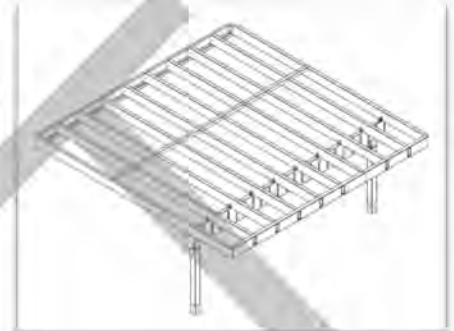


EVALUATION SUBJECT: EVOLUTION STEEL DECK FRAME SYSTEM**TER 17-5048.0****REPORT HOLDER:**Fortress Framing
1740 N 1st St
Garland, TX 75040
(972) 231 - 4001**SCOPE OF EVALUATION (compliance with the following codes):****THIS IS A STRUCTURAL PERFORMANCE EVALUATION ONLY. NO OTHER PERFORMANCE RATINGS OR CERTIFICATIONS ARE OFFERED OR IMPLIED HEREIN.**

This Product Evaluation Report is being issued in accordance with the requirements of ASCE-7-05, ASCE 7-10, ASCE 7-16 and the structural provisions of the 2009 and 2015 International Building & Residential Code. The more stringent codes in either edition have been utilized. The product noted on this report has been evaluated as summarized herein.

IN ACCORDANCE WITH THESE CODES EACH OF THESE REPORTS MUST BEAR THE ORIGINAL SIGNATURE & RAISED SEAL OF THE EVALUATING ENGINEER.**SUBSTANTIATING DATA:****• Product Evaluation Documents**

Substantiating documentation has been submitted to support this TER and is summarized in the sections that follow.

• Structural Engineering Calculations

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

- Maximum allowable joist span and ledger connection integrity
- Maximum allowable beam spans based on various combinations of dead, live, wind / snow loads for decking applications

Calculation summary for this TER is provided in the forces summary table. No 33% increase in allowable stress has been used in the design of this product. Microsoft Excel was used to carry out the calculations presented in this report.

INSTALLATION:

The product(s) listed in this report shall be installed in strict compliance with this TER & manufacturer-provided model specifications.

The product components shall be of the material specified. All screws must be installed in accordance with the applicable provisions & anchor manufacturer's published installation instructions.

LIMITATIONS & CONDITIONS OF USE:

Use of this product shall be in strict accordance with this TER as noted herein. See final page for complete limitations and conditions of use.

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FOR ADDITIONAL PLANS, REPORTS & RESOURCES**MATERIAL:**

The Evolution decking system is an assemblage of cold-formed steel components installed with metal hangers and fasteners. The steel beam and ledger shall be fabricated from steel equivalent to ASTM A500, Grade C, with minimum yield stress $F_y = 43,800$ psi and minimum tensile stress $F_u = 58,600$ psi. All other steel components shall be fabricated from steel equivalent to ASTM A653-09 Grade 37 with minimum yield stress $F_y = 33,300$ psi and minimum tensile stress $F_u = 46,800$ psi.

Steel joists are manufactured from 16 gauge and 18 gauge structural steel including proprietary, exterior grade, baked on coating. See Figure Extrusion List section for section profiles.

Steel beams consist of two 1.81" x 10.96" x 0.064" J-channels with 0.90" x 8.78" x 0.22" stiffeners every 6" on center, welded together as per detail shown on page 15. The beam can also be spliced together with 3/8" thru bolts with a max beam overlap of 24", see Beam Connection Table for connection details. A double beam, or a double joist carry beam, are field-assembled with two single beams fastened together back to back with #10 screws by 1" length spaced 24" on center, staggered, or fastened together with a 4.09" x 2.06" x 0.064" track fastened top and bottom to the double beam, see Beam Connection Table for connection details.

**ORIGINAL SIGNATURE AND RAISED SEAL
OR DIGITAL SEAL REQUIRED TO BE VALID PER CODE:**Frank L. Bennardo, P.E., SECB
ENGINEERING EXPRESS®

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This system is designed for compatibility with all decking material that can span 16" or 12" on-center. Standard decking size of 5/4" x 6" or 1" x 6" – wood or composite material – is recommended. See Infinity Decking technical guide published by Fortress for recommended installation.

All edges and holes to be galvanized after stamping and forming. Parts to be sandblasted and coated with a one-year black sand powder coat by the manufacturer's proprietary process.

PERFORMANCE CHARACTERISTICS:

Allowable maximum simple spans and/or cantilever lengths for joists and double beams are given in Table 1 through 20 with respect to joist spacing of 12 or 16 inches. Beams have a max cantilever length of 24". See Figures 2 and 3 for definition of joist span, cantilever length and beam span.

This framing system is designed to resist a concentrated 200-lb guard load for up to 42-inch high rail posts attached to the system as per Figure 17 and 18.

INSTALLATION:

Installation parameters shall follow manufacturer specifications as well as the information provided herein. Where differences occur between this report and the manufacturer's installation instructions, this report shall govern.

Joists may bear on top flange of beam (dropped beam) or joists may be fastened to face of beam (flush beam) with single or double beam hangers as described herein. See Figures 9 through 13 for installation details.

Joist blocking is required every other bay above dropped beams for all joist spans and every bay at joist midspan for joist spans greater than 8 feet. See Figures 5 through 8 for blocking details.

Other than that specifically outlined herein, splicing of structural members is outside the scope of this report.

See page 19 for beam and component fastening schedules, and approved anchorage.

Joists are attached to a continuous track (ledger) as illustrated in Figure 11 and to a continuous track (front plate) as illustrated in Figure 13.

The ledger shall be attached to an existing 4-inch thick nominal lumber band joist with lag bolts of a minimum of 1/4-inch diameter x 2-1/2" long lag of the specifications as required in this report. The holder of this report shall check with local building codes for any additional requirements that may be applied. The existing band joist shall have a specific gravity of 0.55 or greater (Southern Yellow Pine typically). See Table 21 and 22 for continuous track/ledger fastening schedule.

Decking framing anchorage for lateral loads is not included within the scope of this report. Deck boards shall be positively fastened to each joist.

Fasteners for steel-to-steel connections shall be self-drilling tapping screws installed with an edge distance and center-to-center spacing of at least 1/2 an inch. Screws shall extend through the steel a minimum of three thread pitches. Compatibility of fasteners and other dissimilar materials, including those for use with chemically treated wood, shall be evaluated or protected from corrosion by the installer before construction.

LIMITATIONS OF USE:

Additional design and construction are required for anchorage of lateral loads to the primary framing and is not included within the scope of this report.

The Evolution steel deck framing system shall be limited to sites subjected to a maximum snow or wind load (in the gravity direction) of 150 psf. No further reductions in the wind load are permitted via additional load combinations.

Wood support posts are outside the scope of this report. See Figure 10 or 16 for installation details.

Stair and railing construction details are not included within the scope of this report and, where required by the building official, separate engineering calculations and details for these elements shall be provided. This evaluation report does not include certification of the product for use as a second floor or higher structure. Contact this office for site specific engineering of this system beyond the limitations herein.

Perforations of any elements contained herein, other than those noted, are outside the scope of this report.

This evaluation report provides structural analysis of the framing members for bending stress and deflection based on the given loads only. Connection parameters are provided with certain limitations as described herein. Design of connections excluded herein shall be by a qualified engineer in accordance with the referenced codes. Where required by the building official for a site-specific application, engineering calculations shall verify that the anchorage complies with the building code for the type of framing and condition of the proposed construction.

This system is designed for seismic activity in accordance with ASCE 7 Section 11.7 Buildings and other structures assigned to Seismic Design Category A need only comply with the requirements of Section 1.4. Non-structural components in SDC A are exempt from seismic design requirements.

The components of this framing system shall have an approved quality control system in place as provided by the manufacturer prior to sale for use as a building product.

When using the F50 bracket to connect the joist to the ledger, the bracket shall only be utilized at the first or last joist member of the system. If the bracket is used for non-standard spacing conditions, the spacing of the joists must be halved for use with this bracket.

IN ALL CONDITIONS IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER TO ENSURE THE HOST STRUCTURE CAN WITHSTAND THE RATED FORCES BY SITE-SPECIFIC DESIGN. NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, IS OFFERED BY ENGINEERING EXPRESS AS TO THE INTEGRITY OF THE HOST STRUCTURE TO CARRY DESIGN FORCE LOADS INCURRED BY THIS SYSTEM.

TABLE USE INSTRUCTIONS

1. Confirm the appropriate load and configuration factors based on site specific requirements; see respective table's general notes for load and span considerations.
2. Utilize tables 1, 4, 7, 10, 13, or 16 to verify the appropriate joist configuration and allowable load in conformance with beam load tables.
3. Utilize tables 2 through 18 (excluding the joist table mentioned above) to verify the allowable span of either a single beam or a double beam, and allowable joist cantilever length.
4. Provide posts (certified separately) and ledger connections in conformance with the selected values based on allowable beam and joist spans. See Figures 1 through 3 for additional details regarding these dimensions.

DRAFT

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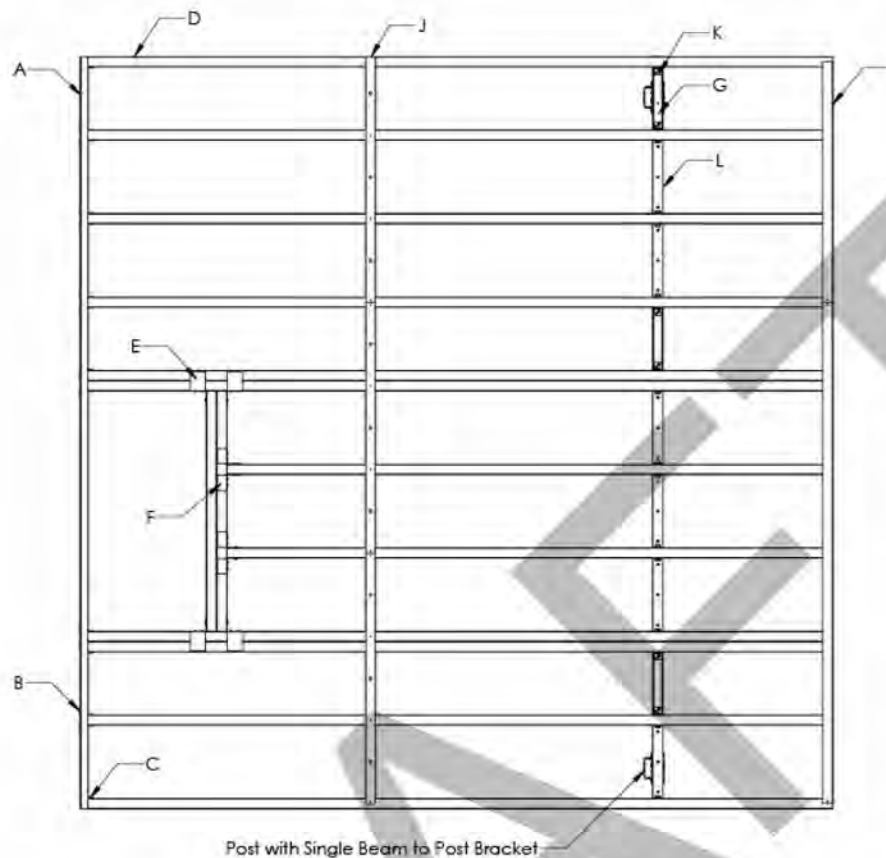


Figure 1: Evolution Steel Deck Framing Plan (Diagram)

SYSTEM COMPONENTS:

- A. S-Ledger
 1. Predefined joist spacing 12" and 16" OC (on-center)
 2. Predrilled holes for ledger attachment
- B. Ledger Bracket
 1. Snap fit into predefined ledger spacing – no screws required
 2. Chamfered corner to aid in ease of joist installation
- C. F50 Bracket
 1. Used for first and last joist attachment and non-standard joist spacing
 2. Used to customize deck framing depending on customer's design
- D. Joist
 1. Predrilled weep holes
- E. Double Joist Hanger
- F. Single Joist Hanger
- G. Beam
 1. Predrilled weep holes
- H. Rim Joist Bracket
 1. Leg of bracket can be adjusted to any angle to accommodate the Rim Joist
- I. Rim Joist
 1. Predefined joist spacing 12" or 16" OC
 2. Pre-notched for straight or curved installations
- J. Strap
 1. Can be used for both mid-span blocking and blocking for picture frame decking
- K. F10 Bracket
 1. Used for non-standard joist spacing to attach the joist to the beam
- L. Blocking
 1. Maintains standard 12" or 16" joist spacing at the beam - 8 ft spacing along the joist, maximum.

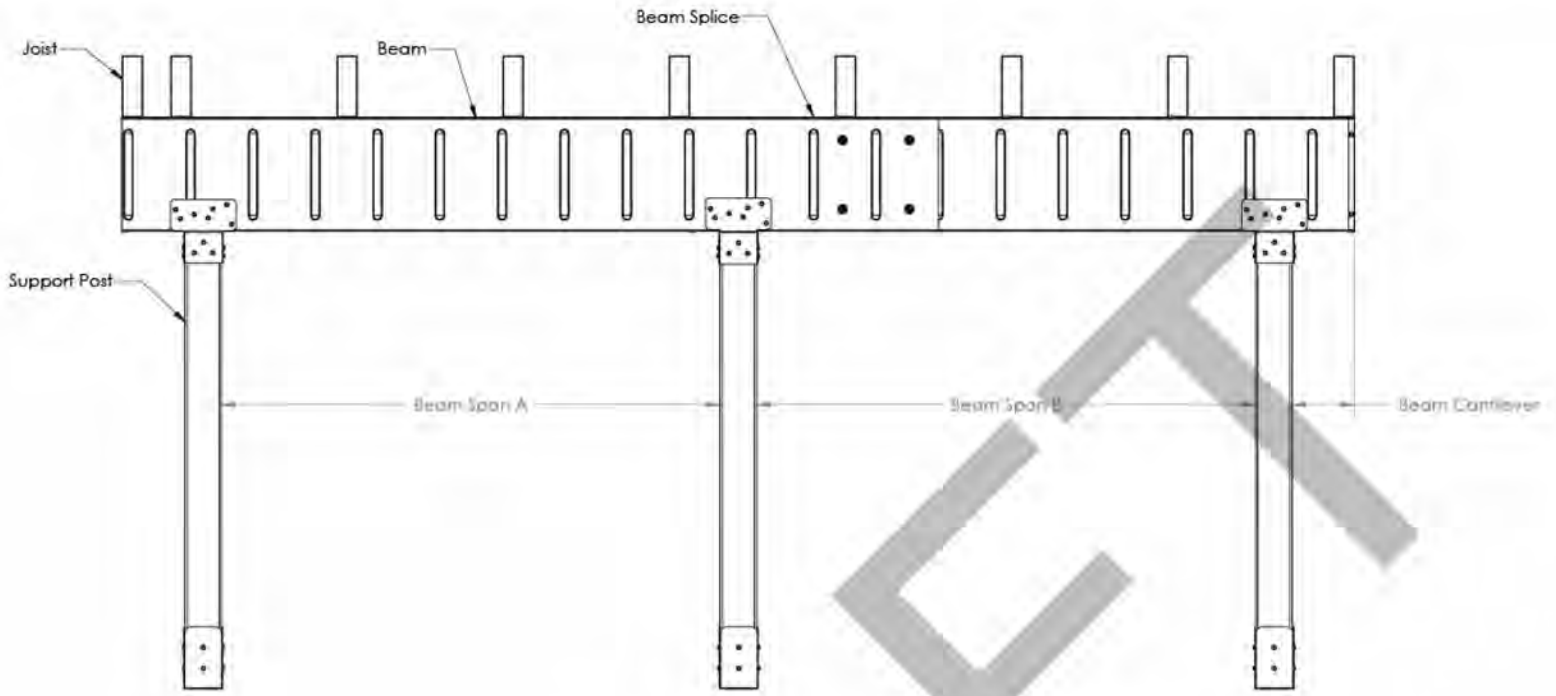


Figure 2: Beam Span Dimensions

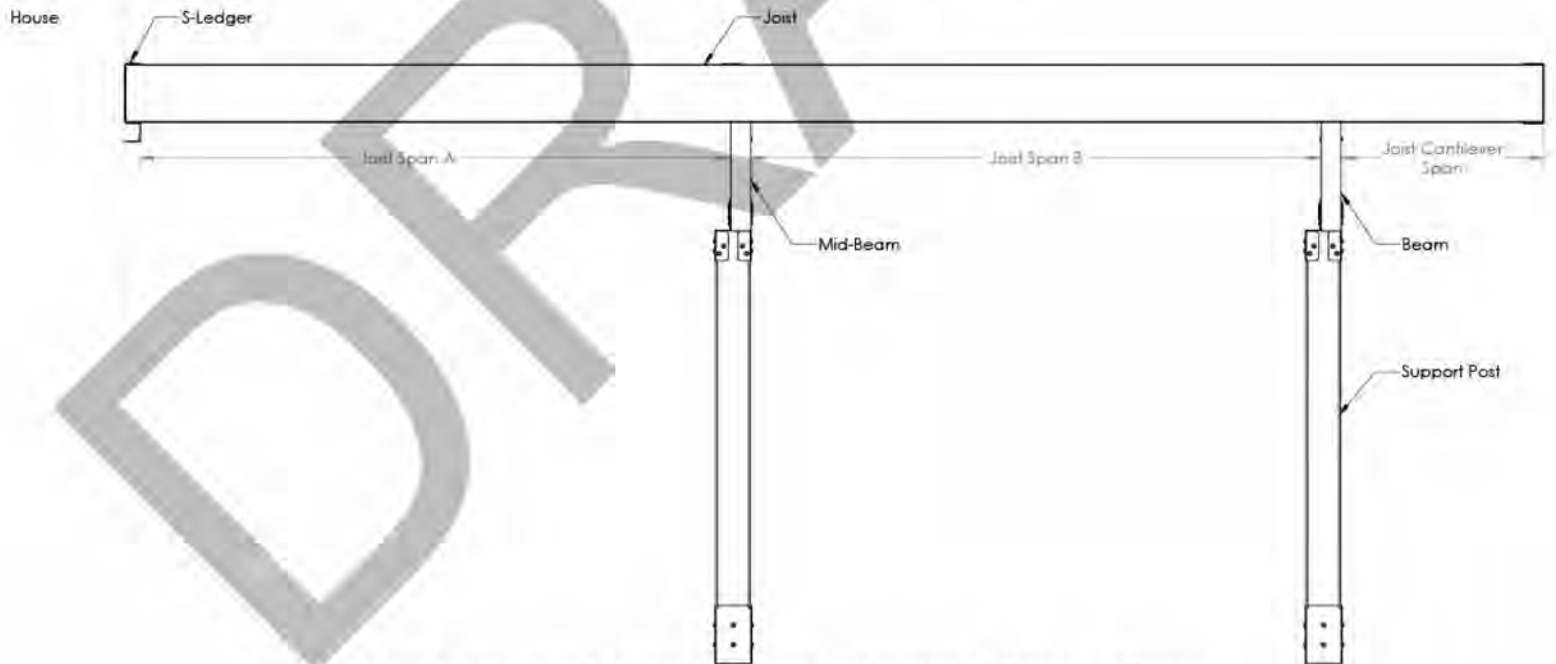


Figure 3: Joist and Cantilever Span Dimensions – Dropped Beam

See Page 3 for Table Use instructions

Table 1: 50 PSF Load Allowable Single Beam Spans – Residential

MAXIMUM J-CHANNEL BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)																
50 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-7"	17'-11"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0" Δ	15'-8" ●	15'-4" ● Δ
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8" Δ	15'-4" ●	15'-0" ● Δ
	1'-0"		20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-4"	15'-0"	14'-9" Δ	14'-9" ● Δ
	1'-6"			20'-0"	20'-0"	19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-4"	15'-0"	14'-9" Δ	14'-6" ●	14'-6" ● Δ
	2'-0"				19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-4"	15'-0"	14'-9" Δ	14'-6" ●	14'-3" ● Δ	14'-3" ● Δ
	2'-6"					17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-4"	15'-0"	14'-9" Δ	14'-6" ●	14'-3" ●	14'-0" ●	14'-0" ● Δ
	3'-0"						16'-11"	16'-5"	16'-0"	15'-8"	15'-4"	15'-0"	14'-9" Δ	14'-6" ●	14'-3" ●	14'-0" ●	13'-9" ●	13'-9" ● Δ
	3'-6"							16'-0"	15'-8"	15'-4"	15'-0"	14'-9" Δ	14'-6" ●	14'-3" ●	14'-0" ●	13'-9" ●	13'-7" ●	13'-7" ● Δ
	4'-0"								15'-4"	15'-0"	14'-9" Δ	14'-6" ●	14'-3" ●	14'-0" ●	13'-9" ●	13'-7" ●	13'-5" ●	13'-5" ● Δ
	4'-6"										14'-9" Δ	14'-6" ●	14'-3" ●	14'-0" ●	13'-9" ●			
5'-0"											14'-3" ●							

No Symbol : Any option
 Δ : Joist must be 12' o.c. or 16 ga.
 ● : Joist must be 12' o.c.
 ● Δ : Joist must be 12' o.c. & 16 ga.

Table 2: 50 PSF Load Allowable Double Beam Spans - Residential

MAXIMUM J-CHANNEL BEAM SPAN (DOUBLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)																
50 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0" Δ	19'-9" ●	19'-4" ● Δ	19'-4" ● Δ
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9" Δ	19'-4" ●	18'-11" ● Δ	18'-11" ● Δ
	1'-0"		20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11" Δ	18'-7" ●	18'-7" ● Δ
	1'-6"			20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11" Δ	18'-7" ●	18'-3" ●	18'-3" ● Δ
	2'-0"				20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11" Δ	18'-7" ●	18'-3" ●	17'-11" ●	17'-11" ● Δ
	2'-6"					20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11" Δ	18'-7" ●	18'-3" ●	17'-11" Δ	17'-8" ●	17'-8" ● Δ
	3'-0"						20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11" Δ	18'-7" ●	18'-3" ●	17'-11" Δ	17'-8" ●	17'-5" ●	17'-5" ● Δ
	3'-6"							20'-0"	19'-9"	19'-4"	18'-11" Δ	18'-7" ●	18'-3" ●	17'-11" Δ	17'-8" ●	17'-5" ●	17'-2" ●	17'-2" ● Δ
	4'-0"								19'-4"	18'-11" Δ	18'-7" ●	18'-3" ●	17'-11" Δ	17'-8" ●	17'-5" ●	17'-2" ●	16'-8" ●	16'-8" ● Δ
	4'-6"										18'-7" Δ	18'-3" ●	17'-11" ●	17'-8" ●	17'-5" ●			
5'-0"											17'-11" ●							

No Symbol : Any option
 Δ : Joist must be 12' o.c. or 16 ga.
 ● : Joist must be 12' o.c.
 ● Δ : Joist must be 12' o.c. & 16 ga.

GENERAL NOTES:

- 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 above (2) tables are as follows: DL = 10 psf, LL = 40 psf, SL+WL_g = 0 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.
- Deflection limits for joists and beams are determined as follows:
 - Joists – Live load deflection is limited to L/360. Snow and Wind Load deflection is limited to L/360, where L is the span length.
 - Beams – Live load deflection is limited to L/360. Snow and Wind Load deflection is limited to L/360, where L is the span length.
- Hatched areas in tables indicate instances where the joists span is less than four times the cantilever distance.
- If a double beam is supported by more than two posts, then its span selected above should be multiplied by 0.90.
- If a beam is provided as an intermediate joist 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.

Check local building codes for location specific load design requirements.

See Page 3 for Table Use instructions

Table 3: 75 PSF Load Allowable Single Beam Spans – Residential

MAXIMUM J-CHANNEL BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		75 PSF															
		JOIST SPAN (SUPPORT TO SUPPORT)															
		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	15'-8"	15'-3"	15'-3" • Δ
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-3" • Δ
	1'-0"		20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-3"	14'-10"	14'-5" • Δ
	1'-6"			20'-0"	20'-0"	19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-3"	14'-10"	14'-5"	14'-0" • Δ
	2'-0"				19'-4"	18'-7"	17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-3"	14'-10"	14'-5"	14'-0"	13'-8" • Δ
	2'-6"					17'-11"	17'-5"	16'-11"	16'-5"	16'-0"	15'-8"	15'-3"	14'-10"	14'-5"	14'-0"	13'-8"	13'-4" • Δ
	3'-0"						16'-11"	16'-5"	16'-0"	15'-8"	15'-3"	14'-10"	14'-5"	14'-0"	13'-8"	13'-4"	13'-0" • Δ
	3'-6"							16'-0"	15'-8"	15'-3"	14'-10"	14'-5"	14'-0"	13'-8"	13'-4"	13'-0"	12'-9" •
	4'-0"								15'-3"	14'-10"	14'-5"	14'-0"	13'-8"	13'-4"	13'-0"	12'-9"	12'-6" • Δ
	4'-6"									14'-5"	14'-0"	13'-8"	13'-4"	13'-0"			
	5'-0"										13'-8"	• Δ					

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 • : Joist must be 12" o.c.
 • Δ : Joist must be 12" o.c. & 16 ga.

Table 4: 75 PSF Load Allowable Double Beam Spans – Residential

MAXIMUM J-CHANNEL BEAM SPAN (DOUBLE BEAM BETWEEN POSTS)		75 PSF															
		JOIST SPAN (SUPPORT TO SUPPORT)															
		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4" •
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4" •	
	1'-0"		20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11"	18'-7" •
	1'-6"			20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11"	18'-7"	17'-11" • Δ
	2'-0"				20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11"	18'-7"	17'-11"	17'-0" • Δ
	2'-6"					20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11"	18'-7"	17'-11"	17'-0"	16'-2" • Δ
	3'-0"						20'-0"	20'-0"	20'-0"	19'-9"	19'-4"	18'-11"	18'-7"	17'-11"	17'-0"	16'-2"	15'-5" • Δ
	3'-6"							20'-0"	19'-9"	19'-4"	18'-11"	18'-7"	17'-11"	17'-0"	16'-2"	15'-5"	14'-9" •
	4'-0"								19'-4"	18'-11"	18'-7"	17'-11"	17'-0"	16'-2"	15'-5"	14'-9"	14'-2" • Δ
	4'-6"									18'-7"	17'-11"	17'-0"	16'-2"	15'-5"			
	5'-0"										17'-0"	• Δ					

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 • : Joist must be 12" o.c.
 • Δ : Joist must be 12" o.c. & 16 ga.

GENERAL NOTES:

- 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 above (2) tables are as follows: DL = 10 psf, LL = 40 psf, SL+WL_g = 25 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.
- Deflection limits for joists and beams are determined as follows:
 - Joists – Live load deflection is limited to L/360, Snow and Wind Load deflection is limited to L/360, where L is the span length.
 - Beams – Live load deflection is limited to L/360, Snow and Wind Load deflection is limited to L/360, where L is the span length.
- Hatched areas in tables indicate instances where the joists span is less than four times the cantilever distance.
- If a double beam is supported by more than two posts, then its span selected above should be multiplied by 0.90.
- If a beam is provided as an intermediate joist 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.

Check local building codes for location specific load design requirements.

See Page 3 for Table Use instructions

Table 5: 100 PSF Load Allowable Single Beam Spans - Residential

MAXIMUM J-CHANNEL BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)																	
100 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"		
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	18'-7"	17'-9"	17'-1"	16'-6"	16'-0"	15'-4"	14'-9"	14'-3"	13'-9"	13'-4" Δ	13'-9" ●	13'-4" ● Δ
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	18'-7"	17'-9"	17'-1"	16'-6"	16'-0"	15'-4"	14'-9"	14'-3"	13'-9"	13'-4" Δ	13'-4" ●	12'-11" ● Δ	
	1'-0"		20'-0"	20'-0"	19'-7"	18'-7"	17'-9"	17'-1"	16'-6"	16'-0"	15'-4"	14'-9"	14'-3"	13'-9"	13'-4" Δ	12'-11" ●	12'-6" ● Δ		
	1'-6"			19'-7"	18'-7"	17'-9"	17'-1"	16'-6"	16'-0"	15'-4"	14'-9"	14'-3"	13'-9"	13'-4" Δ	12'-11" Δ	12'-6" Δ	12'-2" ● Δ		
	2'-0"				17'-9"	17'-1"	16'-6"	16'-0"	15'-4"	14'-9"	14'-3"	13'-9"	13'-4" Δ	12'-11" Δ	12'-6" Δ	12'-2" Δ	11'-11" ● Δ		
	2'-6"					16'-6"	16'-0"	15'-4"	14'-9"	14'-3"	13'-9"	13'-4" Δ	12'-11" Δ	12'-6" Δ	12'-2" Δ	11'-11" Δ	11'-7" Δ	11'-7" ● Δ	
	3'-0"						15'-4"	14'-9"	14'-3"	13'-9"	13'-4" Δ	12'-11" Δ	12'-6" Δ	12'-2" Δ	11'-11" Δ	11'-7" Δ	11'-4" Δ	11'-4" ● Δ	
	3'-6"							14'-3"	13'-9"	13'-4" Δ	12'-11" Δ	12'-6" Δ	12'-2" Δ	11'-11" Δ	11'-7" Δ	11'-4" Δ	11'-1" Δ	11'-1" ● Δ	
	4'-0"								13'-4"	12'-11" Δ	12'-6" Δ	12'-2" Δ	11'-11" Δ	11'-7" Δ	11'-4" ●	11'-1" ● Δ	10'-9" ● Δ		
	4'-6"									12'-6" Δ	12'-2" ●	11'-11" ● Δ	11'-7" ● Δ	11'-4" ● Δ					
5'-0"										11'-11" ● Δ									

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 ● : Joist must be 12" o.c.
 ● Δ : Joist must be 12" o.c. & 16 ga.

Table 6: 100 PSF Load Allowable Double Beam Spans - Residential

MAXIMUM J-CHANNEL BEAM SPAN (DOUBLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)																
100 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	19'-0"	18'-5"	17'-2" Δ	17'-2" ●	16'-1" ● Δ
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	19'-0"	18'-5"	17'-2" Δ	16'-1" ●	15'-2" ● Δ	
	1'-0"		20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	19'-0"	18'-5"	17'-2"	16'-1"	15'-2" Δ	14'-4" ● Δ	14'-4" ● Δ
	1'-6"			20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	19'-0"	18'-5"	17'-2"	16'-1"	15'-2" Δ	14'-4" Δ	13'-6" Δ	13'-6" Δ
	2'-0"				20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	19'-0"	18'-5"	17'-2"	16'-1"	15'-2"	14'-4" Δ	13'-6" Δ	12'-10" Δ	12'-10" ● Δ
	2'-6"					20'-0"	20'-0"	19'-7"	19'-0"	18'-5"	17'-2"	16'-1"	15'-2"	14'-4" Δ	13'-6" Δ	12'-10" Δ	12'-3" ● Δ	12'-3" ● Δ
	3'-0"						19'-7"	19'-0"	18'-5"	17'-2"	16'-1"	15'-2"	14'-4" Δ	13'-6" Δ	12'-10" Δ	12'-3" Δ	11'-8" Δ	11'-8" ● Δ
	3'-6"							18'-5"	17'-2"	16'-1"	15'-2"	14'-4" Δ	13'-6" Δ	12'-10" Δ	12'-3" Δ	11'-8" Δ	11'-2" ● Δ	11'-2" ● Δ
	4'-0"								16'-1"	15'-2"	14'-4" Δ	13'-6" Δ	12'-10" Δ	12'-3" Δ	11'-8" ●	11'-2" ● Δ	10'-9" ● Δ	
	4'-6"									14'-4" Δ	13'-6" ●	12'-10" ● Δ	12'-3" ● Δ	11'-8" ● Δ				
5'-0"										12'-10" ● Δ								

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 ● : Joist must be 12" o.c.
 ● Δ : Joist must be 12" o.c. & 16 ga.

GENERAL NOTES:

- 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 above (2) tables are as follows: DL = 10 psf, LL = 40 psf, SL+WL_g = 50 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.
- Deflection limits for joists and beams are determined as follows:
 - Joists – Live load deflection is limited to L/360, Snow and Wind Load deflection is limited to L/360, where L is the span length.
 - Beams – Live load deflection is limited to L/360, Snow and Wind Load deflection is limited to L/360, where L is the span length.
- Hatched areas in tables indicate instances where the joists span is less than four times the cantilever distance.
- If a double beam is supported by more than two posts, then its span selected above should be multiplied by 0.90.
- If a beam is provided as an intermediate joist 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.

Check local building codes for location specific load design requirements.

See Page 3 for Table Use instructions

Table 7: 125 PSF Load Allowable Single Beam Spans – Residential

MAXIMUM J-CANNEL BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)																
125 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-2"	17'-3"	16'-6"	15'-11"	15'-1"	14'-5"	13'-9" Δ	13'-3" Δ	12'-9" ● Δ	12'-4" ● Δ		
	0'-6"	20'-0"	20'-0"	20'-0"	19'-4"	18'-2"	17'-3"	16'-6"	15'-11"	15'-1"	14'-5"	13'-9"	13'-3" Δ	12'-9" Δ	12'-4" ● Δ	11'-11" ● Δ		
	1'-0"		20'-0"	19'-4"	18'-2"	17'-3"	16'-6"	15'-11"	15'-1"	14'-5"	13'-9"	13'-3"	12'-9" Δ	12'-4" Δ	11'-11" ● Δ	11'-7" ● Δ	11'-3" ● Δ	
	1'-6"			18'-2"	17'-3"	16'-6"	15'-11"	15'-1"	14'-5"	13'-9"	13'-3"	12'-9"	12'-4" Δ	11'-11" Δ	11'-7" ● Δ	11'-3" ● Δ	10'-11" ● Δ	
	2'-0"				16'-6"	15'-11"	15'-1"	14'-5"	13'-9"	13'-3"	12'-9"	12'-4"	11'-11"	11'-7" Δ	11'-3" ● Δ	10'-11" ● Δ	10'-4" ● Δ	
	2'-6"					15'-1"	14'-5"	13'-9"	13'-3"	12'-9"	12'-4"	11'-11"	11'-7" Δ	11'-3" Δ	10'-11" ● Δ	10'-4" ● Δ	9'-10" ● Δ	9'-5" ● Δ
	3'-0"						13'-9"	13'-3"	12'-9"	12'-4"	11'-11"	11'-7" Δ	11'-3" Δ	10'-11" Δ	10'-4" Δ	9'-10" ● Δ	9'-5" ● Δ	9'-0" ● Δ
	3'-6"							12'-9"	12'-4"	11'-11"	11'-7" Δ	11'-3" Δ	10'-11" Δ	10'-4" Δ	9'-10" Δ	9'-5" ● Δ	9'-0" ● Δ	8'-7" ● Δ
	4'-0"								11'-11"	11'-7" Δ	11'-3" Δ	10'-11" Δ	10'-4" Δ	9'-10" Δ	9'-5" ● Δ	9'-0" ● Δ	8'-7" ● Δ	8'-2" ● Δ
	4'-6"									11'-3" Δ	10'-11" ● Δ	10'-4" ● Δ	9'-10" ● Δ	9'-5" ● Δ				
5'-0"										10'-4" ● Δ								

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga
 ● : Joist must be 12" o.c.
 ● Δ : Joist must be 12" o.c. & 16 ga.

Table 8: 125 PSF Load Allowable Double Beam Spans – Residential

MAXIMUM J-CANNEL BEAM SPAN (DOUBLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)																
125 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-9"	18'-9"	17'-3"	16'-11"	15'-11" Δ	14'-10" ● Δ	13'-10" ● Δ	
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-9"	17'-3"	16'-11"	14'-10" Δ	13'-10" Δ	13'-10" ● Δ	12'-11" ● Δ	
	1'-0"		20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-9"	17'-3"	16'-11"	14'-10" Δ	13'-10" Δ	12'-11" ● Δ	12'-2" ● Δ	11'-6" ● Δ	11'-6" ● Δ
	1'-6"			20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	18'-9"	17'-3"	16'-11"	14'-10"	13'-10" Δ	12'-11" Δ	12'-2" ● Δ	11'-6" ● Δ	10'-11" ● Δ	
	2'-0"				20'-0"	20'-0"	19'-4"	18'-9"	17'-3"	16'-11"	14'-10"	13'-10"	12'-11"	12'-2"	11'-6" ● Δ	10'-11" ● Δ	10'-4" ● Δ	
	2'-6"					19'-4"	18'-9"	17'-3"	16'-11"	14'-10"	13'-10"	12'-11"	12'-2"	11'-6" Δ	10'-11" ● Δ	10'-4" ● Δ	9'-10" ● Δ	9'-5" ● Δ
	3'-0"						17'-3"	16'-11"	14'-10"	13'-10"	12'-11"	12'-2"	11'-6"	10'-11" Δ	10'-4" Δ	9'-10" Δ	9'-5" ● Δ	9'-0" ● Δ
	3'-6"							14'-10"	13'-10"	12'-11"	12'-2"	11'-6"	10'-11"	10'-4" Δ	9'-10" Δ	9'-5" ● Δ	9'-0" ● Δ	8'-7" ● Δ
	4'-0"								12'-11"	12'-2"	11'-6"	10'-11" Δ	10'-4" Δ	9'-10" Δ	9'-5" ● Δ	9'-0" ● Δ	8'-7" ● Δ	8'-2" ● Δ
	4'-6"									11'-6" Δ	10'-11" ● Δ	10'-4" ● Δ	9'-10" ● Δ	9'-5" ● Δ				
5'-0"										10'-4" ● Δ								

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 ● : Joist must be 12" o.c.
 ● Δ : Joist must be 12" o.c. & 16 ga.

GENERAL NOTES:

- 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 above (2) tables are as follows: DL = 10 psf, LL = 40 psf, SL + WL_g = 75 psf, where absolute uplift wind load (WL_u) is not greater than WL_g.
- Deflection limits for joists and beams are determined as follows:
 - Joists – Live load deflection is limited to L/360, Snow and Wind Load deflection is limited to L/360, where L is the span length.
 - Beams – Live load deflection is limited to L/360, Snow and Wind Load deflection is limited to L/360, where L is the span length.
- Hatched areas in tables indicate instances where the joists span is less than four times the cantilever distance.
- If a double beam is supported by more than two posts, then its span selected above should be multiplied by 0.90.
- If a beam is provided as an intermediate joist 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.

Check local building codes for location specific load design requirements.

See Page 3 for Table Use Instructions

Table 9: 150 PSF Load Allowable Single Beam Spans – Residential

MAXIMUM 1-CHANNEL BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)															
150 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	19'-7"	18'-2"	17'-2"	16'-3"	15'-5"	14'-7"	13'-10"	13'-2" Δ	12'-7" Δ	12'-1" ● Δ	11'-8" ● Δ		
	0'-6"	20'-0"	20'-0"	19'-7"	18'-2"	17'-2"	16'-3"	15'-5"	14'-7"	13'-10"	13'-2"	12'-7" Δ	12'-1" Δ	11'-8" ● Δ	11'-3" ● Δ		
	1'-0"		19'-7"	18'-2"	17'-2"	16'-3"	15'-5"	14'-7"	13'-10"	13'-2"	12'-7"	12'-1" Δ	11'-8" Δ	11'-3" ● Δ	10'-10" ● Δ		
	1'-6"			17'-2"	16'-3"	15'-5"	14'-7"	13'-10"	13'-2"	12'-7"	12'-1"	11'-8" Δ	11'-3" Δ	10'-10" ● Δ	10'-2" ● Δ		
	2'-0"				15'-5"	14'-7"	13'-10"	13'-2"	12'-7"	12'-1"	11'-8"	11'-3"	10'-10" Δ	10'-2" ● Δ	9'-7" ● Δ		
	2'-6"					13'-10"	13'-2"	12'-7"	12'-1"	11'-8"	11'-3"	10'-10"	10'-2"	9'-7" Δ	9'-1" ● Δ	8'-8" ● Δ	
	3'-0"						12'-7"	12'-1"	11'-8"	11'-3"	10'-10"	10'-2"	9'-7"	9'-1" ● Δ	8'-8" ● Δ	8'-3" ● Δ	
	3'-6"							11'-8"	11'-3"	10'-10"	10'-2"	9'-7"	9'-1" Δ	8'-8" Δ	8'-3" Δ	7'-10" ● Δ	7'-6" ● Δ
	4'-0"								10'-10"	10'-2"	9'-7"	9'-1" Δ	8'-8" Δ	8'-3" Δ	7'-10" ● Δ	7'-6" ● Δ	
	4'-6"										9'-7" Δ	9'-1" ●	8'-8" ● Δ	8'-3" ● Δ	7'-10" ● Δ		
5'-0"											8'-8" ● Δ						

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 ● : Joist must be 12" o.c.
 ● Δ : Joist must be 12" o.c. & 16 ga.

Table 10: 150 PSF Load Allowable Double Beam Spans – Residential

MAXIMUM 1-CHANNEL BEAM SPAN (DOUBLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)														
150 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	18'-10"	17'-4"	15'-9" Δ	14'-5" Δ	13'-4" ● Δ	12'-5" ● Δ	
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	18'-10"	17'-4"	15'-9"	14'-5" Δ	13'-4" Δ	12'-5" ● Δ	11'-7" ● Δ	
	1'-0"		20'-0"	20'-0"	20'-0"	20'-0"	19'-7"	18'-10"	17'-4"	15'-9"	14'-5"	13'-4" Δ	12'-5" Δ	11'-7" ● Δ	10'-10" ● Δ	
	1'-6"			20'-0"	20'-0"	19'-7"	18'-10"	17'-4"	15'-9"	14'-5"	13'-4"	12'-5" Δ	11'-7" Δ	10'-10" ● Δ	10'-2" ● Δ	
	2'-0"				19'-7"	18'-10"	17'-4"	15'-9"	14'-5"	13'-4"	12'-5"	11'-7"	10'-10" Δ	10'-2" ● Δ	9'-7" ● Δ	
	2'-6"					17'-4"	15'-9"	14'-5"	13'-4"	12'-5"	11'-7"	10'-10"	10'-2" Δ	9'-7" ● Δ	9'-1" ● Δ	
	3'-0"						14'-5"	13'-4"	12'-5"	11'-7"	10'-10"	10'-2"	9'-7" Δ	9'-1" ● Δ	8'-8" ● Δ	
	3'-6"							12'-5"	11'-7"	10'-10"	10'-2"	9'-7"	9'-1" Δ	8'-8" Δ	8'-3" ● Δ	
	4'-0"								10'-10"	10'-2"	9'-7"	9'-1" Δ	8'-8" Δ	8'-3" Δ	7'-10" ● Δ	7'-6" ● Δ
	4'-6"										9'-7" Δ	9'-1" ●	8'-8" ● Δ	8'-3" ● Δ	7'-10" ● Δ	
5'-0"											8'-8" ● Δ					

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 ● : Joist must be 12" o.c.
 ● Δ : Joist must be 12" o.c. & 16 ga.

GENERAL NOTES:

- 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 above (2) tables are as follows: DL = 10 psf, LL = 40 psf, SL + WL_g = 100 psf, where absolute uplift wind load (WL_u) is not greater than 90 psf.
- Deflection limits for joists and beams are determined as follows:
 - Joists – Live load deflection is limited to L/380, Snow and Load deflection is limited to L/360, where L is the span length.
 - Beams – Live load deflection is limited to L/360 Snow and Load deflection is limited to L/360, where L is the span length.
- Hatched areas in tables indicate instances where the joists span is less than four times the cantilever distance.
- If a double beam is supported by more than two posts, then its span selected above should be multiplied by 0.90.
- If a beam is provided as an intermediate joist 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.

Check local building codes for location specific load design requirements.

See Page 3 for Table Use instructions

Table 11: 200 PSF Load Allowable Single Beam Spans – Residential

MAXIMUM I-CHANNEL BEAM SPAN (SINGLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)											
200 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	19'-4"	17'-7"	16'-4"	15'-1"	14'-0"	13'-1"	12'-4"	11'-8"	11'-2" ●	11'-2" ● Δ
	0'-6"	20'-0"	19'-4"	17'-7"	16'-4"	15'-1"	14'-0"	13'-1"	12'-4"	11'-8"	11'-2" ●	10'-5" ● Δ	9'-7" ● Δ
	1'-0"		17'-7"	16'-4"	15'-1"	14'-0"	13'-1"	12'-4"	11'-8"	11'-2"	10'-5" ●	9'-7" ● Δ	8'-11" ● Δ
	1'-6"			15'-1"	14'-0"	13'-1"	12'-4"	11'-8"	11'-2"	10'-5"	9'-7" ●	8'-11" ● Δ	8'-4" ● Δ
	2'-0"				13'-1"	12'-4"	11'-8"	11'-2"	10'-5"	9'-7"	8'-11"	8'-4" ● Δ	7'-9" ● Δ
	2'-6"					11'-8"	11'-2"	10'-5"	9'-7"	8'-11"	8'-4" ●	7'-9" ●	7'-4" ● Δ
	3'-0"						10'-5"	9'-7"	8'-11"	8'-4"	7'-9" ●	7'-4" ●	6'-11" ● Δ
	3'-6"							8'-11"	8'-4"	7'-9"	7'-4" ●	6'-11" ●	6'-6" ● Δ
	4'-0"								7'-9"	7'-4"	6'-11" ●	6'-6" ●	6'-3" ● Δ
	4'-6"									6'-11" Δ	6'-6" ●	6'-3" ● Δ	5'-11" ● Δ
5'-0"										6'-3" ● Δ			

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 ● : Joist must be 12" o.c.
 ● Δ : Joist must be 12" o.c. & 16 ga.

Table 12: 200 PSF Load Allowable Double Beam Spans - Residential

MAXIMUM I-CHANNEL BEAM SPAN (DOUBLE BEAM BETWEEN POSTS)		JOIST SPAN (SUPPORT TO SUPPORT)											
200 PSF		1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
JOIST CANTILEVER LENGTH	0'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	17'-10"	15'-7"	13'-10"	12'-6" ●	11'-4" ● Δ	
	0'-6"	20'-0"	20'-0"	20'-0"	20'-0"	19'-4"	17'-10"	15'-7"	13'-10"	12'-6"	11'-4" ●	10'-5" ● Δ	9'-7" ● Δ
	1'-0"		20'-0"	20'-0"	19'-4"	17'-10"	15'-7"	13'-10"	12'-6"	11'-4"	10'-5" ●	9'-7" ● Δ	8'-11" ● Δ
	1'-6"			19'-4"	17'-10"	15'-7"	13'-10"	12'-6"	11'-4"	10'-5"	9'-7"	8'-11" ●	8'-4" ● Δ
	2'-0"				15'-7"	13'-10"	12'-6"	11'-4"	10'-5"	9'-7"	8'-11" ●	8'-4" ●	7'-9" ● Δ
	2'-6"					12'-6"	11'-4"	10'-5"	9'-7"	8'-11"	8'-4" ●	7'-9" ●	7'-4" ● Δ
	3'-0"						10'-5"	9'-7"	8'-11"	8'-4"	7'-9" ●	7'-4" ●	6'-11" ● Δ
	3'-6"							8'-11"	8'-4"	7'-9"	7'-4" ●	6'-11" ●	6'-6" ● Δ
	4'-0"								7'-9"	7'-4"	6'-11" ●	6'-6" ●	6'-3" ● Δ
	4'-6"									6'-11" Δ	6'-6" ●	6'-3" ● Δ	5'-11" ● Δ
5'-0"										6'-3" ● Δ			

No Symbol : Any option
 Δ : Joist must be 12" o.c. or 16 ga.
 ● : Joist must be 12" o.c.
 ● Δ : Joist must be 12" o.c. & 16 ga.

GENERAL NOTES:

- 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 above (2) tables are as follows: DL = 10 psf, LL = 40 psf, SL+WL_g = 150 psf, where absolute uplift wind load (WL_u) is not greater than 90 psf.
- Deflection limits for joists and beams are determined as follows:
 - Joists – Live load deflection is limited to L/380, Snow and Load deflection is limited to L/360, where L is the span length.
 - Beams – Live load deflection is limited to L/360 Snow and Load deflection is limited to L/360, where L is the span length.
- Hatched areas in tables indicate instances where the joists span is less than four times the cantilever distance.
- If a double beam is supported by more than two posts, then its span selected above should be multiplied by 0.90.
- If a beam is provided as an intermediate joist support (Mid-Beam) then its span selected above, or modified by note 3, 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.

Check local building codes for location specific load design requirements.

See Page 3 for Table Use instructions

Joist Carry Beam

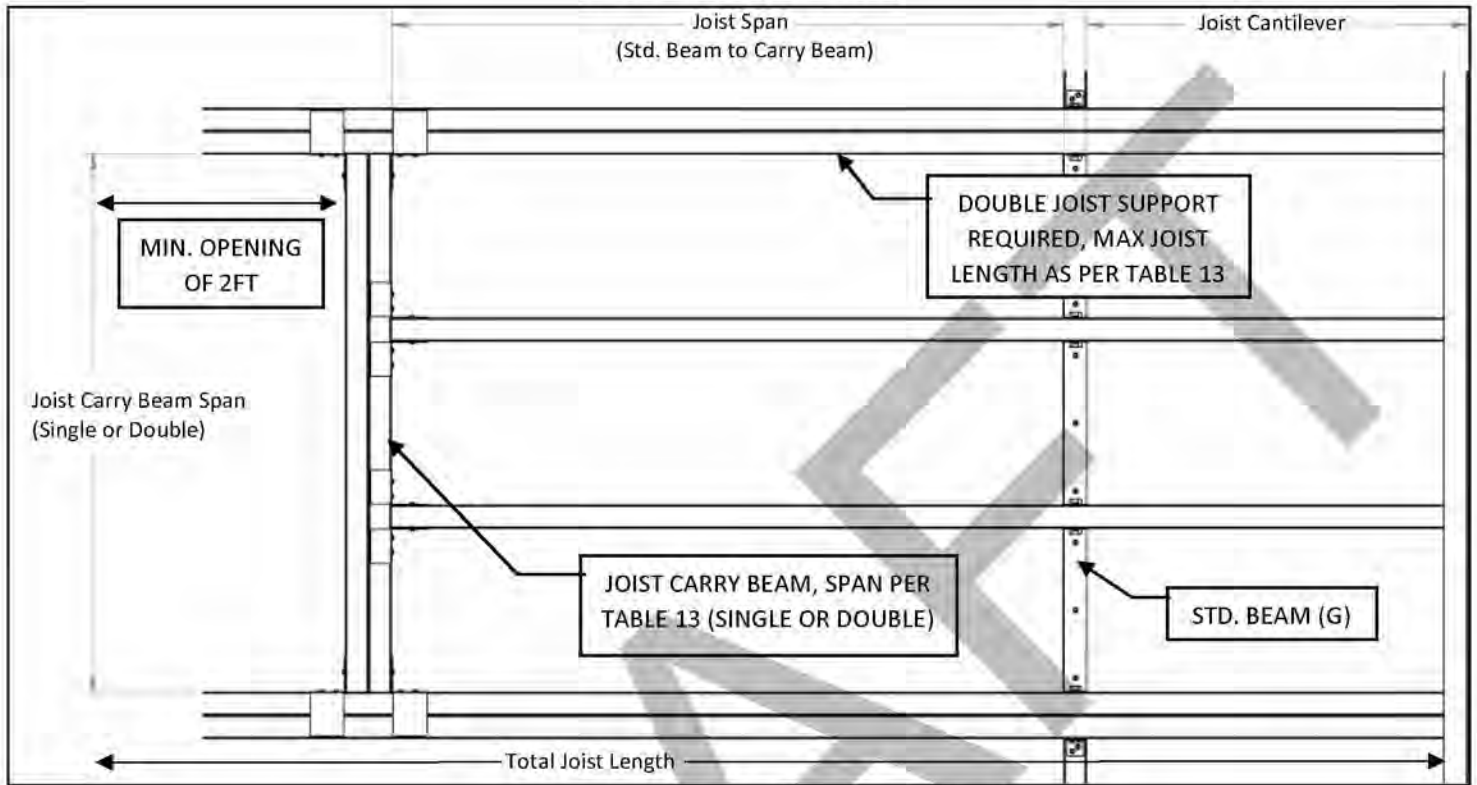


Figure 4: Joist Carry Beam Diagram

Table 13: Allowable Single or Double Joist Carry Beam Spans (16 Gauge & 18 Gauge)

MAXIMUM 16-GA SINGLE JOIST CARRY BEAM SPAN							
SINGLE JOIST		JOIST SPAN (STD. BEAM TO CARRY BEAM)					
		2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	10'-0"
LOAD	50 PSF	15'-4"	9'-6"	6'-5"	3'-9"	2'-8"	2'-0"
	75 PSF	10'-10"	6'-0"	4'-1"	2'-5"	1'-8"	
	100 PSF	10'-4" ●	5'-9" ●	3'-10" ●	2'-3" ●	1'-7" ●	
	125 PSF	5'-5" ●	3'-0" ●	2'-0" ●			
	150 PSF	1'-10" ●					
	200 PSF						

	Max Joist Length of 12ft
●	Max Joist Length of 8ft

GENERAL NOTES:

- All loads and load combinations are determined using ASCE 7 as per general notes from beam span tables.
- Deflection limits for joists and beams are determined as follows:
 Joists – Live load deflection is limited to L/380, Snow and Load deflection is limited to L/360, where L is the span length.
 Beams – Live load deflection is limited to L/360 Snow and Load deflection is limited to L/360, where L is the span length.
- Hatched areas in tables indicate instances where the carry beam span is less 18 inches.
- Double Joist capacity is based on the following, any other configuration shall be verified by others:
 - The connection from S-Ledger to Beam
 - One (single or double) carry beam attached to double joist
 - Max Double Joist length of 12 ft for loads up to 75 psf
 - Max Double Joist length of 8 ft for loads 100 psf or greater
 - Minimum opening of 2ft.
- Required wind pressure shall be verified by others.

Check local building codes for location specific load design requirements.

See Page 3 for Table Use instructions

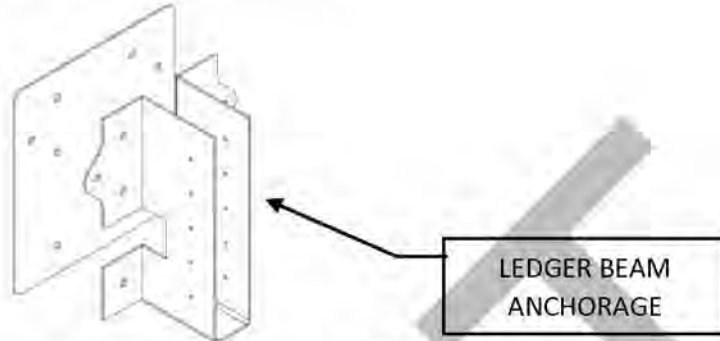


Table 14: Allowable Single Beam Spans – Hanger Bracket Connection with Back Plate (Thru- Bolted)

BRACKET W/ BACK PLATE CONNECTION - MAXIMUM J-CHANNEL BEAM SPAN (BETWEEN HOST AND POST)																
TOTAL LOAD	JOIST SPAN (SUPPORT TO SUPPORT)															
	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
50 PSF	20'-0"	20'-0"	20'-0"	16'-1"	12'-10"	10'-9"	9'-2"	8'-0"	7'-2"	6'-5"	5'-10"	5'-4"	4'-11"	4'-7" Δ	4'-3" ●	4'-0" ● Δ
75 PSF	20'-0"	20'-0"	18'-3"	13'-8"	10'-11"	9'-1"	7'-10"	6'-10"	6'-1"	5'-5"	4'-11"	4'-6"	4'-2"	3'-11" Δ	3'-7" ●	
100 PSF	20'-0"	20'-0"	13'-10"	10'-4"	8'-3"	6'-11"	5'-11"	5'-2"	4'-7"	4'-1"	3'-9"					
125 PSF	20'-0"	16'-9"	11'-2"	8'-4"	6'-8"	5'-7"	4'-9"	4'-2"	3'-8"							
150 PSF	20'-0"	14'-0"	9'-4"	7'-0"	5'-7"	4'-8"	4'-0"	3'-6"								
200 PSF	20'-0"	10'-1"	6'-8"	5'-0"	4'-0"											

INDICATES SPANS THAT REQUIRE ANCHORAGE BEYOND THIS EVALUATION REPORT

No Symbol : Any option
Δ : Joist must be 12" o.c. or 16 ga.
● : Joist must be 12" o.c.
● Δ : Joist must be 12" o.c. & 16 ga.

Hanger Bracket anchors for Table 14 shall be galvanized ¼" diameter x 2.5" long through bolts conforming to ASTM A307, with minimum 2" edge and end distance, and through bolted into a supporting Southern Yellow Pine structure (integrity by others) with Back Plate, nut and washers. The holder of this report shall check with local building codes for any additional requirements that may be applied.

Table 15: Allowable Single Beam Spans – Hanger Bracket Connection without Back Plate (Lag Screw)

BRACKET CONNECTION - MAXIMUM J-CHANNEL BEAM SPAN (BETWEEN HOST AND POST)																
TOTAL LOAD	JOIST SPAN (SUPPORT TO SUPPORT)															
	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
50 PSF	20'-0"	20'-0"	17'-11"	13'-5"	10'-9"	8'-11"	7'-8"	6'-8"	5'-11"	5'-4"	4'-10"	4'-5"	4'-1"	3'-10" Δ	3'-7" ●	
75 PSF	20'-0"	20'-0"	15'-3"	11'-5"	9'-1"	7'-7"	6'-6"	5'-8"	5'-1"	4'-6"	4'-1"	3'-9"	3'-6"			
100 PSF	20'-0"	17'-4"	11'-6"	8'-8"	6'-11"	5'-9"	4'-11"	4'-4"	3'-10"							
125 PSF	20'-0"	13'-11"	9'-3"	6'-11"	5'-7"	4'-7"	3'-11"									
150 PSF	20'-0"	11'-8"	7'-9"	5'-10"	4'-8"	3'-10"										
200 PSF	16'-9"	8'-4"	5'-7"	4'-2"												

INDICATES SPANS THAT REQUIRE ANCHORAGE BEYOND THIS EVALUATION REPORT

No Symbol : Any option
Δ : Joist must be 12" o.c. or 16 ga.
● : Joist must be 12" o.c.
● Δ : Joist must be 12" o.c. & 16 ga.

Hanger Bracket anchors for Table 15 shall be galvanized ¼" diameter x 2.5" long wood lag screws conforming to ASTM A307, with minimum 2" edge and end distance, and full thread penetration into a supporting Southern Yellow Pine structure (integrity by others). The holder of this report shall check with local building codes for any additional requirements that may be applied.

Check local building codes for location specific load design requirements.

See Page 3 for Table Use instructions

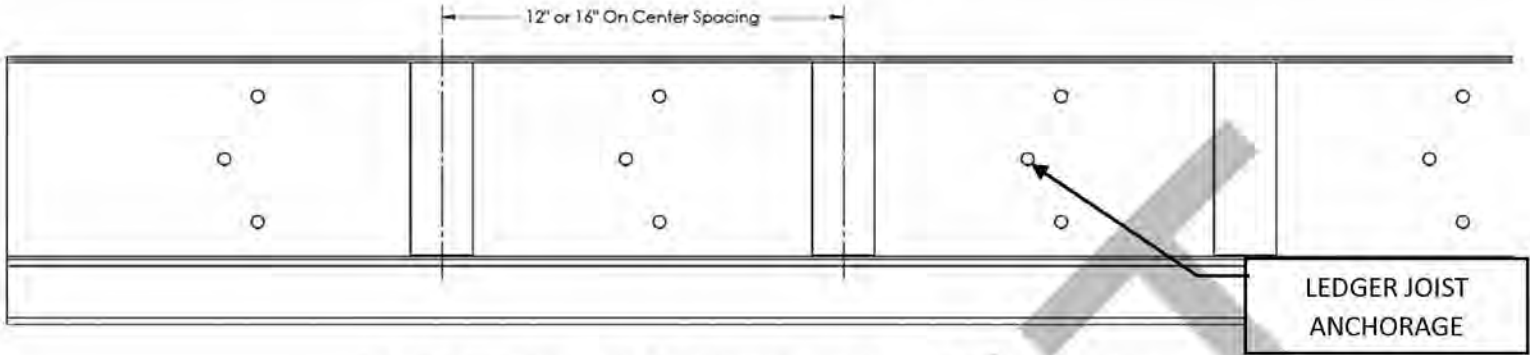


Table 16: Ledger Joist Anchorage Loads - 12" Anchor Spacing

		S-LEDGER ANCHORAGE									
		JOIST SPAN (BEAM TO LEDGER)									
12" SPACING		2'-0"	4'-0"	6'-8"	8'-10"	10'-7"	12'-0"	13'-0"	17'-4"	18'-0"	18'-6"
LOAD	50 PSF	APPROVED									
	75 PSF	APPROVED									
	100 PSF	APPROVED									
	125 PSF	APPROVED									
	150 PSF	APPROVED									
	200 PSF	APPROVED									

INDICATES SPANS THAT REQUIRE ANCHORAGE BEYOND THIS EVALUATION REPORT

Table 17: Ledger Joist Anchorage Loads - 16" Anchor Spacing

		S-LEDGER ANCHORAGE									
		JOIST SPAN (BEAM TO LEDGER)									
16" SPACING		2'-0"	5'-0"	6'-8"	8'-0"	9'-9"	12'-0"	13'-0"	15'-4"	18'-0"	18'-6"
LOAD	50 PSF	APPROVED									
	75 PSF	APPROVED									
	100 PSF	APPROVED									
	125 PSF	APPROVED									
	150 PSF	APPROVED									
	200 PSF	APPROVED									

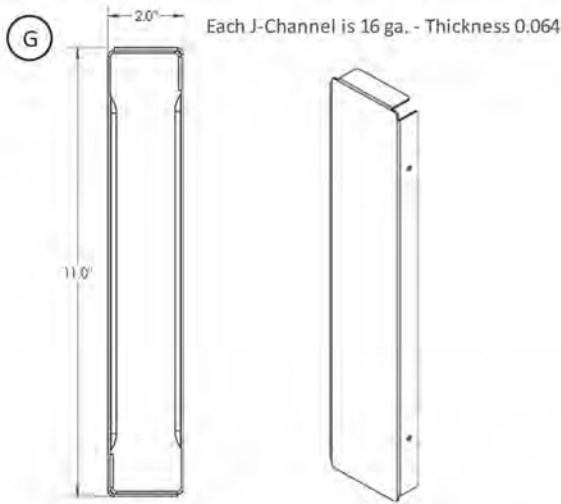
INDICATES SPANS THAT REQUIRE ANCHORAGE BEYOND THIS EVALUATION REPORT

Ledger joist anchors for Tables 16 and 17 shall be galvanized 1/4" diameter x 2.5" long wood lag screws conforming to ASTM A307, with minimum 2" edge and end distance, and full thread penetration into a supporting Southern Yellow Pine structure (integrity by others). The holder of this report shall check with local building codes for any additional requirements that may be applied.

Check local building codes for live/dead load design requirements.

EXTRUSION DIAGRAMS

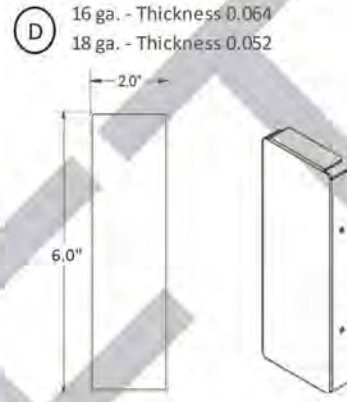
(All units are inches unless otherwise noted. Some dimensions not shown; refer to manufacturer's proprietary documentation)



BEAM (2" x 11")



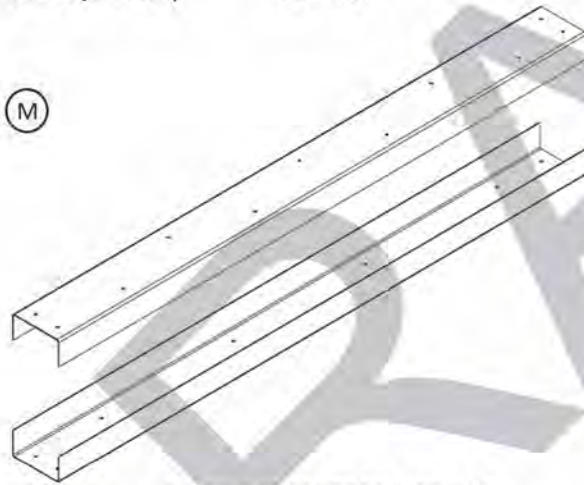
BEAM CAP



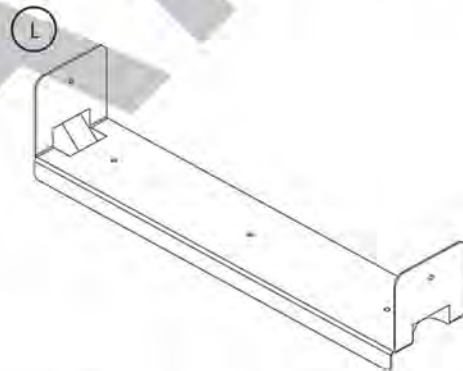
JOIST (2" x 6")



JOIST CAP



DOUBLE BEAM TRACK (16 GA.)

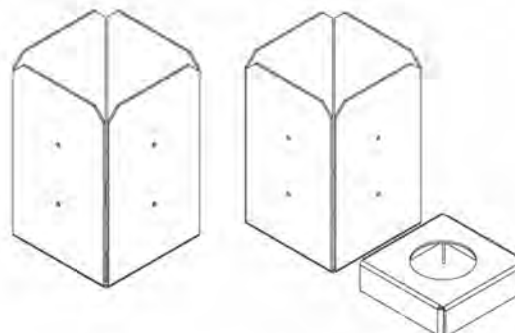


BLOCKING (0.040" THICK)



POST (11 GA.)

TER CERTIFIES BEAM TO POST ONLY

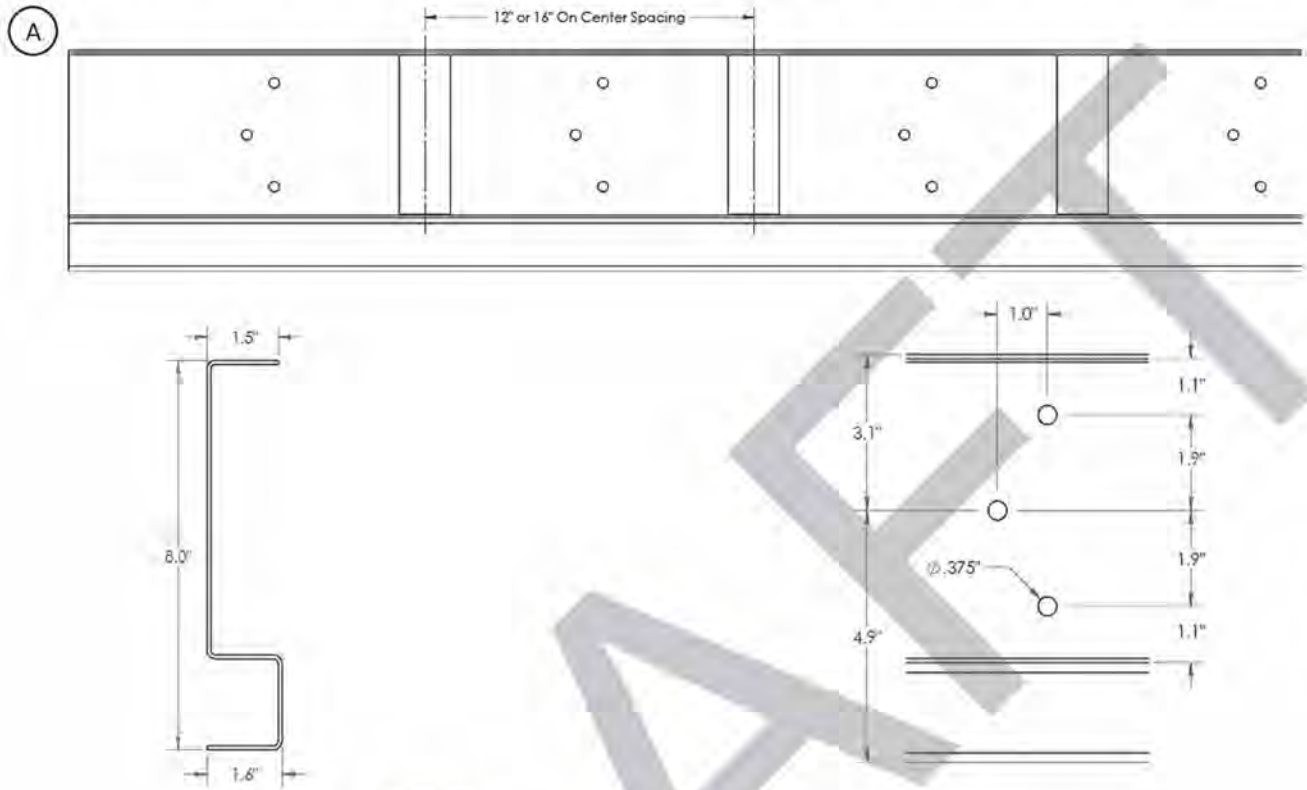


POST-PIER BRACKET

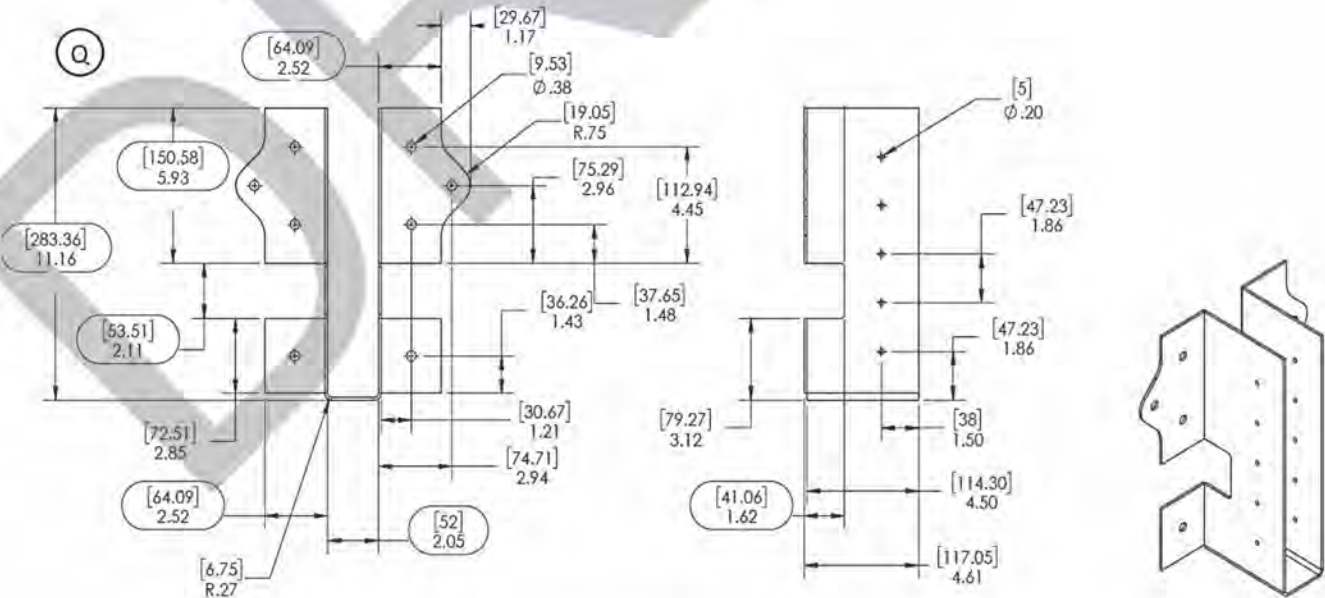
NOT INCLUDED IN TER

EXTRUSION DIAGRAMS

(All units are inches unless otherwise noted. Some dimensions not shown; refer to manufacturer's proprietary documentation)



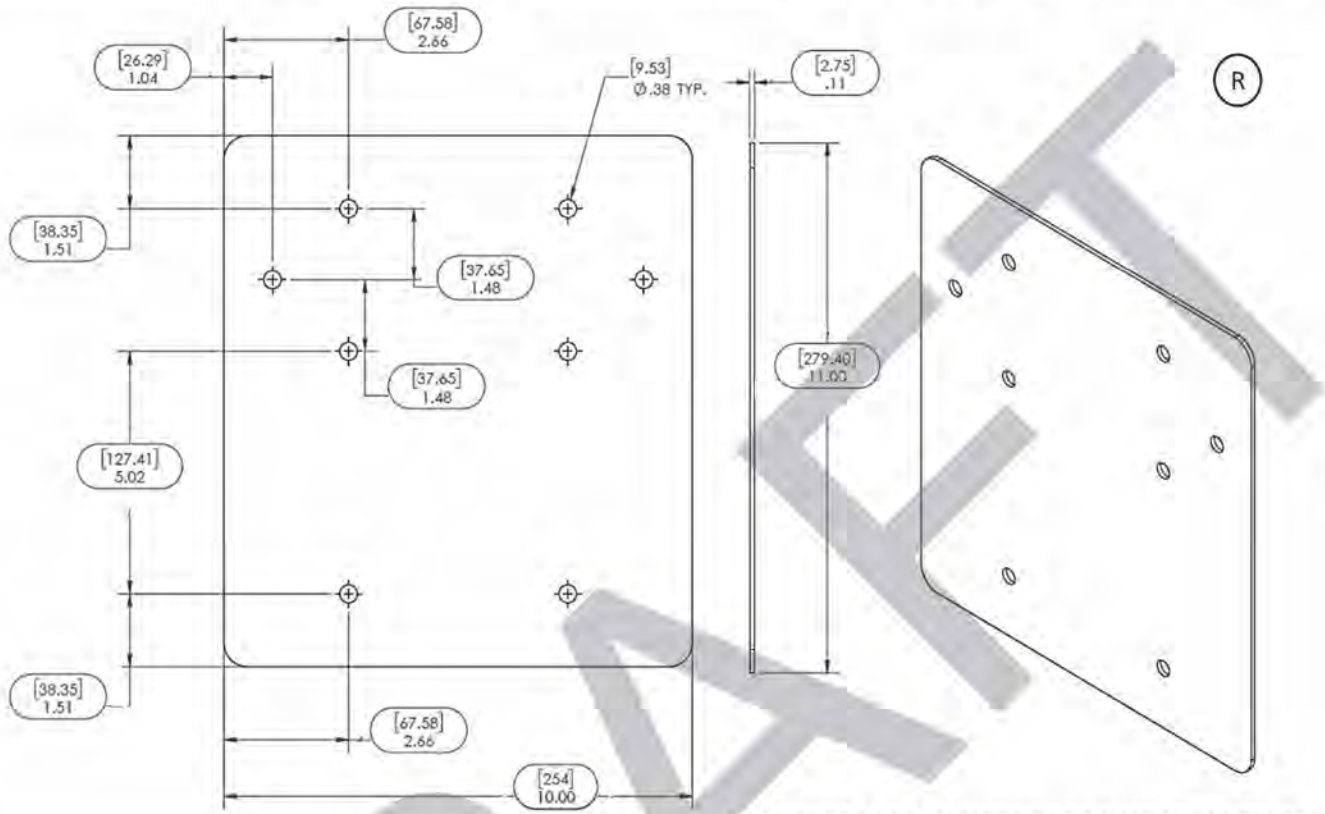
S- LEDGER WITH 12" OR 16" OC BRACKET SLOTS (0.079" THICK)



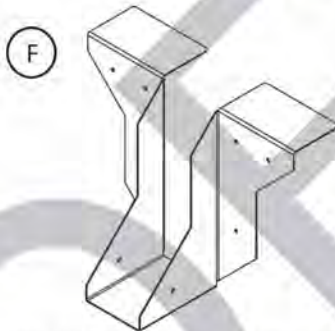
HANGER BRACKET (0.11" THICK)

EXTRUSION DIAGRAMS

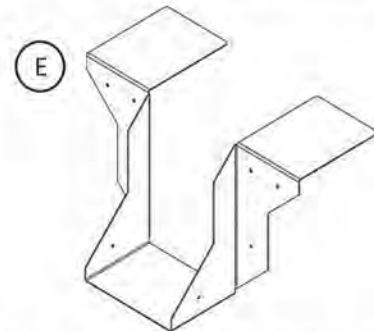
(All units are inches unless otherwise noted. Some dimensions not shown; refer to manufacturer's proprietary documentation)



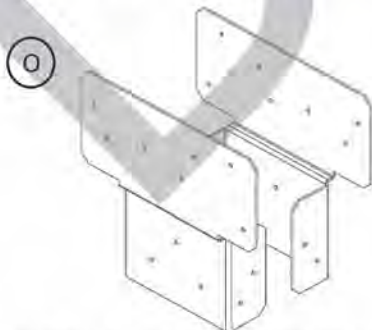
BACK PLATE FOR HANGER BRACKET (0.11" THICK)



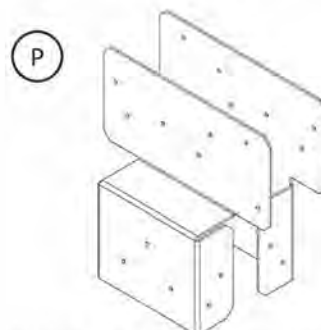
SINGLE JOIST HANGER BRACKET (0.040" THICK)



DOUBLE JOIST HANGER BRACKET (0.040" THICK)



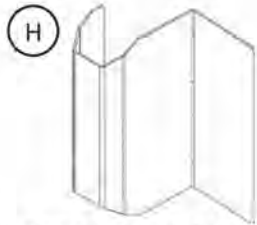
DOUBLE BEAM BRACKET (16 GA.)



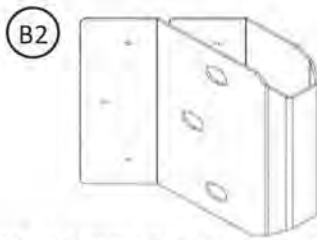
SINGLE BEAM BRACKET (16 GA.)

EXTRUSION DIAGRAMS

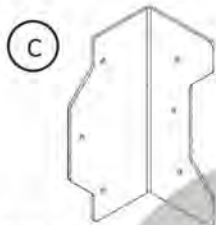
(All units are inches unless otherwise noted. Some dimensions not shown; refer to manufacturer's proprietary documentation)



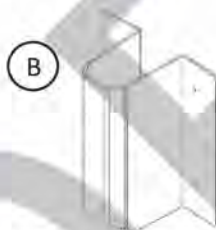
FOLDED BRACKET FOR RIM JOIST (0.052" THICKNESS)



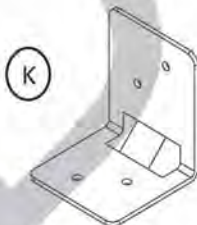
45 DEGREE BRACKET FOR S LEDGER (0.079" THICK)



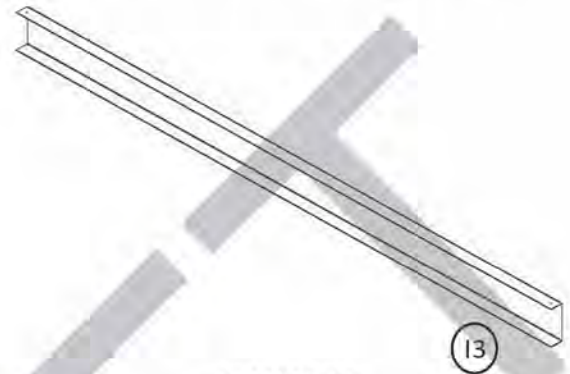
JOIST F50 BRACKET (0.064" THICK)



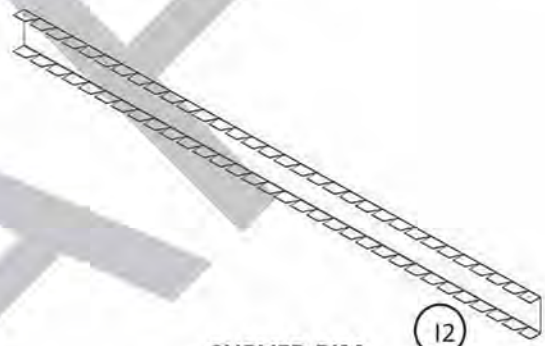
LEDGER BRACKET (0.079" THICK)



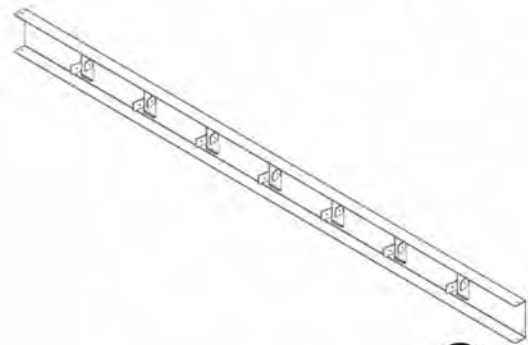
F10 BRACKET (0.040" THICK)



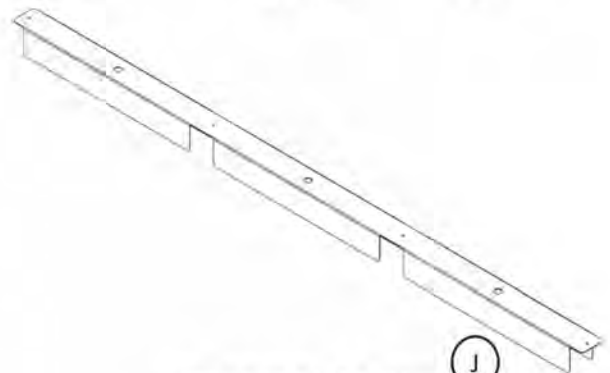
BLANK RIM




CURVED RIM



RIM JOIST



STRAP (0.040" THICK)



**#10 SELF-DRILING SCEW 410
STAINLESS STEEL (0.19"
THREAD DIAM x 0.42" THREAD**

COMPONENT FASTENING SCHEDULE

Part:	Connection	Part:	Fasteners
C to A	- F50 Bracket to Ledger		- (3) #10 screws – fill all holes in bracket
B to A	- Ledger bracket to backside of Ledger (typical installation)		- No fasteners required
	- Ledger bracket to frontside of Ledger		- (6) #10 screws – fill all holes in bracket
C to D	- F50 bracket to Joist		- (3) #10 screws – fill all holes in bracket
B to D	- Ledger bracket to Joist		- (2) #10 screws – one per side
D to G	- Joist to Beam (flush mount) with Joist Hanger		- (8) #10 screws – fill all holes in bracket
	- Joist to Beam (dropped beam) with 12" or 16" OC Blocking	FORE	- (5) #10 screws – fill all holes in bracket
	- Joist to Beam (dropped beam) with F10 Bracket		- (4) #10 screws – fill all holes in bracket
D to D	- Joist to Joist blocking with 12" or 16" OC Strap installed on top of joists	J	- No fasteners required
D to D	- Joist to Joist blocking with 12" or 16" OC Strap installed on bottom of joists	J	- (1) #10 screw per joist – fill all holes in strap
D to D	- Joist to Joist blocking non-12" or 16" OC spacing	C	- (2) F50 brackets, (12) #10 screws with joist material cut to length
H to D	- Rim bracket to Joist		- (2) #10 screw
I2 to (H or D)	- Curved Rim to Rim bracket / Joist		- (1) #10 screw
I to D	- Rim Joist - 12" or 16" OC Spacing		- (2) #10 screws per joist – fill all holes
	- Curved Rim Joist to Rim bracket / Joist		- (8) #10 screws – fill all holes

BEAM CONNECTION SCHEDULE

Part:	Connection	Part:	Fasteners
G to N	- Single Beam to top of post with Single Beam Bracket	P	- (28) #10 screws – fill all holes in brackets
G to N2	- Single Beam to notched Column		- (2) ½" diam. carriage bolts (410 stainless steel)
G to G	- Single Beam to Single Beam (Splice) with Double Beam Bracket	O	- (28) #10 screws – fill all holes in bracket, (4) 3/8" dia. Thru Bolts for splice
G to Q	- Single Beam to Hanger Bracket		- (10) #10 screws - fill all holes in bracket
GG to M	- Double Beam to Top and Bottom Track		- (22) #10 screws - fill all holes in track
GG to N	- Double Beam to top of post with Double Beam Bracket	O	- (28) #10 screws – fill all holes in bracket

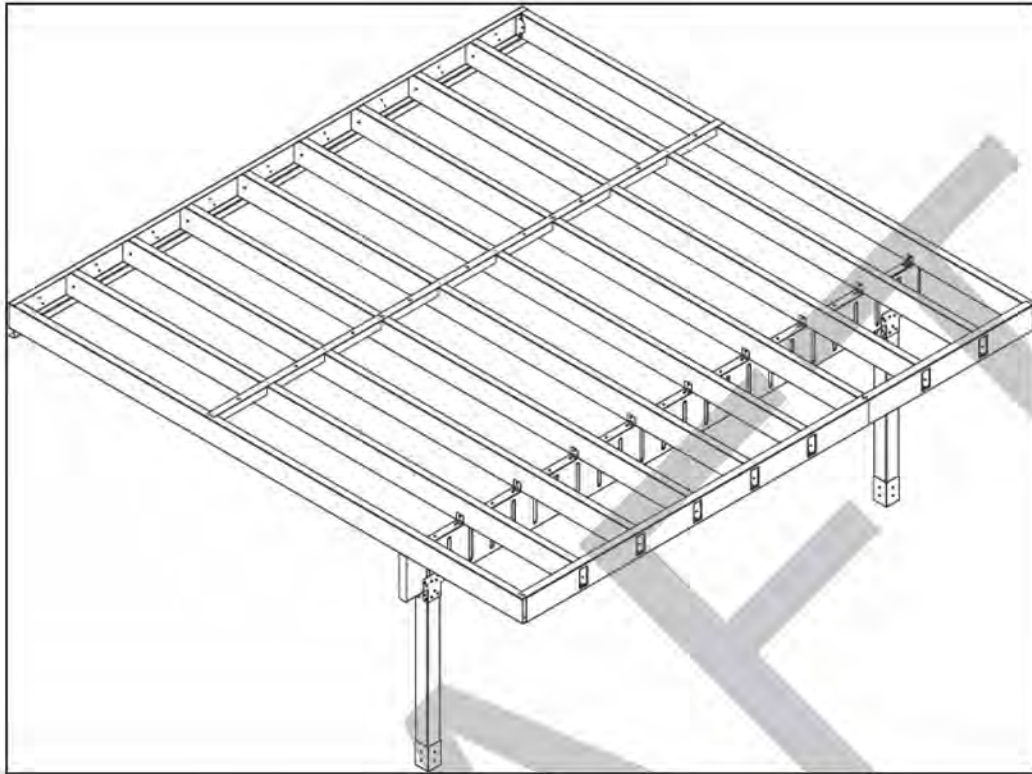


Figure 5: Mid-Span Blocking (Option Above Joists)

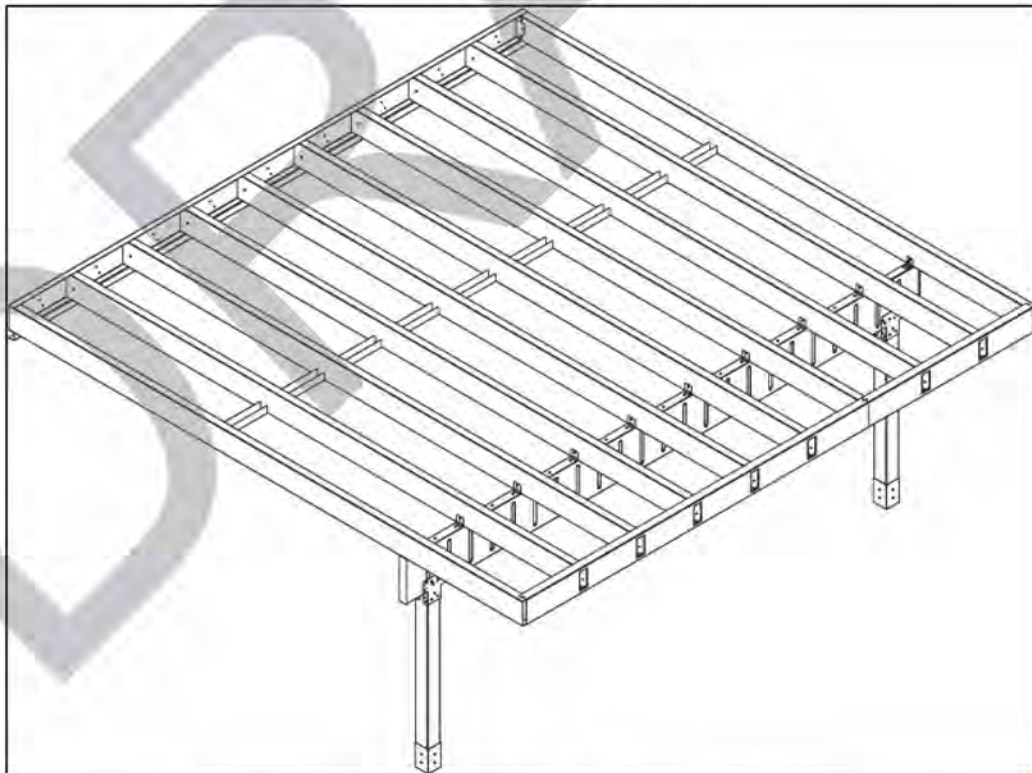


Figure 6: Mid-Span Blocking (Option Below Joists)

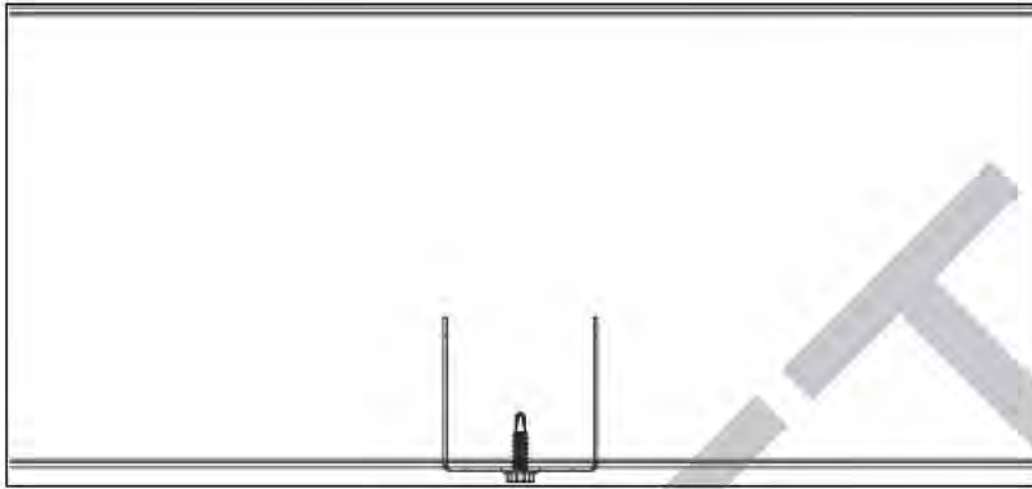


Figure 7: Mid-Span Blocking Strap Attachment

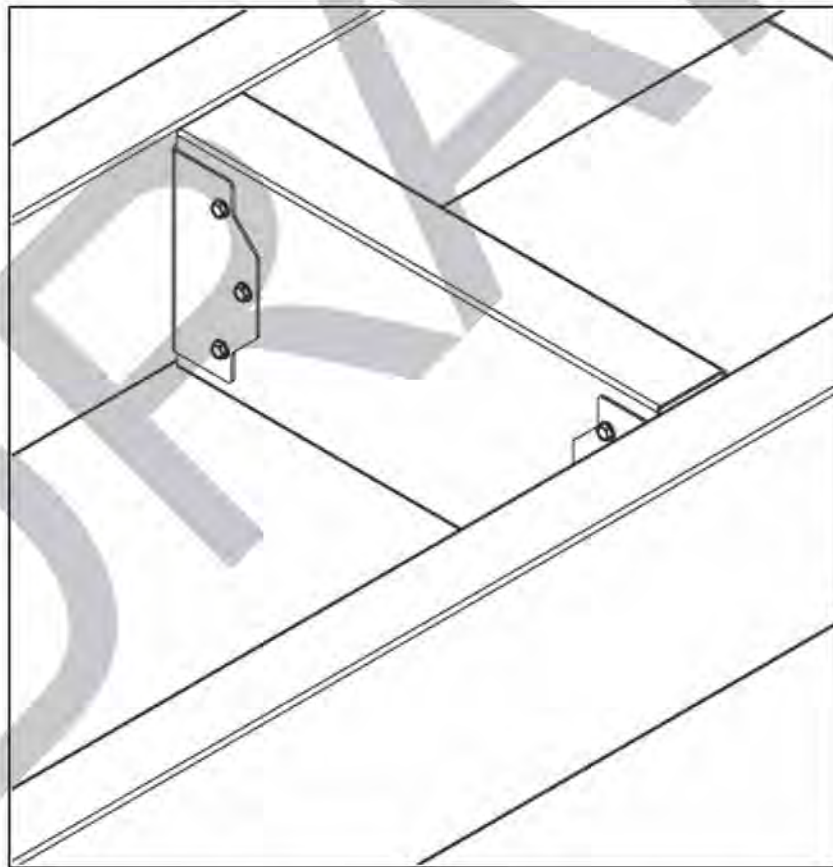


Figure 8: Mid-Span Blocking Joist Attachment

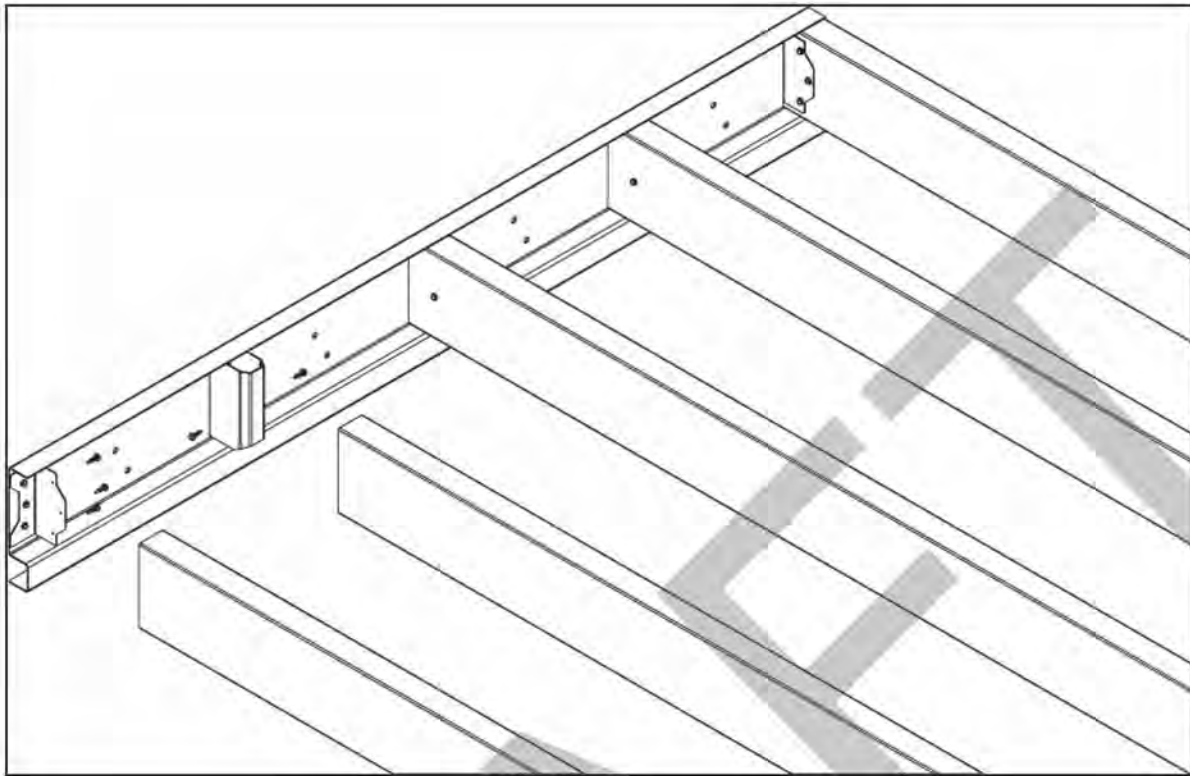


Figure 9: Joist Attachment to End Beam

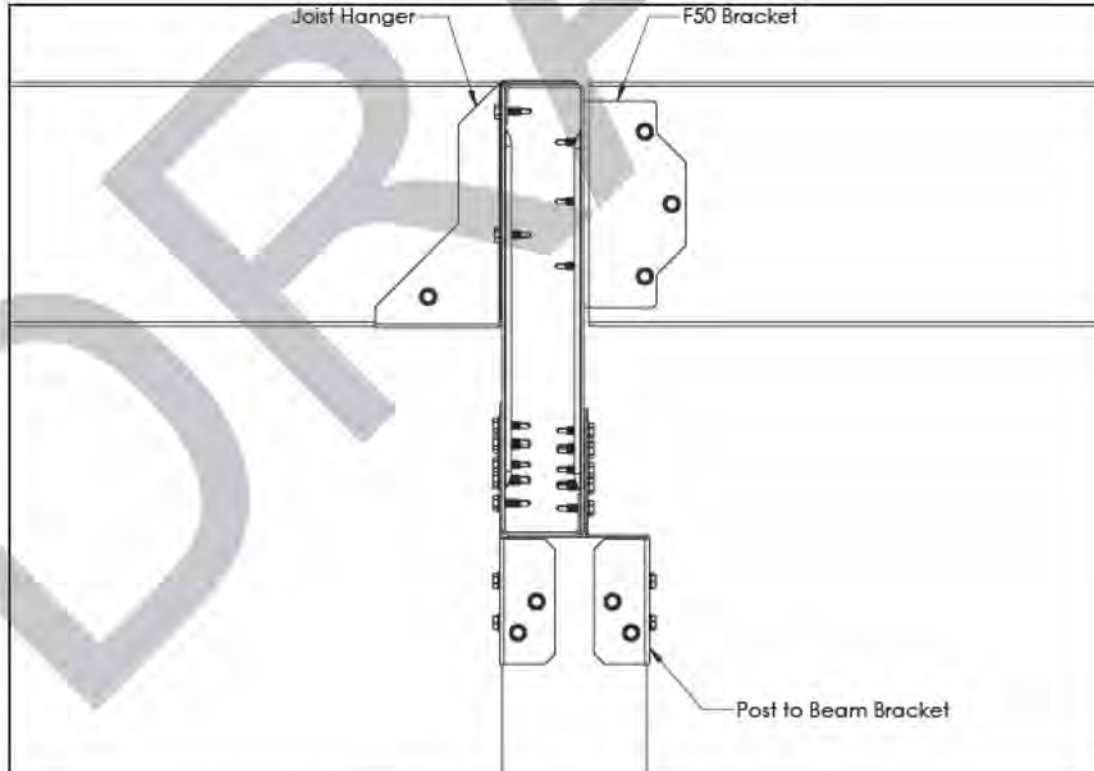


Figure 10: Flush Beam Installation

Cantilever limited to 1.5 feet for 50 PSF and 1 foot for 75 PSF. F50 Bracket must be applied on both sides.