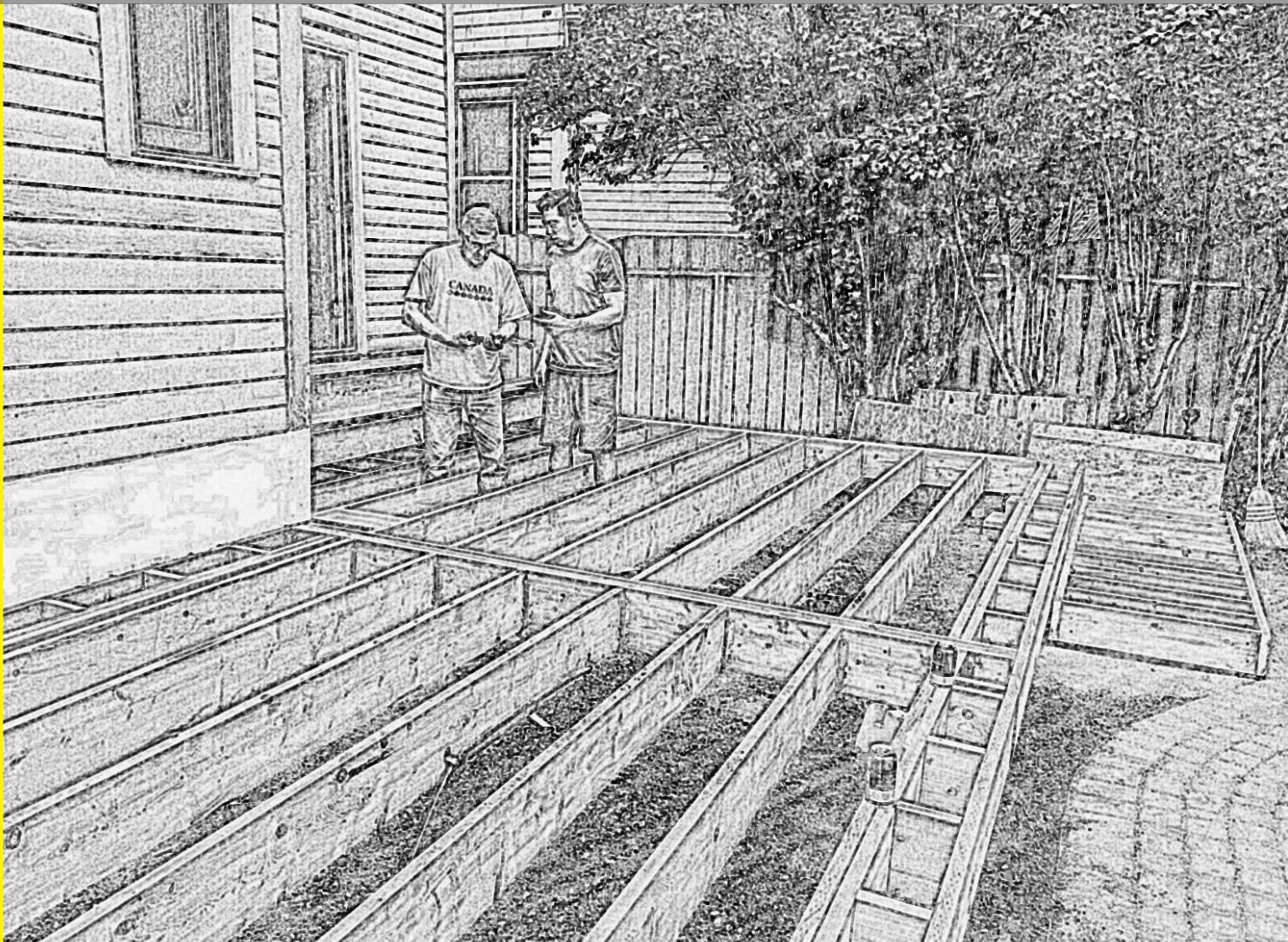




# Prescriptive Residential Exterior Wood Deck Span Guide



**OUTDOOR PROJECT SERIES**

**1**

Prescriptive Residential  
Exterior Wood Deck  
Span Guide  
Revision 1

© 2016 copyright  
Canadian Wood Council  
Conseil canadien du bois  
Ottawa, Ontario, Canada

Design and production:  
Canadian Wood Council  
Ottawa, ON

## CONTENTS

Design Assumptions	4
Figure 1 – Deck Layout	5
Figure 2 – Built-up Beam details	6
Table 1 – Species Grouping for Selection Tables	6
Table 2a - Deck Joist Spans Not Incised (m)	7
Table 2b - Deck Joist Spans Not Incised (ft.-in.)	7
Table 3a - Deck Joist Spans Incised (m)	8
Table 3b - Deck Joist Spans Incised (ft.-in.)	8
Table 4a – Beam Selection Not Incised Supporting Single Span (m)	9
Table 4b – Beam Selection Not Incised Supporting Single Span (ft)	10
Table 5a – Beam Selection Incised Supporting Single Span (m)	11
Table 5b – Beam Selection Incised Supporting Single Span (ft)	12
Table 6a – Beam Selection Not Incised Supporting Two Spans (m)	13
Table 6b – Beam Selection Not Incised Supporting Two Spans (ft)	14
Table 7a – Beam Selection Incised Supporting Two Spans (m)	15
Table 7b – Beam Selection Incised Supporting Two Spans (ft)	16
Design Example	17
Figure 3—Design Example Sketch and Design	17

### DISCLAIMER

This document has been developed for information purposes only. Although all possible efforts have been made to ensure that the information in this document is accurate, the CWC cannot under any circumstances guarantee the completeness, accuracy or exactness of the information. Reference should always be made to the appropriate Building Code and/or standard. This document should not be relied upon to substitute for legal or design advice, and the user is responsible of how the document is used or applied.

### SCOPE

The intent of this document is to provide guidance on joist spans, built-up beam sizes, and supporting column sizes for exterior wood decks. The following items which are typically included in an exterior wood deck are not addressed and are beyond the scope of this document.

- Deck footings
- Deck railings and guards
- Attachment of the deck to houses
- Lateral bracing of a deck

Design tables are provided for lumber which is not incised (Tables 2a, 2b, 4a, 4b, 6a and 6b) and lumber which is incised (Tables 3a, 3b, 5a, 5b, 7a and 7b). Tables are provided in both metric and imperial units.

## DESIGN ASSUMPTIONS

### Joists and Beams

- Design based on CSA O86-14 and NBC 2015
- Live load: 1.9 kPa (40 psf)
- Dead load: 0.5 kPa (10 psf)
- Grade: No.2 or better
- Species: Refer to Table 1
- Live load deflection limit:  $L/360$
- Wet service condition factors for all Tables ( $K_{sb} = 0.84$ ,  $K_{sv} = 0.96$ ,  $K_{SE} = 0.94$ )
- Treatment factors for incised lumber Tables ( $K_T = 0.85$  for Bending and Shear,  $K_T = 0.95$  for Modulus of Elasticity)

### Joists only

- Lateral Support is provided at the top of joists by closely spaced perpendicular or diagonal lumber ( $K_L = 1.0$ )
- Case 1 load sharing system ( $K_H = 1.1$ )

### Beams only

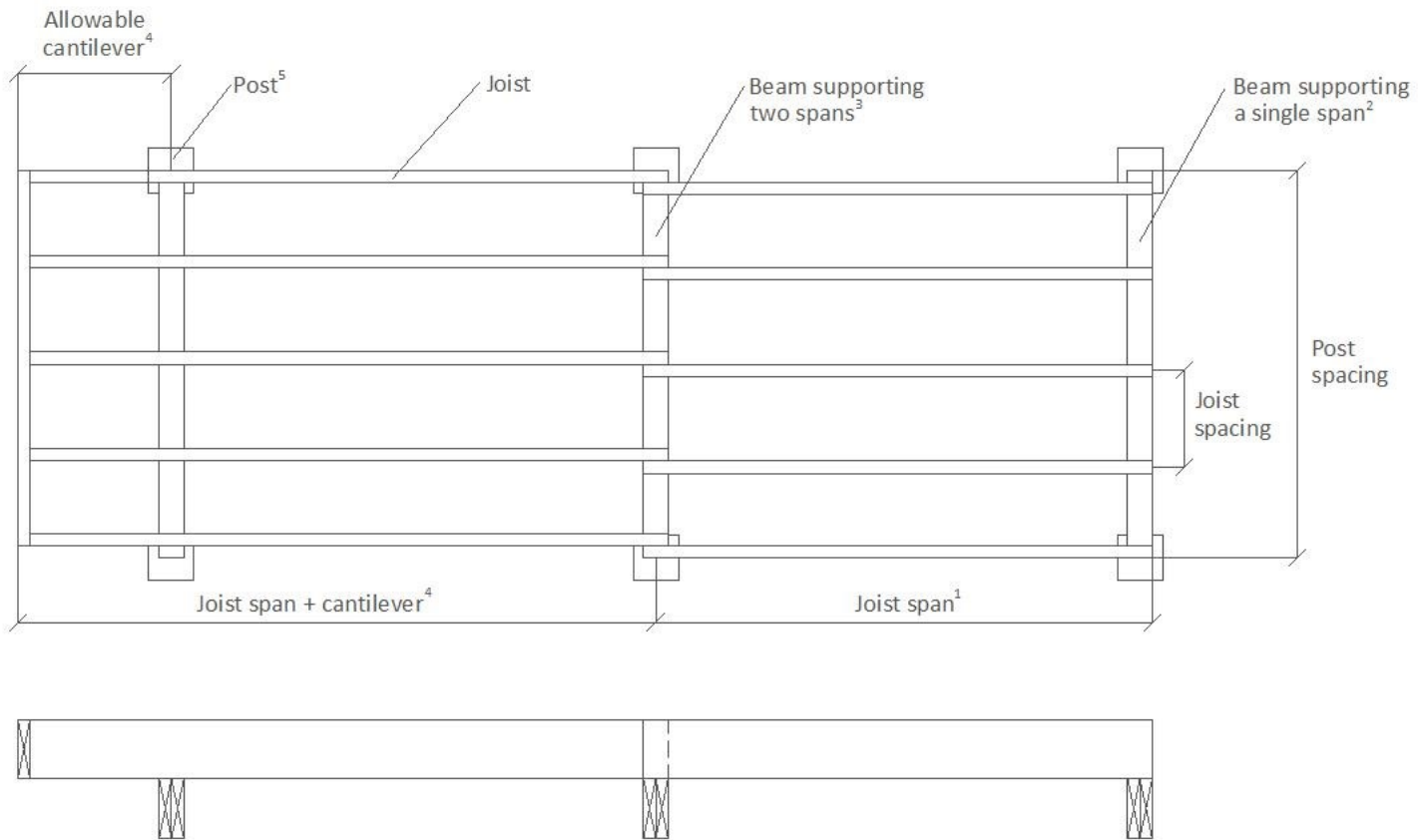
- Lateral Support is provided by the supported joists ( $K_L = 1.0$ )
- Case 2 load sharing system for built-up beams with three plies ( $K_H = 1.1$ )

### Spacing Dimensions

For the purpose of this document, the following spacing dimensions may be used interchangeably:

- i) 200 mm and 203 mm
- ii) 300 mm and 305 mm
- iii) 400 mm and 406 mm
- iv) 600 mm and 610 mm

**FIGURE 1 – DECK LAYOUT**



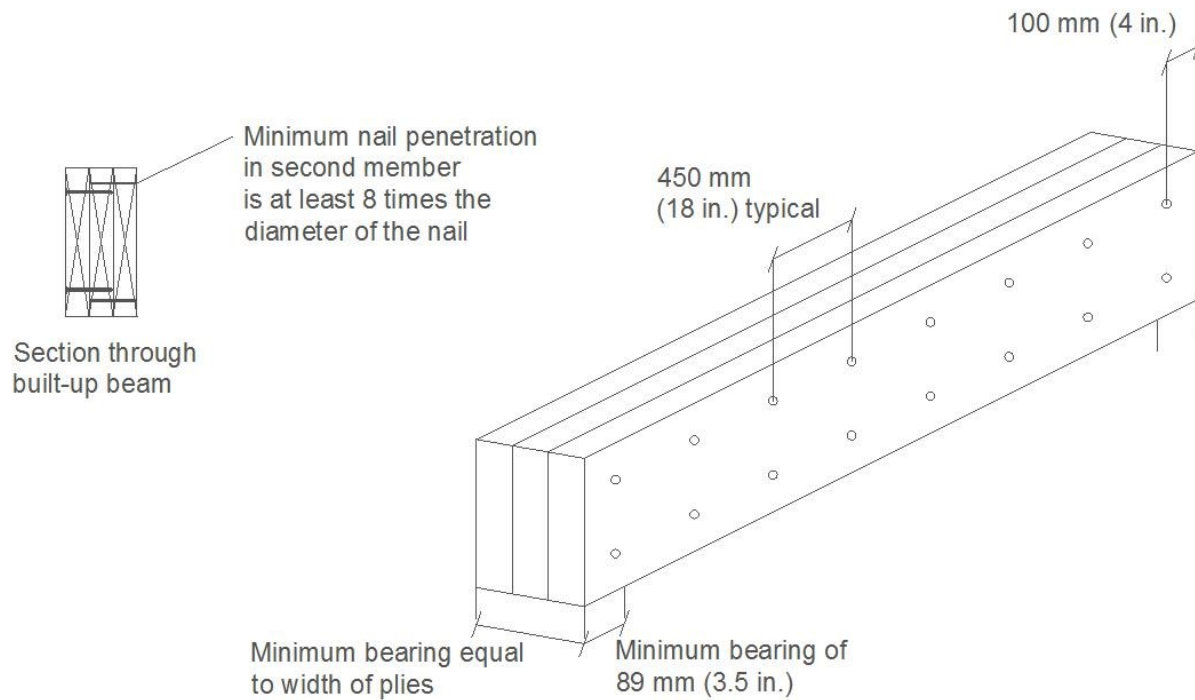
**Notes:**

1. Deck joist allowable spans as per Tables 2a, 2b, 3a and 3b.
2. Beam selection for supporting a single span as per Tables 4a, 4b, 5a and 5b.
3. Beam selection for supporting two spans as per Tables 6a, 6b, 7a and 7b. Tables are not valid if joists span continuously over more than two supports. Engineering analysis is required in this situation.
4. Maximum allowable cantilever as per Tables 2a, 2b, 3a and 3b. When determining the beam selection that will include a cantilever, the length of the cantilever shall be included in the total joist span used in the beam selection Tables 4a, 4b, 5a, and 5b (i.e., Joist span + cantilever).
5. Post size as per note 5 in Tables 4a, 4b, 5a, 5b, 6a, 6b, 7a, and 7b.

\* Note that tightly spaced perpendicular or diagonal wood decking that is placed on top of the joists is not included in the figure. \*



**FIGURE 2 – BUILT-UP BEAM DETAILS<sup>1</sup>**



**Notes:**

1. Details as per NBC 2015 subsection 9.23.8.

**TABLE 1 – SPECIAL GROUPING FOR SELECTION TABLES**

SPECIES COMBINATION	SPECIES
D.Fir-L (DF-L)	Douglas Fir <sup>2</sup> , Western Larch.
Hem-Fir (H-F)	Western Hemlock <sup>2</sup> , Amabilis Fir <sup>2</sup> .
S-P-F (S-P-F)	White Spruce, Engelmann Spruce, Black Spruce, Red Spruce, Lodgepole Pine <sup>2</sup> , Jack Pine <sup>2</sup> , Alpine Fir <sup>2</sup> , Balsam Fir <sup>2</sup> .
Northern (Nor)	Eastern White Cedar <sup>3</sup> , Western Red Cedar <sup>3</sup> , Yellow Cedar <sup>3</sup> , Grand Fir <sup>2</sup> , Eastern Hemlock <sup>2</sup> , Eastern White Pine <sup>2</sup> , Ponderosa Pine <sup>2</sup> , Red Pine <sup>2</sup> , Western White Pine <sup>2</sup> , Whitebark Pine, Coast Sitka Spruce, Western White Spruce, Tamarack, Aspen Poplar, Largetooth Aspen, Black Cottonwood, Balsam Poplar.

**Notes:**

1. Lumber to be graded and stamped based on NLGA Standard Grading Rules for Canadian Lumber.
2. Species commonly treated with preservatives.
3. The heartwood of cedars are considered to be naturally durable and for aesthetic purposes are typically not treated with preservatives for use in a wood deck. The tables designated as “Not Incised” shall be used if the species has not been treated.

**TABLE 2a - DECK JOIST SPANS NOT INCISED (m)**

Joist Size (mm)	200 mm Joist Spacing				300 mm Joist Spacing				400 mm Joist Spacing				600 mm Joist Spacing				Maximum Allowable Cantilever (mm) <sup>3</sup>
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	
38 x 89 <sup>2</sup>	2.34	2.34	2.23	2.01	2.04	2.04	1.94	1.76	1.85	1.85	1.77	1.60	1.62	1.62	1.54	1.39	200
38 x 140 <sup>2</sup>	3.68	3.68	3.50	3.16	3.21	3.21	3.06	2.76	2.86	2.92	2.78	2.49	2.34	2.45	2.43	2.04	400
38 x 184	4.83	4.83	4.60	4.15	4.02	4.22	4.02	3.50	3.48	3.65	3.65	3.04	2.84	2.98	3.09	2.48	400
38 x 235	6.02 <sup>1</sup>	6.17 <sup>1</sup>	5.88 <sup>1</sup>	5.25 <sup>1</sup>	4.92 <sup>1</sup>	5.16 <sup>1</sup>	5.13 <sup>1</sup>	4.29	4.26	4.47	4.62	3.71	3.48	3.65	3.78	3.03	600
38 x 286	6.99 <sup>1</sup>	7.33 <sup>1</sup>	7.15 <sup>1</sup>	6.09 <sup>1</sup>	5.70 <sup>1</sup>	5.98 <sup>1</sup>	6.20 <sup>1</sup>	4.97 <sup>1</sup>	4.94 <sup>1</sup>	5.18 <sup>1</sup>	5.37 <sup>1</sup>	4.31	4.03	4.23	4.38	3.52	600

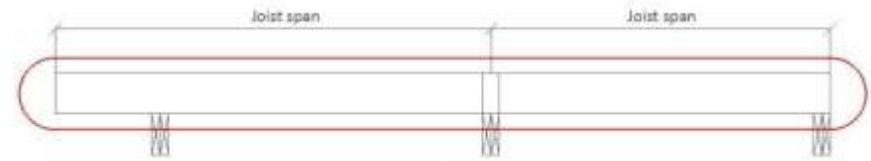


**Notes:**

1. Joist stock greater than 4.9 m not typically available.
2. Where guards are required, joists and rim boards shall be a minimum of 38 x 184 mm.
3. See Figure 1 for details in regards to cantilevers.

**TABLE 2b - DECK JOIST SPANS NOT INCISED (ft-in)**

Nominal Joist Size (in.)	8 in Joist Spacing				12 in Joist Spacing				16 in Joist Spacing				24 in Joist Spacing				Maximum Allowable Cantilever (in.) <sup>3</sup>
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	
2 x 4 <sup>2</sup>	7-8	7-8	7-4	6-7	6-8	6-8	6-5	5-9	6-1	6-1	5-10	5-3	5-4	5-4	5-1	4-7	8
2 x 6 <sup>2</sup>	12-1	12-1	11-6	10-4	10-6	10-6	10-0	9-1	9-5	9-7	9-1	8-2	7-8	8-0	8-0	6-8	16
2 x 8	15-10	15-10	15-1	13-8	13-2	13-10	13-2	11-6	11-5	12-0	12-0	9-11	9-4	9-9	10-2	8-2	16
2 x 10	19-9 <sup>1</sup>	20-3 <sup>1</sup>	19-3 <sup>1</sup>	17-3 <sup>1</sup>	16-2 <sup>1</sup>	16-11 <sup>1</sup>	16-10 <sup>1</sup>	14-1	14-0	14-8	15-2	12-2	11-5	12-0	12-5	9-11	24
2 x 12	22-11 <sup>1</sup>	24-0 <sup>1</sup>	23-5 <sup>1</sup>	20-0 <sup>1</sup>	18-9 <sup>1</sup>	19-8 <sup>1</sup>	20-4 <sup>1</sup>	16-4 <sup>1</sup>	16-2 <sup>1</sup>	17-0 <sup>1</sup>	17-7 <sup>1</sup>	14-2	13-3	13-11	14-4	11-6	24

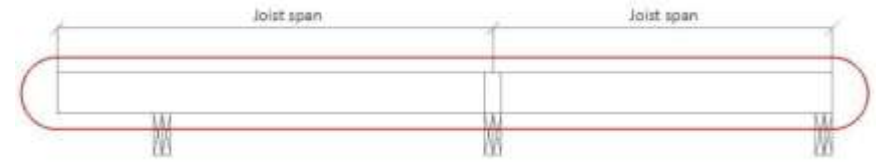


**Notes:**

1. Joist stock greater than 16 ft not typically available.
2. Where guards are required, joists and rim boards shall be a minimum of nominal 2 x 8 in.
3. See Figure 1 for details in regards to cantilevers.

**TABLE 3a - DECK JOIST SPANS INCISED (m)**

Joist Size (mm)	200 mm Joist Spacing				300 mm Joist Spacing				400 mm Joist Spacing				600 mm Joist Spacing				Maximum Allowable Cantilever (mm) <sup>3</sup>
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	
38 x 89 <sup>2</sup>	2.30	2.30	2.19	1.98	2.01	2.01	1.91	1.73	1.82	1.82	1.74	1.57	1.51	1.58	1.52	1.32	200
38 x 140 <sup>2</sup>	3.61	3.61	3.44	3.11	3.05	3.16	3.01	2.66	2.64	2.77	2.73	2.30	2.15	2.26	2.34	1.88	400
38 x 184	4.54	4.75	4.52	3.96	3.71	3.89	3.95	3.23	3.21	3.37	3.49	2.80	2.62	2.75	2.85	2.28	400
38 x 235	5.55 <sup>1</sup>	5.82 <sup>1</sup>	5.78 <sup>1</sup>	4.84	4.53	4.75	4.92 <sup>1</sup>	3.95	3.92	4.12	4.26	3.42	3.20	3.36	3.48	2.79	600
38 x 286	6.44 <sup>1</sup>	6.76 <sup>1</sup>	7.00 <sup>1</sup>	5.62 <sup>1</sup>	5.26 <sup>1</sup>	5.52 <sup>1</sup>	5.71 <sup>1</sup>	4.58	4.55	4.78	4.95 <sup>1</sup>	3.97	3.72	3.90	4.04	3.24	600

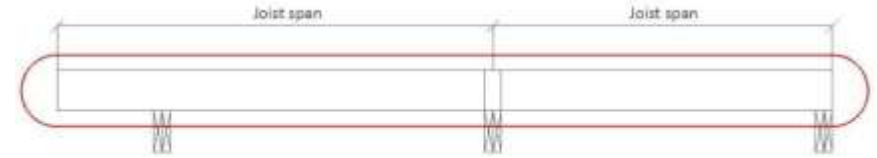


**Notes:**

1. Joist stock greater than 4.9 m not typically available.
2. Where guards are required, joists and rim boards shall be a minimum of 38 x 184 mm.
3. See Figure 1 for details in regards to cantilevers.

**TABLE 3b - DECK JOIST SPANS INCISED (ft-in)**

Nominal Joist Size (in.)	8 in Joist Spacing				12 in Joist Spacing				16 in Joist Spacing				24 in Joist Spacing				Maximum Allowable Cantilever (in.) <sup>3</sup>
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	
2 x 4 <sup>2</sup>	7-6	7-6	7-2	6-6	6-7	6-7	6-3	5-8	6-0	6-0	5-8	5-2	4-11	5-2	5-0	4-4	8
2 x 6 <sup>2</sup>	11-10	11-10	11-3	10-2	10-0	10-4	9-10	8-9	8-8	9-1	9-0	7-7	7-1	7-5	7-8	6-2	16
2 x 8	14-11	15-7	14-10	13-0	12-2	12-9	13-0	10-7	10-6	11-1	11-5	9-2	8-7	9-0	9-4	7-6	16
2 x 10	18-3 <sup>1</sup>	19-1 <sup>1</sup>	18-11 <sup>1</sup>	15-11	14-10	15-7	16-2 <sup>1</sup>	13-0	12-11	13-6	14-0	11-3	10-6	11-0	11-5	9-2	24
2 x 12	21-2 <sup>1</sup>	22-2 <sup>1</sup>	22-11 <sup>1</sup>	18-5 <sup>1</sup>	17-3 <sup>1</sup>	18-1 <sup>1</sup>	18-9 <sup>1</sup>	15-1	14-11	15-8	16-3 <sup>1</sup>	13-0	12-2	12-10	13-3	10-8	24



**Notes:**

1. Joist stock greater than 16 ft not typically available.
2. Where guards are required, joists and rim boards shall be a minimum of nominal 2 x 8 in.
3. See Figure 1 for details in regards to cantilevers.





**TABLE 4a – BEAM SELECTION NOT INCISED SUPPORTING SINGLE SPAN (m)**

Joist Span (m)	1.2 m Post Spacing				1.8 m Post Spacing				2.4 m Post Spacing			
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor
1.2	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140
1.5	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140
1.8	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184
2.1	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 140	2-38 x 140	2-38 x 184
2.4	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235
2.7	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235
3.0	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 184	2-38 x 184	2-38 x 235
3.3	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 184	2-38 x 235
3.7	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
4.0	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
4.3	2-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 140	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
4.6	2-38 x 140	2-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 235	2-38 x 235	2-38 x 286
4.9	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 235	2-38 x 235	3-38 x 235

**Notes:**

1. Beam selection is given as: number of plies – ply thickness (mm) x ply depth (mm).
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used to fasten the beam to the support.
3. A beam selection listed as 2-38 x 235 may be substituted with 3-38 x 184.
4. A beam selection listed as 2-38 x 286 may be substituted with 3-38 x 235.
5. Minimum post size shall be 89 x 89 mm for posts up to 2.0 m high, otherwise post size shall be 140 x 140 mm up to 3.7 m high. Posts supporting 3-ply beams require 140 x 140 mm post to meet minimum bearing requirement. See Figure 2 for minimum bearing width details of beams.



**TABLE 4b – BEAM SELECTION NOT INCISED SUPPORTING SINGLE SPAN (ft)**

Joist Span (ft)	4 ft Post Spacing				6 ft Post Spacing				8 ft Post Spacing			
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor
4	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6
5	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6
6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8
7	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 6	2-2 x 6	2-2 x 8
8	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10
9	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10
10	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 8	2-2 x 8	2-2 x 10
11	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 8	2-2 x 10
12	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
13	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
14	2-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 6	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
15	2-2 x 6	2-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 10	2-2 x 10	2-2 x 12
16	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 10	2-2 x 10	3-2 x 10

**Notes:**

1. Beam selection is given as: number of plies – ply nominal thickness (in) x ply nominal depth (in).
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used to fasten the beam to the support.
3. A beam selection listed as 2-2 x 10 may be substituted with 3-2 x 8.
4. A beam selection listed as 2-2 x 12 may be substituted with 3-2 x 10.
5. Minimum post size shall be nominal 4 x 4 in. for posts up to 6.5 ft high, otherwise post size shall be nominal 6 x 6 in. up to 12 ft high. Posts supporting 3-ply beams require nominal 6 x 6 in. post to meet minimum bearing requirement. See Figure 2 for minimum bearing width details of beams.



**TABLE 5a – BEAM SELECTION INCISED SUPPORTING SINGLE SPAN (m)**

Joist Span (m)	1.2 m Post Spacing				1.8 m Post Spacing				2.4 m Post Spacing			
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor
1.2	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140
1.5	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184
1.8	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 140	2-38 x 140	2-38 x 184
2.1	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235
2.4	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235
2.7	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 184	2-38 x 184	2-38 x 235
3.0	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
3.3	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
3.7	2-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
4.0	2-38 x 140	2-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 235	2-38 x 235	3-38 x 235
4.3	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 235	3-38 x 235
4.6	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 235	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 286	3-38 x 235
4.9	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 235	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 286	3-38 x 286

**Notes:**

1. Beam selection is given as: number of plies – ply thickness (mm) x ply depth (mm).
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used to fasten the beam to the support.
3. A beam selection listed as 2-38 x 235 may be substituted with 3-38 x 184.
4. A beam selection listed as 2-38 x 286 may be substituted with 3-38 x 235.
5. Minimum post size shall be 89 x 89 mm for posts up to 2.0 m high, otherwise post size shall be 140 x 140 mm up to 3.66 m high. Posts supporting 3-ply beams require 140 x 140 mm post to meet minimum bearing requirement. See Figure 2 for minimum bearing width details of beams.

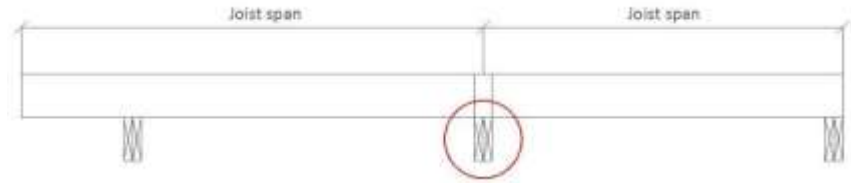


**TABLE 5b – BEAM SELECTION INCISED SUPPORTING SINGLE SPAN (ft)**

Joist Span (ft)	4 ft Post Spacing				6 ft Post Spacing				8 ft Post Spacing			
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor
4	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6
5	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8
6	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 6	2-2 x 6	2-2 x 8
7	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10
8	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10
9	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 8	2-2 x 8	2-2 x 10
10	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
11	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
12	2-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
13	2-2 x 6	2-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 10	2-2 x 10	3-2 x 10
14	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 10	3-2 x 10
15	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 10	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 12	3-2 x 10
16	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 10	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 12	3-2 x 12

**Notes:**

1. Beam selection is given as: number of plies – ply nominal thickness (in) x ply nominal depth (in).
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used to fasten the beam to the support.
3. A beam selection listed as 2-2 x 10 may be substituted with 3-2 x 8.
4. A beam selection listed as 2-2 x 12 may be substituted with 3-2 x 10.
5. Minimum post size shall be nominal 4 x 4 in. for posts up to 6.5 ft high, otherwise post size shall be nominal 6 x 6 in. up to 12 ft high. Posts supporting 3-ply beams require nominal 6 x 6 in. post to meet minimum bearing requirement. See Figure 2 for minimum bearing width details of beams.

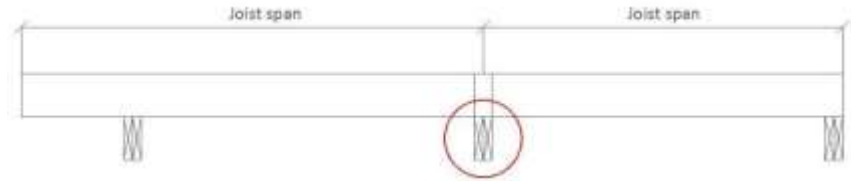


**TABLE 6a – BEAM SELECTION NOT INCISED SUPPORTING TWO SPANS (m)**

Joist Span (m)	1.2 m Post Spacing				1.8 m Post Spacing				2.4 m Post Spacing			
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor
1.2	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235
1.5	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 184	2-38 x 184	2-38 x 235
1.8	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
2.1	2-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 140	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
2.4	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 235	2-38 x 235	3-38 x 235
2.7	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 235	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 286	3-38 x 235
3.0	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 235	2-38 x 235	2-38 x 184	2-38 x 286	3-38 x 235	2-38 x 286	2-38 x 286	3-38 x 286
3.3	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286	3-38 x 235	3-38 x 235	2-38 x 286	3-38 x 286
3.7	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286	3-38 x 235	3-38 x 235	3-38 x 235	3-38 x 286
4.0	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286	3-38 x 286	3-38 x 235	3-38 x 235	N/A
4.3	2-38 x 184	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 286	2-38 x 235	2-38 x 235	3-38 x 235	3-38 x 286	3-38 x 286	3-38 x 235	N/A
4.6	2-38 x 184	2-38 x 184	2-38 x 140	2-38 x 184	2-38 x 286	2-38 x 286	2-38 x 235	3-38 x 235	3-38 x 286	3-38 x 286	3-38 x 286	N/A
4.9	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 286	3-38 x 235	3-38 x 286	3-38 x 286	3-38 x 286	N/A

**Notes:**

1. Beam selection is given as: number of plies – ply thickness (mm) x ply depth (mm).
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used to fasten the beam to the support.
3. A beam selection listed as 2-38 x 235 may be substituted with 3-38 x 184.
4. A beam selection listed as 2-38 x 286 may be substituted with 3-38 x 235.
5. Minimum post size shall be 89 x 89 mm for posts up to 2.0 m high, otherwise post size shall be 140 x 140 mm up to 3.66 m high. Posts supporting 3-ply beams require 140 x 140 mm post to meet minimum bearing requirement. See Figure 2 for minimum bearing width details of beams.
6. If joist spans are not of equal length, use the larger of the two joist spans to determine beam size.



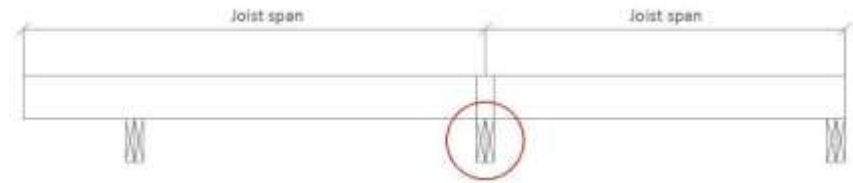
**TABLE 6b – BEAM SELECTION NOT INCISED SUPPORTING TWO SPANS (ft)**

Joist Span (ft)	4 ft Post Spacing				6 ft Post Spacing				8 ft Post Spacing			
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor
4	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10
5	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 8	2-2 x 8	2-2 x 10
6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
7	2-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 6	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
8	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 10	2-2 x 10	3-2 x 10
9	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 10	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 12	3-2 x 10
10	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 10	2-2 x 10	2-2 x 8	2-2 x 12	3-2 x 10	2-2 x 12	2-2 x 12	3-2 x 12
11	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12	3-2 x 10	3-2 x 10	2-2 x 12	3-2 x 12
12	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12	3-2 x 10	3-2 x 10	3-2 x 10	3-2 x 12
13	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12	3-2 x 12	3-2 x 10	3-2 x 10	N/A
14	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 12	2-2 x 10	2-2 x 10	3-2 x 10	3-2 x 12	3-2 x 12	3-2 x 10	N/A
15	2-2 x 6	2-2 x 8	2-2 x 6	2-2 x 8	2-2 x 12	2-2 x 12	2-2 x 10	3-2 x 10	3-2 x 12	3-2 x 12	3-2 x 12	N/A
16	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 12	3-2 x 10	3-2 x 12	3-2 x 12	3-2 x 12	N/A

**Notes:**

1. Beam selection is given as: number of plies – ply nominal thickness (in) x ply nominal depth (in).
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used to fasten the beam to the support.
3. A beam selection listed as 2-2 x 10 may be substituted with 3-2 x 8.
4. A beam selection listed as 2-2 x 12 may be substituted with 3-2 x 10.
5. Minimum post size shall be nominal 4 x 4 in. for posts up to 6.5 ft high, otherwise post size shall be nominal 6 x 6 in. up to 12 ft high. Posts supporting 3-ply beams require nominal 6 x 6 in. post to meet minimum bearing requirement. See Figure 2 for minimum bearing width details of beams.
6. If joist spans are not of equal length, use the larger of the two joist spans to determine beam size.

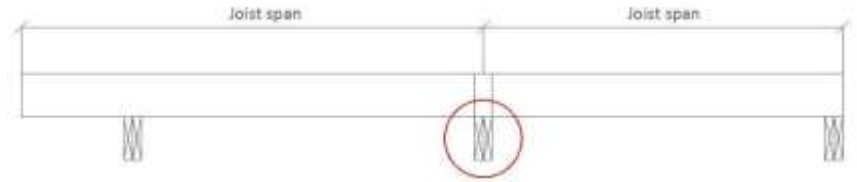


**TABLE 7a – BEAM SELECTION INCISED SUPPORTING TWO SPANS (m)**

Joist Span (m)	1.2 m Post Spacing				1.8 m Post Spacing				2.4 m Post Spacing			
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor
1.2	1-38 x 140	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235
1.5	1-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
1.8	2-38 x 140	1-38 x 140	1-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286
2.1	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 235	3-38 x 235
2.4	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 235	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 286	3-38 x 286
2.7	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286	3-38 x 235	2-38 x 286	2-38 x 286	3-38 x 286
3.0	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286	3-38 x 235	3-38 x 235	3-38 x 235	3-38 x 286
3.3	2-38 x 140	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 235	2-38 x 235	2-38 x 235	2-38 x 286	3-38 x 286	3-38 x 235	3-38 x 235	N/A
3.7	2-38 x 184	2-38 x 140	2-38 x 140	2-38 x 184	2-38 x 286	2-38 x 235	2-38 x 235	3-38 x 235	3-38 x 286	3-38 x 286	3-38 x 235	N/A
4.0	2-38 x 184	2-38 x 184	2-38 x 140	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 235	3-38 x 235	3-38 x 286	3-38 x 286	3-38 x 286	N/A
4.3	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 286	3-38 x 235	N/A	3-38 x 286	3-38 x 286	N/A
4.6	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	2-38 x 286	2-38 x 286	2-38 x 286	3-38 x 286	N/A	3-38 x 286	3-38 x 286	N/A
4.9	2-38 x 184	2-38 x 184	2-38 x 184	2-38 x 235	3-38 x 235	2-38 x 286	2-38 x 286	3-38 x 286	N/A	N/A	3-38 x 286	N/A

**Notes:**

1. Beam selection is given as: number of plies – ply thickness (mm) x ply depth (mm).
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used to fasten the beam to the support.
3. A beam selection listed as 2-38 x 235 may be substituted with 3-38 x 184.
4. A beam selection listed as 2-38 x 286 may be substituted with 3-38 x 235.
5. Minimum post size shall be 89 x 89 mm for posts up to 2.0 m high, otherwise post size shall be 140 x 140 mm up to 3.7 m high. Posts supporting 3-ply beams require 140 x 140 mm post to meet minimum bearing requirement. See Figure 2 for minimum bearing width details of beams.
6. If joist spans are not of equal length, use the larger of the two joist spans to determine beam size.



**TABLE 7b – BEAM SELECTION INCISED SUPPORTING TWO SPANS (ft)**

Joist Span (ft)	4 ft Post Spacing				6 ft Post Spacing				8 ft Post Spacing			
	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor	DF-L	H-F	S-P-F	Nor
4	1-2 x 6	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10
5	1-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
6	2-2 x 6	1-2 x 6	1-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12
7	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 10	3-2 x 10
8	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 10	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 12	3-2 x 12
9	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12	3-2 x 10	2-2 x 12	2-2 x 12	3-2 x 12
10	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12	3-2 x 10	3-2 x 10	3-2 x 10	3-2 x 12
11	2-2 x 6	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 10	2-2 x 10	2-2 x 10	2-2 x 12	3-2 x 12	3-2 x 10	3-2 x 10	N/A
12	2-2 x 8	2-2 x 6	2-2 x 6	2-2 x 8	2-2 x 12	2-2 x 10	2-2 x 10	3-2 x 10	3-2 x 12	3-2 x 12	3-2 x 10	N/A
13	2-2 x 8	2-2 x 8	2-2 x 6	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 10	3-2 x 10	3-2 x 12	3-2 x 12	3-2 x 12	N/A
14	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 12	3-2 x 10	N/A	3-2 x 12	3-2 x 12	N/A
15	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	2-2 x 12	2-2 x 12	2-2 x 12	3-2 x 12	N/A	3-2 x 12	3-2 x 12	N/A
16	2-2 x 8	2-2 x 8	2-2 x 8	2-2 x 10	3-2 x 10	2-2 x 12	2-2 x 12	3-2 x 12	N/A	N/A	3-2 x 12	N/A

**Notes:**

1. Beam selection is given as: number of plies – ply nominal thickness (in) x ply nominal depth (in).
2. Beam depth must be equal to or greater than the joist depth if joist hangers are used to fasten the beam to the support.
3. A beam selection listed as 2-2 x 10 may be substituted with 3-2 x 8.
4. A beam selection listed as 2-2 x 12 may be substituted with 3-2 x 10.
5. Minimum post size shall be nominal 4 x 4 in. for posts up to 6.5 ft high, otherwise post size shall be nominal 6 x 6 in. up to 12 ft high. Posts supporting 3-ply beams require nominal 6 x 6 in. post to meet minimum bearing requirement. See Figure 2 for minimum bearing width details of beams.
6. If joist spans are not of equal length, use the larger of the two joist spans to determine beam size.

## Design Example

Deck to be built with untreated Eastern White Cedar Joists, and all supporting members will consist of treated and incised S-P-F members. Total deck area of 6 ft by 20 ft with an overhang on one end. Deck will be 8 ft from ground level.

**Figure 3 – Design Example Sketch and Design**

