

80/20 Mounting Frame Installation

The iDimension 80/20 Mounting Frame System is designed to be suspended from a steel roof structure. iDimension LTL, iDimension LTL-XL and iDimension Flex systems can be attached to the iDimension 80/20 Mounting Frame. Consult with Rice Lake Weighing Systems for more information.

1.0 Introduction

The iDimension 80/20 mounting frame can be installed directly onto the roof structure in pieces or it can be assembled on the ground and attached to the roof structure. Start all installations by completing steps in [Section 1.2](#). If installing the mounting frame directly onto the structure of the roof follow the steps in [Section 1.3](#). If assembling the mounting frame at floor level and attaching it to the roof structure, follow the steps in [Section 1.4](#). See [Section 12.0 on page 12](#) for a parts list.

1.1 Safety

The dimensioner can be mounted to the building's I-beam rafter or Z-channel purlins using a frame constructed of extruded structural aluminum (8020). When properly constructed and attached, the frame supports the largest LTL XL dimensioner with a greater than static 5:1 safety ratio. If required by local regulations, the buyer is responsible for organizing an independent third party to evaluate and certify the installation is suitable and safe.

1.2 80/20 Mounting Frame Preparation

Use the following steps to ensure that the frame is ready to assemble and install:

1. Determine mounting surface and frame configuration ([Section 2.0 on page 2](#)).
2. Calculate dimensions and cut 80/20 bars needed for the frame:
 - Primary I-beam rafter configuration ([Section 3.1 on page 4](#))
 - Secondary Z-channel roof purlin configuration ([Section 3.2 on page 5](#))
3. Cap 80/20 ends and form arm assemblies ([Section 4.0 on page 7](#)).

1.3 Direct Roof Assembly

1. Attach spans to structure:
 - Primary I-beam rafter configuration ([Section 5.1 on page 7](#))
 - Secondary Z-channel roof purlin configuration ([Section 5.2 on page 8](#))
2. Install vertical arms ([Section 6.0 on page 8](#)).
3. Install lower horizontal bars ([Section 7.0 on page 9](#)).
4. Attach iDimension assembly to mounting frame ([Section 8.0 on page 9](#)).

1.4 Floor Assembly

1. Assemble and square the frame ([Section 9.0 on page 10](#)).
2. Attach spans to structure:
 - Primary I-beam rafter configuration ([Section 5.1 on page 7](#))
 - Secondary Z-channel roof purlin configuration ([Section 5.2 on page 8](#))
3. Attach frames to roof structure ([Section 10.0 on page 11](#)).
4. Attach iDimension assembly to mounting frame ([Section 8.0 on page 9](#)).

1.5 Roll-in T-nut

Roll-in T-nuts are used to screw accessories into the bar. They can be inserted by sliding them in from the end of the 80/20 bar or they can be inserted into the channel of the 80/20 bar.

1. Insert the T-nut into 80/20 channel at an angle.
2. Rotate nut into the 80/20 channel.
3. Seat T-nut into channel.
4. Fasten screw into T-nut to secure accessory to the bar.
5. Apply medium strength thread locking compound and tighten screws to 6 ft-lb (8.1301 Nm).



NOTE: Over-tightening the screw may cause the screw to strip out of the T-nut. If screw spins freely, replace the T-nut

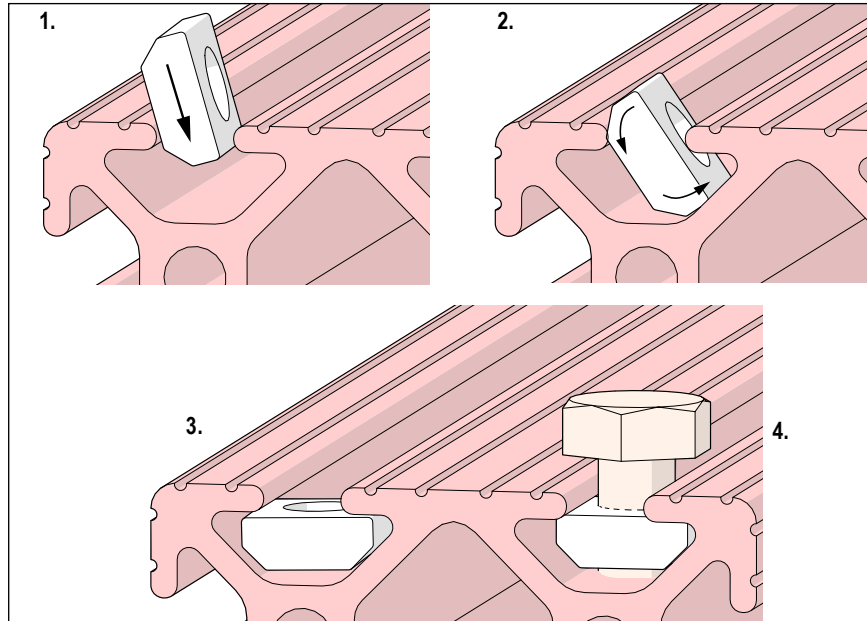


Figure 1. Roll-in T-Nuts

2.0 Configurations

The iDimension 80/20 Mounting Frame is attached either to a primary I-beam rafter or the secondary Z-channel roof purlins.

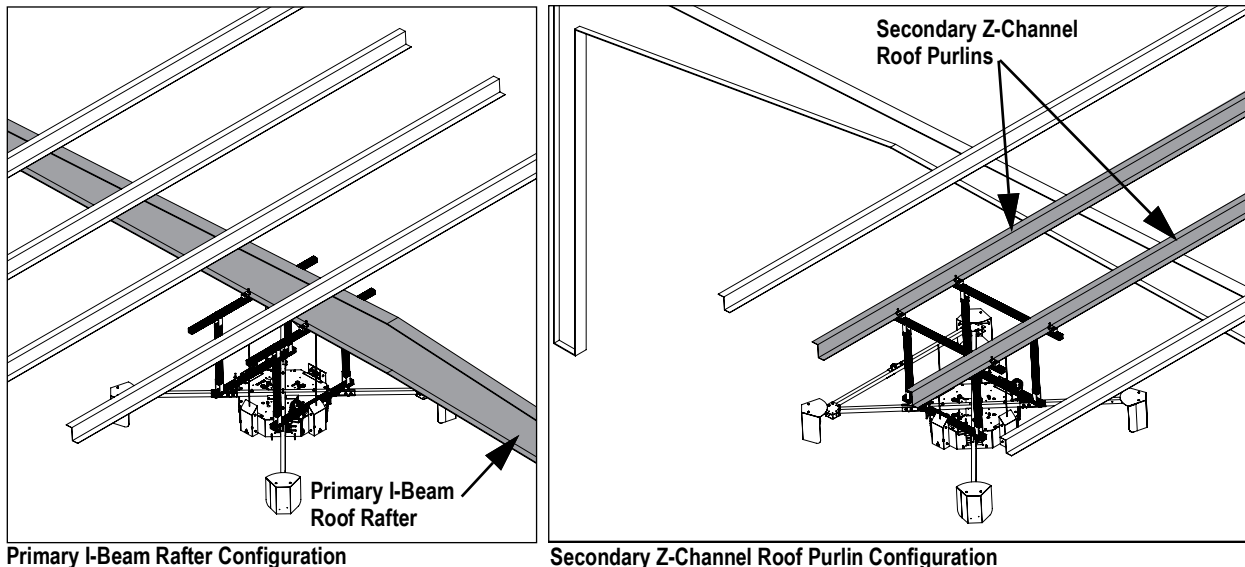


Figure 2. Mounting Frame Configuration Options

3.0 Calculate Frame Dimensions

The dimensions of the frame's horizontal 80/20 span bars depend on the structure they are secured to.

The dimensions of the frame's hanging vertical 80/20 bars depend on the height of the structure.

The distance from the frame's lower horizontal 80/20 bars to the floor depends on the iDimension model. (Table 1)

The final height of the iDimension sensors must be 132 in \pm 1 in (3.352 m) from the floor.

The following sections show how to calculate dimensions.

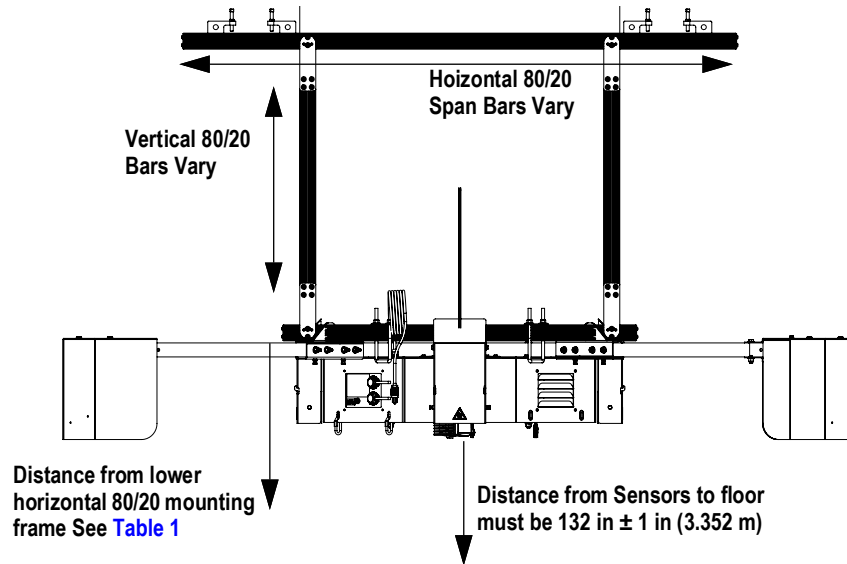


Figure 3. Attach iDimension to Frame

Model	Distance
iDimension LTL	142 in (3.607 m)
iDimension LTL-XL	142 in (3.607 m)
iDimension Flex	139 in (3.531 m)

Table 1. Distance From Mounting Frame to Floor

3.1 I-Beam Rafter Configuration Dimensions

The I-beam rafter configuration is supported by 80/20 bars that are attached to the bottom flange of a roof structural I-beam.

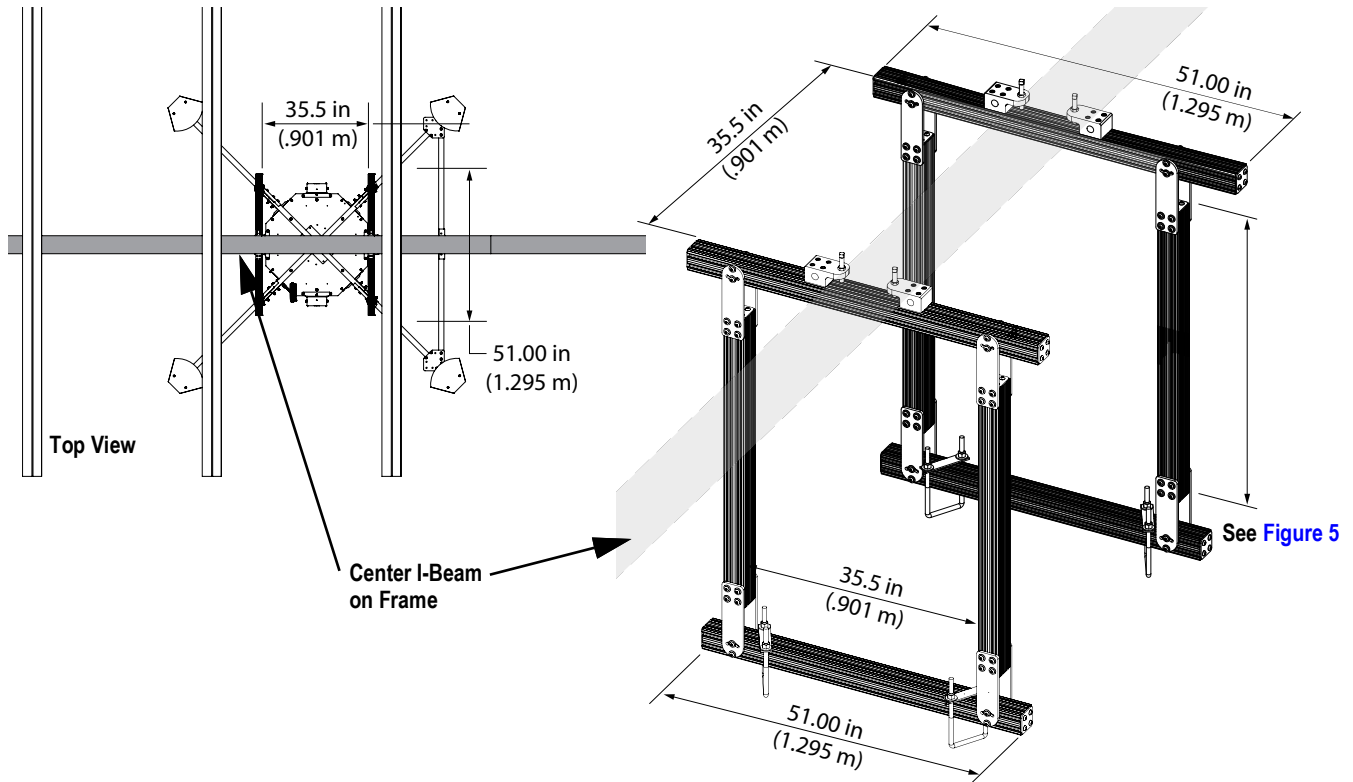


Figure 4. I-Beam Rafter Configuration 80/20 Bar Cut Length Calculations

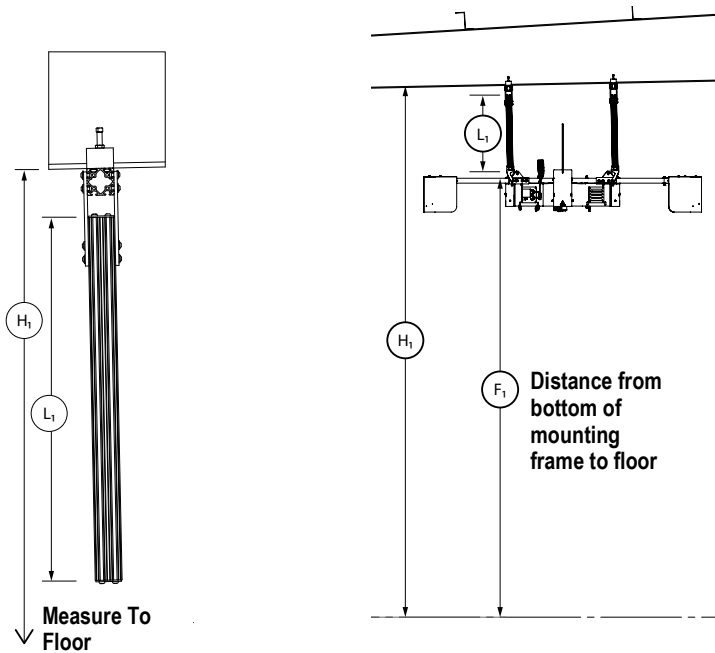


Figure 5. Vertical 80/20 Bar Dimensions

Calculate length for each vertical 80/20 (L_1) bar from height of structural I-beam.

$$L_1 = H_1 - F_1 - 5 \text{ in } (.127 \text{ m})$$

- H_1 = Distance from floor to base flange of structural I-beam
- F_1 = Distance from bottom of mounting frame to floor. See [Table 1](#) on page 3.

NOTE: Distance from Sensors to floor must be 132 in \pm 1 in (3.352 m)

3.2 Z-Channel Roof Purlin Configuration Dimensions

The Z-channel roof purlin configuration is compatible with 80/20 bars that span between at least two Z-channel roof purlins.

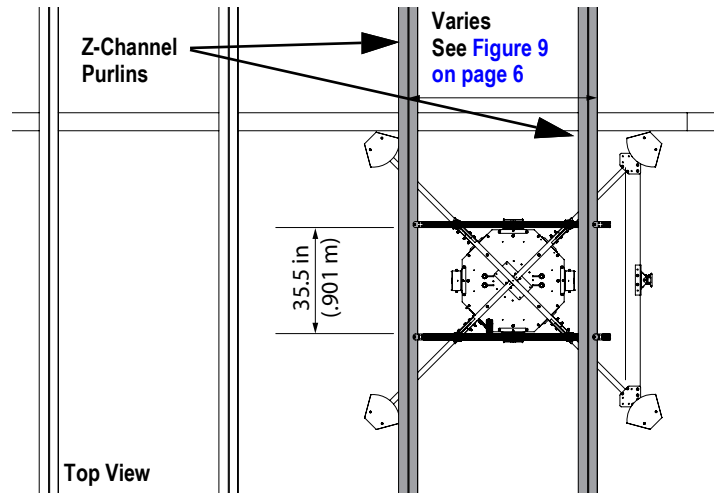


Figure 6. Z-Channel Roof Purlin Configuration Top View

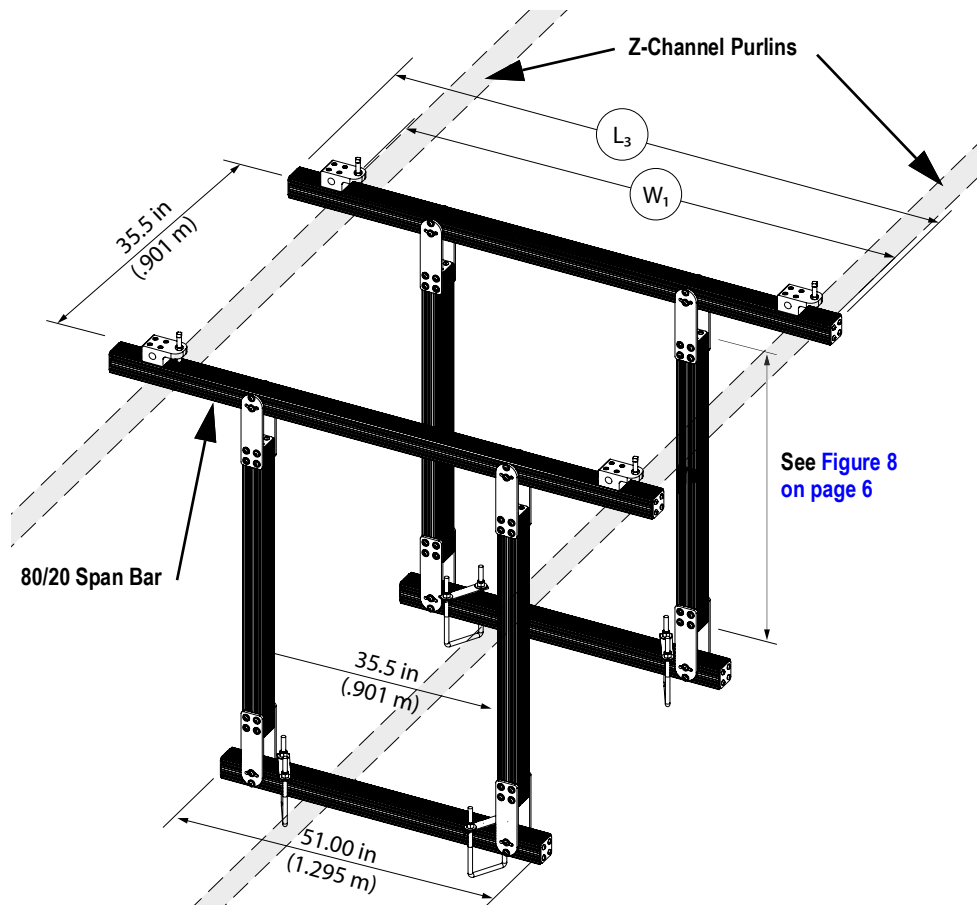


Figure 7. Z-Channel Purlin Configuration 80/20 Bar Cut Lengths

Z-Channel Purlin Configuration Vertical 80/20 Bar Length

Calculate length for each vertical 80/20 bar (L_2) from the height of the top of the 80/20 span at the hanging point.

$$L_2 = H_2 - F_2 - 5 \text{ in } (.127 \text{ m})$$

- H_2 = Distance from floor to the top of the 80/20 span at the hanging point.
- F_2 = Distance from bottom of mounting frame to floor. See [Table 1 on page 3](#).

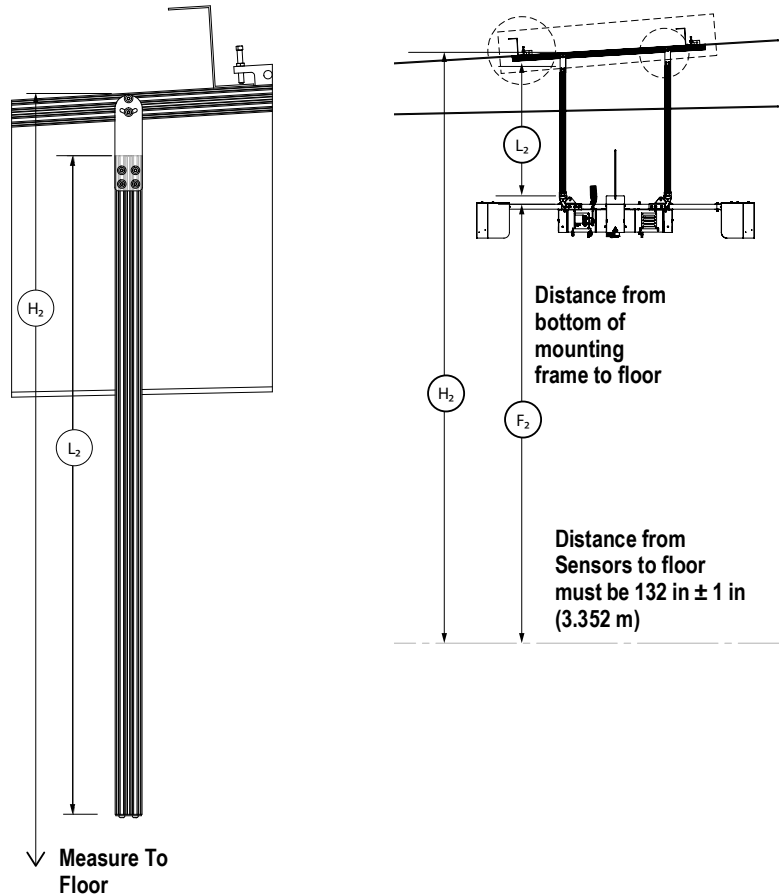


Figure 8. Vertical 80/20 Bar Dimensions

Z-Channel Purlin Configuration 80/20 Span Bar Length

Calculate length of each horizontal 80/20 bar (L_3) that spans from Z-channel to Z-channel.

$$L_3 = W_1 + 6 \text{ in } (152.4 \text{ mm})$$

- W_1 = Distance between Z-channel as shown

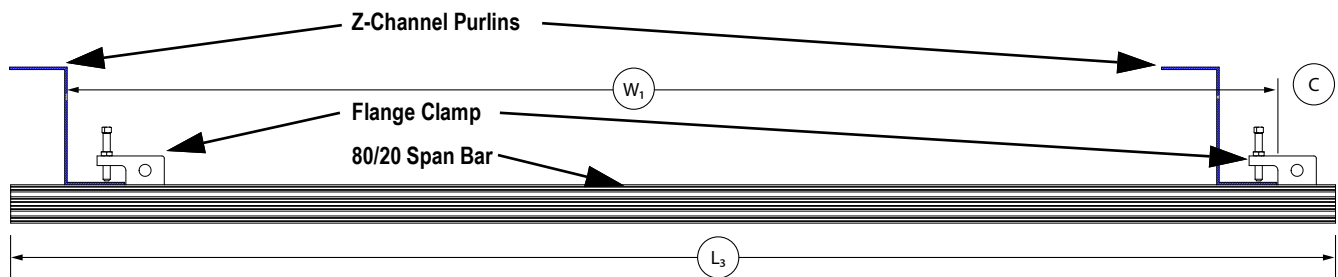


Figure 9. Z-Channel Purlin Configuration 80/20 Span Bar Length

4.0 80/20 Arm Assemblies

Form arm assemblies with hangers and end caps before attaching to spans and systems. All 80/20 bars must have an end cap attached. Apply medium strength thread locking compound and tighten screws to 6 ft-lb (8.1301 Nm).

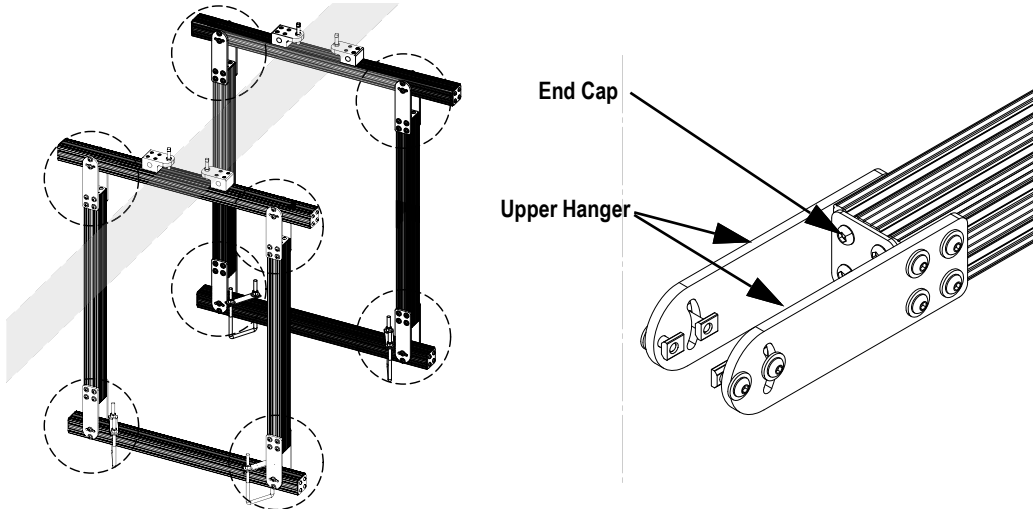


Figure 10. End Caps and Upper Arm Assemblies

5.0 Attach 80/20 Span to Structure

5.1 I-Beam Flange Clamp 80/20 Installation

Install two upper spans onto the bottom flange of the I-beam using four flange clamps.

1. Loosely screw flange clamps onto the 80/20 span and slide flange clamps into contact with flange of beam.
2. Apply medium strength thread locking compound and tighten all four screws to 6 ft-lb (8.1301 Nm).
3. Tighten set screw to 25 ft-lb (33.9 Nm).
4. Tighten jam nut.

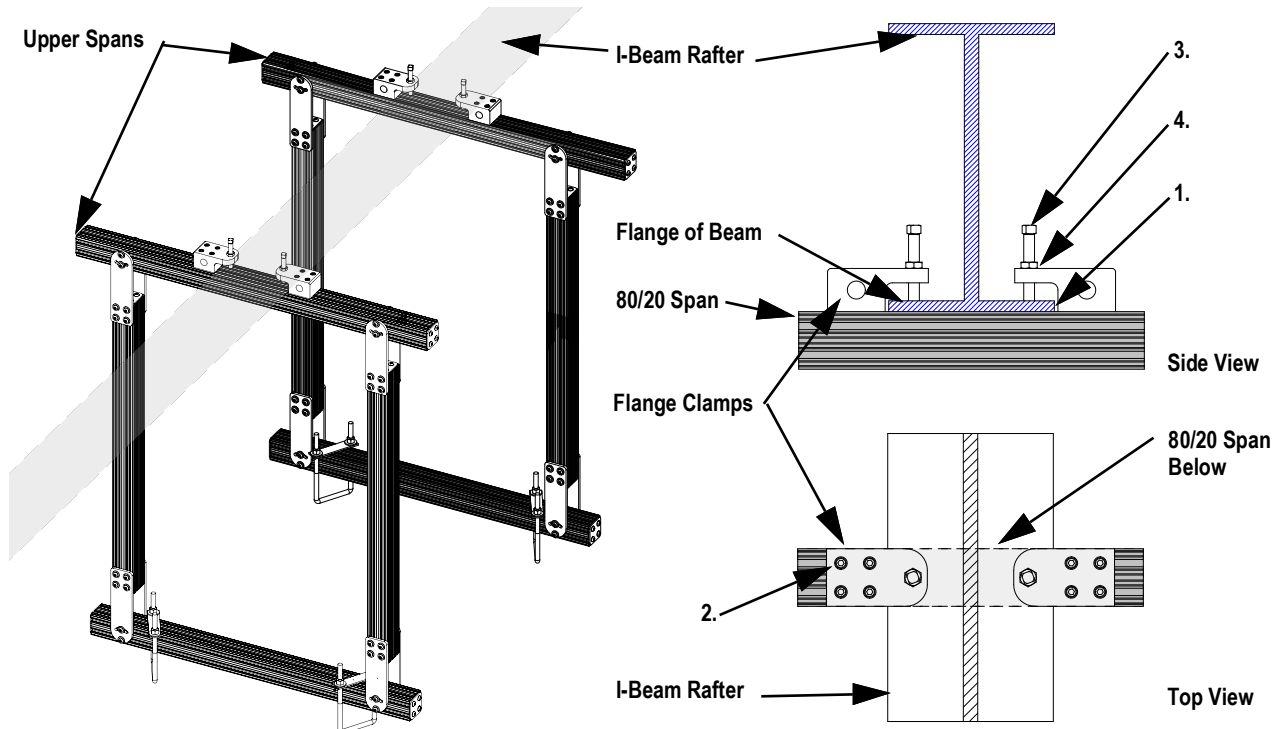


Figure 11. I-Beam Flange Clamp

5.2 Z-Channel Flange Clamp 80/20 Span Installation

Install two upper spans onto the bottom flange of the Z-channels using four flange clamps.

1. Loosely screw flange clamps onto the 80/20 span and slide clamps into contact with bottom flange of the Z-channel.
2. Apply medium strength thread locking compound and tighten all four screws to 6 ft-lb (8.1301 Nm).
3. Tighten set screw to 25 ft-lb (33.9 Nm).
4. Tighten jam nut.

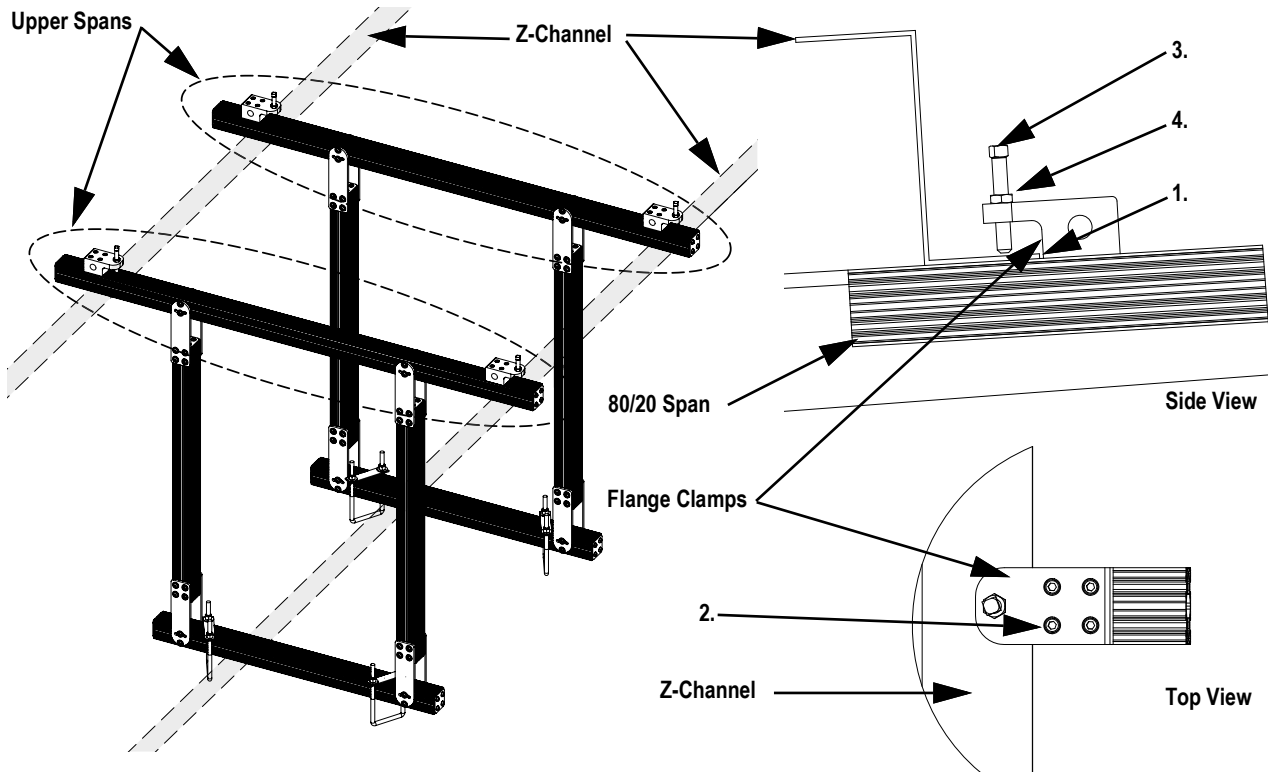


Figure 12. Z-Channel Flange Clamp

6.0 Install Vertical Arms

Install vertical arms by four upper hangers into the upper span 35.5 in (.901 m) apart. Tighten top screw to 6 ft-lb (8.1301 Nm).

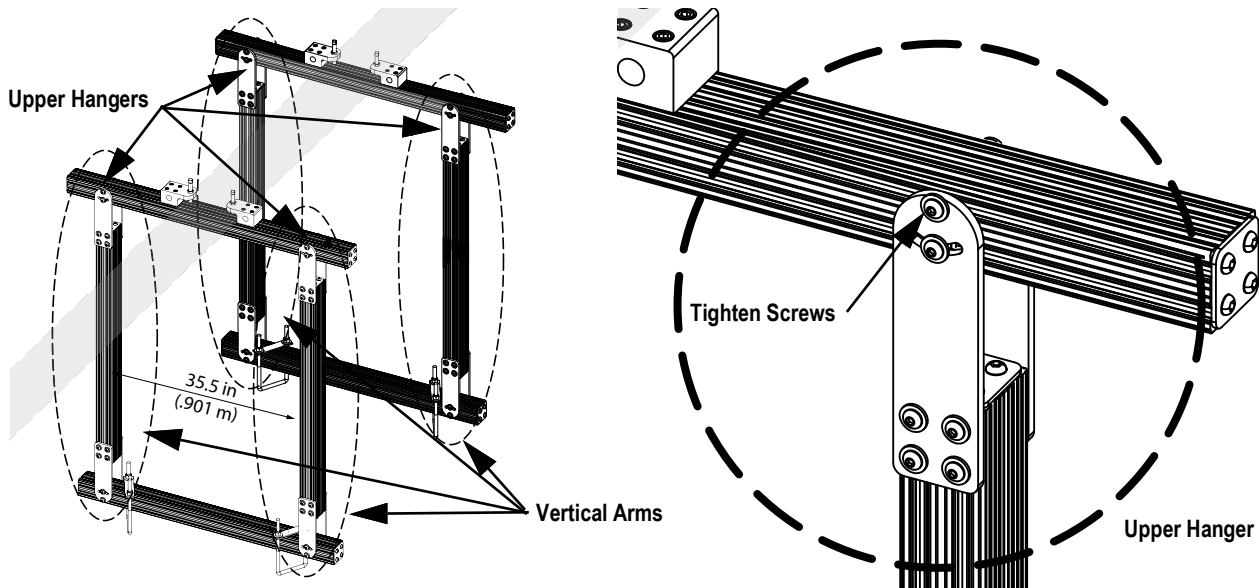


Figure 13. Install Vertical Arms

7.0 Install Lower Horizontal Bars

Install two lower horizontal spans onto the bottom of the vertical arms 35.5 in (.901 m) apart. Tighten screws to 6 ft-lb (8.1301 Nm).

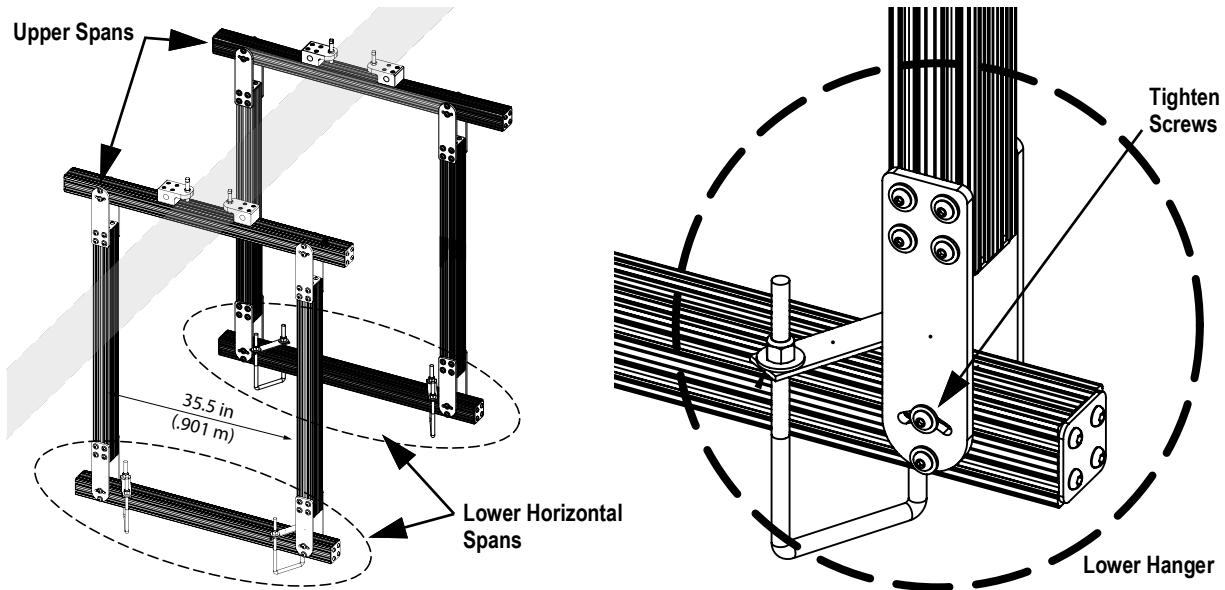


Figure 14. Install Lower Horizontal Bars

8.0 Attach iDimension Assembly to Mounting Frame

Attach arms of the iDimension assembly to mounting frame with four U-bolts. Tighten nuts to secure.

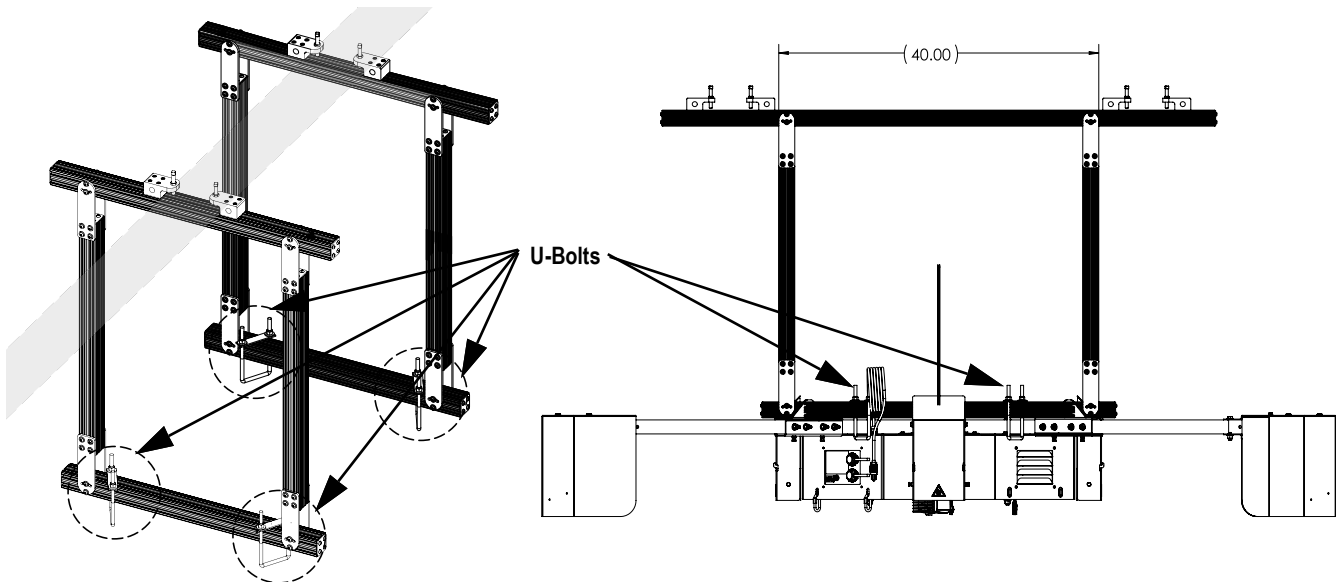


Figure 15. Attach iDimension to Frame

9.0 Assemble and Square the Frame

To assemble and square frame:

1. Lay the legs of the frame on the ground 35.5 in (.901 m) apart.
2. Connect bottom span to the legs of the frame.
3. Tighten Screw 1 on the two lower hangers so that the location is fixed, but the leg can still rotate around the point.
4. Loosely attach screw 2 to the lower hangers of the 80/20 frame.
5. Square the legs of the frame to the bottom span of the frame.
6. Tighten screws to 6 ft-lb (8.1301 Nm).
7. Flip the frame over and tighten screws on the opposite side of the frame to 6 ft-lb (8.1301 Nm).
8. Repeat to assemble two u shaped frames.

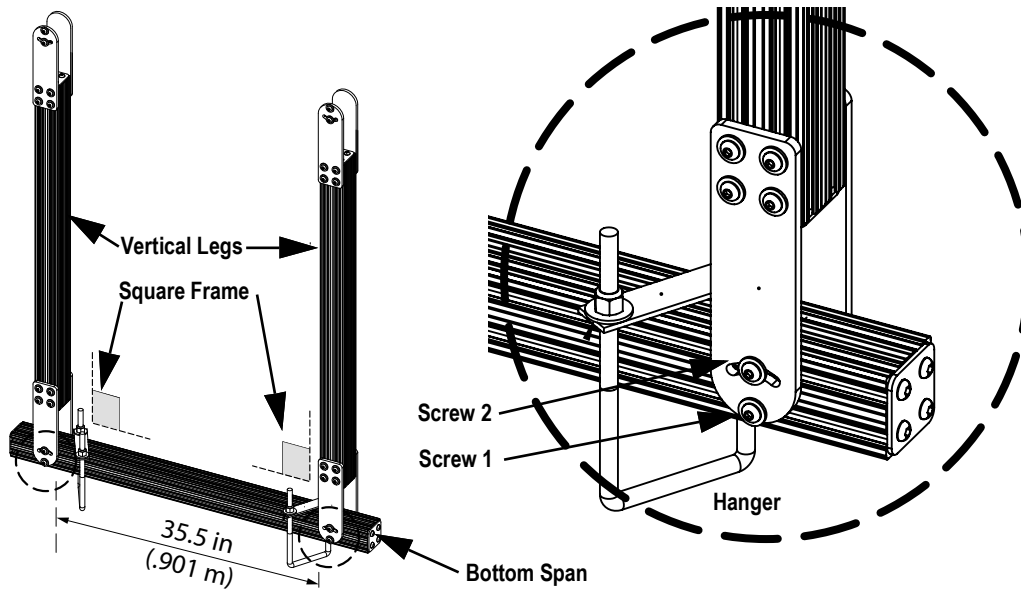


Figure 16. Assemble and Square Frame

10.0 Attach Frames to Roof Structure

1. Attach two top 80/20 spans of frame to roof structure 35.5 in (.901 m) apart.
 - Refer to [Section 5.1 on page 7](#) for I-beam installation. Refer to [Section 5.2 on page 8](#) for Z-channel installation.
2. Lift assembled frames to fit the upper hangers into the channels of the top spans
3. Tighten screws to 6 ft-lb (8.1301 Nm).

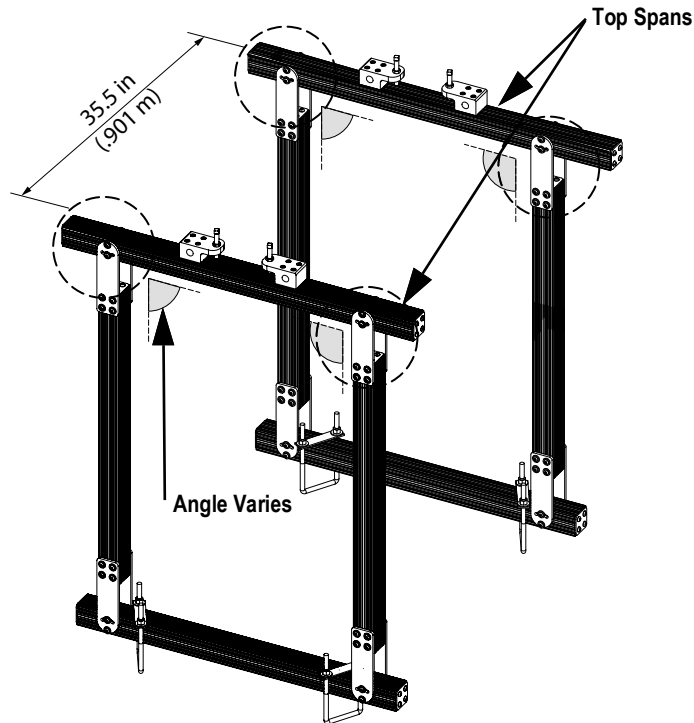


Figure 17. Assemble and Square Frame



NOTE: Angle of the legs to the top span varies with slope of the roof structure.

11.0 Adjust Height

Adjust bottom span height to accommodate iDimension Product. See [Table 1 on page 3](#) for more information.

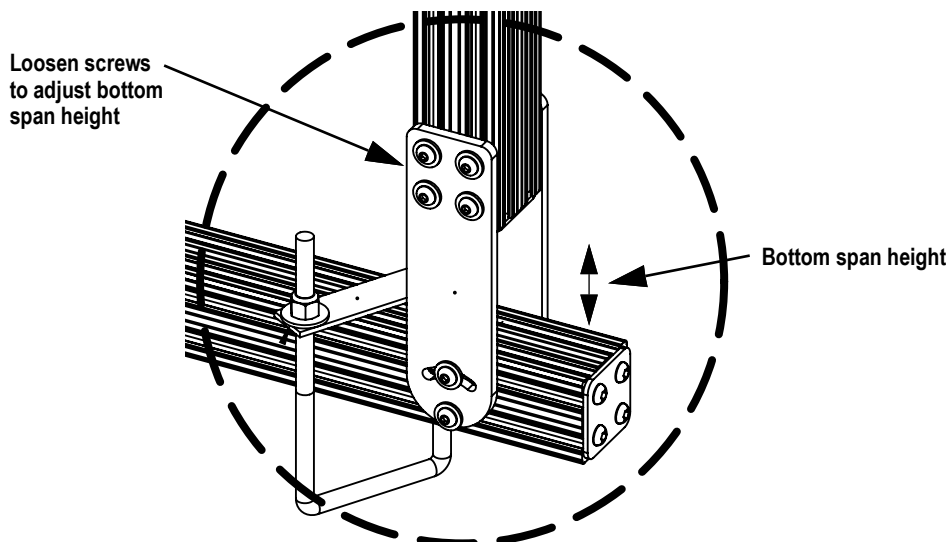


Figure 18. Adjust Bottom Span Height

12.0 Parts List

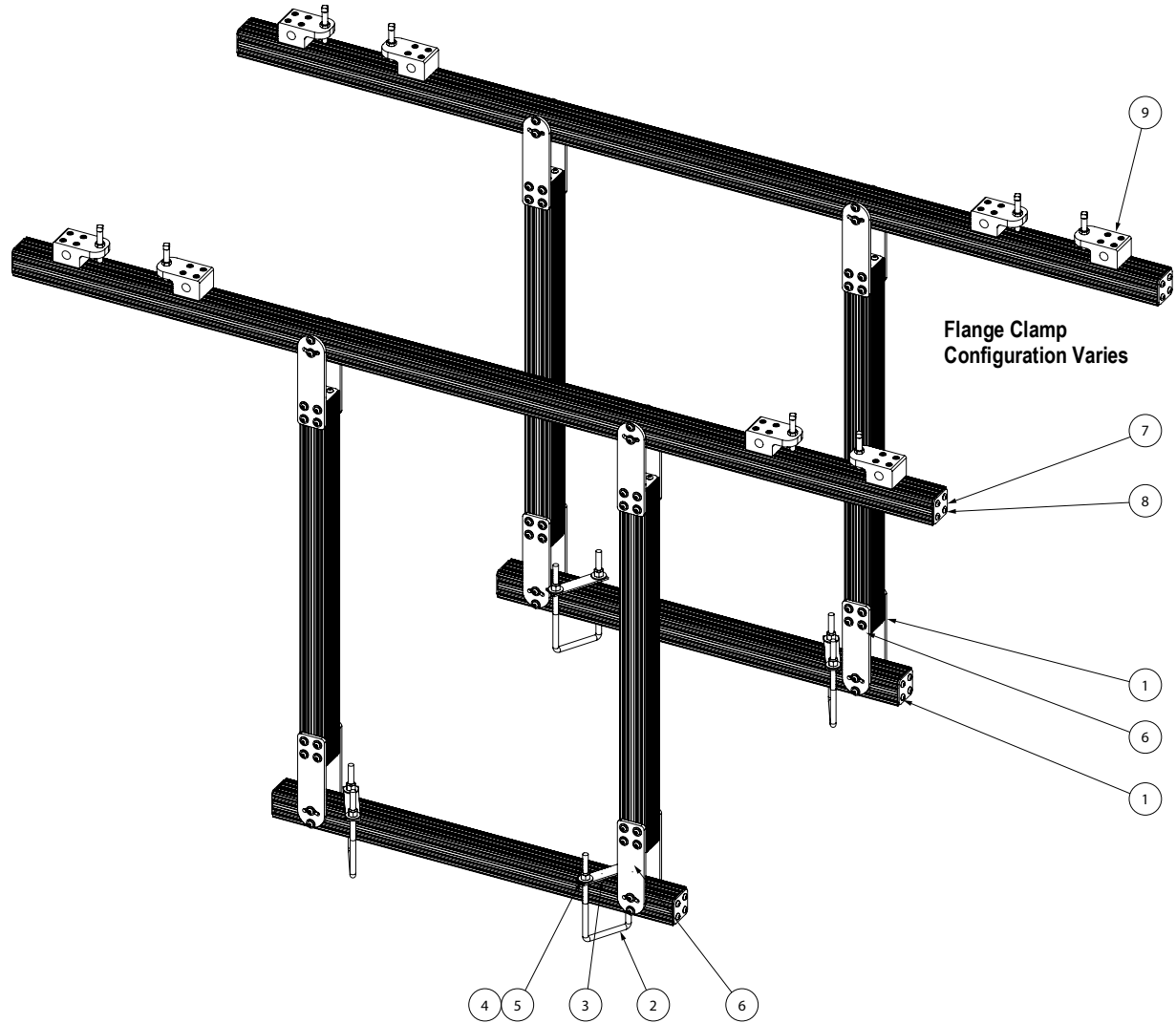


Figure 19. Mounting Frame Parts

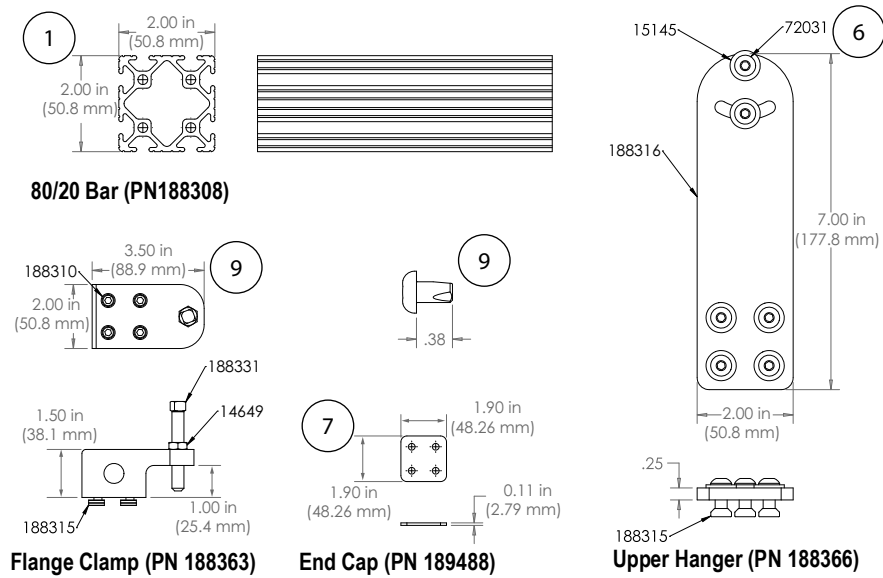


Figure 20. Mounting Frame Parts

No.	Part	Description	Qty
1	188308	80/20 Extrusion, 2 X 2 X 12 ft Nominal Length Slotted Aluminum Black	Varies
2	209480	U-Bolt, 3/8-16 Thread 3 in X 6 5/8 in High Square	4
3	209481	Plate, U-Bolt Mounting for 3/8-16 X 3 in Wide Hole Spacing	4
4	21938	Washer, Plain 3/8 Type A Series N Steel Zinc Plated; ID = .401-.421; OD = .805-.827 Thickness = .051-.080	8
5	22072	Nut, Nyloc 3/8-16 UNC Steel Zinc Plated	8
6	188366	Upper Mount Assembly	16
7	189488	End Cap	16
8	189496	Screw, 1/4 - 14 x 3/4 TEKS Hex Washer Head Steel Climaseal Finish #3 Point	64
9	188363	Flange Clamp Assembly	4

Table 2. Mounting Frame Parts List



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