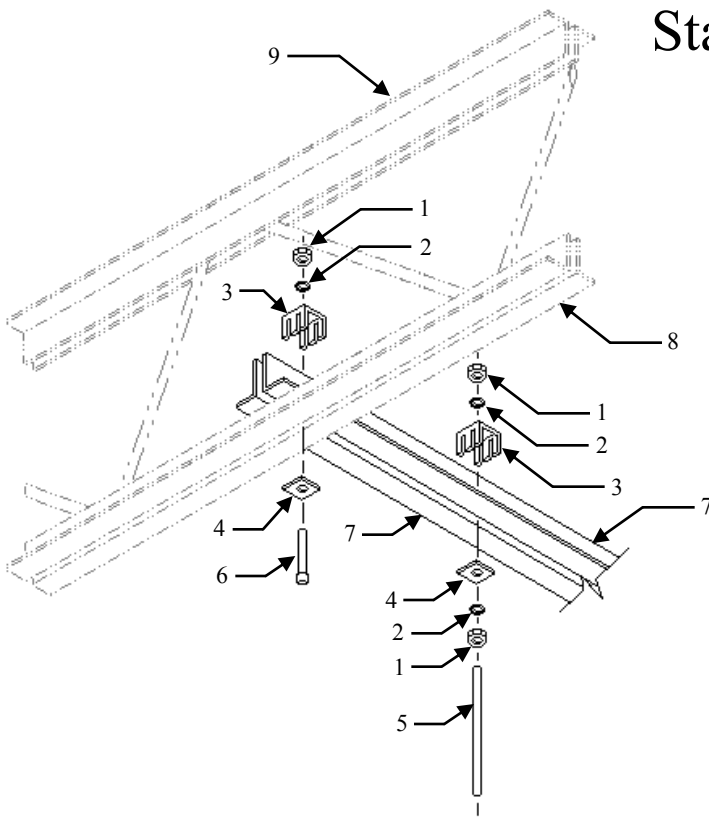


# Suspension Clamp System Installation Guide

Reliable and adaptable solutions for mounting ceiling fixtures, hanging support rods, and suspending HVAC equipment

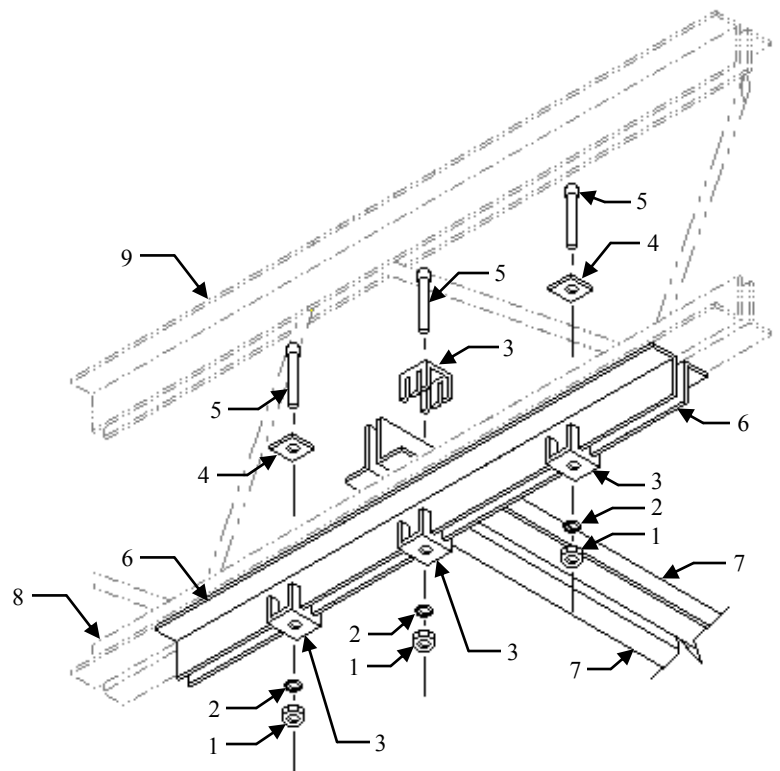
## Standard Suspension Clamp System



ITEM	QTY.**	DESCRIPTION
1	6	5/8" NUTS
2	6	5/8" LOCK WASHER
3	4	ANGLE SUSPENSION CLAMP
4	4	SQUARE WASHER
5	2	5/8" THREADED ROD
6	2	5/8 -11 HEX BOLT *
7	2	ANGLE (SEE TABLE)
8	-	BAR JOIST - LOWER CHORD
9	-	BAR JOIST - UPPER CHORD

## Panel Point Bridge

ITEM	QTY.**	DESCRIPTION
1	3	5/8" NUTS
2	3	5/8" LOCK WASHER
3	4	ANGLE SUSPENSION CLAMP
4	2	SQUARE WASHER
5	3	5/8 -11 HEX BOLT *
6	2	3" x 2" x 1/4" ANGLES
7	2	ANGLE (SEE TABLE)
8	-	BAR JOIST - LOWER CHORD
9	-	BAR JOIST - UPPER CHORD



\*To determine bolt length needed, use the Suspension Clamp chart to find the required angle size for the span. Add the height of the vertical leg of the angle to the height of the lower bar joist angle and add 1 1/2" to find your minimum needed bolt length.

\*\*The listed quantities are for a full system (two sides). The illustrations above show half systems, i.e. half the necessary quantities.

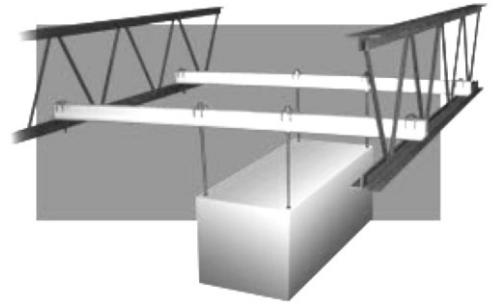
### WARNING:

Any modification to or additional loading of a joist must be reviewed by a structural engineer. Each Chicago Clamp System application must be selected and installed under the verification of a structural engineer. Chicago Clamp Systems® do NOT increase the load capacity of any structure. Chicago Clamp Company takes no responsibility for the load capacity of any existing structure.



Meticulously Engineered. Rigorously Tested.  
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# Suspension Clamp System Installation Guide Cont.



## BEFORE STARTING:

**Check** with a Structural Engineer for: Additional Joist Loads, or Relocation of Existing Loads.

Live Load Capacity (pounds) vs. Span of Back-to-Back Angles <sup>1-11</sup>

Size of Each of an Angle Pair	Span (feet)													
	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2" x 2" x 3/16"	1,690	1,123	821	635	511	-	-	-	-	-	-	-	-	-
2" x 2" x 1/4"	2,000	1,459	1,088	856	693	<b>569</b>	-	-	-	-	-	-	-	-
2 1/2" x 2" x 3/16"	2,000	1,707	1,237	956	769	635	536	-	-	-	-	-	-	-
2 1/2" x 2" x 1/4"	2,000	2,000	1,691	1,313	1,061	882	748	643	<b>528</b>	-	-	-	-	-
3" x 2" x 3/16"	2,000	2,000	1,645	1,270	1,020	842	708	604	521	-	-	-	-	-
3" x 2" x 1/4"	2,000	2,000	2,000	1,791	1,446	1,200	1,016	873	759	665	587	<b>520</b>	-	-
3 1/2" x 2 1/2" x 1/4"	2,000	2,000	2,000	2,000	2,000	1,682	1,428	1,232	1,074	945	837	746	667	599
4" x 3" x 1/4"	2,000	2,000	2,000	2,000	2,000	2,000	1,873	1,618	1,414	1,246	1,106	988	886	798
5" x 3" x 1/4"	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	1,932	1,700	1,507	1,344	1,203	1,081

Longest angle leg is vertical.

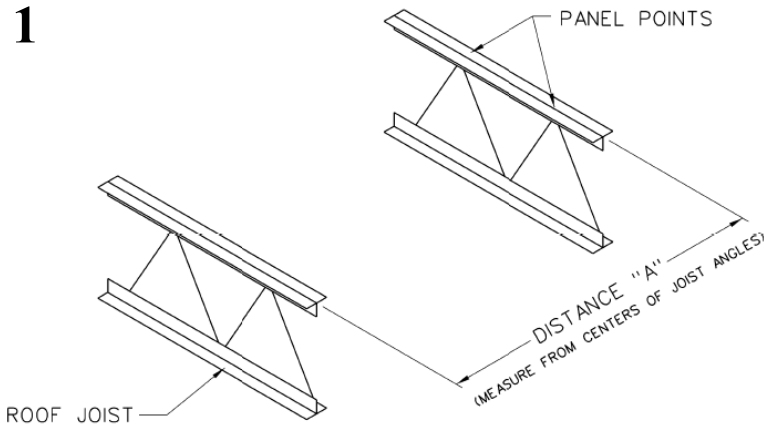
1. Two Spanning Angles are required per Suspension Clamp System, purchase angles through your local vendor.
2. Angles are back to back, but spaced apart by Suspension Clamps.
3. Allowable net load, per pair, may be located anywhere along the span. Weight of angles has been accounted for.
4. Angle dimensions are listed "Vertical Leg" x "Horizontal Leg" x "Thickness".
5. No values below 500 lbs are listed. Allowable loads have been limited to 2,000 lbs maximum.
6. Allowable loads are based on 36 ksi minimum yield steel and AISC specifications.
7. A single load equal to the tabulated capacity or multiple loads with a sum equal to the tabulated capacity is allowable.
8. Live Load Capacities based on Safety Factor of 2.0.
9. Loads in **bold (528)** are governed by deflection limit of Span/240; (e.g., 0.500" for 10' span).
10. Tabulated values are based upon the additional bracing provided by Suspension Clamp System.
11. Tabulated loads based on vertical loading only.

## Additional Feature:

The Panel Point Bridge can compliment the Suspension Clamp System. If the desired location for a load requires that the Suspension Clamp System be located away from the joist panel point, install a Panel Point Bridge first to help transfer the load to the panel point. Then install the Suspension Clamp System. (See illustrations on page 1)

# Suspension Clamp System Installation Guide Continued

**1**



## Determine Angle Size

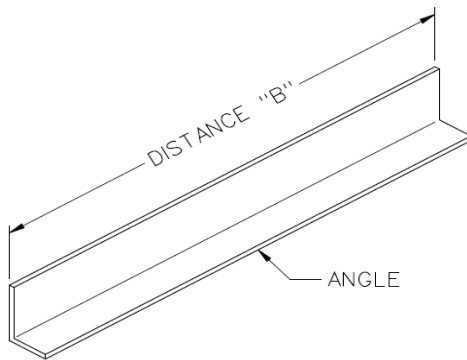
Measure the distance from the center of one bar joist to the center of the parallel bar joist. This measurement will be called “Distance A” (shown left).

Refer to chart on page two of this guide. If Distance A is between two listed spans, choose the larger span. If the applied load is between two listed loads, choose the greater load. The correct size angle can be found at the left side of the chart, corresponding to the selected load and span.

### Example

If Distance A = 6’3” and the applied load is 900 lbs, the correct angle size is 3” x 2” x 1/4”

**2**

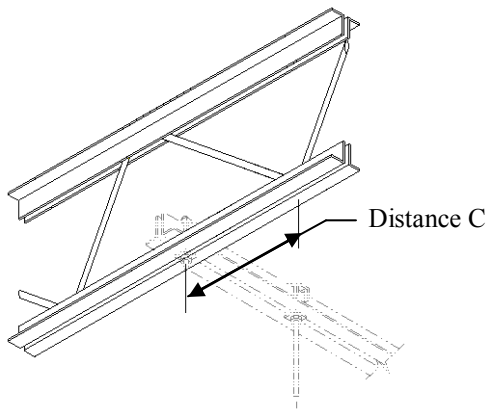


## Determine Spanning Angle Length

To determine Distance B (the length of angles), add six inches to Distance A (measured in Step 1). Cut the correct size angle to Distance B. Do this for both angles that span from bar joist to bar joist.

$$\text{Distance B} = (\text{Distance A}) + (6 \text{ inches})$$

**3**

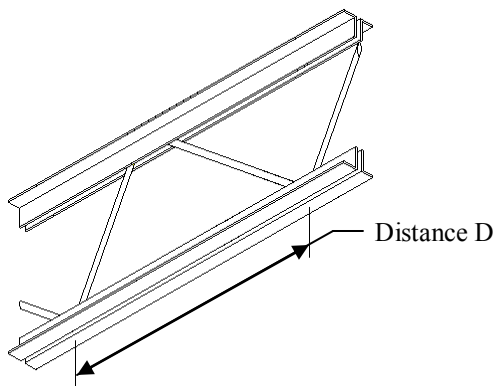


## Determine If Bridging is Necessary

If the desired location for a load requires the Suspension Clamp System be located away from the joist panel point (i.e. Distance C is greater than allowable), a Bridging Clamp System needs to be installed first to help transfer the load to the panel points.

If the engineer of record determines the application does not require bridging, continue to Step 6.

**4**



## Determine Length of Bridging Angles

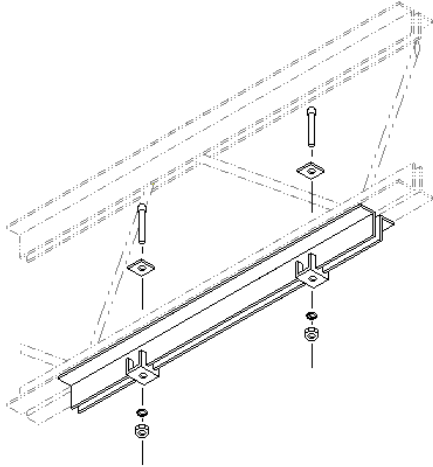
Measure the distance between panel points on the bottom chord. This distance will be called “Distance D.”

Add 6 inches to Distance D and cut two 3” x 2” x 1/4” angles to that length.

$$\text{Bridging Angles} = \text{Distance D} + 6”$$

# Suspension Clamp System Installation Guide Continued

5



## Install Bridging Angles

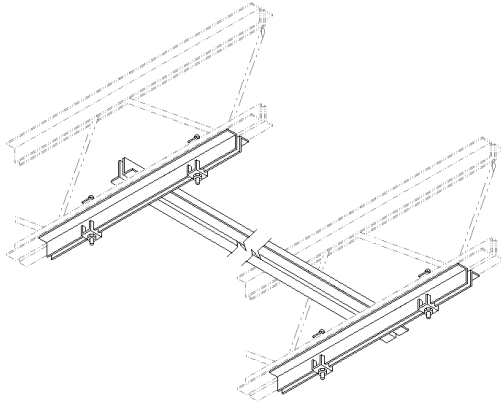
Place the cut Bridging Angles back-to-back and under the bottom chord of the bar joist, ensuring they extend beyond the panel points equally on both sides (shown left).

Secure the Bridging Angles to the bottom chord using two Angle Clamps, lock washers, and nuts, placed near and between the panel points (shown left).

Tighten everything once the clamps and angles are positioned as recommended.

Repeat Step 5 for the opposite side bar joist.

6

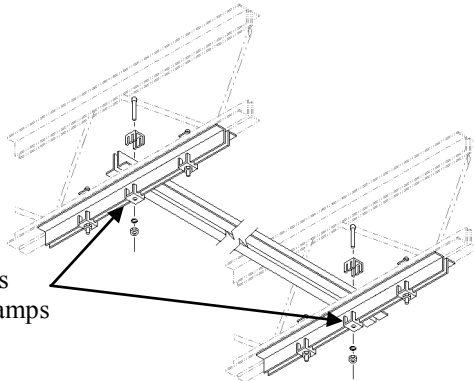


## Install Spanning Angles

Place the cut angles (from Step 2) back-to-back on the joist flanges, ensuring they overlap the joist equally on both sides (shown left).

Note: Bridging Angles shown for reference only and may not be necessary for your application. Refer to the engineer of record for direction.

7



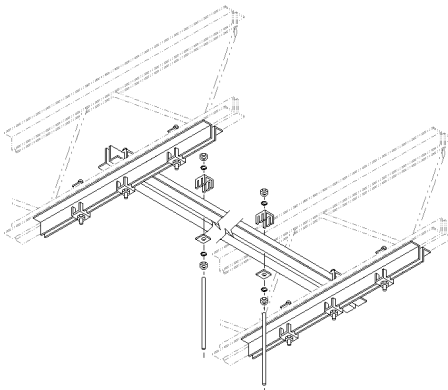
Use square washers instead of angle clamps if bridging is not needed.

## Install Spanning Angles, Cont.

Install the Angle Clamps with lock washers and nuts, as shown, to secure the Spanning Angles to the joist. Once everything is aligned, tighten all nuts and bolts.

Note: If not using bridging angles, substitute square washers in place of the bottom angle clamps (as indicated at left).

8



## Install Threaded Rod

Place an Angle Clamp at the desired location/s for the supported load. Insert a threaded rod through the Angle Clamp, between the Spanning Angles and through the Square Washer. Secure each rod and clamp with two lock washers and nuts. Once everything is aligned, tighten all nuts and bolts.

Repeat this step for each midspan load.

**Installation is complete.**