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 1.1. If installing the mounting frame directly onto the structure of the roof follow the steps in Section 1.2. If assembling the mounting frame at floor level and attaching it to the roof structure, follow the steps in Section 1.3. See Section 11.0 on page 11 for a parts list.

1.1 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 3)
   - Secondary Z-channel roof perlin configuration (Section 3.2 on page 4)
3. Cap 80/20 ends and form arm assemblies. (Section 4.0 on page 6)

1.2 Direct Roof Assembly

1. Attach spans to structure:
   - Primary I-beam rafter configuration (Section 5.1 on page 6)
   - Secondary Z-channel roof perlin configuration (Section 5.2 on page 7)
2. Install vertical arms (Section 6.0 on page 7).
3. Install lower horizontal bars (Section 7.0 on page 8).
4. Attach iDimension assembly to mounting frame (Section 8.0 on page 8).

1.3 Floor Assembly

1. Assemble and square the frame (Section 9.0 on page 9).
2. Attach spans to structure:
   - Primary I-beam rafter configuration (Section 5.1 on page 6)
   - Secondary Z-channel roof perlin configuration (Section 5.2 on page 7)
3. Attach frames to roof structure (Section 10.0 on page 10).
4. Attach iDimension assembly to mounting frame (Section 8.0 on page 8).

1.4 Roll-in T-nut

Roll-in T-nuts are inserted into the channel of the 80/20 bar to screw accessories to the 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.

NOTE: Apply medium strength thread locking compound to all screws before installing.

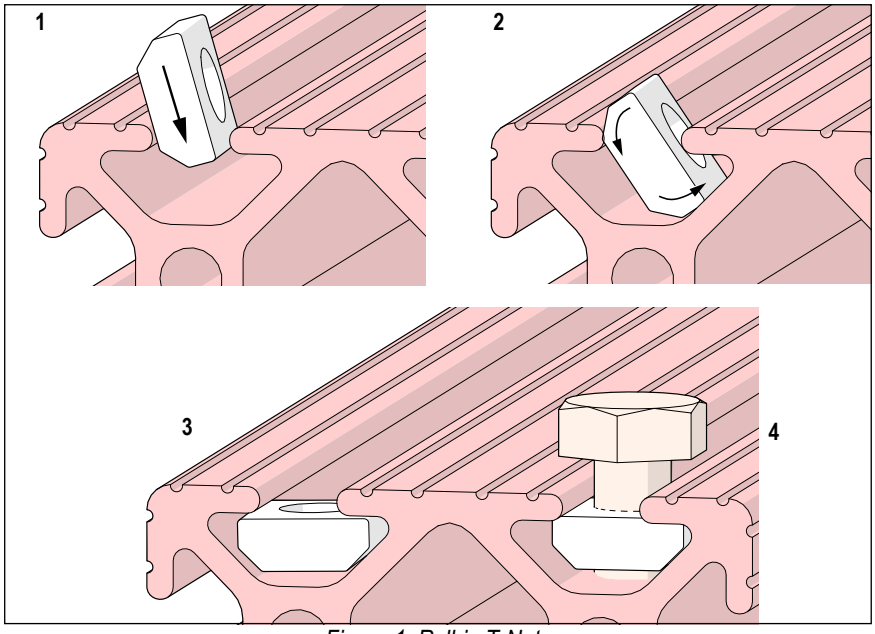
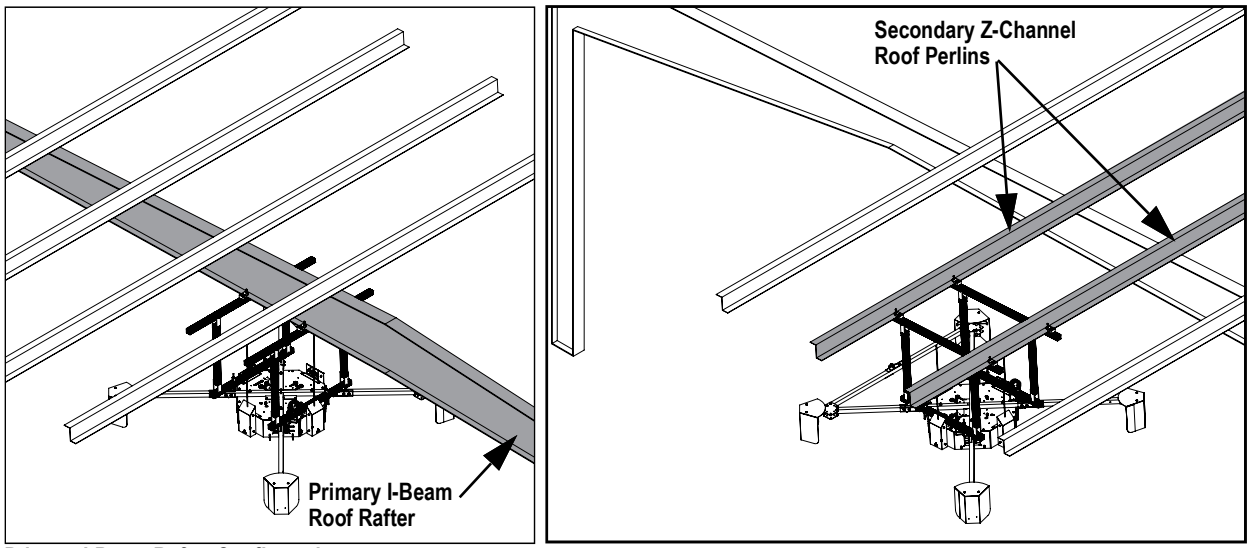


Figure 1. Roll-in T-Nuts

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.



Primary I-Beam Rafter Configuration

Secondary Z-Channel Roof Perlin Configuration

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 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.

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.

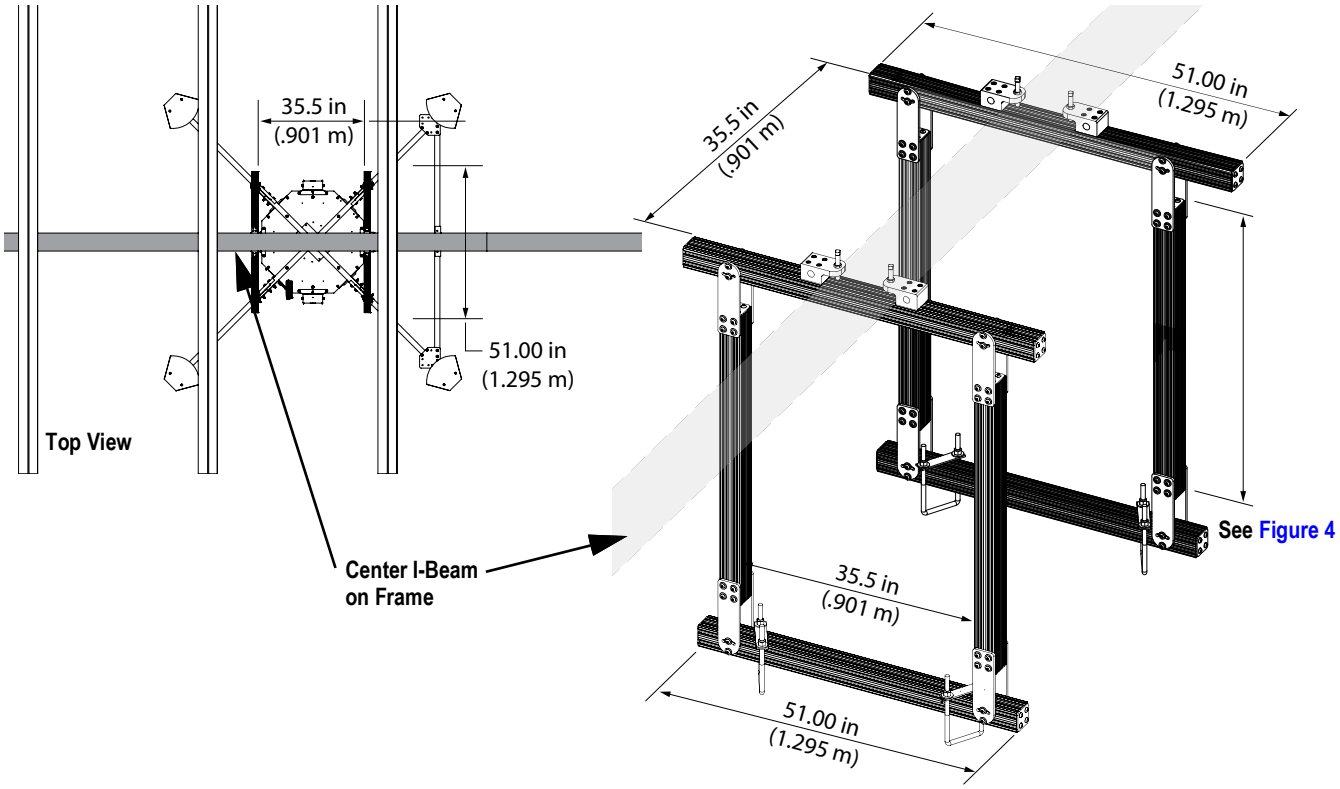


Figure 3. I-Beam Rafter Configuration 80/20 Bar Cut Length Calculations

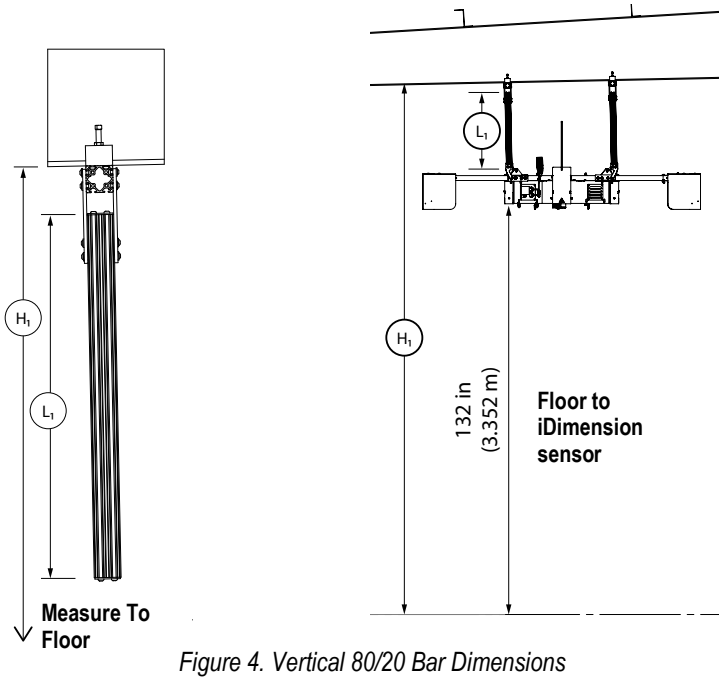


Figure 4. Vertical 80/20 Bar Dimensions

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

$L_1 = H_1 - 149$ in (3.784 m)

- H_1 = Distance from floor to base flange of structural I-beam

3.2 Z-Channel Roof Perlin Configuration Dimensions

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

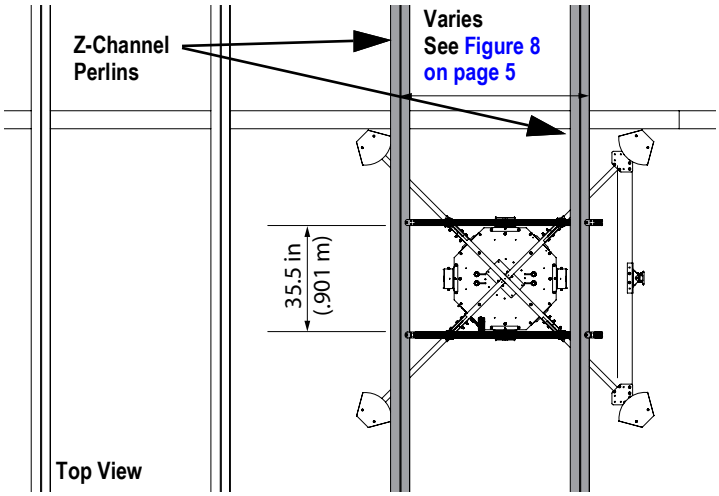


Figure 5. Z-Channel Roof Perlin Configuration Top View

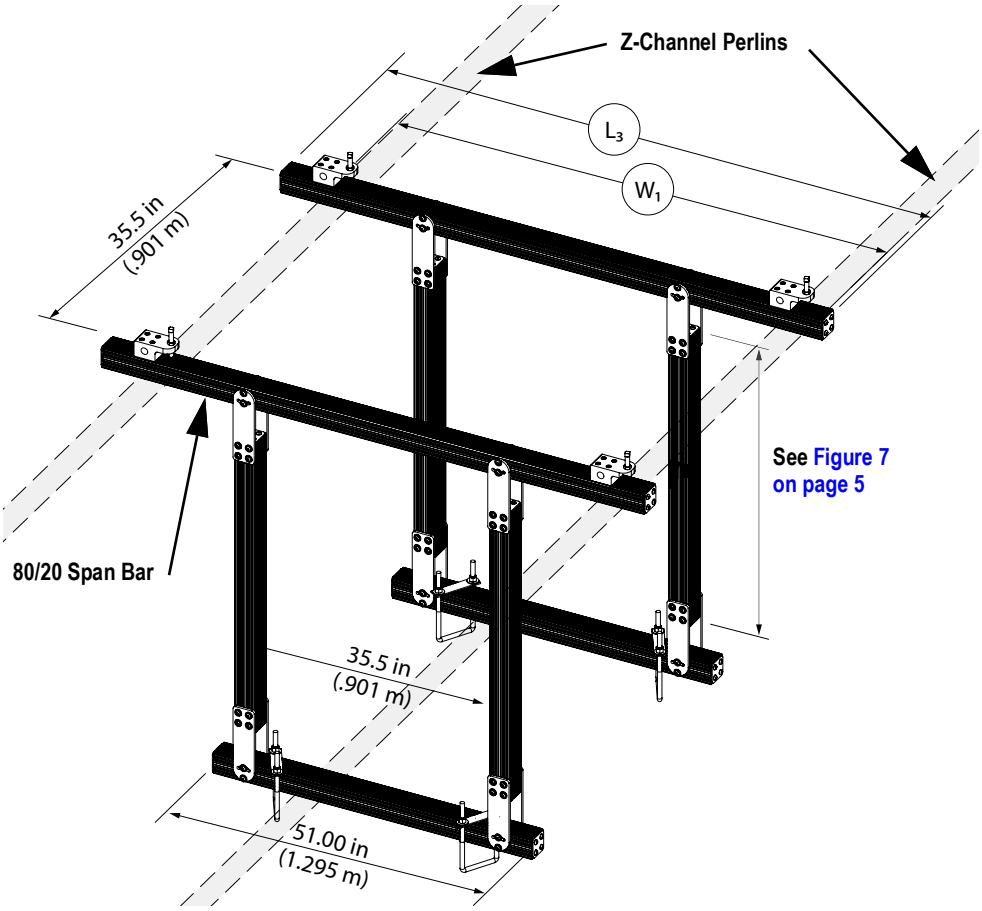


Figure 6. Z-Channel Perlin Configuration 80/20 Bar Cut Lengths

Z-Channel Perlin 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.

$L_2 = H_2 - 149$ in

- H_2 = Distance from floor to the top of the 80/20 span at the hanging point

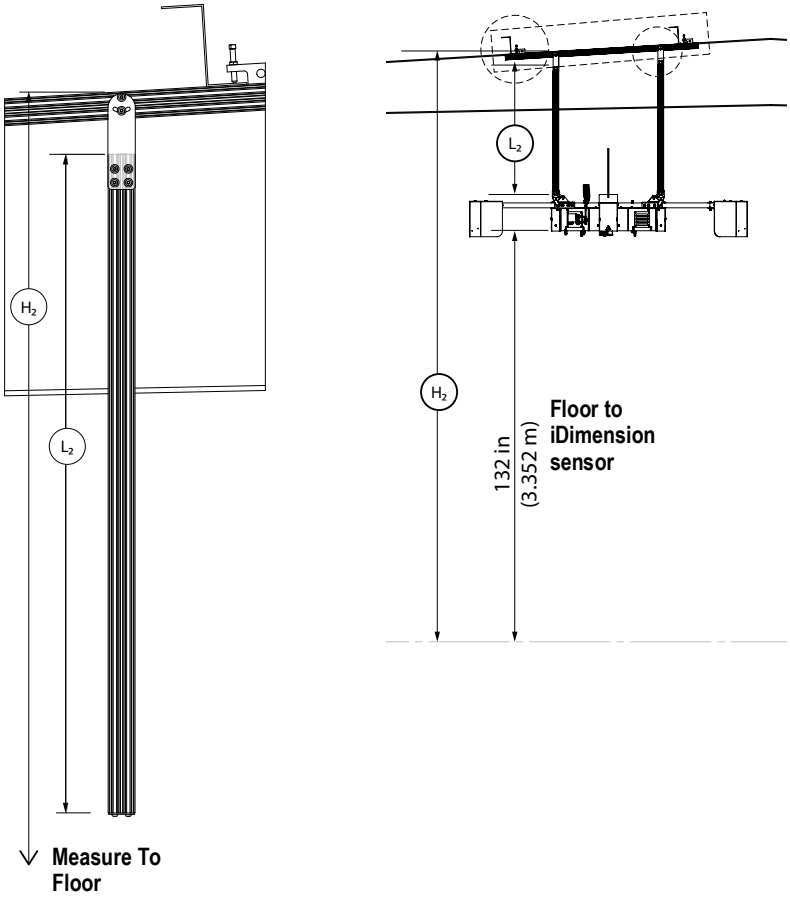


Figure 7. Vertical 80/20 Bar Dimensions

Z-Channel Perlin Configuration 80/20 Span Bar Length

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

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

- W_1 = Distance between Z-channel as shown

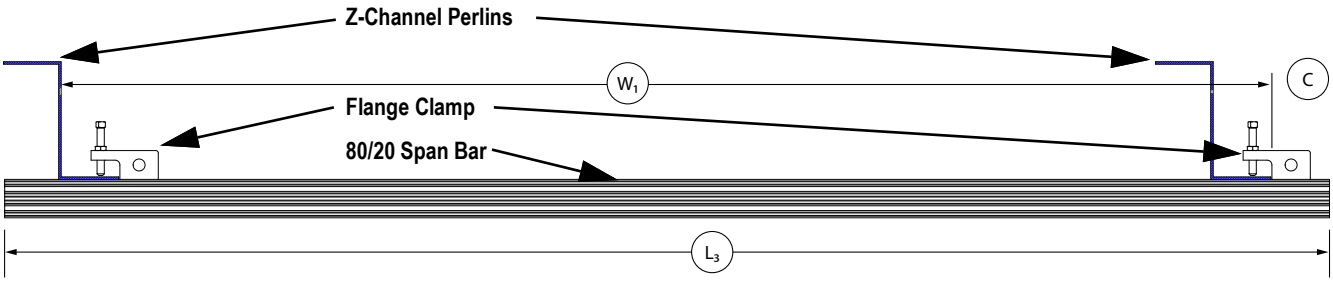


Figure 8. Z-Channel Perlin Configuration 80/20 Span Bar Length

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 meduim strength thread locking compound and tighten screws to 6 ft-lb (8.1301 Nm).

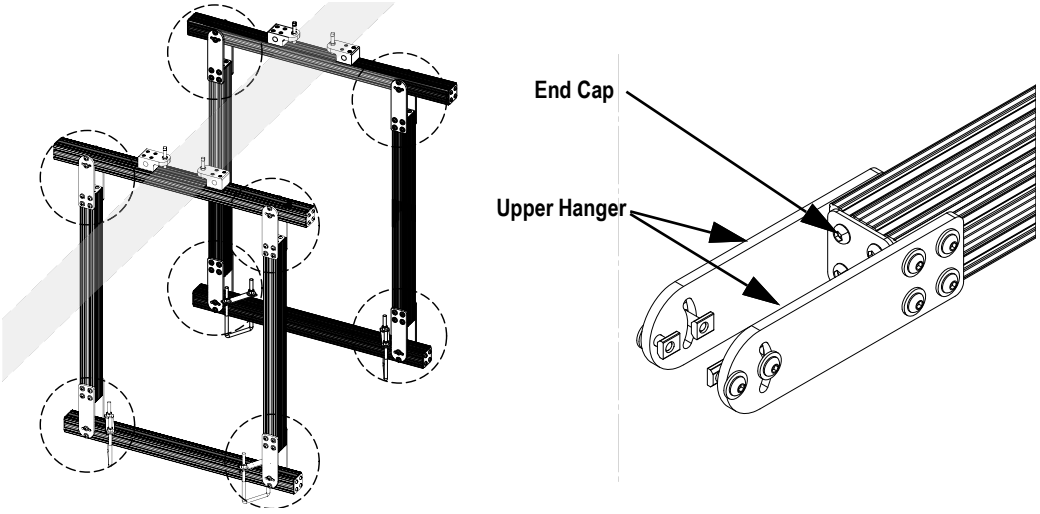


Figure 9. End Caps and Upper Arm Assemblies

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.

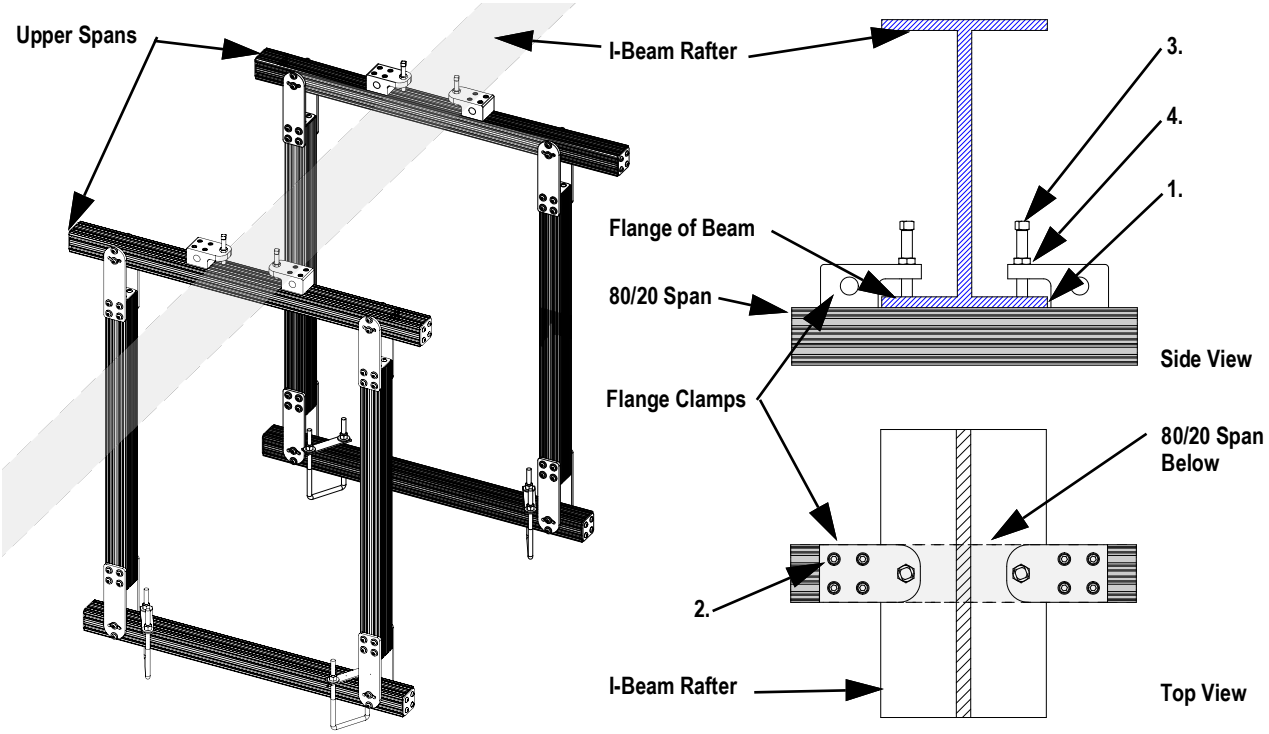


Figure 10. I-Beam Flange Clamp

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.

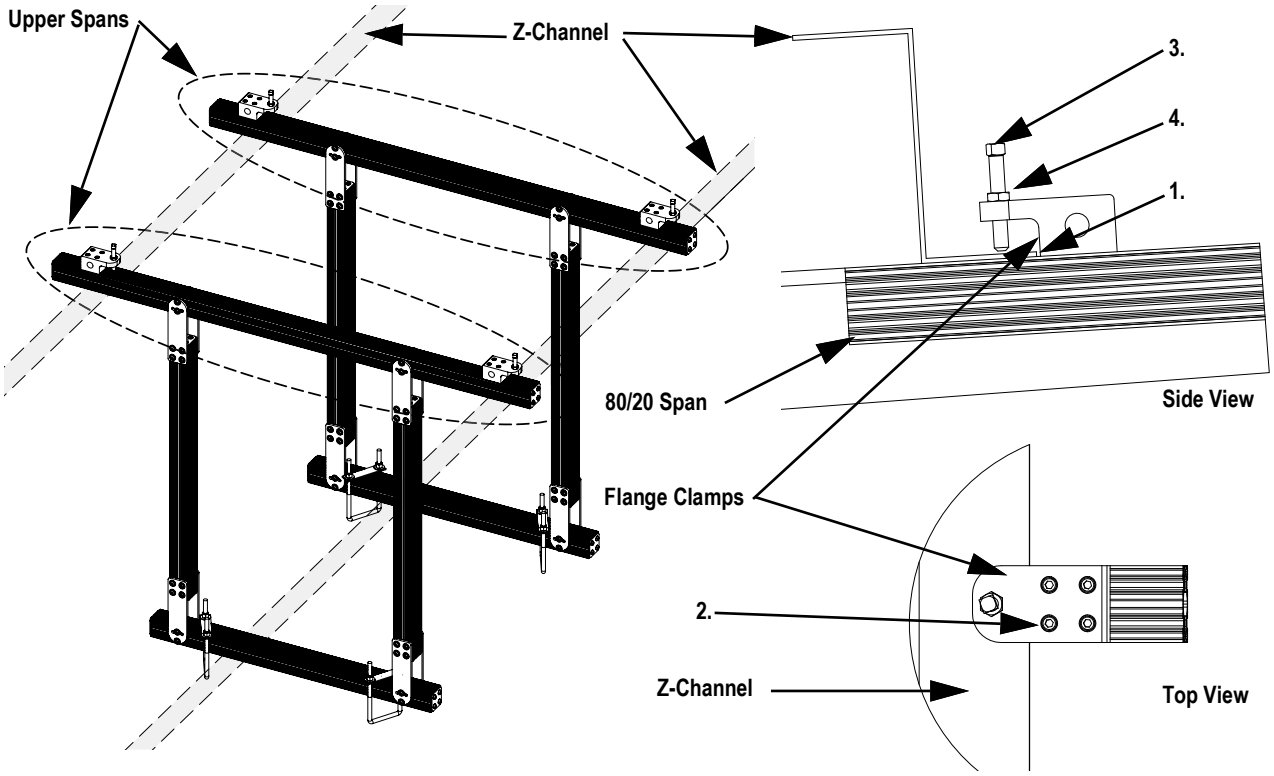


Figure 11. Z-Channel Flange Clamp

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).

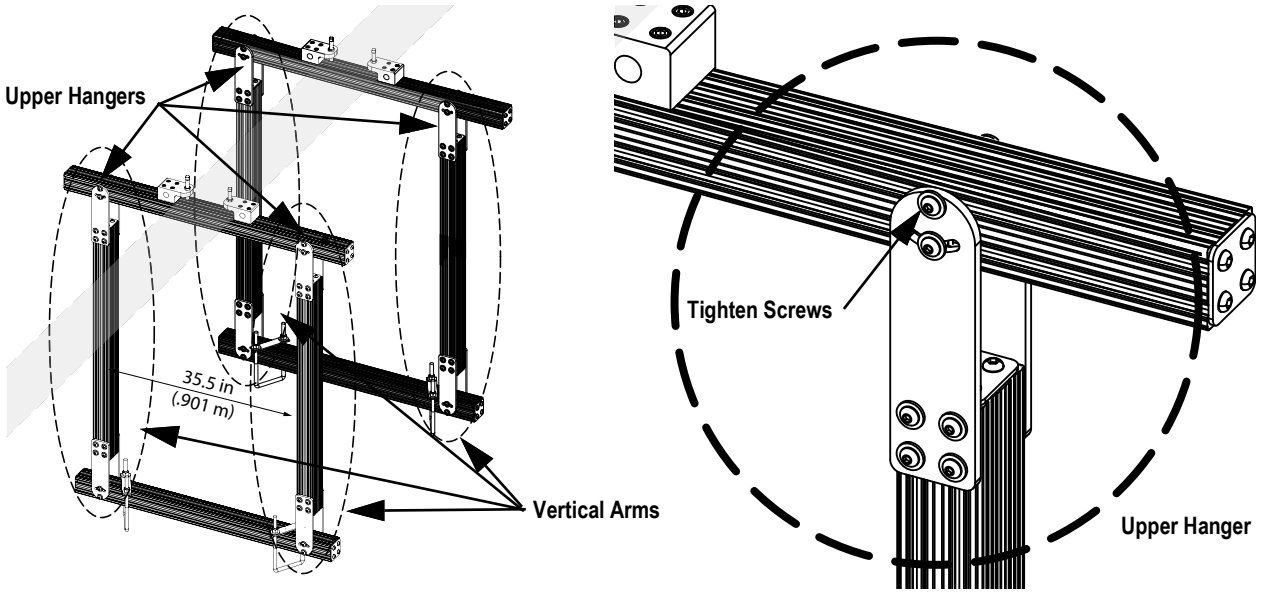


Figure 12. Install Vertical Arms

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).

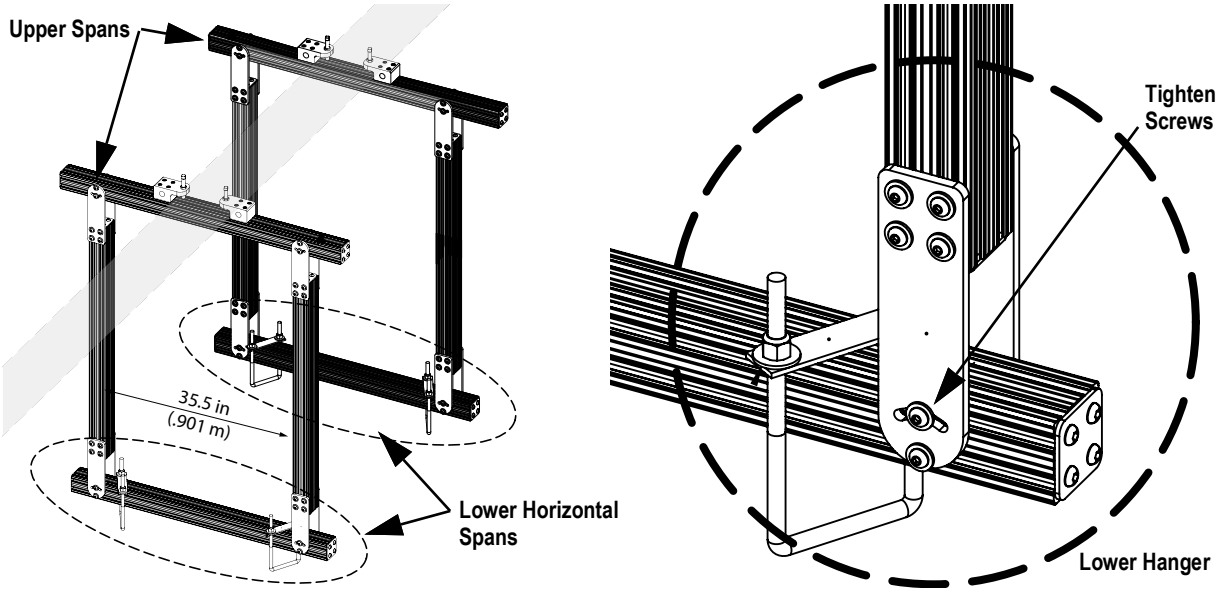


Figure 13. Install Lower Horizontal Bars

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.

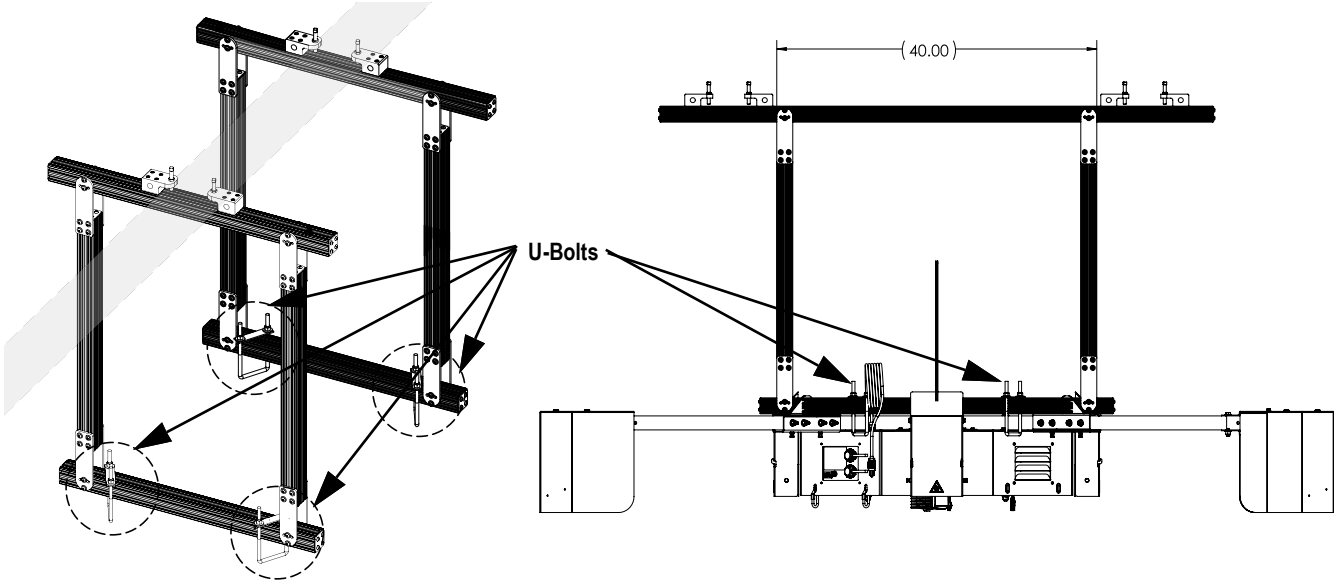


Figure 14. Attach iDimension to Frame

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.

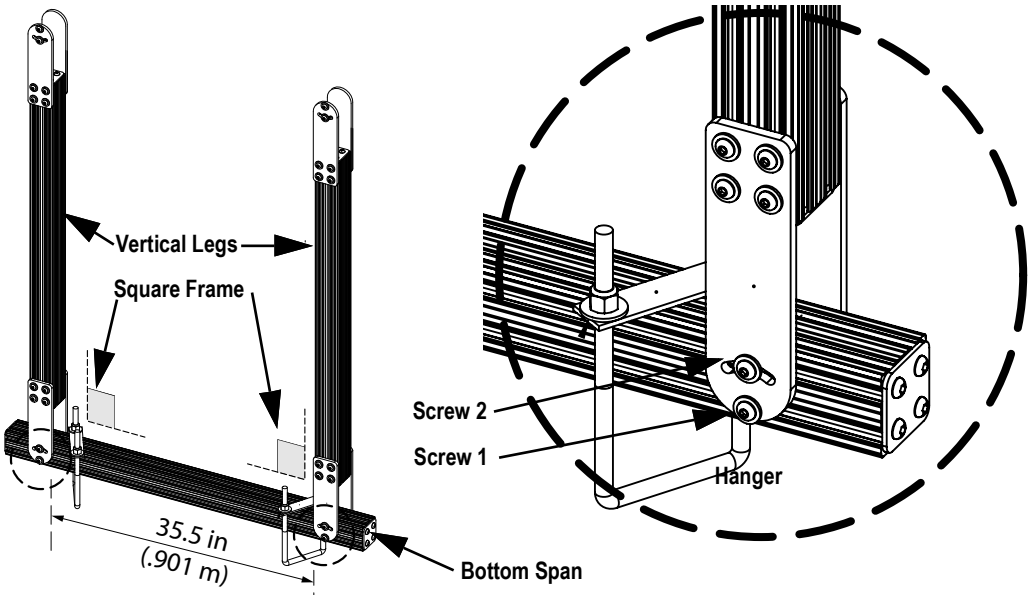


Figure 15. Assemble and Square Frame

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 6 for I-beam installation. Refer to Section 5.2 on page 7 for Z-channel installation.
2. Lift assembled frames to fit the upper hangers into the channels of the
3. Tighten screws to 6 ft-lb (8.1301 Nm).

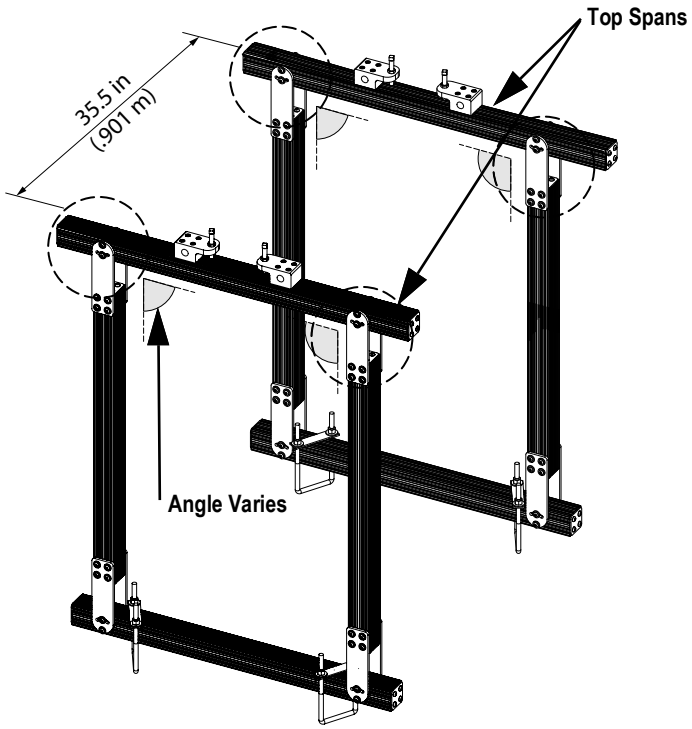


Figure 16. Assemble and Square Frame

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

11.0 Parts List

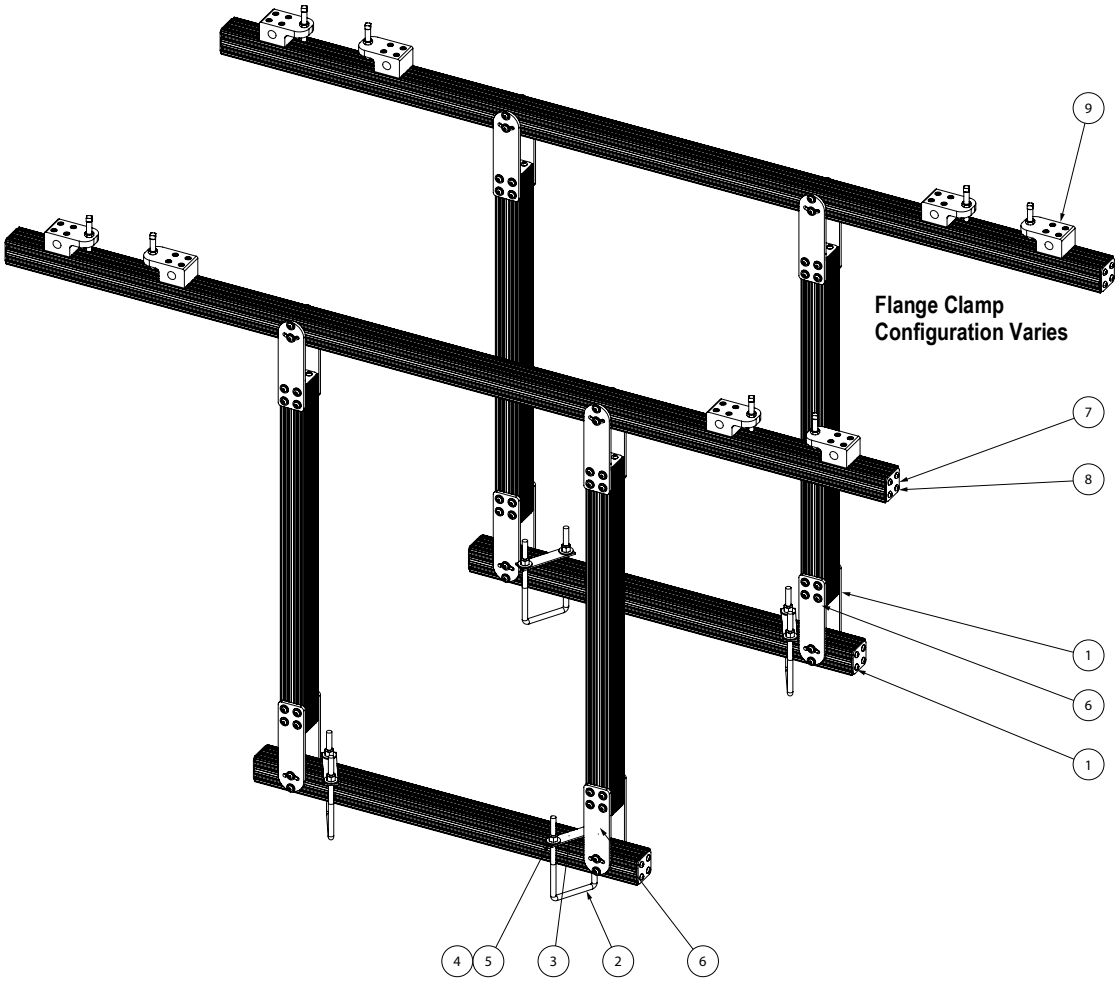


Figure 17. Mounting Frame Parts

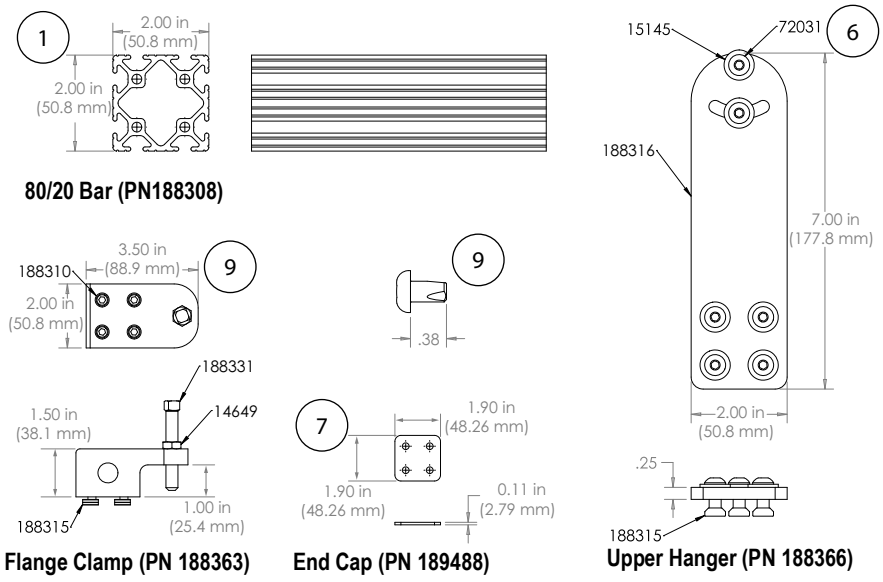


Figure 18. Mounting Frame Parts

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 1. Mounting Frame Parts List

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WEIGHING SYSTEMS

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