

TROPICAL

TROPICAL FOREST PRODUCTS DECK AND STRINGER MATERIAL SPANS STRUCTURAL REVIEW & CALCULATIONS

Scope:

Structural engineering calculations have been prepared which evaluate the performance of the product based on comparative and/or rational analysis to qualify the following design criteria:

- Maximum allowable stringer span and decking span.
- Maximum allowable beam spans based on various combinations of dead, live, wind / snow loads for decking applications
- Note: evaluation is for spans of product only. No connections or designs of any systems are included in this evaluation and shall be performed by others on a site-specific basis using these base criteria as a guide.

Material Sizes:

The TROPICAL FOREST PRODUCTS decking system is a variety of tropical hardwoods that can be used with the following sizes:

Deck Thickness:

- 0.75"
- 1"
- 1.5"
- 2.5"
- 3.5"

Beam and Stinger Sizes (Actual):

- 1.5" x 5.5", 1.5" x 7.25", 1.5" x 9.25", 1.5" x 11.15"
- 2.5" x 5.5", 2.5" x 7.25", 2.5" x 9.25", 2.5" x 11.15"
- 3.5" x 5.5", 3.5" x 7.25", 3.5" x 9.25", 3.5" x 11.15"
- 5.5" x 5.5", 5.5" x 7.25", 5.5" x 9.25", 5.5" x 11.15"

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General Notes:

- 1) This system has been designed and shall be fabricated in accordance with the definitions and requirements of the 2015 International Residential Code and International Building Code including considerations pertaining to the use of Naturally Durable Wood.
- 2) This document has been developed specifically to address the technical performance of TROPICAL FOREST PRODUCTS brand products only and should not be relied on for products which cannot be verified as carrying the TROPICALFORESTPRODUCTS brand through confirming documentation.
- 3) Engineering express is not certifying any wood species parameters without applicable testing proof. The minimum required thresholds are shown below. These thresholds must be verified separately and are by others, and assuming all the parameters can be proven by the manufacturer, only then can we confirm these span charts valid for the intent of the Code.
- 4) TROPICAL FOREST PRODUCTS – Naturally Durable Hardwoods Species shall meet the following minimum technical standards.
 - a. Material shall be graded as per TROPICAL FOREST PRODUCTS Grading Standards defined as Premium Select, FEQ, COM SEL / FAS
 - b. Shall be tested to NFPA class B or better Fire Rating as per ASTM E84 testing standards
 - c. Shall be tested to US Forest Products Laboratory Class 2 or better durability rating
 - d. Shall be tested to meet or exceed minimum structural properties as per ASTM D245
 - e. Modules of elasticity shall be independently verified per code to be equal to or greater than the below
 - f. Shall be certified to meet or exceed minimum Allowable design values listed below:
 - A minimum Bending Strength (Fb) of 2100 psi
 - A minimum Modulus of Elasticity (E) of 2180 ksi
 - A minimum Compression Parallel to Grain of 1700 psi
 - A minimum Compression Perpendicular to Grain of 1030 psi
 - A minimum Shear parallel to Grain of 305 psi
 - A maximum Density of 70 lbs. / cu. Ft.
 - A minimum Specific Gravity of 0.67
- 5) These are a sample of the species list we used under our analysis, and their required properties (including but not limited to:
 - a. TROPICALFORESTPRODUCTS Ipe, Garapa, Cumaru, Tigerwood, Jatoba, Angelim Pedra, Purpleheart, Massaranduba, Balau, Ekki

IN ALL CONDITIONS IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER TO ENSURE THE HOST STRUCTURE CAN WITHSTAND THE RATED FORCES BY A COMPLETE SITE-SPECIFIC DESIGN BY OTHERS.

THIS DOCUMENT IS NOT TO BE CONSIDERED A DESIGN APPROVAL AND IS INTENDED AS A DESIGN AID TO OTHERS ONLY.

NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, IS OFFERED BY THIS ENGINEER AS TO THE INTEGRITY OF THE HOST STRUCTURE TO CARRY DESIGN FORCE LOADS INCURRED BY THIS SYSTEM.

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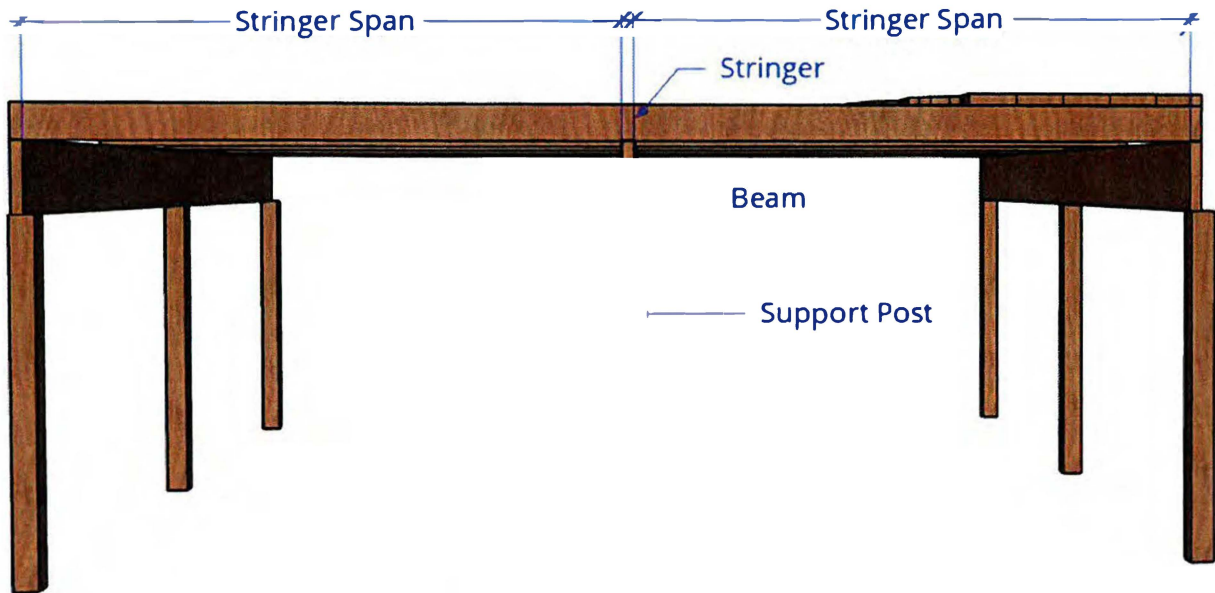


Figure 1: Stringer Span

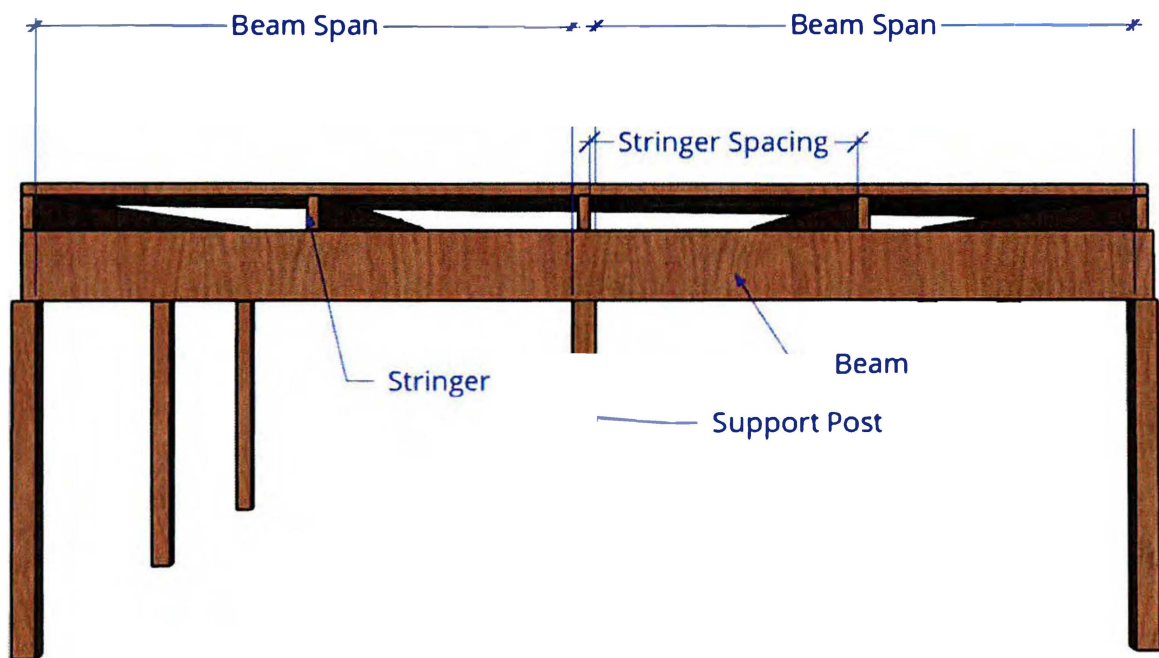


Figure 2: Beam Span

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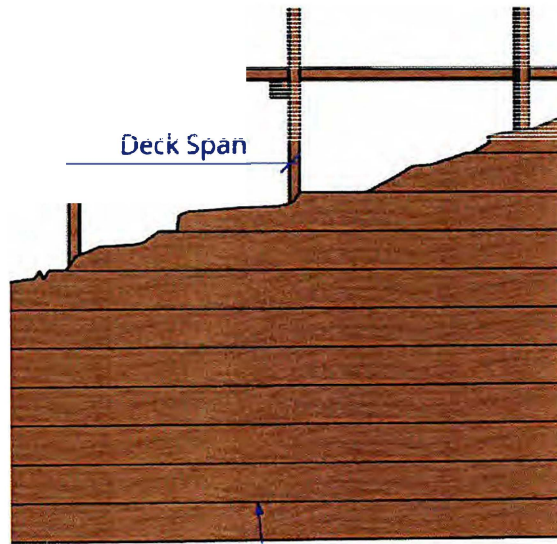
Decking Span:

Deck Max Span (Support to Support)

Deck Thickness	Live Load		
	60 psf	100 psf	500 psf
0.75 in	27 in	24 in	12 in
1.00 in	39 in	33 in	18 in
1.50 in	57 in	48 in	27 in
2.50 in	96 in	81 in	48 in
3.50 in	135 in	114 in	66 in

GENERAL NOTES:

1. All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.
2. Maximum total load (TL) determined from the governing case of the following:
 $TL = DL + LL$
 $TL = DL + SL$
 $TL = DL + 0.75*LL + 0.75*SL$
 $TL = 0.6*DL + 0.6*WL_u$
3. Loads utilized for the above (3) tables are as follows: DL = (Max Density * Deck Thickness) psf, LL = See Table, $SL + WL_g = 20$ psf, where absolute uplift wind load (WL_u) is not greater than WL_g .
4. Deflection limits for joists and beams are determined as follows:
Deck – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.
5. Deck capacities are shall be independently verified to meet Allowable Design Values described on page 1.
6. Allowable deck bending stress utilized was 2,100 psi.
7. Dead Load Utilized = 20.42 psf or less
8. Required wind pressure shall be calculated and certified by others on a site-specific basis.



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TABLE 1: BEAM & STRINGER SPANS
WITH ≤ 1.5" DECK THICKNESS

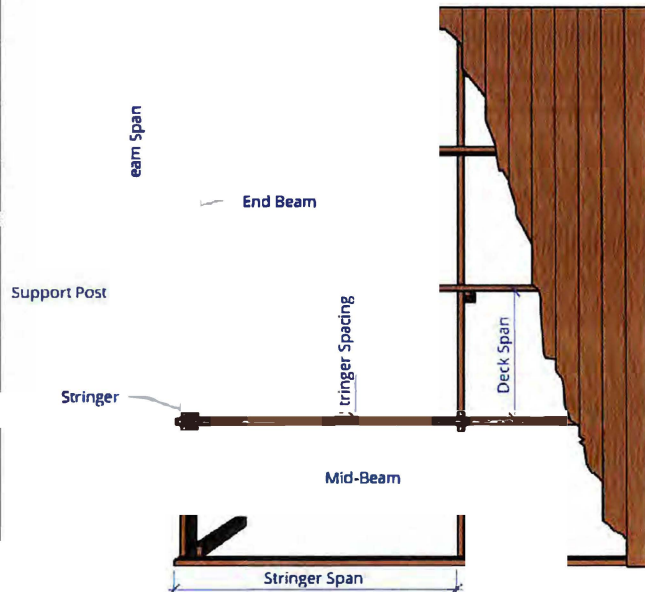
1.5" Deck Thickness	STR. SIZES	BEAM SPAN (SINGLE BEAM BETWEEN POSTS)											
		STRINGER @ 1.5" X 5.5"				STRINGER @ 2.5" X 5.5"				STRINGER @ 3.5" X 5.5"			
		3'-0"	4'-0"	5'-0"	6'-0"	3'-0"	4'-0"	5'-0"	6'-0"	3'-0"	4'-0"	5'-0"	6'-0"
2.5" X 5.5"	1.1	7'-7"	6'-10"	6'-1"	5'-7"	6'-10"	6'-1"	5'-7"	5'-2"	8'-0"	7'-4"	6'-4"	5'-0"
3.5" X 5.5"		9'-0"	8'-2"	7'-7"	7'-2"	8'-2"	7'-7"	7'-2"	6'-8"	9'-5"	8'-9"	8'-0"	6'-4"
5.5" X 5.5"		10'-1"	9'-2"	8'-8"	8'-0"	9'-2"	8'-6"	8'-0"	7'-7"	10'-7"	9'-11"	8'-6"	7'-3"
1.5" X 7.25"		11'-9"	10'-8"	9'-11"	9'-4"	10'-8"	9'-11"	9'-4"	8'-10"	12'-10"	11'-11"	10'-10"	9'-0"
2.5" X 7.25"		10'-1"	9'-0"	8'-1"	7'-4"	9'-0"	8'-0"	7'-4"	6'-9"	11'-11"	10'-11"	9'-11"	8'-0"
3.5" X 7.25"		11'-11"	10'-10"	9'-5"	8'-9"	10'-10"	9'-5"	8'-9"	8'-2"	12'-10"	11'-11"	10'-11"	9'-0"
5.5" X 7.25"		13'-4"	12'-1"	11'-3"	10'-7"	12'-1"	10'-4"	9'-7"	9'-7"	14'-11"	13'-11"	12'-11"	10'-9"
1.5" X 9.25"		15'-6"	14'-1"	13'-1"	12'-4"	13'-1"	12'-4"	11'-8"	11'-8"	16'-5"	15'-7"	14'-9"	13'-11"
2.5" X 9.25"		12'-10"	11'-6"	10'-4"	9'-5"	11'-5"	10'-3"	9'-4"	8'-8"	13'-6"	12'-10"	11'-10"	10'-2"
3.5" X 9.25"		15'-3"	13'-10"	12'-10"	11'-8"	13'-10"	12'-10"	11'-8"	11'-2"	15'-8"	14'-11"	13'-9"	12'-11"
5.5" X 9.25"		17'-0"	15'-6"	14'-4"	13'-2"	15'-6"	14'-4"	13'-2"	12'-10"	18'-0"	16'-8"	15'-8"	14'-3"
1.5" X 11.25"		19'-10"	18'-0"	16'-8"	15'-3"	18'-0"	16'-8"	15'-3"	14'-11"	20'-4"	19'-1"	18'-2"	17'-4"
2.5" X 11.25"		15'-7"	14'-0"	12'-6"	11'-5"	13'-11"	12'-5"	11'-4"	10'-6"	16'-5"	15'-7"	14'-11"	13'-11"
3.5" X 11.25"		18'-6"	16'-10"	15'-7"	14'-8"	16'-10"	15'-7"	14'-8"	13'-7"	19'-1"	18'-2"	17'-4"	16'-8"
5.5" X 11.25"		20'-9"	18'-10"	17'-6"	16'-5"	18'-10"	17'-6"	16'-5"	15'-7"	21'-11"	20'-4"	19'-1"	18'-2"
		24'-1"	21'-11"	20'-4"	19'-1"	21'-11"	20'-4"	19'-1"	18'-2"	24'-1"	21'-11"	20'-4"	19'-1"

* ALL SIZES ARE ACTUAL NOT NOMINAL

LL 100 PSF

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:
 - New Stringer Length (in.) = Min of:
 - $$\frac{3}{t_2} \frac{L_{os}^3 + t_1}{or^2}$$
 - New Beam Length (in):
 - $$L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$
 - Where
 - L_{os} = Original Stringer Length (in.)
 - L_{ob} = Original Beam Length (in.)
 - t_1 = Original Spacing (in.)
 - t_2 = New Spacing (in.)
- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.
- Maximum total load (TL) determined from the governing case of the following:
 - $TL = DL + LL$
 - $TL = DL + SL$
 - $TL = DL + 0.75*LL + 0.75*SL$
 - $TL = 0.6*DL + 0.6*WL_u$
- Loads utilized for the table are as follows: DL = 21 psf or less, LL = 100 psf, $SL + WL_g = 20$ psf, where absolute uplift wind load (WL_u) is not greater than WL_g .
- Deflection limits for stringer and beams are determined as follows:
 - Stringer – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.
 - Beams – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.
- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.
- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.
- Required wind pressure shall be verified by others.



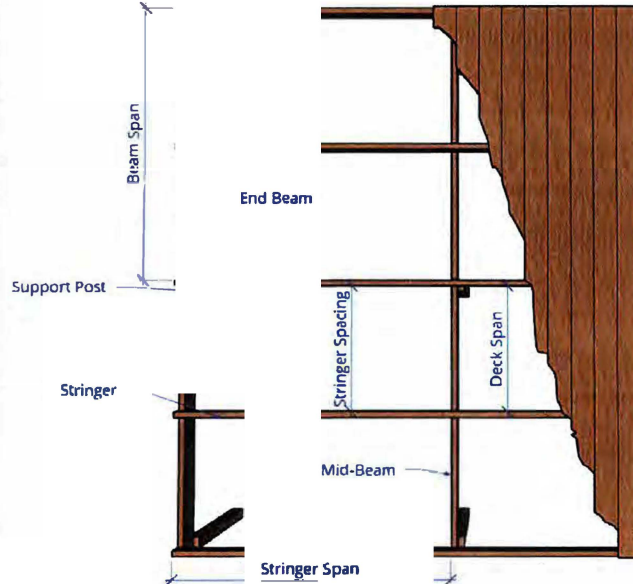
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TABLE 2: BEAM & STRINGER SPANS
WITH ≤ 1.5" DECK THICKNESS

BEAM SPAN (SINGLE BEAM BETWEEN POSTS)										LL 100 PSF									
1.5" Deck Thickness	STRINGER @ 1.5" X 7.25"				STRINGER @ 2.5" X 7.25"				STR. SPANS	STRINGER @ 3.5" X 7.25"				STRINGER @ 5.5" X 7.25"				STR. SPANS	1.5" Deck Thickness
	4'-0"	5'-0"	6'-0"	8'-0"	4'-0"	5'-0"	6'-0"	8'-0"		4'-0"	5'-0"	6'-0"	8'-0"	4'-0"	5'-0"	6'-0"	8'-0"		
1.5" X 3.5"	6'-10"	6'-1"	6'-10"	4'-10"	6'-9"	6'-9"	6'-9"	4'-7"	9'-0"	6'-10"	6'-9"	6'-9"	6'-9"	6'-10"	6'-9"	6'-9"	6'-9"	6'-10"	1.5" X 3.5"
2.5" X 3.5"	8'-2"	7'-7"	7'-2"	6'-3"	8'-2"	8'-2"	7'-2"	5'-10"	4'-6"	8'-2"	8'-2"	8'-2"	7'-2"	8'-2"	8'-2"	7'-2"	6'-3"	8'-2"	2.5" X 3.5"
3.5" X 3.5"	9'-2"	8'-6"	8'-0"	7'-3"	9'-2"	8'-0"	8'-0"	6'-11"	6'-5"	9'-2"	8'-0"	8'-0"	7'-3"	9'-2"	8'-0"	8'-0"	6'-11"	6'-5"	3.5" X 3.5"
5.5" X 3.5"	10'-8"	9'-11"	9'-4"	8'-6"	10'-8"	9'-4"	9'-4"	8'-2"	7'-9"	10'-8"	9'-4"	9'-4"	8'-2"	10'-8"	9'-4"	9'-4"	8'-2"	7'-9"	5.5" X 3.5"
1.5" X 7.25"	9'-0"	8'-1"	7'-4"	6'-4"	9'-0"	8'-11"	7'-3"	6'-4"	5'-11"	9'-0"	8'-11"	7'-3"	6'-4"	9'-0"	8'-11"	7'-3"	6'-4"	5'-11"	1.5" X 7.25"
2.5" X 7.25"	10'-10"	10'-1"	9'-5"	8'-3"	10'-10"	10'-1"	9'-5"	8'-2"	7'-8"	10'-10"	10'-1"	9'-5"	8'-2"	10'-10"	10'-1"	9'-5"	8'-2"	7'-8"	2.5" X 7.25"
3.5" X 7.25"	12'-1"	11'-3"	10'-7"	9'-7"	12'-1"	10'-7"	10'-7"	9'-7"	9'-1"	12'-1"	10'-7"	10'-7"	9'-7"	12'-1"	10'-7"	10'-7"	9'-7"	9'-1"	3.5" X 7.25"
5.5" X 7.25"	14'-1"	13'-1"	12'-4"	11'-2"	14'-1"	12'-4"	12'-4"	11'-2"	10'-9"	14'-1"	12'-4"	12'-4"	11'-2"	14'-1"	12'-4"	12'-4"	11'-2"	10'-9"	5.5" X 7.25"
1.5" X 9.25"	11'-6"	10'-3"	9'-5"	8'-2"	11'-5"	9'-4"	9'-4"	8'-1"	7'-7"	11'-6"	10'-3"	9'-5"	8'-2"	11'-5"	9'-4"	9'-4"	8'-1"	7'-7"	1.5" X 9.25"
2.5" X 9.25"	13'-10"	12'-10"	12'-1"	10'-6"	13'-10"	12'-10"	12'-10"	10'-6"	9'-10"	13'-10"	12'-10"	12'-10"	10'-6"	13'-10"	12'-10"	12'-10"	10'-6"	9'-10"	2.5" X 9.25"
3.5" X 9.25"	15'-6"	14'-4"	13'-6"	12'-3"	15'-6"	13'-6"	13'-6"	12'-3"	11'-7"	15'-6"	13'-6"	13'-6"	12'-3"	15'-6"	13'-6"	13'-6"	12'-3"	11'-7"	3.5" X 9.25"
5.5" X 9.25"	18'-0"	16'-8"	15'-8"	14'-3"	18'-0"	15'-8"	15'-8"	14'-3"	13'-9"	18'-0"	15'-8"	15'-8"	14'-3"	18'-0"	15'-8"	15'-8"	14'-3"	13'-9"	5.5" X 9.25"
1.5" X 11.25"	13'-11"	12'-6"	11'-5"	9'-1"	13'-10"	11'-4"	11'-4"	9'-10"	8'-3"	13'-11"	12'-6"	11'-5"	9'-1"	13'-10"	11'-4"	11'-4"	9'-10"	8'-3"	1.5" X 11.25"
2.5" X 11.25"	16'-10"	15'-7"	14'-8"	12'-9"	16'-10"	14'-7"	14'-7"	12'-8"	11'-11"	16'-10"	14'-7"	14'-7"	12'-8"	16'-10"	14'-7"	14'-7"	12'-8"	11'-11"	2.5" X 11.25"
3.5" X 11.25"	18'-10"	17'-6"	16'-5"	14'-1"	18'-10"	16'-5"	16'-5"	14'-1"	14'-1"	18'-10"	16'-5"	16'-5"	14'-1"	18'-10"	16'-5"	16'-5"	14'-1"	14'-1"	3.5" X 11.25"
5.5" X 11.25"	21'-11"	20'-4"	19'-1"	17'-4"	21'-11"	19'-1"	19'-1"	17'-4"	16'-8"	21'-11"	19'-1"	19'-1"	17'-4"	21'-11"	19'-1"	19'-1"	17'-4"	16'-8"	5.5" X 11.25"

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:
 - New Stringer Length (in.) = Min of:
 - $$i. \frac{L_{os}^3 + t_1}{t_2} \text{ or } \frac{L_{os}^2 + t_1}{t_2}$$
 - New Beam Length (in):
 - $$i. L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$
 - Where
 - L_{os} = Original Stringer Length (in.)
 - L_{ob} = Original Beam Length (in.)
 - t_1 = Original Spacing (12 in.)
 - t_2 = New Spacing (in.)
- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.
- Maximum total load (TL) determined from the governing case of the following:
 - TL = DL + LL
 - TL = DL + SL
 - TL = DL + 0.75*LL + 0.75*SL
 - TL = 0.6*DL + 0.6*WL_u
- Loads utilized for the table are as follows: DL = 23 psf or less, LL = 100 psf, SL + WL_g = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.
- Deflection limits for stringer and beams are determined as follows:
 - Stringer – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.
 - Beams – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.
- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.
- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.
- Required wind pressure shall be verified by others.



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6200 Tomken Rd Mississauga, ON - L5T 1X7 - Canada
1-855-344-4500 | www.TropicalForestProducts.com | info@tropicalforestproducts.com
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A diagram showing a cross-section of a wooden deck. It features several vertical wooden planks (deck boards) supported by horizontal wooden joists. A double-headed arrow indicates the distance between two adjacent joists, labeled "Deck Span".

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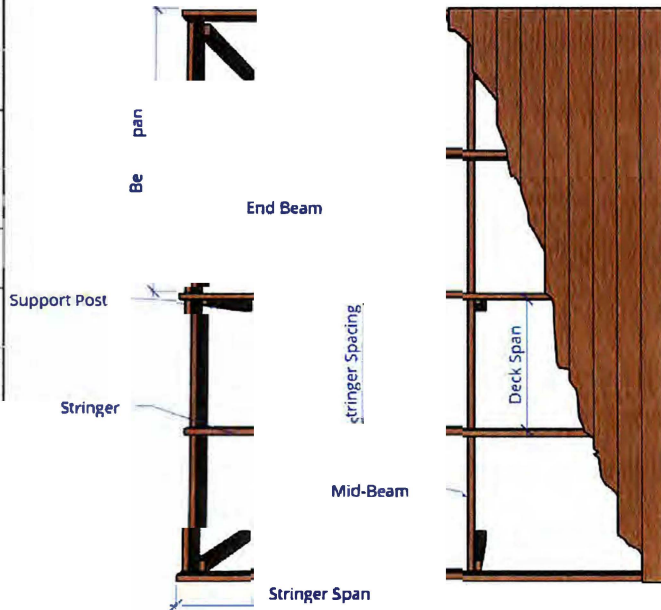
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TABLE 5: BEAM & STRINGER SPANS
WITH ≤ 3.5" DECK THICKNESS

3.5" D.C. Thickness	STR. SIZES	LL 100 PSF									
		BEAM SPAN (SINGLE BEAM EEN POSTS)					UAL NOT NOMINAL				
		STRINGER @ 1.5" X 5.5"					STRINGER @ 3.5" X 5.5"				
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
1.5" X 5.5"	1.5" X 5.5"	7'-6"	6'-6"	5'-6"	4'-6"	3'-6"	2'-6"	1'-6"	10'-6"	9'-6"	8'-6"
2.5" X 5.5"	2.5" X 5.5"	9'-0"	8'-2"	7'-6"	6'-10"	5'-11"	4'-11"	3'-11"	12'-0"	11'-0"	10'-0"
3.5" X 5.5"	3.5" X 5.5"	10'-1"	9'-2"	8'-6"	7'-10"	6'-11"	5'-11"	4'-11"	13'-0"	12'-0"	11'-0"
5.5" X 5.5"	5.5" X 5.5"	11'-9"	10'-8"	9'-11"	8'-10"	7'-10"	6'-11"	5'-11"	14'-3"	13'-3"	12'-3"
1.5" X 7.25"	1.5" X 7.25"	9'-11"	8'-7"	7'-8"	6'-9"	5'-11"	4'-11"	3'-11"	11'-1"	10'-1"	9'-1"
2.5" X 7.25"	2.5" X 7.25"	11'-11"	10'-10"	9'-11"	8'-10"	7'-10"	6'-11"	5'-11"	13'-3"	12'-3"	11'-3"
3.5" X 7.25"	3.5" X 7.25"	13'-4"	12'-1"	11'-3"	10'-7"	9'-10"	8'-11"	7'-10"	15'-8"	14'-8"	13'-8"
5.5" X 7.25"	5.5" X 7.25"	15'-6"	14'-4"	13'-3"	12'-4"	11'-4"	10'-4"	9'-4"	18'-0"	17'-0"	16'-0"
1.5" X 9.25"	1.5" X 9.25"	12'-7"	10'-11"	9'-10"	8'-11"	7'-10"	6'-11"	5'-11"	14'-11"	13'-11"	12'-11"
2.5" X 9.25"	2.5" X 9.25"	15'-3"	13'-10"	12'-7"	11'-6"	10'-7"	9'-11"	8'-11"	17'-7"	16'-7"	15'-7"
3.5" X 9.25"	3.5" X 9.25"	17'-0"	15'-6"	14'-4"	13'-6"	12'-7"	11'-9"	10'-9"	19'-1"	18'-1"	17'-1"
5.5" X 9.25"	5.5" X 9.25"	19'-0"	18'-0"	16'-8"	15'-8"	14'-11"	13'-11"	12'-11"	21'-11"	20'-11"	19'-11"
1.5" X 11.25"	1.5" X 11.25"	15'-4"	13'-4"	11'-11"	10'-11"	9'-11"	8'-11"	7'-10"	16'-4"	15'-4"	14'-4"
2.5" X 11.25"	2.5" X 11.25"	18'-6"	16'-10"	15'-4"	14'-0"	13'-11"	12'-11"	11'-11"	19'-6"	18'-6"	17'-6"
		20'-9"	18'-10"	17'-6"	16'-5"	15'-3"	14'-3"	13'-3"	21'-9"	20'-9"	19'-9"
		24'-1"	21'-11"	20'-4"	18'-7"	17'-7"	16'-7"	15'-7"	24'-1"	23'-1"	22'-1"

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:
 - New Stringer Length (in.) = Min of:
 - $$\sqrt[3]{\frac{L_{os}^3 + t_1}{t_2}} \cdot L_{os} \text{ or } \sqrt[2]{\frac{L_{os}^2 + t_1}{t_2}}$$
 - New Beam Length (in.):
 - $$L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$
 - Where
 - L_{os} = Original Stringer Length (in.)
 - L_{ob} = Original Beam Length (in.)
 - t_1 = Original Spacing (12 in.)
 - t_2 = New Spacing (in.)
- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.
- Maximum total load (TL) determined from the governing case of the following:
 - TL = DL + LL
 - TL = DL + SL
 - TL = DL + 0.75*LL + 0.75*SL
 - TL = 0.6*DL + 0.6*WL_u
- Loads utilized for the table are as follows: DL = 33 psf or less, LL = 100 psf, SL + WL_g = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.
- Deflection limits for stringer and beams are determined as follows:
 - Stringer – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.
 - Beams – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.
- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.
- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.
- Required wind pressure shall be verified by others.



TROPICAL

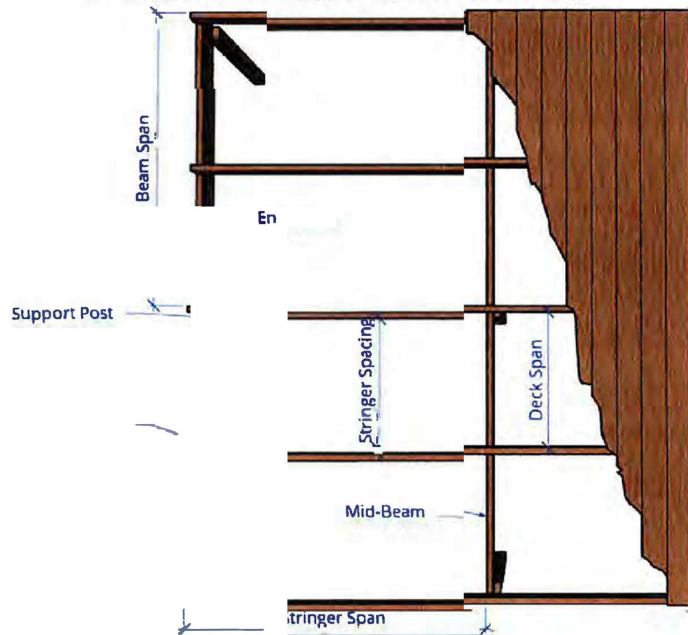
TABLE 6: BEAM & STRINGER SPANS
WITH ≤ 3.5" DECK THICKNESS

*ALL SIZES ARE ACTUAL NOT NOMINAL

BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		LL 100 PSF											
3.5" Deck Thickness	STR. SIZES	STRINGER @ 1.5" X 7.25"				STRINGER @ 2.5" X 7.25"				STRINGER @ 3.5" X 7.25"			
		4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
B E A M S I Z E S	1.5" X 5.5"	6'-6"	5'-10"	5'-4"	4'-7"	4'-1"	3'-6"	3'-0"	2'-6"	2'-0"	1'-6"	1'-0"	0'-6"
	2.5" X 5.5"	8'-2"	7'-6"	6'-10"	5'-11"	5'-7"	5'-3"	4'-7"	4'-1"	3'-8"	3'-2"	2'-8"	2'-2"
	3.5" X 5.5"	9'-2"	8'-6"	8'-0"	7'-0"	6'-7"	6'-2"	5'-6"	5'-1"	4'-9"	4'-3"	3'-9"	3'-3"
	5.5" X 5.5"	10'-8"	9'-11"	9'-4"	8'-6"	8'-2"	7'-7"	7'-1"	6'-6"	6'-1"	5'-6"	5'-1"	4'-6"
	1.5" X 7.25"	8'-7"	7'-8"	7'-0"	6'-1"	5'-9"	5'-3"	4'-8"	4'-2"	3'-11"	3'-5"	2'-11"	2'-5"
S I Z E S	2.5" X 7.25"	10'-10"	9'-10"	9'-0"	7'-10"	7'-4"	6'-10"	6'-4"	5'-10"	5'-3"	4'-9"	4'-3"	3'-9"
	3.5" X 7.25"	12'-1"	11'-3"	10'-7"	9'-3"	8'-9"	8'-2"	7'-8"	7'-2"	6'-8"	6'-2"	5'-8"	5'-2"
	5.5" X 7.25"	14'-1"	13'-1"	12'-4"	11'-2"	10'-9"	10'-3"	9'-8"	9'-2"	8'-8"	8'-2"	7'-8"	7'-2"
	1.5" X 9.25"	10'-11"	9'-9"	8'-11"	7'-9"	7'-3"	6'-11"	6'-5"	5'-11"	5'-5"	4'-11"	4'-5"	3'-11"
	2.5" X 9.25"	13'-10"	12'-7"	11'-6"	10'-0"	9'-5"	8'-10"	8'-4"	7'-10"	7'-4"	6'-10"	6'-4"	5'-10"
	3.5" X 9.25"	15'-6"	14'-4"	13'-6"	11'-9"	11'-1"	10'-5"	9'-10"	8'-6"	8'-0"	7'-6"	7'-0"	6'-6"
	5.5" X 9.25"	18'-0"	16'-8"	15'-8"	14'-3"	13'-9"	13'-3"	12'-8"	12'-2"	11'-8"	11'-2"	10'-8"	10'-2"
	1.5" X 11.25"	13'-3"	11'-11"	10'-10"	9'-5"	8'-10"	7'-11"	7'-5"	6'-11"	6'-5"	5'-11"	5'-5"	4'-11"
	2.5" X 11.25"	16'-10"	15'-3"	14'-0"	12'-1"	11'-5"	10'-10"	10'-4"	9'-10"	9'-4"	8'-10"	8'-4"	7'-10"
	3.5" X 11.25"	18'-10"	17'-6"	16'-5"	14'-4"	13'-6"	13'-0"	12'-5"	11'-11"	11'-5"	11'-0"	10'-5"	10'-0"
	5.5" X 11.25"	21'-11"	20'-4"	19'-1"	17'-4"	16'-8"	16'-2"	15'-7"	15'-1"	14'-6"	14'-0"	13'-5"	13'-0"

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:
 - New Stringer Length (in.) = Min of:
 - $$\sqrt[3]{\frac{L_{os}^3 + t_1}{t_2}} \text{ or } \sqrt[2]{\frac{L_{os}^2 + t_1}{t_2}}$$
 - New Beam Length (in.):
 - $$L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$
 - Where
 - L_{os} = Original Stringer Length (in.)
 - L_{ob} = Original Beam Length (in.)
 - t_1 = Original Spacing (12 in.)
 - t_2 = New Spacing (in.)
- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.
- Maximum total load (TL) determined from the governing case of the following:
 - TL = DL + LL
 - TL = DL + SL
 - TL = DL + 0.75*LL + 0.75*SL
 - TL = 0.6*DL + 0.6*WL_u
- Loads utilized for the table are as follows: DL = 35 psf or less, LL = 100 psf, SL + WL_g = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.
- Deflection limits for stringer and beams are determined as follows:
 - Stringer – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.
 - Beams – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.
- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.
- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.
- Required wind pressure shall be verified by others.



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TABLE 8: BEAM & STRINGER SPANS
WITH ≤ 3.5" DECK THICKNESS

3.5" Deck Thickness		BEAM SPAN (SINGLE BEAM BETWEEN POSTS)										* ALL SIZES ARE ACTUAL NOT NOMINAL										LL 100 PSF									
		STR. SIZES		STR. SPANS		STRINGER @ 1.5" X 11.25"		STRINGER @ 2.5" X 11.25"		STRINGER @ 3.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"		STRINGER @ 5.5" X 11.25"	
		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
2.5" X 5.5"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
3.5" X 5.5"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
5.5" X 5.5"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
1.5"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
2.5"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
2.5" X 9.25"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
3.5" X 9.25"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
5.5" X 9.25"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
1.5" X 11.25"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"
2.5" X 11.25"		6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"	32'-0"	34'-0"	36'-0"	38'-0"	40'-0"	42'-0"	44'-0"	46'-0"	48'-0"	50'-0"	52'-0"	54'-0"	56'-0"	58'-0"	60'-0"	62'-0"	64'-0"

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

a. New Stringer Length (in.) = Min of:

$$i. \frac{L_{os}^3 \cdot t_1}{t_2} \quad \text{or} \quad t_2$$

b. New Beam Length (in):

$$i. L_{ob} + \frac{(t_2 - t_1)}{12} \cdot 6$$

c. Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75 \cdot LL + 0.75 \cdot SL$$

$$TL = 0.6 \cdot DL + 0.6 \cdot WL_u$$

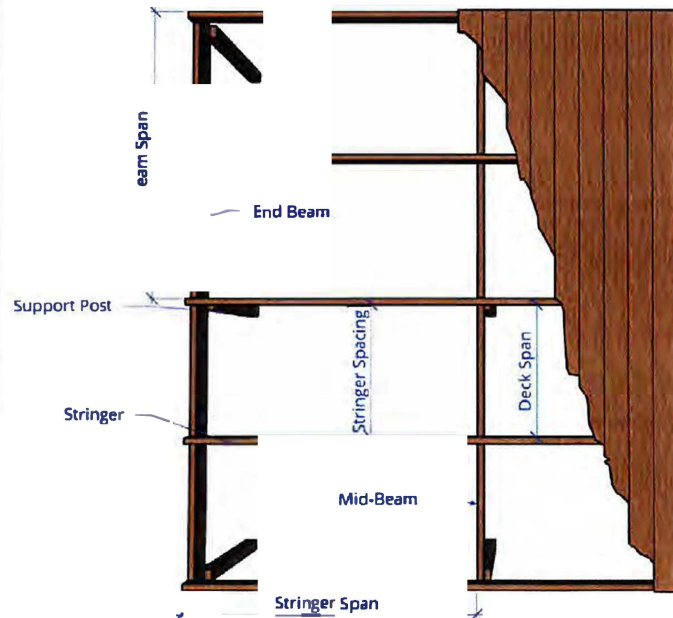
- Loads utilized for the table are as follows: DL = 38 psf or less, LL = 100 psf, SL+WL_g = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.

- Deflection limits for stringer and beams are determined as follows:

Stringer – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.
Beams – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.
- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.

- Required wind pressure shall be verified by others.



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TABLE 9: BEAM & STRINGER SPANS
WITH ≤ 1.5" DECK THICKNESS

N QOL 1/2 BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		* ALL SIZES ARE ACTUAL NOT NOMINAL										LL 500 PSF	
		STRINGER @ 1.5" X 5.5"		STRINGER @ 2.5" X 5.5"		STRINGER @ 3.5" X 5.5"		STRINGER @ 4.5" X 5.5"		STRINGER @ 5.5" X 5.5"		STRINGER @ 5.5" X 5.5"	
1.5" Deck Thickness	STR. SPANS	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
1.5" X 5.5"	1'-0"	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
2.5" X 5.5"	2'-0"	2'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"
3.5" X 5.5"	3'-0"	3'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
4.5" X 5.5"	4'-0"	4'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
5.5" X 5.5"	5'-0"	5'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"
1.5" X 7.25"	1'-0"	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
2.5" X 7.25"	2'-0"	2'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"
3.5" X 7.25"	3'-0"	3'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
4.5" X 7.25"	4'-0"	4'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
5.5" X 7.25"	5'-0"	5'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"
1.5" X 9.25"	1'-0"	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
2.5" X 9.25"	2'-0"	2'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"
3.5" X 9.25"	3'-0"	3'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
4.5" X 9.25"	4'-0"	4'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
5.5" X 9.25"	5'-0"	5'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"
1.5" X 11.25"	1'-0"	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
2.5" X 11.25"	2'-0"	2'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"
3.5" X 11.25"	3'-0"	3'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
4.5" X 11.25"	4'-0"	4'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
5.5" X 11.25"	5'-0"	5'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

a. New Stringer Length (in.) = Min of:

$$i. \frac{L_{os}^3 + t_1}{t_2} \text{ or } \sqrt{\frac{L_{os}^2 + t_1}{t_2}}$$

b. New Beam Length (in.):

$$L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$

c. Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75*LL + 0.75*SL$$

$$TL = 0.6*DL + 0.6*WL_u$$

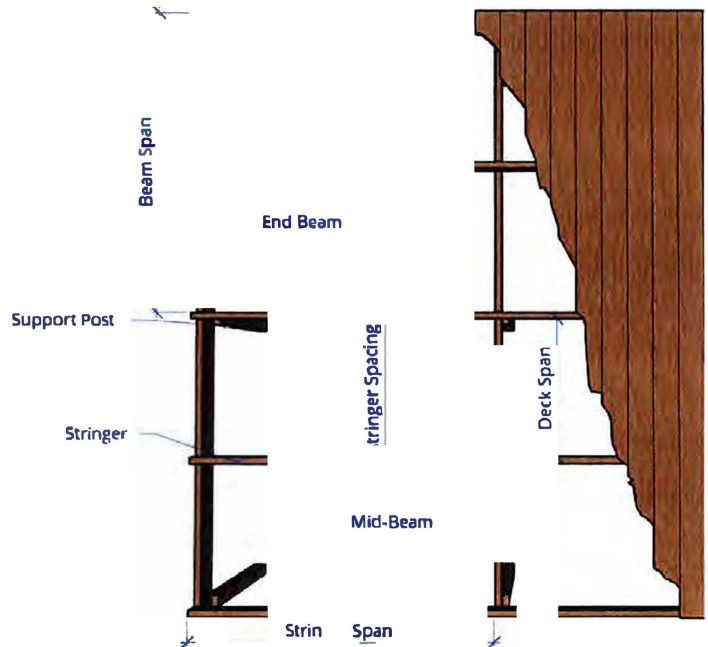
- Loads utilized for the table are as follows: DL = 41 psf or less, LL = 500 psf, SL+WL_g = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.

- Deflection limits for stringer and beams are determined as follows.

Stringer – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length. Beams – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.

- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.



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TABLE 10: BEAM & STRINGER SPANS
WITH ≤ 1.5" DECK THICKNESS

1.5" Deck Thickness		LL 500 PSF											
		STRINGER @ 1.5" X 7.25"				STRINGER @ 3.5" X 7.25"				STRINGER @ 5.5" X 7.25"			
Beam	Size	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"
		4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
1.5" X 5.5"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
2.5" X 5.5"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
3.5" X 5.5"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
5.5" X 7.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
1.5" X 7.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
2.5" X 7.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
3.5" X 7.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
5.5" X 7.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
1.5" X 9.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
2.5" X 9.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
3.5" X 9.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
5.5" X 9.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
1.5" X 11.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
2.5" X 11.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
3.5" X 11.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"
5.5" X 11.25"		3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"

*ALL SIZES ARE A UAL NOT NOMINAL

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

a. New Stringer Length (in.) = Min of:

$$i. \frac{L_{os}^3 \cdot t_1}{t_2} \text{ OR } \frac{L_{os}^2 \cdot t_1}{t_2}$$

b. New Beam Length (in.):

$$i. L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$

c. Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75*LL + 0.75*SL$$

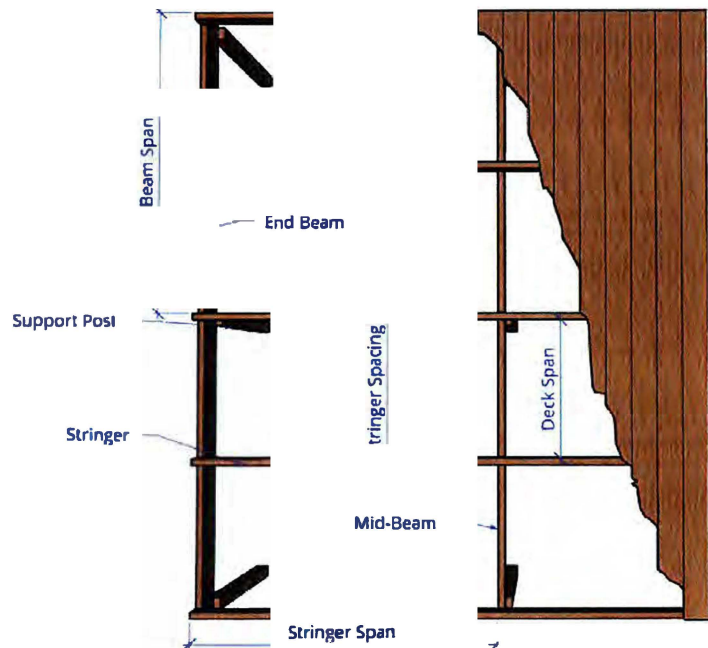
$$TL = 0.6*DL + 0.6*WL_u$$

- Loads utilized for the table are as follows: DL = 26 psf or less, LL = 500 psf, $SL + WL_g$ = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g .

- Deflection limits for stringer and beams are determined as follows:

Stringer – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.
Beams – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.
- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.
- Required wind pressure shall be verified by others.



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GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

- New Stringer Length (in.) = Min of:

$$i. \sqrt[3]{\frac{L_{os}^3 \cdot t_1}{t_2}} \text{ or } \sqrt[2]{\frac{L_{os}^2 \cdot t_1}{t_2}}$$

- New Beam Length (in.):

$$i. L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$

- Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75*LL + 0.75*SL$$

$$TL = 0.6*DL + 0.6*WL_u$$

- Loads utilized for the table are as follows: DL = 29 psf or less, LL = 500 psf, SL + WL_g = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g .

- Deflection limits for stringer and beams are determined as follows:

Stringer – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.

Beams – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.

- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.

- Required wind pressure shall be verified by others.

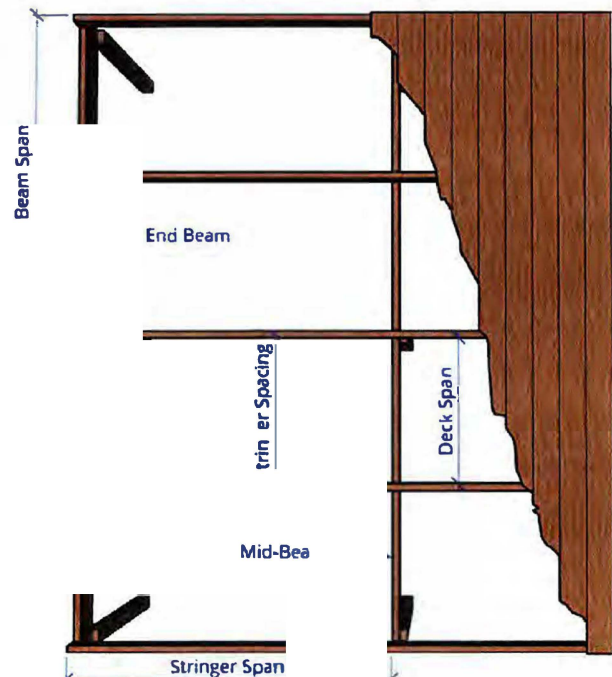


TABLE 11: BEAM & STRINGER SPANS
WITH ≤ 1.5" DECK THICKNESS

BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		* ALL SIZES ARE ACTUAL NOT NOMINAL										LL 500 PSF	
1.5" Deck Thickness	STR. SIZES	STRINGER @ 1.5" X 9.25"		STRINGER @ 2.5" X 9.25"		STRINGER @ 3.5" X 9.25"		STRINGER @ 5.5" X 9.25"		STRINGER @ 5.5" X 9.25"		STRINGER @ 5.5" X 9.25"	
1.5" X 5.5"	3-6"	4-0"	5-6"	4-0"	5-0"	6-6"	5-0"	6-0"	7-0"	4-0"	5-0"	6-0"	8-0"
2.5" X 5.5"	3-5"	3-2"	2-10"	2-8"	3-2"	2-10"	2-7"	2-6"	2-5"	3-2"	2-10"	2-7"	9-0"
3.5" X 5.5"	4-5"	4-1"	3-10"	3-6"	4-1"	3-8"	3-4"	3-2"	3-1"	4-1"	3-4"	2-10"	1-11"
5.5" X 5.5"	5-2"	4-10"	4-7"	4-2"	4-10"	4-4"	3-11"	3-10"	3-8"	4-10"	4-4"	3-11"	2-6"
1.5" X 7.25"	6-6"	6-1"	5-9"	5-5"	6-1"	5-5"	5-0"	4-9"	4-7"	6-1"	5-5"	4-11"	3-8"
2.5" X 7.25"	4-6"	4-2"	3-11"	3-7"	4-2"	3-9"	3-5"	3-3"	3-2"	4-1"	3-5"	3-2"	2-7"
3.5" X 7.25"	5-10"	5-5"	4-10"	4-7"	5-5"	4-10"	4-5"	4-3"	4-1"	5-5"	4-10"	4-5"	3-7"
5.5" X 7.25"	6-10"	6-5"	5-9"	5-6"	6-5"	5-9"	5-3"	5-0"	5-6"	6-5"	5-9"	5-2"	4-3"
1.5" X 9.25"	8-7"	8-0"	7-7"	6-10"	8-0"	7-2"	6-5"	5-11"	5-6"	8-0"	7-2"	6-5"	3-8"
2.5" X 9.25"	5-9"	5-4"	5-1"	4-9"	5-4"	4-9"	4-4"	4-2"	4-0"	5-4"	4-9"	4-4"	3-3"
3.5" X 9.25"	7-5"	6-11"	6-6"	5-11"	6-11"	6-2"	5-8"	5-5"	5-3"	6-11"	6-2"	5-7"	3-8"
5.5" X 9.25"	8-9"	8-2"	7-9"	7-0"	8-2"	7-4"	6-5"	5-11"	5-6"	8-2"	7-3"	6-5"	3-8"
1.5" X 11.25"	10-11"	9-7"	8-7"	7-8"	9-7"	8-7"	7-8"	6-5"	5-6"	9-7"	8-7"	6-5"	4-3"
2.5" X 11.25"	7-0"	6-6"	6-2"	5-10"	6-6"	5-10"	5-4"	5-1"	4-11"	6-6"	5-10"	5-4"	3-8"
3.5" X 11.25"	9-0"	8-5"	7-11"	7-6"	8-5"	7-6"	6-5"	5-11"	5-6"	8-5"	7-6"	6-5"	4-3"
5.5" X 11.25"	10-8"	9-8"	8-7"	7-9"	9-7"	8-7"	7-8"	6-5"	5-11"	9-7"	8-7"	6-5"	4-3"
	10-11"	9-7"	8-6"	7-8"	9-7"	8-6"	7-8"	6-5"	5-11"	9-7"	8-6"	6-4"	4-3"

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TABLE 12: BEAM & STRINGER SPANS
WITH ≤ 1.5" DECK THICKNESS

STR. SIZES		LL 500 PSF											
		STRINGER @ 1.5" X 11.25"				STRINGER @ 2.5" X 11.25"				STRINGER @ 3.5" X 11.25"			
1.5" Deck Thickness	1.5" X 5.5"	4'-0"	5'-0"	6'-0"	7'-0"	4'-0"	5'-0"	6'-0"	7'-0"	4'-0"	5'-0"	6'-0"	7'-0"
	2.5" X 5.5"	3'-2"	2'-10"	2'-7"	2'-6"	3'-2"	2'-7"	2'-7"	2'-5"	3'-2"	2'-7"	2'-7"	2'-5"
	3.5" X 5.5"	4'-10"	3'-8"	3'-4"	3'-3"	4'-10"	3'-4"	3'-4"	3'-1"	4'-11"	3'-1"	3'-1"	3'-1"
	5.5" X 5.5"	6'	5'-5"	5'-0"	4'-9"	6'-1"	5'-1"	4'-11"	4'-7"	6'-1"	5'-1"	4'-11"	4'-7"
	1.5" X 7.25"	4'-2"	3'-9"	3'-5"	3'-3"	4'-2"	3'-5"	3'-5"	3'-2"	4'-2"	3'-5"	3'-5"	3'-2"
2.5" X 7.25"	2.5" X 7.25"	5'-5"	4'-10"	4'-5"	4'-3"	5'-5"	4'-5"	4'-5"	4'-1"	5'-5"	4'-5"	4'-5"	4'-1"
		6'-5"	5'-9"	5'-3"	5'-0"	6'-5"	5'-3"	5'-3"	5'-0"	6'-5"	5'-3"	5'-3"	5'-0"
		8'-0"	7'-2"	6'-5"	5'-11"	8'-0"	6'-5"	6'-5"	5'-6"	8'-0"	6'-5"	6'-5"	5'-6"
		5'-4"	4'-9"	4'-4"	4'-2"	5'-4"	4'-2"	4'-2"	4'-0"	5'-4"	4'-2"	4'-2"	4'-0"
		6'-11"	6'-2"	5'-8"	5'-5"	6'-11"	5'-3"	5'-3"	5'-3"	6'-11"	5'-3"	5'-3"	5'-3"
2.5" X 9.25"	2.5" X 9.25"	8'-2"	7'-4"	6'-5"	5'-11"	8'-2"	6'-5"	6'-5"	5'-6"	8'-2"	6'-5"	6'-5"	5'-6"
		9'-7"	7'-8"	6'-5"	5'-11"	9'-7"	6'-5"	6'-5"	5'-6"	9'-7"	6'-5"	6'-5"	5'-6"
		6'-6"	5'-10"	5'-4"	4'-11"	6'-6"	5'-1"	4'-11"	4'-11"	6'-6"	5'-1"	4'-11"	4'-11"
		8'-5"	7'-6"	6'-5"	5'-1"	8'-5"	5'-1"	5'-6"	5'-6"	8'-5"	5'-1"	5'-6"	5'-6"
		9'-7"	7'-8"	6'-5"	5'-1"	9'-7"	6'-5"	6'-5"	5'-1"	9'-7"	6'-5"	6'-5"	5'-1"
1.5" X 1.25"	1.5" X 1.25"	4'-0"	3'-2"	2'-7"	2'-3"	4'-0"	3'-2"	2'-7"	2'-3"	4'-0"	3'-2"	2'-7"	2'-3"
		5'-0"	4'-1"	3'-4"	3'-1"	5'-0"	4'-1"	3'-4"	3'-1"	5'-0"	4'-1"	3'-4"	3'-1"
		6'-0"	5'-1"	4'-2"	3'-8"	6'-0"	5'-1"	4'-2"	3'-8"	6'-0"	5'-1"	4'-2"	3'-8"
		7'-0"	6'-1"	5'-2"	4'-7"	7'-0"	6'-1"	5'-2"	4'-7"	7'-0"	6'-1"	5'-2"	4'-7"
		8'-0"	7'-1"	6'-2"	5'-7"	8'-0"	7'-1"	6'-2"	5'-7"	8'-0"	7'-1"	6'-2"	5'-7"
2.5" X 11.25"	2.5" X 11.25"	5'-0"	4'-1"	3'-4"	3'-1"	5'-0"	4'-1"	3'-4"	3'-1"	5'-0"	4'-1"	3'-4"	3'-1"
		6'-0"	5'-1"	4'-2"	3'-8"	6'-0"	5'-1"	4'-2"	3'-8"	6'-0"	5'-1"	4'-2"	3'-8"
		7'-0"	6'-1"	5'-2"	4'-7"	7'-0"	6'-1"	5'-2"	4'-7"	7'-0"	6'-1"	5'-2"	4'-7"
		8'-0"	7'-1"	6'-2"	5'-7"	8'-0"	7'-1"	6'-2"	5'-7"	8'-0"	7'-1"	6'-2"	5'-7"
		9'-0"	8'-1"	7'-2"	6'-7"	9'-0"	8'-1"	7'-2"	6'-7"	9'-0"	8'-1"	7'-2"	6'-7"

* ALL SIZES ARE ACTUAL NOT NOMINAL

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

a. New Stringer Length (in.) = Min of:

$$i. \frac{L_{os}^3 * t_1}{t_2} \text{ or } t_2$$

b. New Beam Length (in):

$$i. L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$

c. Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75 * LL + 0.75 * SL$$

$$TL = 0.6 * DL + 0.6 * WL_u$$

- Loads utilized for the table are as follows: DL = 31 psf or less, LL = 500 psf, $SL + WL_g$ = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g .

- Deflection limits for stringer and beams are determined as follows:

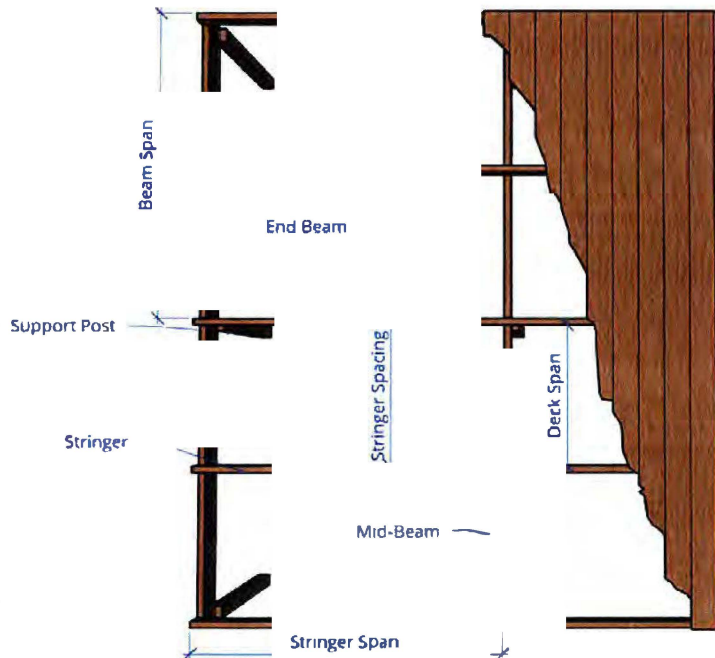
Stringer – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.

Beams – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.

- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.

- Required wind pressure shall be verified by others.



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TABLE 13: BEAM & STRINGER SPANS
WITH ≤ 3.5" DECK THICKNESS

IRONWOODS BEAM SPAN (SINGLE BEAM BETWEEN POSTS)										* ALL SIZES ARE ACTUAL NOT NOM NAL										LL 500 PSF									
3.5" Deck		STRINGER @ 1.5" X 5.5"					STRINGER @ 2.5" X 5.5"					STRINGER @ 3.5" X 5.5"					STRINGER @ 5.5" X 5.5"												
Thickness	STR. SIZES	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"											
B E A M	1.5" X 5.5"	6'-4"	5'-2"	4'-5"	4'-0"	3'-8"	3'-7"	4'-5"	3'-7"	3'-4"	3'-2"	2'-11"	2'-10"	3'-1"	2'-11"	2'-9"	2'-8"	2'-7"											
	2.5" X 5.5"	7'-7"	6'-8"	5'-9"	5'-2"	4'-8"	4'-8"	5'-9"	4'-8"	4'-4"	4'-1"	3'-10"	3'-7"	4'-0"	3'-10"	3'-7"	3'-5"	3'-4"											
	3.5" X 5.5"	8'-6"	7'-5"	6'-9"	6'-1"	5'-7"	5'-7"	6'-9"	5'-7"	5'-2"	4'-10"	4'-6"	4'-3"	4'-9"	4'-6"	4'-3"	4'-1"	3'-11"											
	5.5" X 5.5"	9'-11"	8'-8"	7'-10"	7'-3"	6'-10"	6'-10"	7'-10"	6'-10"	6'-5"	6'-0"	5'-8"	5'-5"	6'-0"	5'-8"	5'-4"	5'-1"	4'-11"											
	1.5" X 7.25"	8'-4"	6'-9"	5'-11"	5'-3"	4'-10"	4'-9"	5'-10"	4'-9"	4'-5"	4'-2"	3'-11"	3'-8"	4'-2"	3'-11"	3'-8"	3'-6"	3'-4"											
S I Z E S	2.5" X 7.25"	10'-1"	8'-9"	7'-7"	6'-9"	6'-2"	6'-2"	7'-7"	6'-2"	5'-9"	5'-4"	5'-1"	4'-9"	5'-4"	5'-0"	4'-9"	4'-7"	4'-4"											
	3.5" X 7.25"	11'-3"	9'-10"	8'-11"	8'-0"	7'-4"	7'-4"	8'-11"	7'-4"	6'-9"	6'-4"	6'-0"	5'-8"	6'-4"	5'-11"	5'-8"	5'-5"	5'-2"											
	5.5" X 7.25"	13'-1"	11'-5"	10'-4"	9'-7"	9'-1"	9'-1"	10'-4"	9'-1"	8'-6"	7'-11"	7'-6"	7'-1"	7'-11"	7'-6"	7'-1"	6'-9"	6'-3"											
	1.5" X 9.25"	10'-7"	8'-8"	7'-6"	6'-9"	6'-2"	6'-1"	7'-6"	6'-1"	5'-8"	5'-3"	5'-0"	4'-9"	5'-3"	5'-0"	4'-9"	4'-6"	4'-4"											
	2.5" X 9.25"	12'-10"	11'-2"	9'-8"	8'-8"	7'-11"	7'-11"	9'-8"	7'-11"	7'-4"	6'-10"	6'-5"	6'-1"	6'-10"	6'-5"	6'-1"	5'-10"	5'-7"											
S I Z E S	3.5" X 9.25"	14'-4"	12'-6"	11'-5"	10'-3"	9'-4"	9'-4"	11'-5"	10'-3"	8'-8"	8'-1"	7'-7"	7'-3"	8'-1"	7'-7"	7'-3"	6'-10"	6'-3"											
	5.5" X 9.25"	16'-8"	14'-7"	13'-3"	12'-3"	11'-7"	11'-7"	13'-3"	11'-7"	11'-7"	10'-7"	9'-4"	7'-6"	9'-1"	8'-2"	7'-5"	6'-9"	6'-3"											
	1.5" X 11.25"	12'-11"	10'-6"	9'-2"	8'-2"	7'-5"	7'-5"	9'-1"	8'-2"	6'-11"	6'-5"	6'-1"	5'-9"	6'-5"	6'-1"	5'-9"	5'-6"	5'-3"											
	2.5" X 11.25"	15'-7"	13'-7"	11'-9"	10'-6"	9'-7"	9'-7"	11'-9"	10'-6"	8'-11"	8'-4"	7'-10"	7'-5"	8'-4"	7'-10"	7'-5"	6'-10"	6'-3"											
	3.5" X 11.25"	17'-6"	15'-3"	13'-10"	12'-5"	11'-4"	11'-4"	13'-10"	12'-5"	10'-6"	9'-4"	8'-4"	7'-6"	9'-2"	8'-3"	7'-6"	6'-10"	6'-3"											
5.5" X 11.25"	20'-4"	17'-9"	16'-1"	14'-11"	12'-6"	12'-6"	16'-1"	14'-8"	12'-4"	10'-6"	9'-3"	7'-6"	9'-0"	8'-2"	7'-5"	6'-9"	6'-3"												

*ALL SIZES ARE ACTUAL NOT NOM NAL

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

- New Stringer Length (in.) = Min of:

$$i. \frac{L_{os}^3 * t_1}{t_2} \text{ or } \sqrt{\frac{L_{os}^2 * t_1}{t_2}}$$

- New Beam Length (in):

$$i. L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$

- Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75 * LL + 0.75 * SL$$

$$TL = 0.6 * DL + 0.6 * WL_u$$

- Loads utilized for the table are as follows: DL = 52.5 psf or less, LL = 500 psf, SL + WL_g = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.

- Deflection limits for stringer and beams are determined as follows:

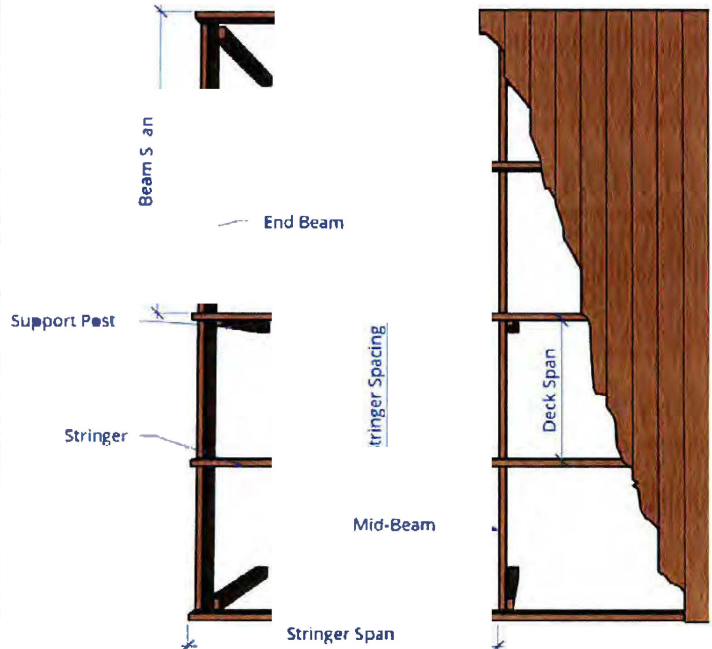
Stringer – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.

Beams – Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.

- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.

- Required wind pressure shall be verified by others.



TROPICAL

TABLE 14: BEAM & STRINGER SPANS
WITH ≤ 3.5" DECK THICKNESS

3.5" Deck Thickness	Beam	Size	IRONWOODS BEAM SPAN (SINGLE BEAM BETWEEN POSTS)										LL 500 PSF									
			STRINGER @ 1.5" X 7.25"					STRINGER @ 2.5" X 7.25"					STRINGER @ 3.5" X 7.25"					STRINGER @ 5.5" X 7.25"				
			2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"
2.5" X 5.5"	4'-5"	10'-4"	4'-5"	5'-2"	6'-1"	7'-3"	8'-10"	9'-10"	10'-10"	11'-10"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"
3.5" X 5.5"	5'-9"	11'-4"	5'-9"	6'-7"	7'-5"	8'-10"	9'-10"	10'-10"	11'-10"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"
5.5" X 5.5"	6'-9"	13'-4"	6'-9"	7'-7"	8'-5"	9'-10"	10'-10"	11'-10"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"
1.5" X 7.25"	7'-7"	15'-4"	7'-7"	8'-5"	9'-3"	10'-10"	11'-10"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"
2.5" X 7.25"	8'-0"	16'-4"	8'-0"	8'-8"	9'-6"	10'-10"	11'-10"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"
3.5" X 7.25"	8'-10"	17'-4"	8'-10"	9'-8"	10'-6"	11'-10"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"	27'-10"
5.5" X 7.25"	9'-10"	18'-4"	9'-10"	10'-8"	11'-6"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"	27'-10"	28'-10"
2.5" X 9.25"	9'-8"	17'-4"	9'-8"	10'-6"	11'-4"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"	27'-10"	28'-10"
3.5" X 9.25"	10'-3"	18'-4"	10'-3"	11'-1"	11'-9"	12'-10"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"	27'-10"	28'-10"
5.5" X 9.25"	11'-5"	19'-4"	11'-5"	12'-3"	13'-1"	13'-10"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"	27'-10"	28'-10"	29'-10"
1.5" X 11.25"	11'-9"	20'-4"	11'-9"	12'-7"	13'-5"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"	27'-10"	28'-10"	29'-10"	30'-10"
2.5" X 11.25"	12'-5"	21'-4"	12'-5"	13'-3"	14'-1"	14'-10"	15'-10"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"	27'-10"	28'-10"	29'-10"	30'-10"
3.5" X 11.25"	13'-10"	22'-4"	13'-10"	14'-8"	15'-6"	16'-10"	17'-10"	18'-10"	19'-10"	20'-10"	21'-10"	22'-10"	23'-10"	24'-10"	25'-10"	26'-10"	27'-10"	28'-10"	29'-10"	30'-10"	31'-10"	32'-10"

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

a. New Stringer Length (in.) = Min of:

$$i. \frac{L_{os}^3 + t_1}{t_2} \text{ or } \frac{L_{os}^2 + t_1}{t_2}$$

b. New Beam Length (in.):

$$i. L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$

c. Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75*LL + 0.75*SL$$

$$TL = 0.6*DL + 0.6*WL_u$$

- Loads utilized for the table are as follows: DL = 38 psf or less, LL = 500 psf, $SL + WL_g$ = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g .

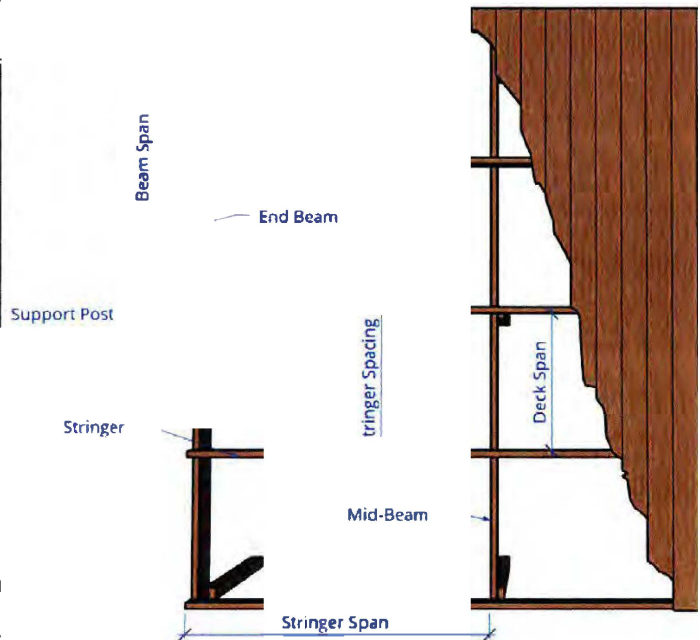
- Deflection limits for stringer and beams are determined as follows:

Stringer – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.
Beams – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.

- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.

- Required wind pressure shall be verified by others.



TROPICAL

TABLE 15: BEAM & STRINGER SPANS
WITH ≤ 3.5" DECK THICKNESS

IRONWOODS BEAM SPAN (SINGLE RFAM BETWEEN POSTS)		LL 500 P F									
3.5" Deck Thickness	STR. SPANS	*ALL SIZES ARE ACTUA NOT NOM NAL									
		S RINGER @ 1.5" X 9.25		S RINGER @ 2.5" X 9.25		S RINGER @ 3.5" X 9.25		S RINGER @ 5.5" X 9.25		S RINGER @ 6.5" X 9.25	
B E A M S I Z E S	STR. SPANS	4'-0"	4'-8"	5'-0"	5'-4"	5'-8"	6'-0"	6'-4"	6'-8"	7'-0"	7'-4"
		3'-4"	3'-10"	3'-2"	3'-8"	3'-12"	4'-0"	4'-4"	4'-8"	5'-0"	5'-4"
2.5 X 5.5	3'-4"	3'-2"	3'-10"	3'-2"	3'-8"	3'-12"	4'-0"	4'-4"	4'-8"	5'-0"	5'-4"
3.5 X 5.5	4'-4"	4'-0"	4'-6"	4'-2"	4'-8"	5'-0"	5'-4"	5'-8"	6'-0"	6'-4"	6'-8"
5.5 X 5.5	5'-2"	4'-10"	4'-6"	4'-2"	4'-8"	5'-0"	5'-4"	5'-8"	6'-0"	6'-4"	6'-8"
1.5" X 7.25"	6'-5"	6'-0"	5'-8"	5'-4"	5'-0"	4'-8"	4'-4"	4'-0"	3'-8"	3'-4"	3'-0"
2.5" X 7.25"	5'-9"	5'-4"	5'-0"	4'-8"	4'-4"	4'-0"	3'-8"	3'-4"	3'-0"	2'-8"	2'-4"
3.5" X 7.25"	6'-9"	6'-4"	6'-0"	5'-8"	5'-4"	5'-0"	4'-8"	4'-4"	4'-0"	3'-8"	3'-4"
5.5" X 7.25"	8'-6"	7'-6"	7'-2"	6'-8"	6'-4"	6'-0"	5'-8"	5'-4"	5'-0"	4'-8"	4'-4"
1.5" X 9.25"	5'-8"	5'-4"	5'-0"	4'-8"	4'-4"	4'-0"	3'-8"	3'-4"	3'-0"	2'-8"	2'-4"
2.5" X 9.25"	7'-4"	6'-0"	6'-5"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"
3.5" X 9.25"	8'-8"	8'-	7'-8"	7'-3"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"
5.5" X 9.25"	0'-9"	9'-5"	8'-4"	7'-6"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"
1.5" X 11.25"	6'-1"	6'-5"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"
2.5" X 11.25"	8'-1"	8'-4"	7'-10"	7'-5"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"
3.5" X 11.25"	0'-6"	9'-5"	8'-5"	7'-6"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"	6'-10"

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

- New Stringer Length (in.) = Min of:

$$i. \frac{L_{os}^3 + t_1}{t_2} \text{ or } t_2$$

- New Beam Length (in):

$$i. L_{ob} + \frac{(t_2 - t_1)}{12} \times 6$$

- Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75*LL + 0.75*SL$$

$$TL = 0.6*DL + 0.6*WL_u$$

- Loads utilized for the table are as follows: DL = 40 psf or less, LL = 500 psf, $SL + WL_g$ = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g .

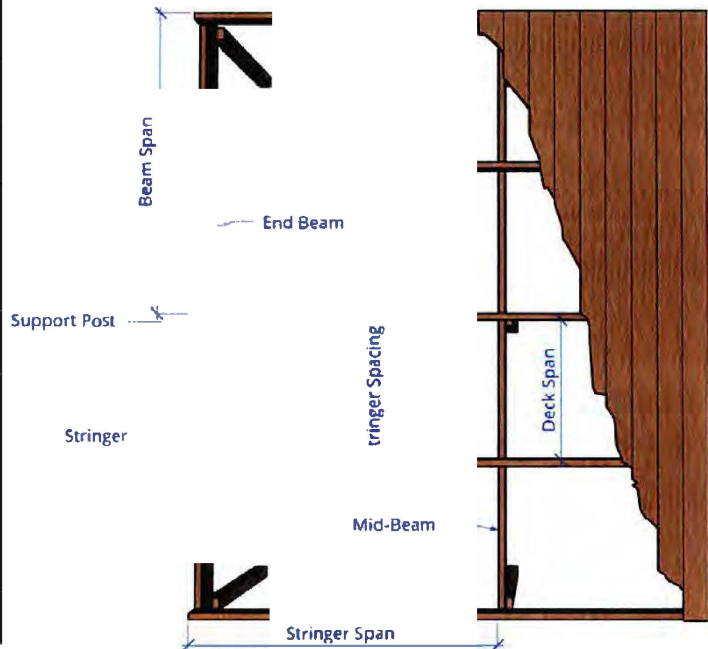
- Deflection limits for stringer and beams are determined as follows:

Stringer – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.
Beams – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.

- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.

- Required wind pressure shall be verified by others.



TROPICAL

TABLE 16: BEAM & STRINGER SPANS
WITH ≤ 3.5" DECK THICKNESS

IRONWOODS BEAM SPAN (SINGL BEAM BE)			POSTS)			LL 500 P F		
3.5" Deck	STR. SIZES	STR. SPAN @ 1.5" X 11.25"	STR. SPAN @ 2.5" X 25	STR. SPAN @ 3.5" X 11.25"	STR. SPAN @ 5.5" X 11.25"			
Thi	R. SPANS	4'-0"	4'-0"	4'-0"	4'-0"	8'-0"	10'-0"	12'-6"
kness		3'-2"	3'-2"	3'-2"	3'-2"	2'-2"	2'-2"	2'-2"
1.5" X 5.5"		4'-0"	4'-0"	4'-0"	4'-0"	2'-2"	2'-2"	2'-2"
2.5" X 5.5"		4'-0"	4'-0"	4'-0"	4'-0"	2'-2"	2'-2"	2'-2"
3.5" X 5.5"		4'-0"	4'-0"	4'-0"	4'-0"	2'-2"	2'-2"	2'-2"
5.5" X 5.5"		4'-0"	4'-0"	4'-0"	4'-0"	2'-2"	2'-2"	2'-2"
1.5" X 7.25"		4'-2"	4'-2"	4'-2"	4'-2"	2'-4"	2'-4"	2'-4"
2.5" X 7.25"		4'-4"	4'-4"	4'-4"	4'-4"	2'-6"	2'-6"	2'-6"
3.5" X 7.25"		4'-6"	4'-6"	4'-6"	4'-6"	2'-8"	2'-8"	2'-8"
5.5" X 7.25"		4'-8"	4'-8"	4'-8"	4'-8"	3'-0"	3'-0"	3'-0"
1.5" X 9.25"		4'-4"	4'-4"	4'-4"	4'-4"	2'-4"	2'-4"	2'-4"
3.5" X 9.25"		4'-6"	4'-6"	4'-6"	4'-6"	2'-6"	2'-6"	2'-6"
5.5" X 9.25"		4'-8"	4'-8"	4'-8"	4'-8"	2'-8"	2'-8"	2'-8"
1.5" X 11.25"		4'-4"	4'-4"	4'-4"	4'-4"	2'-4"	2'-4"	2'-4"
3.5" X 11.25"		4'-6"	4'-6"	4'-6"	4'-6"	2'-6"	2'-6"	2'-6"
5.5" X 11.25"		4'-8"	4'-8"	4'-8"	4'-8"	3'-0"	3'-0"	3'-0"

* ALL SIZES ARE ACTUAL NOT NOMINAL

GENERAL NOTES:

- Stringer Spacing for the table is at 24" on center (o.c.). To use larger stringer spacing, both the stringer and beam must be adjusted as follows:

- New Stringer Length (in.) = Min of:

$$i. \frac{L_{os}^3 * t_1}{t_2} \text{ or } \sqrt{\frac{L_{os}^2 * t_1}{t_2}}$$

- New Beam Length (in):

$$i. L_{ob} + \frac{(t_2 - t_1)}{12} * 6$$

- Where

- L_{os} = Original Stringer Length (in.)
- L_{ob} = Original Beam Length (in.)
- t_1 = Original Spacing (12 in.)
- t_2 = New Spacing (in.)

- All loads and load combinations are determined using ASCE 7. DL = Dead Load, LL = Live Load, SL = Snow Load, WL_g = Wind Load, & WL_u = Uplift Wind Load.

- Maximum total load (TL) determined from the governing case of the following:

$$TL = DL + LL$$

$$TL = DL + SL$$

$$TL = DL + 0.75 * LL + 0.75 * SL$$

$$TL = 0.6 * DL + 0.6 * WL_u$$

- Loads utilized for the table are as follows: DL = 40 psf or less, LL = 500 psf, SL + WL_g = 20 psf, where absolute uplift wind load (WL_u) is not greater than WL_g .

- Deflection limits for stringer and beams are determined as follows:

Stringer – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.
Beams – Live load deflection is limited to $L/360$, total deflection is limited to $L/240$, where L is the span length.

- Stringer and beam capacities are shall be independently verified to meet Allowable Design Values described on page 2.

- If a beam is provided as an intermediate stringer support (Mid-Beam) then its span selected above, or modified by note 8, should be multiplied by 0.60 for a dropped beam and 0.70 for a flush beam.

- Required wind pressure shall be verified by others.

