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RICE LAKE Flex 80
Mounting Frame

# RICE LAKE Flex 80 Mounting Frame Installation Guide

**Contents**

**RICE LAKE®**

**RICE LAKE Flex 80 Mounting Frame**

**Specifications**

- Product Name: iDimension 80/20 Mounting Frame System
- Material: Extruded structural aluminum (8020)
- Compatibility: iDimension LTL, iDimension LTL-XL, and iDimension Flex systems

## Product Usage Instructions

### Safety Precautions
Ensure the frame is properly constructed and attached to support the dimensioner securely. Follow local regulations and consider third-party evaluation for safety certification.

### 80/20 Mounting Frame Preparation

1. Determine mounting surface and frame configuration.
2. Calculate dimensions and cut 80/20 bars needed for the frame.

### Roll-in T-nut Installation

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

### Configurations
The mounting frame can be attached to primary I-beam rafters or secondary Z-channel roof purlins. Refer to Figure 2 for configuration options.

### Calculate Frame Dimensions
Refer to Table 1 for distance measurements based on the model of the dimensioner being installed.

### I-Beam Rafter Configuration Dimensions
Follow Figure 4 for calculations related to the I-beam rafter configuration, including bar cut length calculations.

- **Q: How should I determine the mounting surface and frame onfiguration?**

  A: Refer to Section 2.0 on page 2 of the user manual for detailed instructions on determining the mounting surface and frame configuration.

- **Q: What is the recommended torque for tightening screws with T-nuts?**

  A: Apply medium strength thread locking compound and tighten screws to 6 ft-lb (8.1301 Nm) to secure accessories to the bar.

## 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.

### 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.

### 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).

### Direct Roof Assembly

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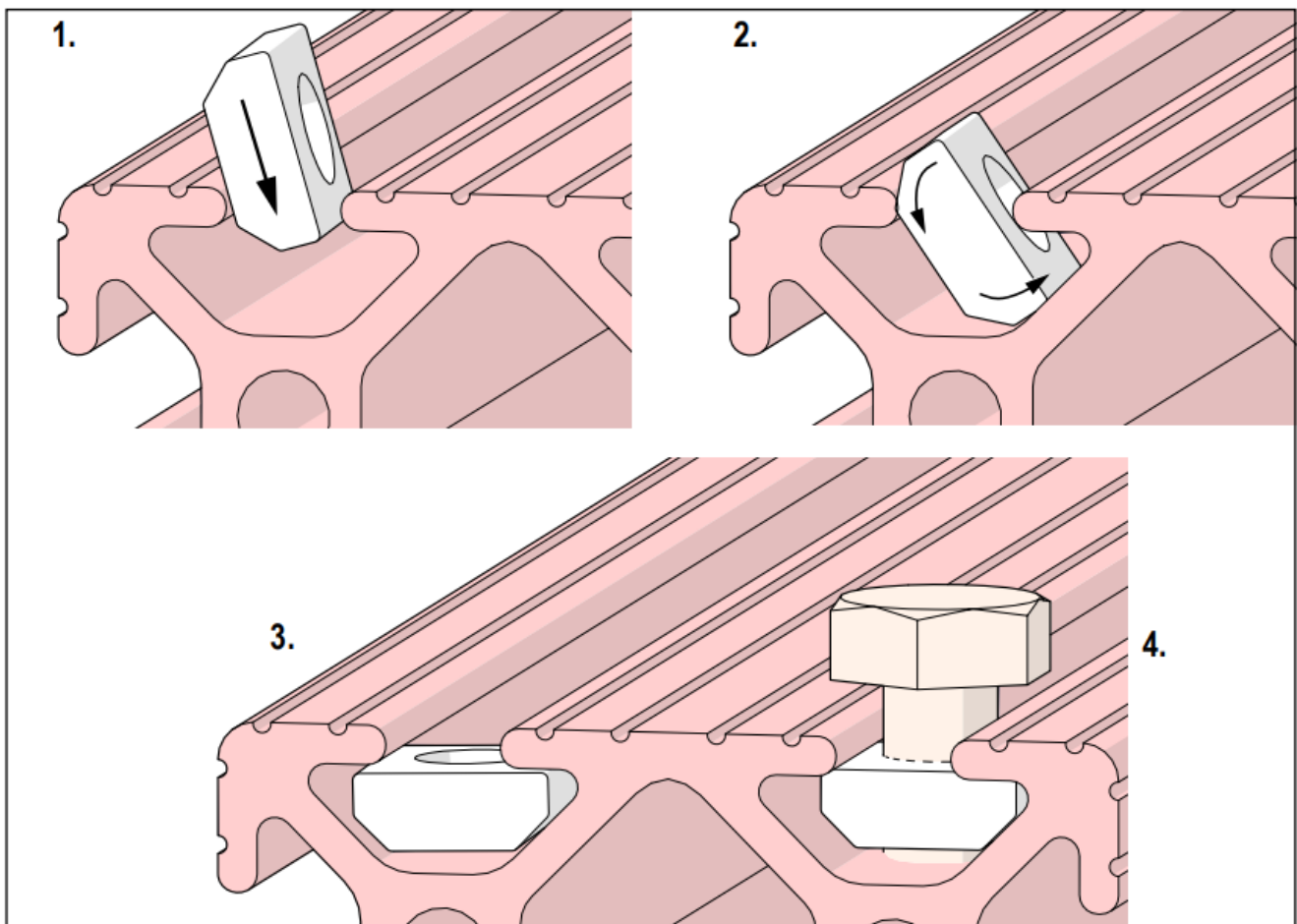   - Secondary Z-channel roof purlin configuration (Section 5.2 on page 8)
2. Install vertical arms (Section 6.0 on page 8).
3. Install lower horizontal bars (Section 7.0 on page 9).
4. Attach iDimension assembly to mounting frame (Section 8.0 on page 9).

### 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).

**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*

## Configurations

The iDimension 80/20 Mounting Frame is attached either to a primary I-beam rafter or the secondary Z-channel roof purlins.
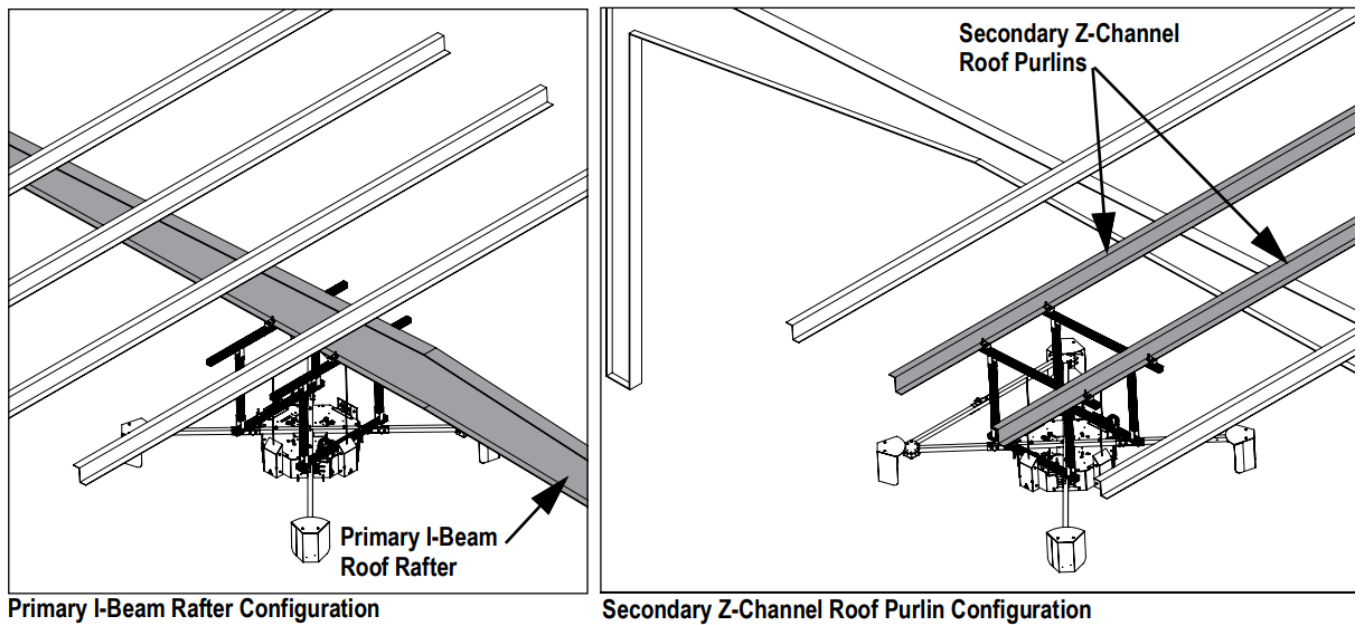
Figure 2. Mounting Frame Configuration Options

## 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 ± 1 in (3.352 m) from the floor.
- The following sections show how to calculate dimensions.

| 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

### 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.
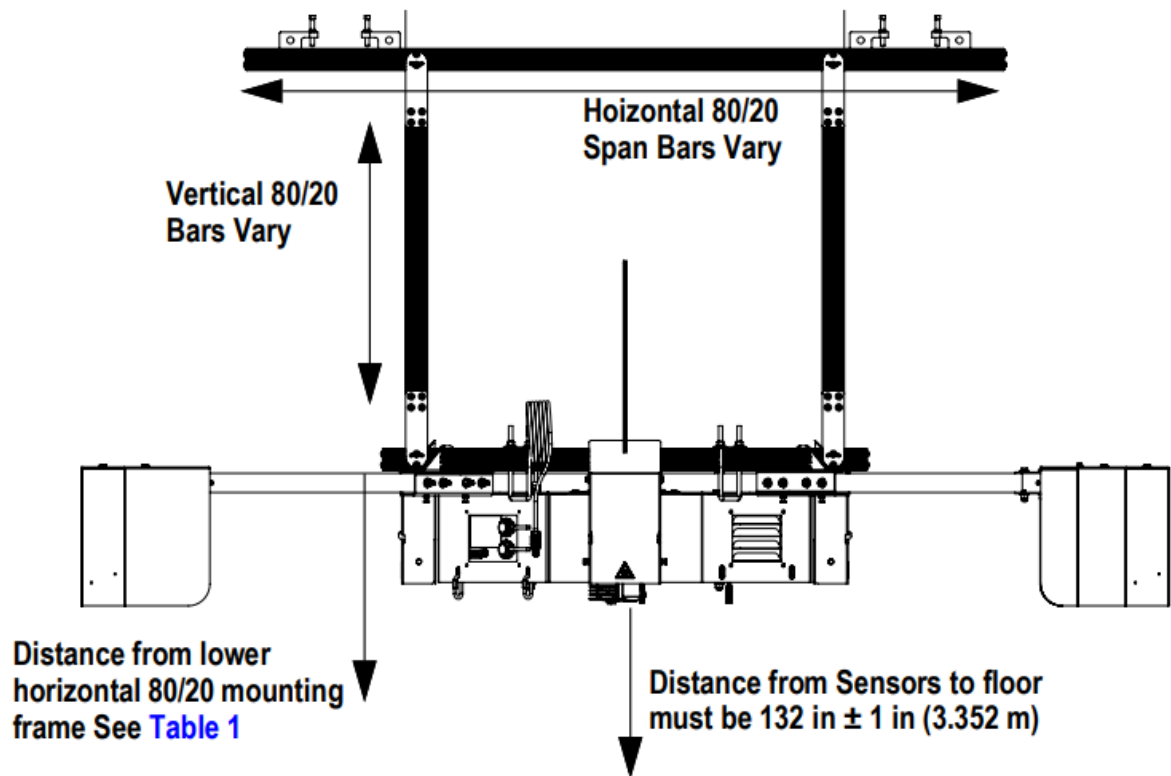
Figure 3. Attach iDimension to Frame

Calculate length for each vertical 80/20 (L1) bar from height of structural I-beam.
$L1 = H1 - F1 - 5$ in (.127 m)

- $H1$ = Distance from floor to base flange of structural I-beam
- $F1$ = Distance from bottom of mounting frame to floor. See Table 1 on page 3.

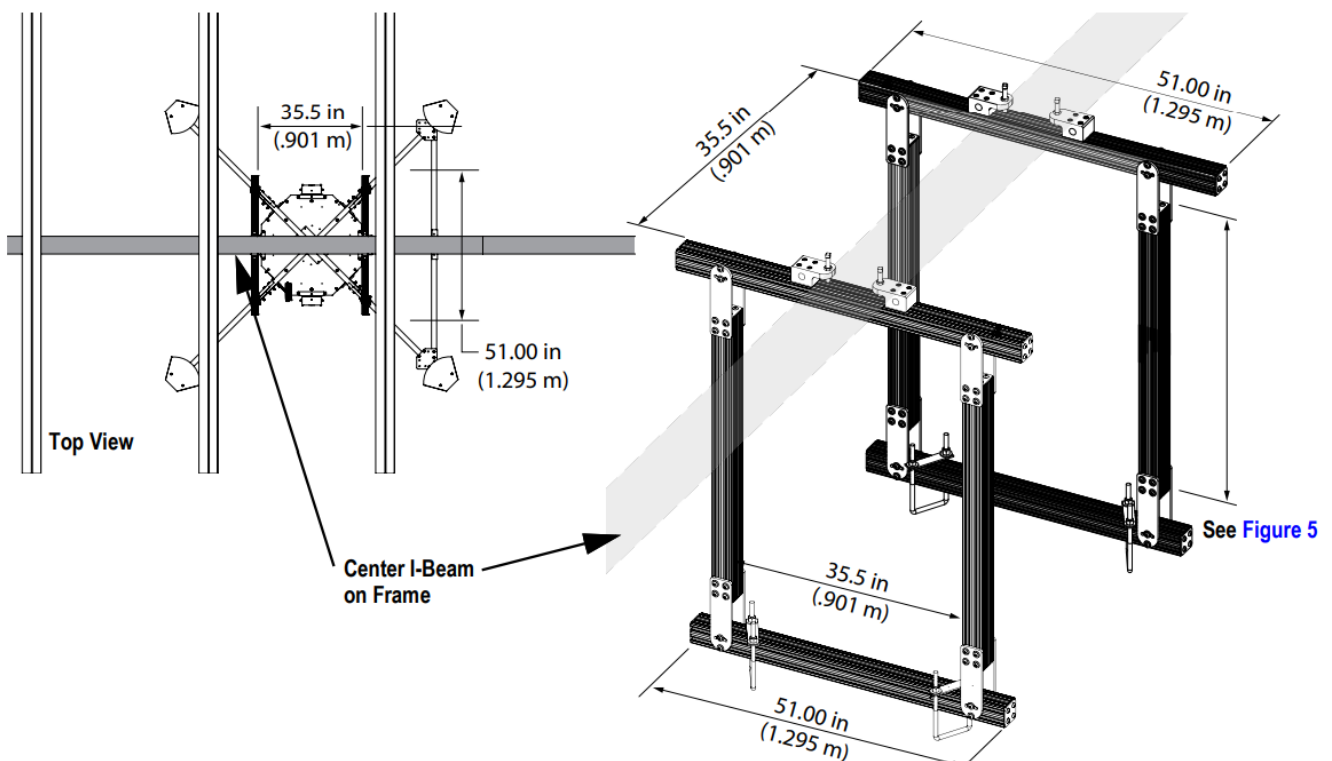**NOTE:** Distance from Sensors to floor must be 132 in ± 1 in (3.352 m)



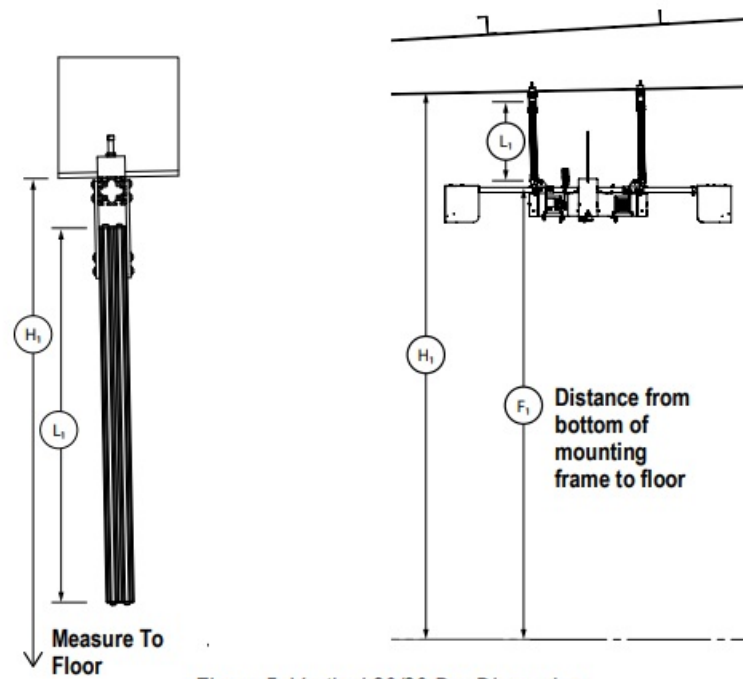Figure 4. I-Beam Rafter Configuration 80/20 Bar Cut Length Calculations

Figure 5. Vertical 80/20 Bar Dimensions

**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.
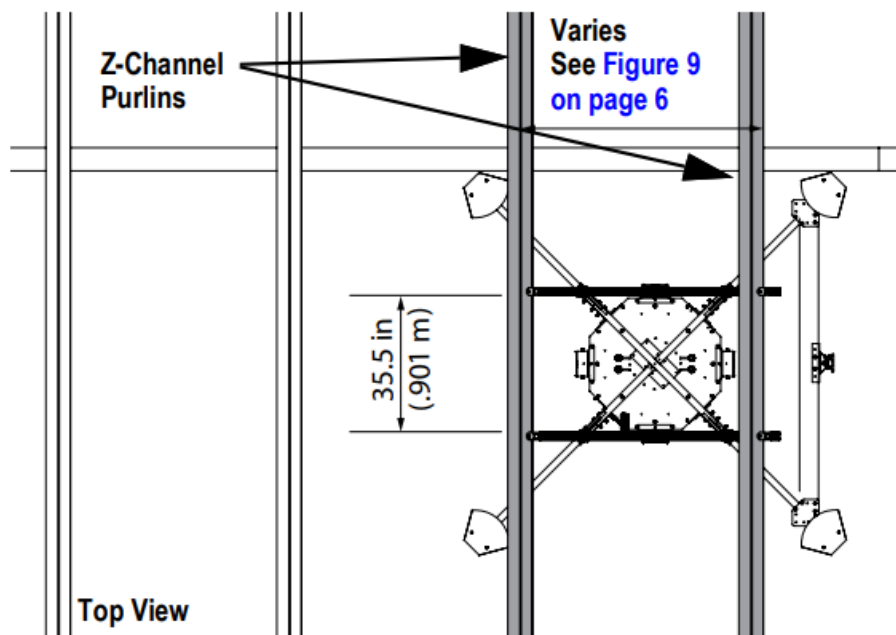


Figure 6. Z-Channel Roof Purlin Configuration Top View
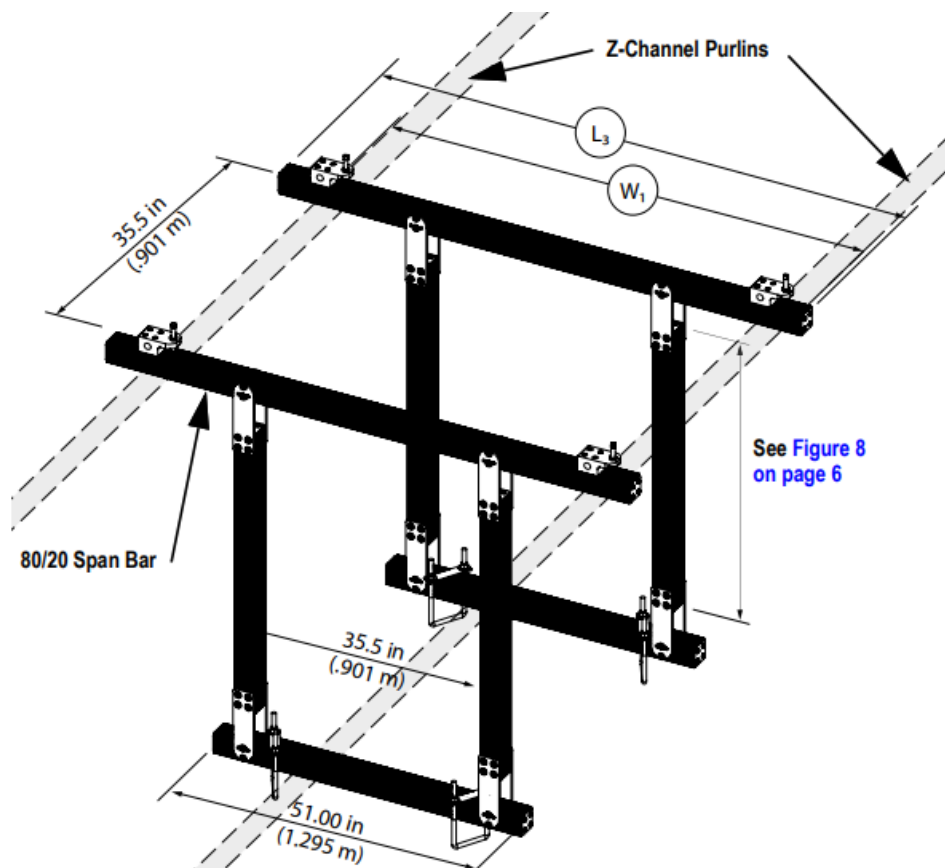
Figure 7. Z-Channel Purlin Configuration 80/20 Bar Cut Lengths

### Z- Channel Purlin Configuration Vertical 80/20 Bar Length

Calculate length for each vertical 80/20 bar (L2) from the height of the top of the 80/20 span at the hanging point.

L2 = H2 – F2 – 5 in (.127 m)

- H2 = Distance from floor to the top of the 80/20 span at the hanging point.
- F2 = Distance from bottom of mounting frame to floor. See Table 1 on page 3.
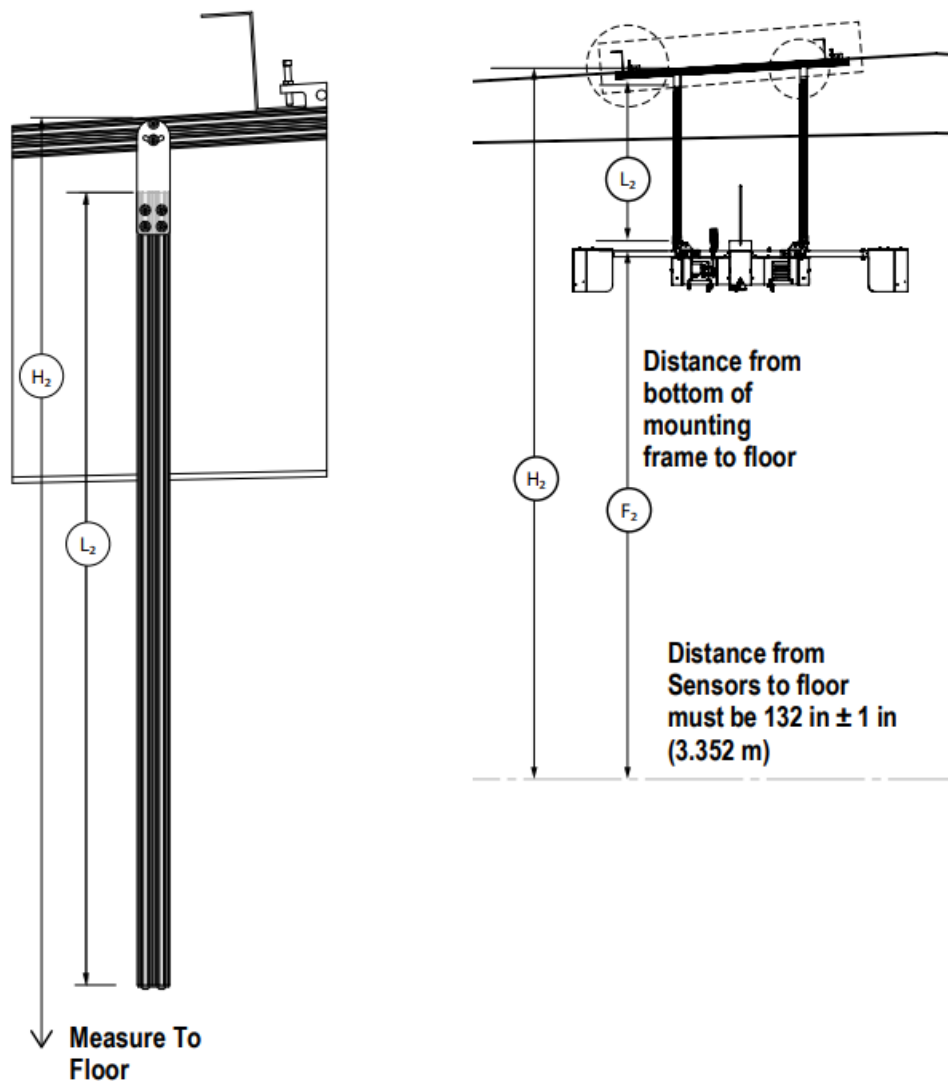
*Figure 8. Vertical 80/20 Bar Dimensions*

**Z- Channel Purlin Configuration 80/20 Span Bar Length**
Calculate length of each horizontal 80/20 bar (L3) that spans from Z-channel to Z-channel.

$L_3 = W_1 + 6$ in (152.4 mm)

- $W_1$ = Distance between Z-channel as shown
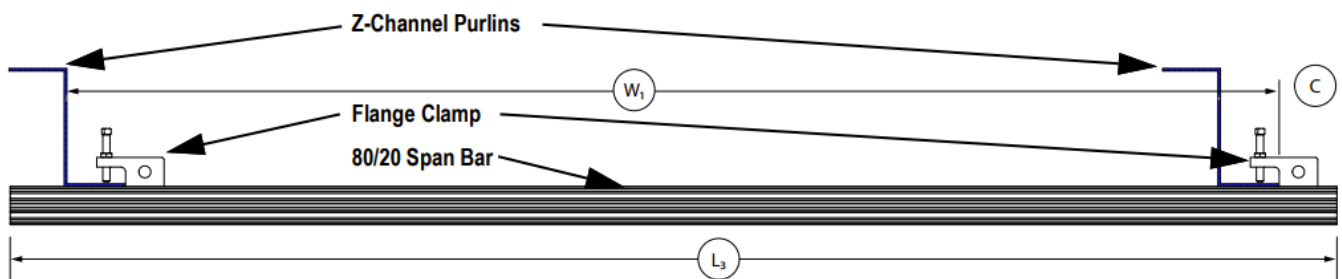


*Figure 9. Z-Channel Purlin Configuration 80/20 Span Bar Length*

**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 meduim strength thread locking compound and tighten screws to 6 ft-lb (8.1301 Nm).
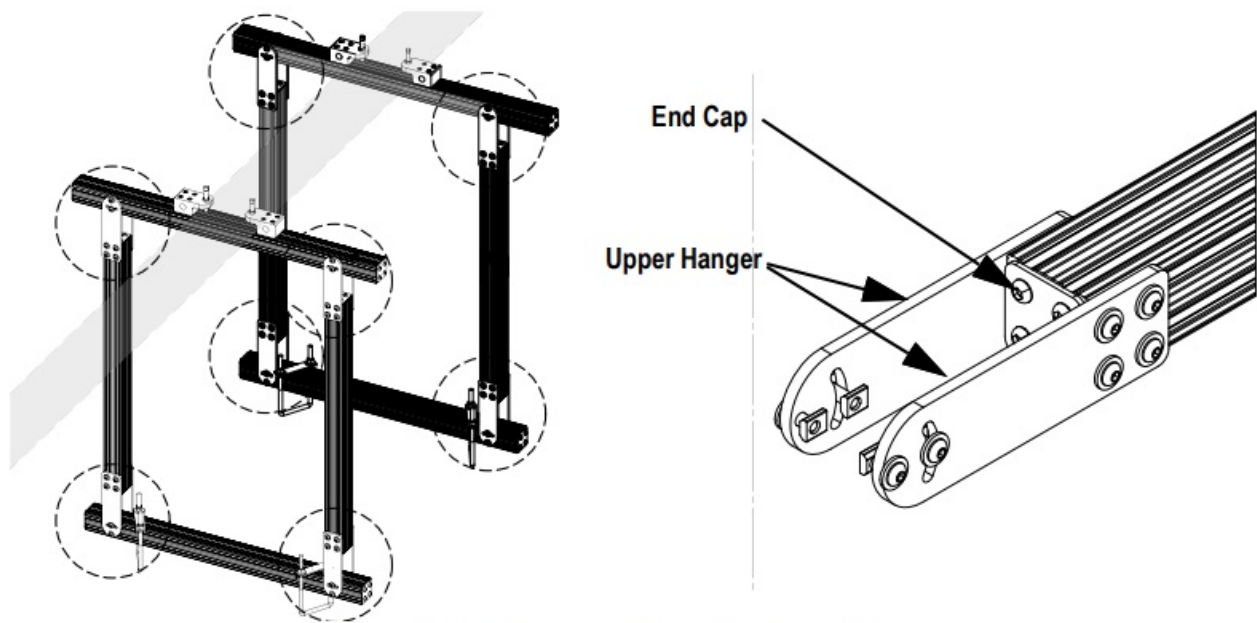
Figure 10. End Caps and Upper Arm Assemblies

## Attach 80/20 Span to Structure

### 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).
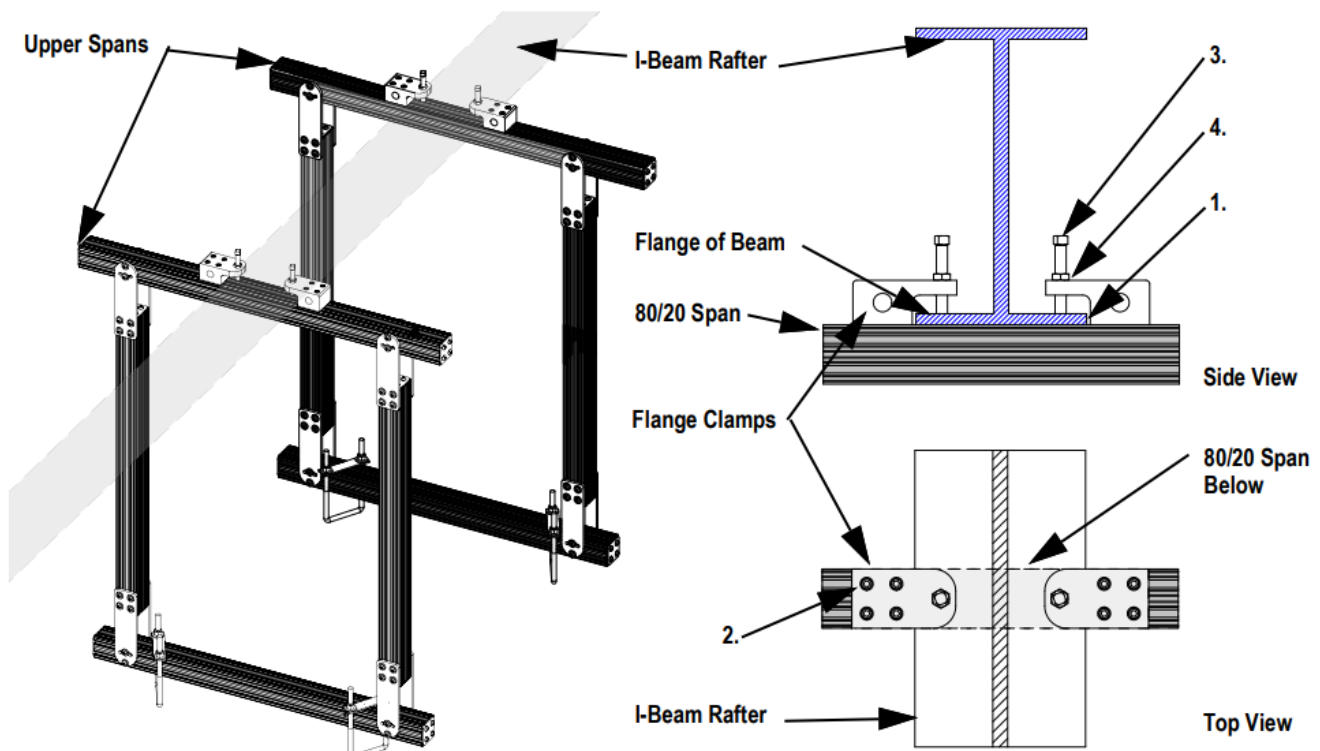3. Tighten set screw to 25 ft-lb (33.9 Nm).
4. Tighten jam nut.



Figure 11. I-Beam Flange Clamp

### 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.
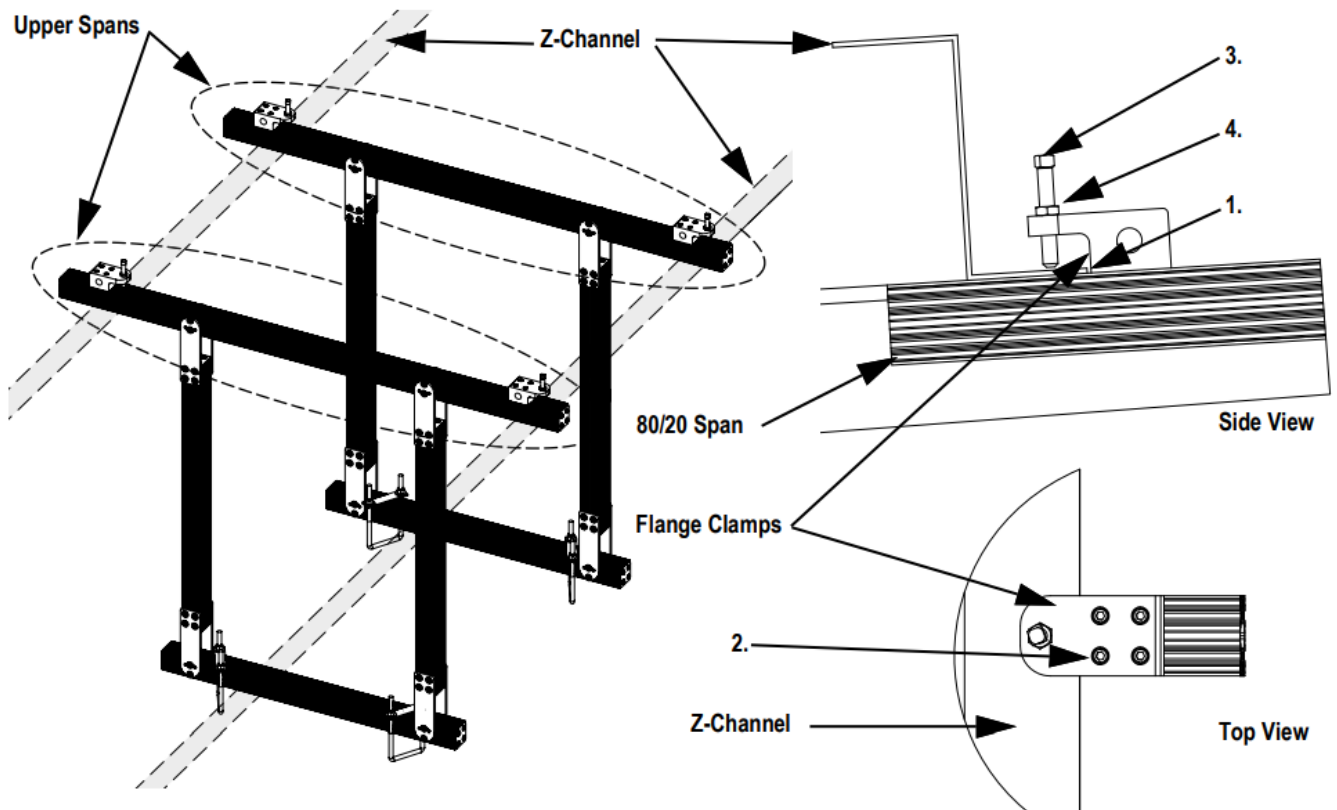


Figure 12. Z-Channel Flange Clamp

**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).
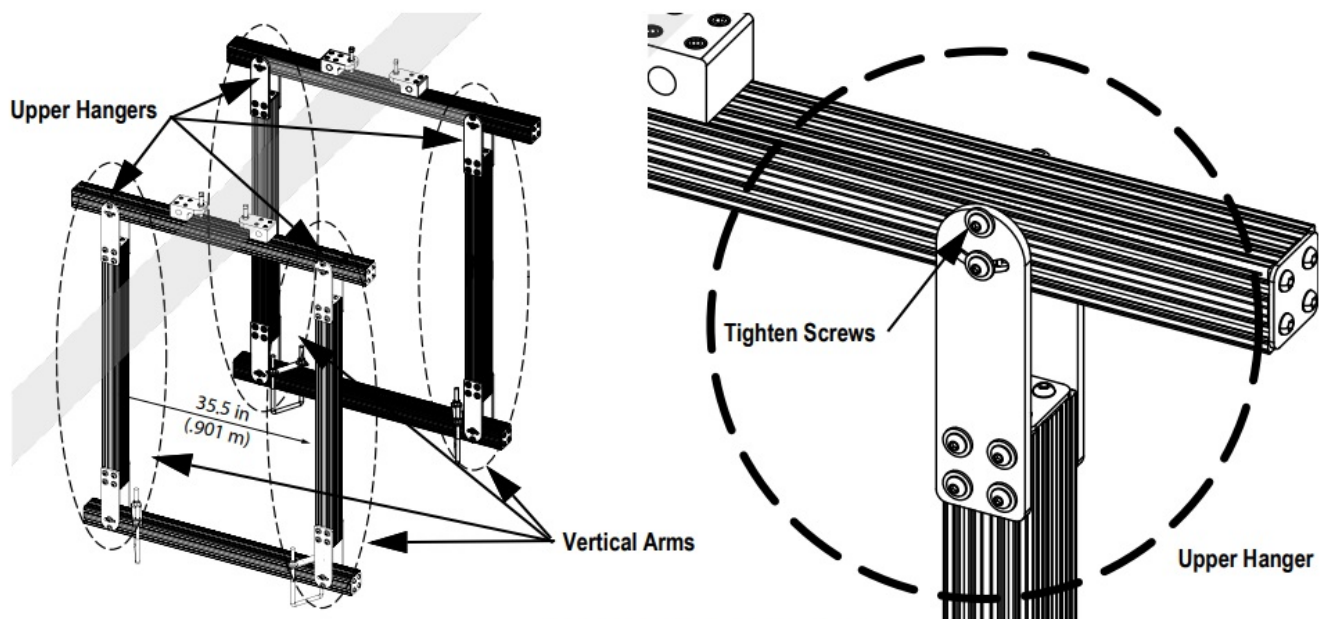


Figure 13. Install Vertical Arms

## Install Lower Horizontal Bars

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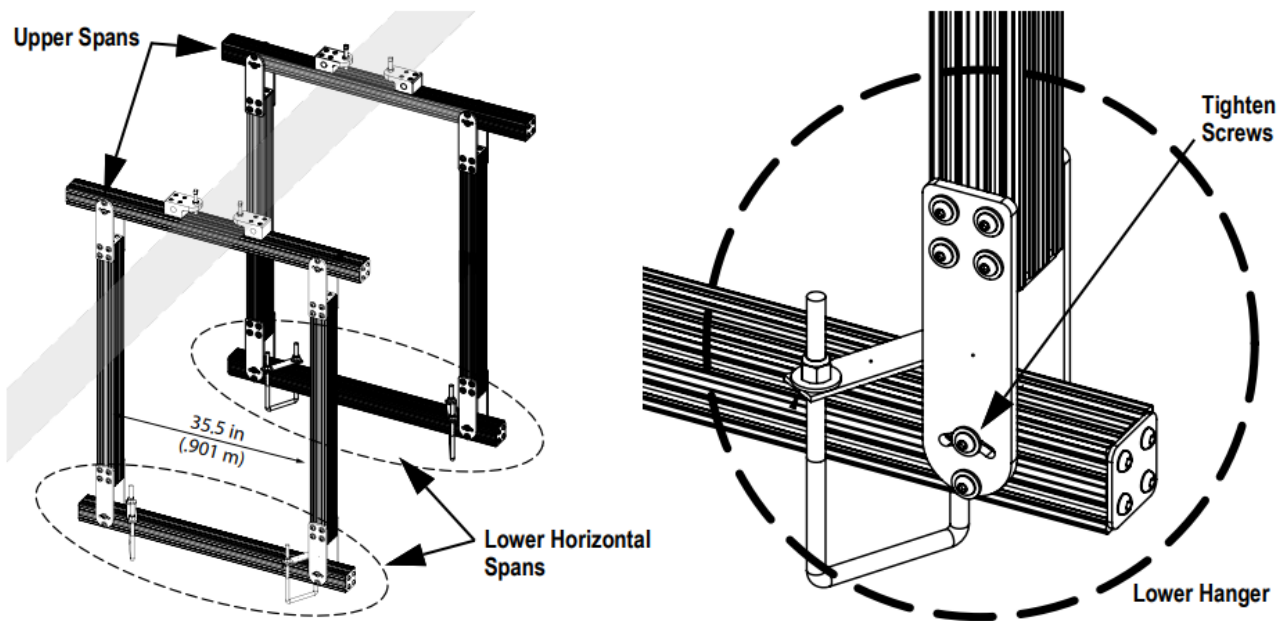Tighten screws to 6 ft-lb (8.1301 Nm).



Figure 14. Install Lower Horizontal Bars

## Attach iDimension Assembly to Mounting Frame

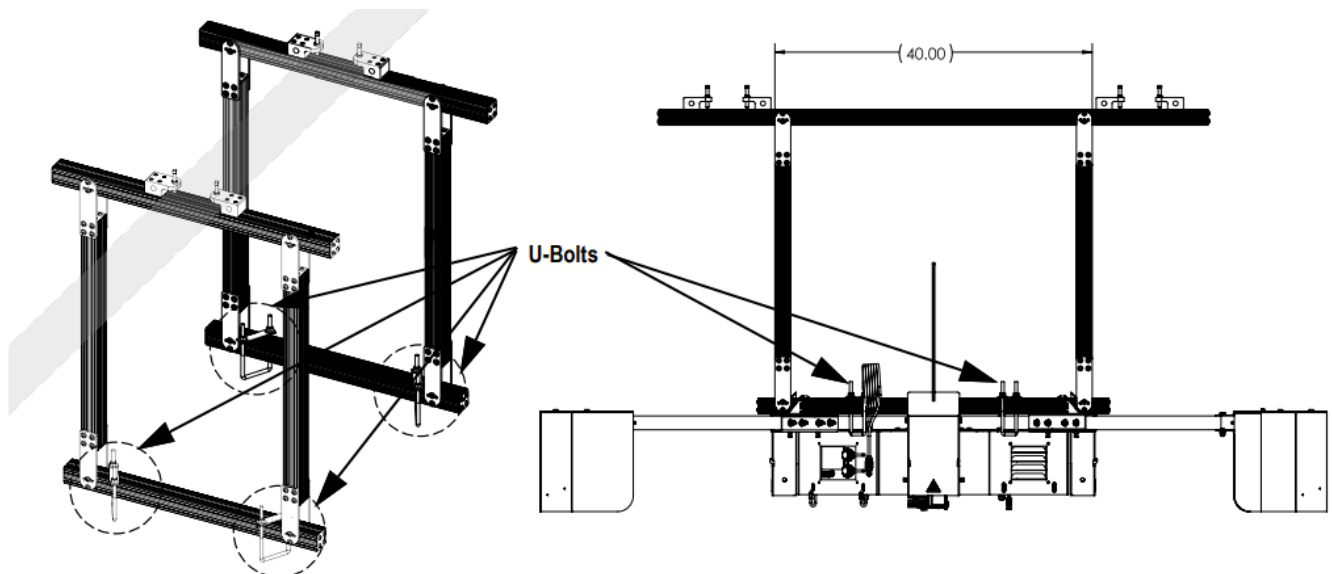Attach arms of the iDimension assembly to mounting frame with four U-bolts. Tighten nuts to secure.



Figure 15. Attach iDimension to Frame

## 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.
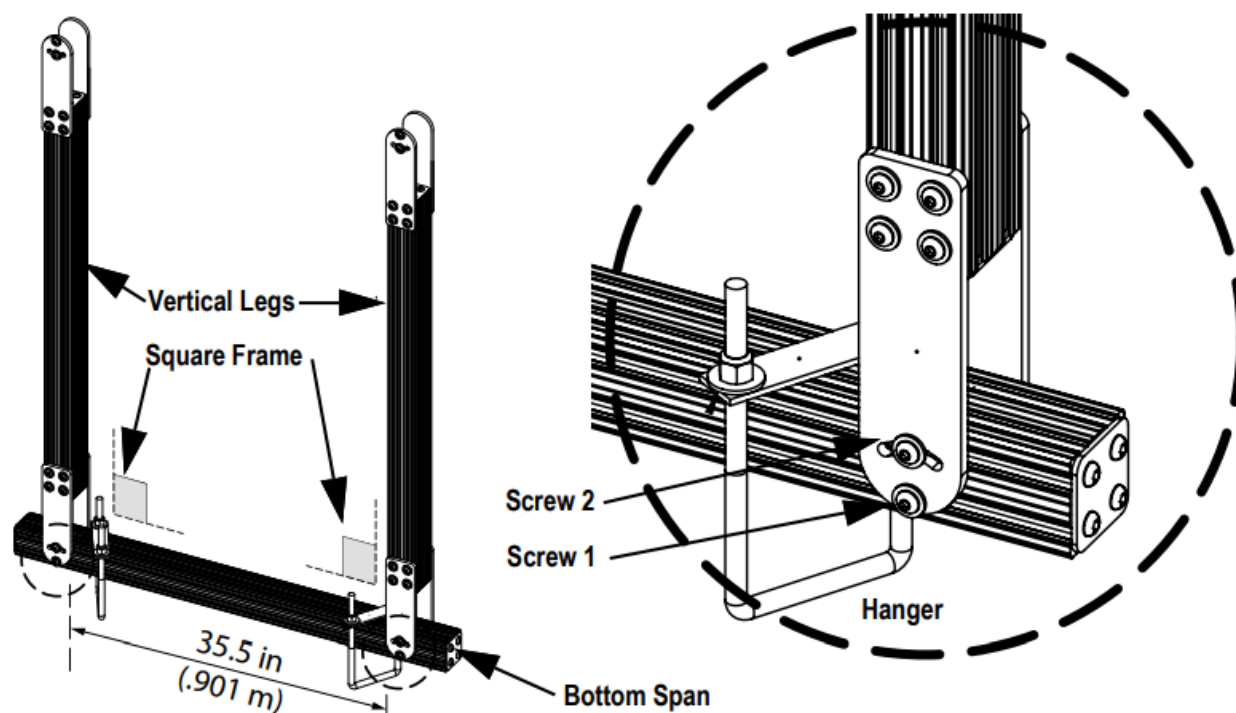


Figure 16. Assemble and Square Frame

**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).
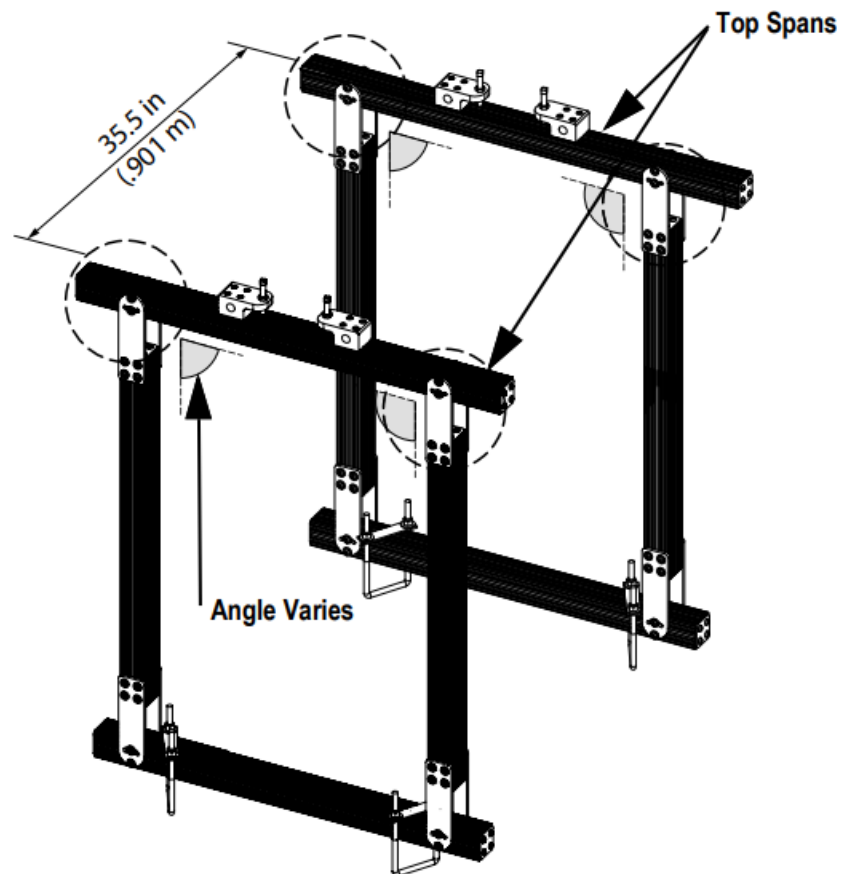
Figure 17. Assemble and Square Frame

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

**Adjust Height**
Adjust bottom span height to accomodate iDimension Product. See Table 1 on page 3 for more information.
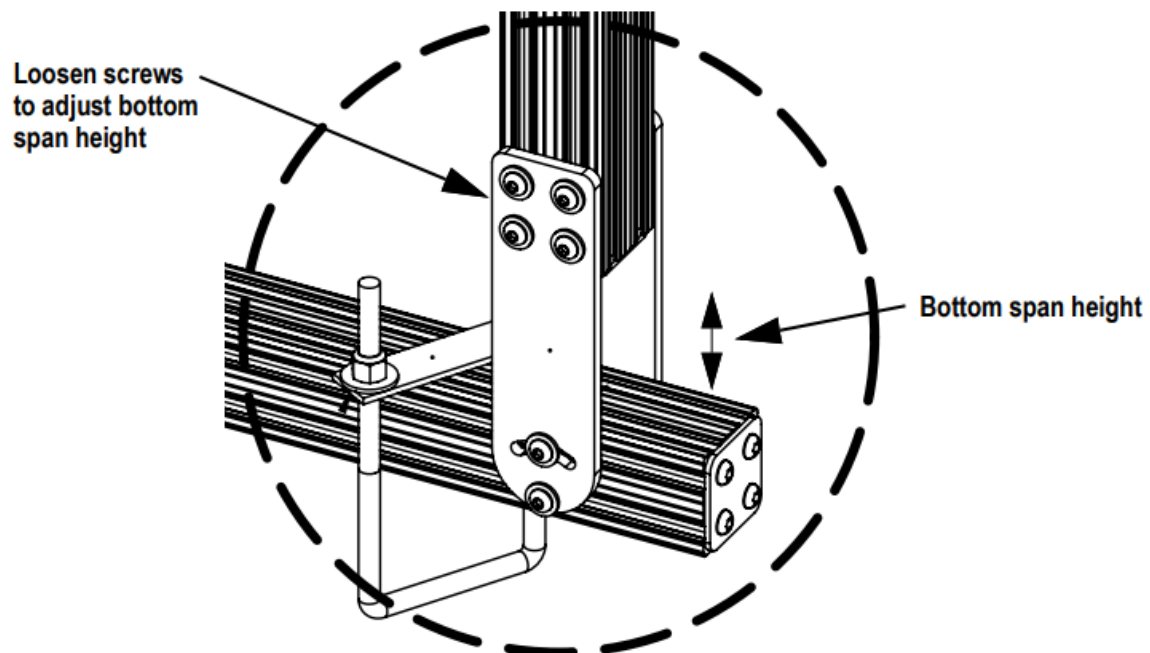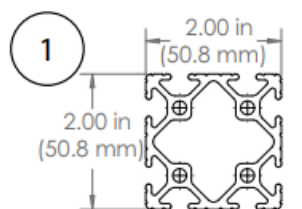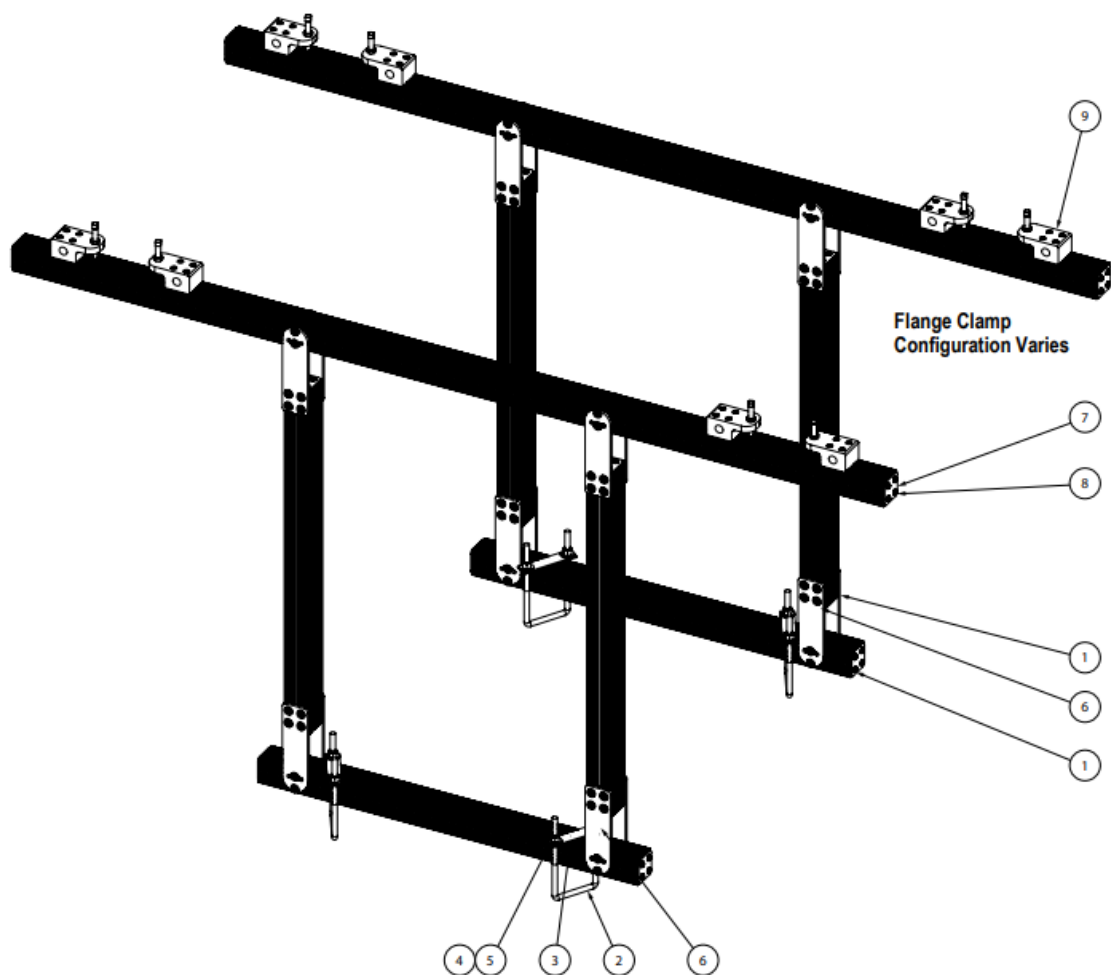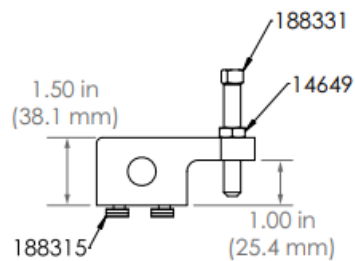
Figure 18. Adjust Bottom Span Height

**Parts List**

Figure 19. Mounting Frame Parts

Flange Clamp
Configuration Varies



**80/20 Bar (PN188308)**

2.00 in
(50.8 mm)

2.00 in
(50.8 mm)

**Flange Clamp (PN 188363)**

188310

3.50 in
(88.9 mm)

2.00 in
(50.8 mm)

188331

14649

1.50 in
(38.1 mm)

1.00 in
(25.4 mm)

188315

**End Cap (PN 189488)**

1.90 in
(48.26 mm)

1.90 in
(48.26 mm)

0.11 in
(2.79 mm)

.38

**Upper Hanger (PN 188366)**

15145          72031

188316

7.00 in
(177.8 mm)

2.00 in
(50.8 mm)

.25

188315
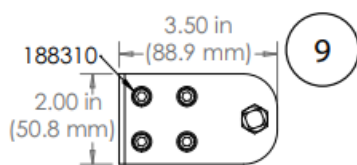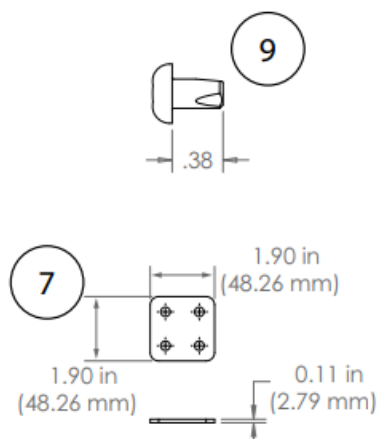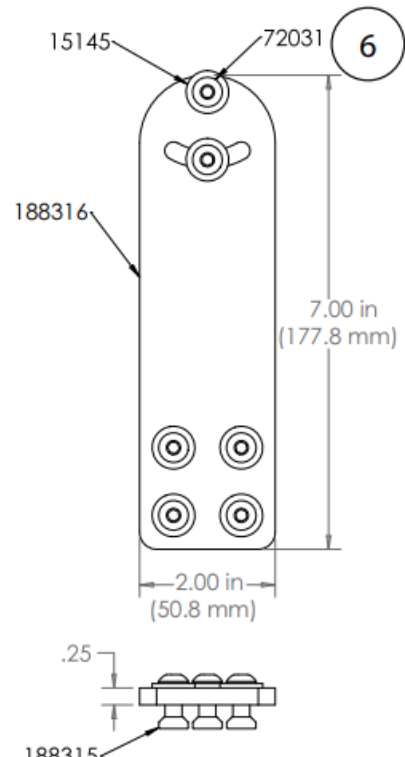
Figure 20. Mounting Frame Parts

| 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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## Documents / Resources



**RICE LAKE Flex 80 Mounting Frame** [pdf] Installation Guide
LTL, LTL-XL, Flex 80-20, Flex 80 Mounting Frame, Flex 80, Mounting Frame, Flex 80 Frame

## References

-  **Rice Lake Weighing Systems**
-  **Rice Lake Weighing Systems**
- **User Manual**