roof total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
- For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
- 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.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting walls as if a truss is used.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	1	X	X	2	X	X	X	2	X	X	X
	28	N	1	X	X	2	X	X	X	2	X	X	X
	30	N	1	X	X	2	X	X	X	2	X	X	X
	32	N	2	X	X	X	2	X	X	X	2	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	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X
14"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X
16"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X

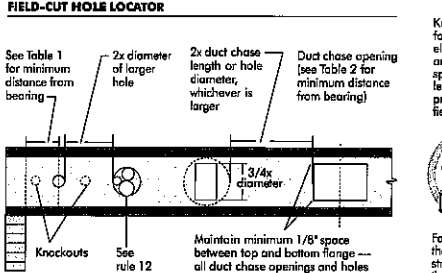
- N = No reinforcement required.
- 1 = NI reinforced with 3/4" wood structural panel on one side only.
- 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joint.
- X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 55 psf roof total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

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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.

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

Minimum distance from inside face of any support to centre of hole (ft-in.)																	Span adjustment Factor
Joist Depth	Joist Series	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"	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
11-7/8"	N140	0.7	0.9	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.9	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.9	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.9	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.9	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.9	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
14"	N140	0.7	0.8	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.8	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.8	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.8	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.8	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
	N140	0.7	0.8	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	
16"	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	
	N140	0.7	1 1/4	2 1/4	3 1/4	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	

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

OPTIONAL:

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

Reduced = $\frac{S}{S_{max}} \times S$
 Where: Reduced = Distance from the inside face of any support to centre of hole, reduced for less than maximum span application.
 S = Distance from the inside face of any support to centre of hole.
 S_{max} = 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 reduced is greater than 1, use 1 in the above calculation for reduced.

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

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	26	28	30
9-1/2"	N140	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-5"	7-1"	7-5"	7-1"	7-5"	7-5"
	N140	4-1"	5-5"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-7"	8-2"	8-7"	8-7"
	N170	5-1"	5-5"	5-10"	6-5"	6-7"	7-1"	7-5"	8-1"	8-5"	8-1"	8-5"	8-4"
	N180	5-1"	5-5"	6-0"	6-5"	6-7"	7-1"	7-5"	8-1"	8-5"	8-1"	8-5"	8-4"
11-7/8"	N140	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-5"	7-1"	7-5"	7-1"	7-5"	7-5"
	N140	4-1"	5-5"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-7"	8-2"	8-7"	8-7"
	N170	5-1"	5-5"	5-10"	6-5"	6-7"	7-1"	7-5"	8-1"	8-5"	8-1"	8-5"	8-4"
	N180	5-1"	5-5"	6-0"	6-5"	6-7"	7-1"	7-5"	8-1"	8-5"	8-1"	8-5"	8-4"
14"	N140	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-5"	7-1"	7-5"	7-1"	7-5"	7-5"
	N140	4-1"	5-5"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-7"	8-2"	8-7"	8-7"
	N170	5-1"	5-5"	5-10"	6-5"	6-7"	7-1"	7-5"	8-1"	8-5"	8-1"	8-5"	8-4"
	N180	5-1"	5-5"	6-0"	6-5"	6-7"	7-1"	7-5"	8-1"	8-5"	8-1"	8-5"	8-4"
16"	N140	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-5"	7-1"	7-5"	7-1"	7-5"	7-5"
	N140	4-1"	5-5"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-7"	8-2"	8-7"	8-7"
	N170	5-1"	5-5"	5-10"	6-5"	6-7"	7-1"	7-5"	8-1"	8-5"	8-1"	8-5"	8-4"
	N180	5-1"	5-5"	6-0"	6-5"	6-7"	7-1"	7-5"	8-1"	8-5"	8-1"	8-5"	8-4"

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

INSTALLING THE GLUED FLOOR SYSTEM



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or 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.
- A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- 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.

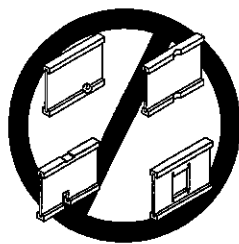
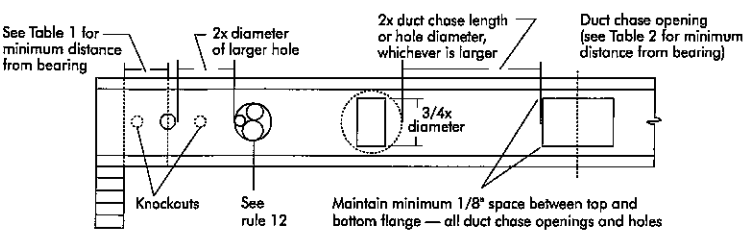
TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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
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"	11-4"	---	---	---
14"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-40x	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---	---
	NI-60	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NI-70	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-80	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
16"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-40x	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---	---
	NI-60	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NI-70	0-7"	1-0"	2-3"	3-6"	4-10"	5-3"	6-3"	7-8"	8-6"	9-2"	10-8"	12-0"
	NI-80	0-7"	1-3"	2-6"	3-10"	5-3"	5-6"	6-6"	8-0"	9-0"	9-5"	11-0"	12-3"

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

- 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.
- 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.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install or damaged I-joist.

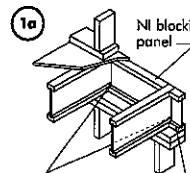
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



PRODUCT WARRANTY

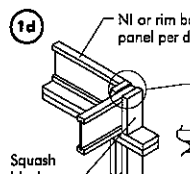
Chantiers Chibougamau guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

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.



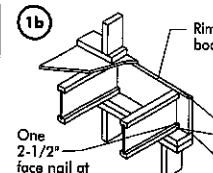
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

*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.



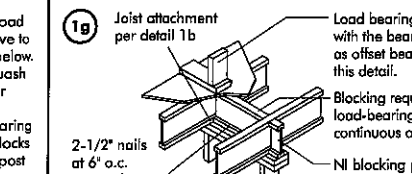
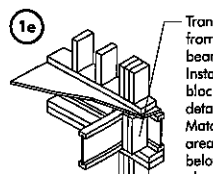
Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a or 1b



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.



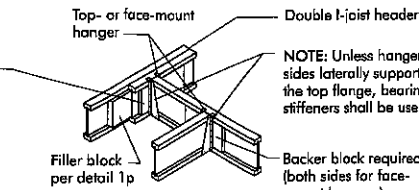
Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

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.

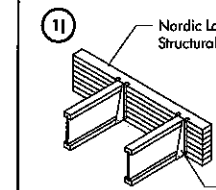
BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

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

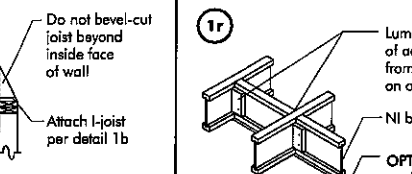
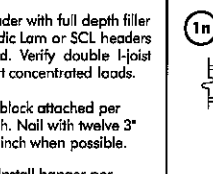
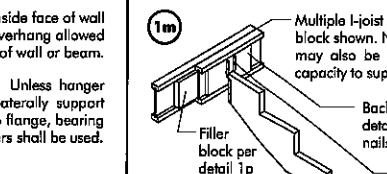
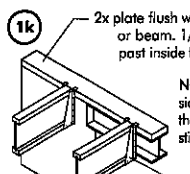
* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net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



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



For nailing schedules for multiple beams, see the manufacturer's recommendations.
Top- or face-mount hanger installed per manufacturer's recommendations.

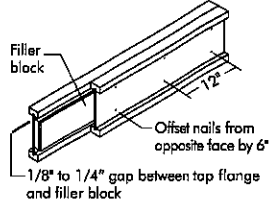


NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

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

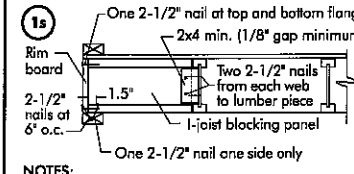
OPTIONAL: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION



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



NOTES:

- In some local codes, blocking is prescriptively required in the first joist space (for 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.

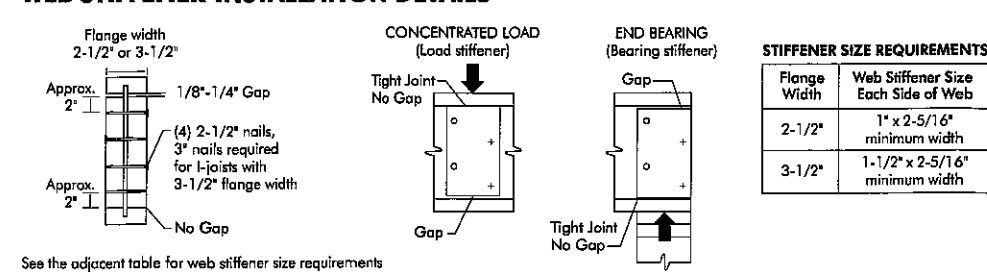
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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

WEB STIFFENERS

RECOMMENDATIONS:

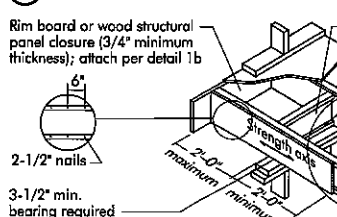
- A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A **bearing stiffener** is required when the I-joist 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

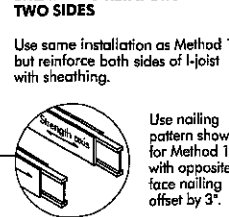


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



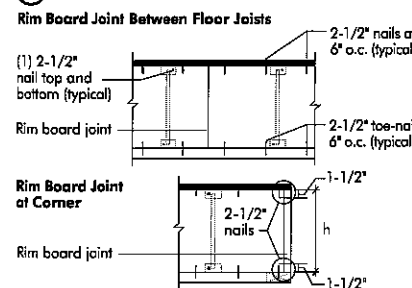
Method 2 — SHEATHING REINFORCEMENT TWO SIDES



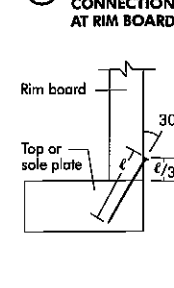
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



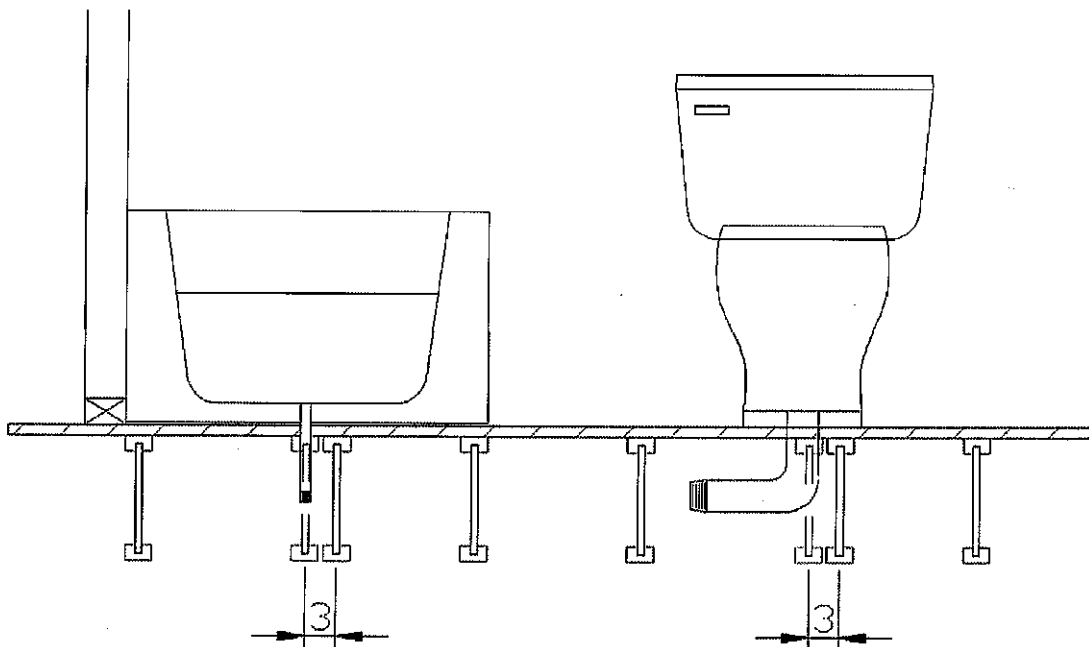
Allowance for Piping (Installation Notes)

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.

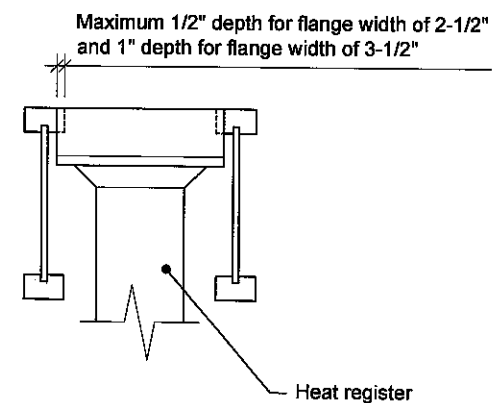
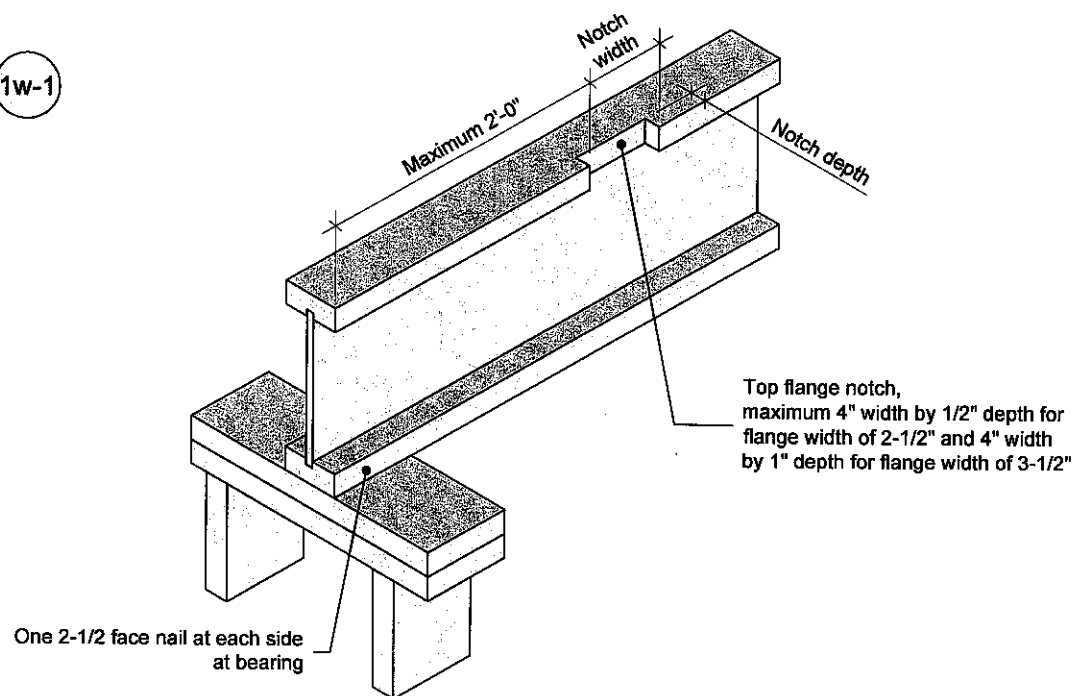
ALLOWANCE FOR PIPING



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

Revised April 12, 2012

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.

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

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

**NORDIC
STRUCTURES**

T 514-871-8526
1 866 817-3418

nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

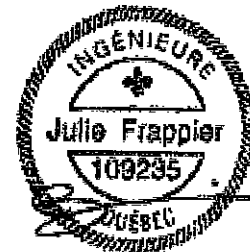
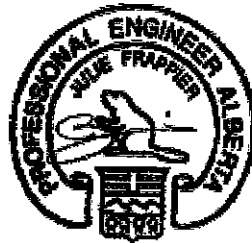
-

DATE

2018-04-10

NUMBER

1w-1



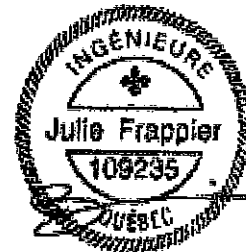
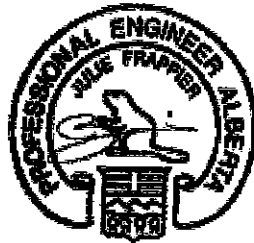
Maximum Floor Spans

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

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-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"

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



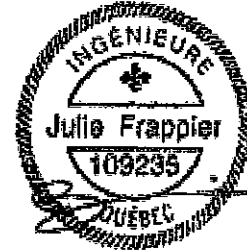
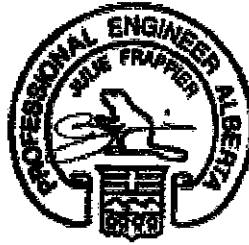
Maximum Floor Spans

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

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



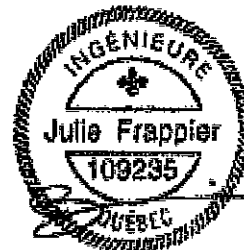
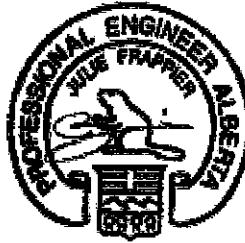
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

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

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

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