



DIRTT ARCH BEAM SOLUTION GUIDE

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OVERVIEW

Features

- Spans longer distances and covers more space than the HSS Beam
- Weighs less than HSS Beam
- Hides tapered ends from most vantage points

DIRTT Arch Beam Sizing

DIRTT offers three standard options for spans and heights; anything outside of these would be considered custom. These options are:

- Up to 10'-0" (3.05m) span = 6" (152mm) beam height off cornice rail
- Up to 15'-0" (4.57m) span = 8 ½" (216mm) beam height off cornice rail
- Up to 24'-0" (7.32m) span = 11 ½" (292mm) beam height off cornice rail

The DIRTT Arch Beam is used as a suspended-ceiling support alternative to the Hollow Structural Section (HSS) Beam between two DIRTT walls. The DIRTT Arch Beam can carry the dead load of a suspended-ceiling grid system and lighting contained within that space (a total carrying capacity of four pounds per square foot).

DIRTT Arch Beams are much lighter than HSS Beams and can span greater distances. However, they do not provide any lateral stability to any supporting walls. If a supporting wall requires lateral support, use DIRTT Arch Beams with HSS Beams.

DIRTT Arch Beams are made of anodized aluminum and sheet metal (which can be optionally powder coated). They include arches, connector brackets and lateral bracing mounted to the DIRTT V2 Cornice Rail.

PART REFERENCES

DIRTT ARCH BEAM

PART	DESCRIPTION
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Primary Components

11312	Ceiling Rib Extrusion (Aluminum)
74552	Inline Spline
74408	Arch Mounting Bracket
74599	Spacer Plate
76818	Lateral Bracing Cornice Mount Bracket
76819	Lateral Bracing Arch Connection Bracket
STOCK	#10-24 x 1/2" Pan Head Machine Screw (PHMS)
STOCK	#10-16 x 3/4" Pan Head Tek Screw (PHTS)
STOCK	#10-16 x 1/2" Pan Head Tek Screw (PHTS)

10' (3.05m) Maximum (Max.) Arch Length

78623	Curved Sheet Metal Fin - 10' Arch - LH
78624	Curved Sheet Metal Fin - 10' Arch - RH
78626	Sheet Metal Fin - 10' Arch - Parametric

15' (4.57m) Max. Arch Length

78559	Curved Sheet Metal Fin - 15' Arch - LH
78560	Curved Sheet Metal Fin - 15' Arch - RH
78496	Sheet Metal Fin - 15' Arch - Standard
78497	Sheet Metal Fin - 15' Arch - Parametric

24' (7.32m) Max. Arch Length

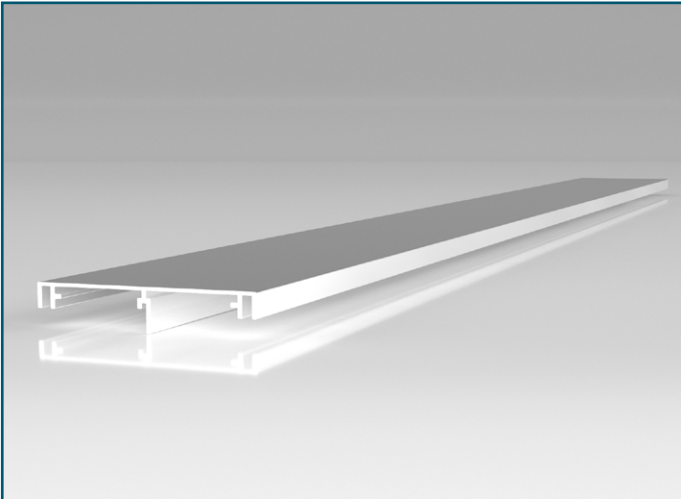
77114	Curved Sheet Metal Fin - 24' Arch - LH
77113	Curved Sheet Metal Fin - 24' Arch - RH
77112	Sheet Metal Fin - 24' Arch - Standard
74605	Sheet Metal Fin - 24' Arch - Parametric

NOTE: All materials are steel unless otherwise specified.

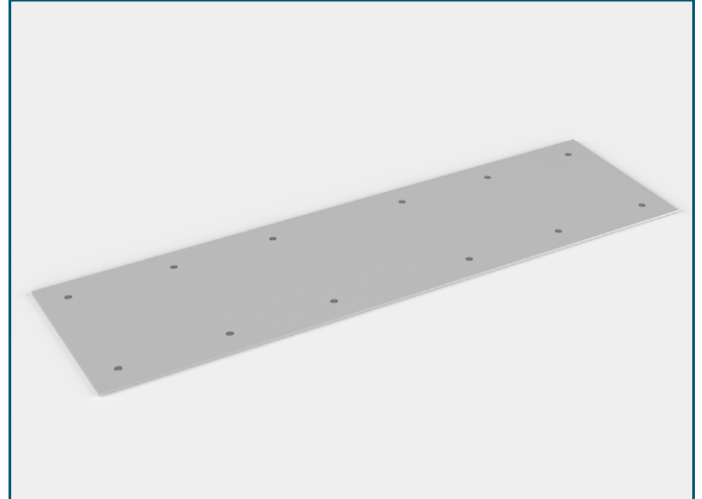
ARCH AND LATERAL BRACING COMPONENTS

DIRTT Arch Beam and Lateral Bracing components shown in the following images are for a maximum 24' (7.32m) beam length; similar components will be used for a 15' (4.57m) and a 10' (3.05m) beam length.

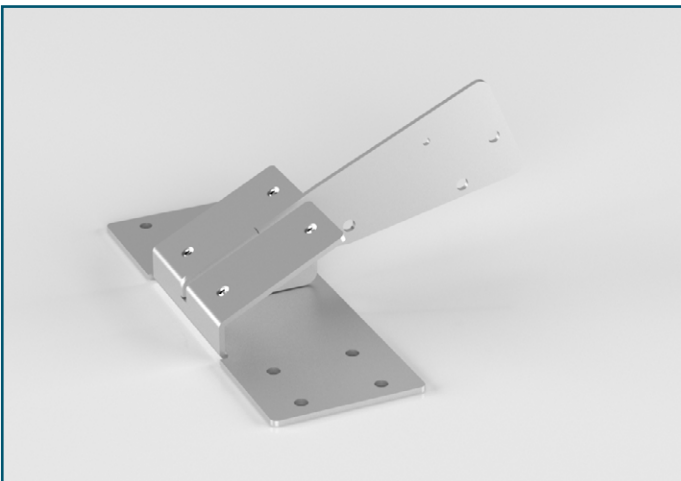
- The Sheet Metal Fin - 24' Arch - Parametric (74605) for each beam length is different; all other components are the same.
- Taller arches are required to span longer distances.



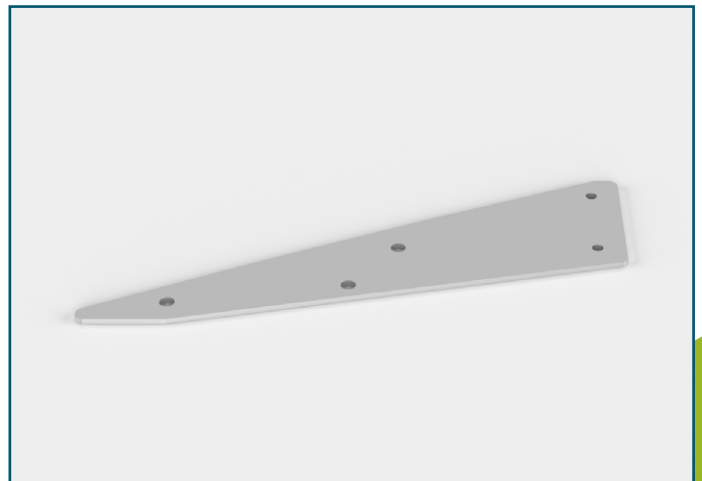
Ceiling Rib Extrusion (11312)



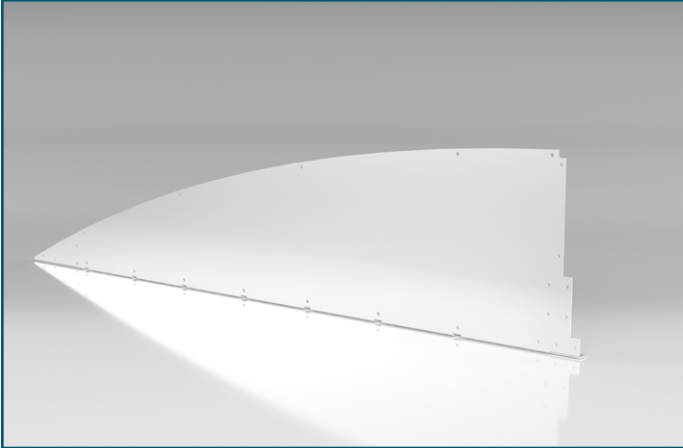
Inline Spline (74552)



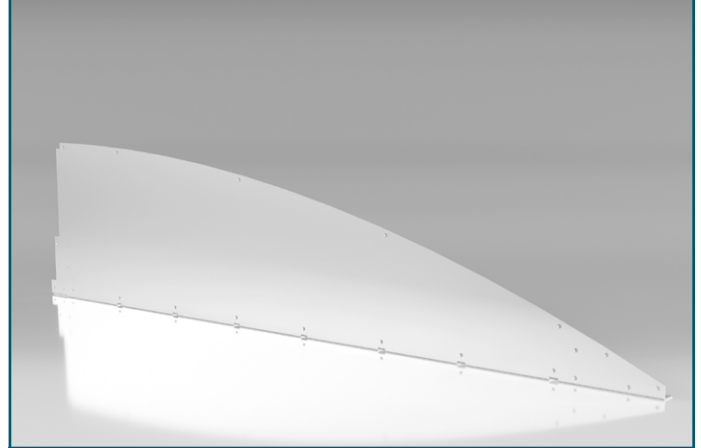
Arch Mounting Bracket (74408)



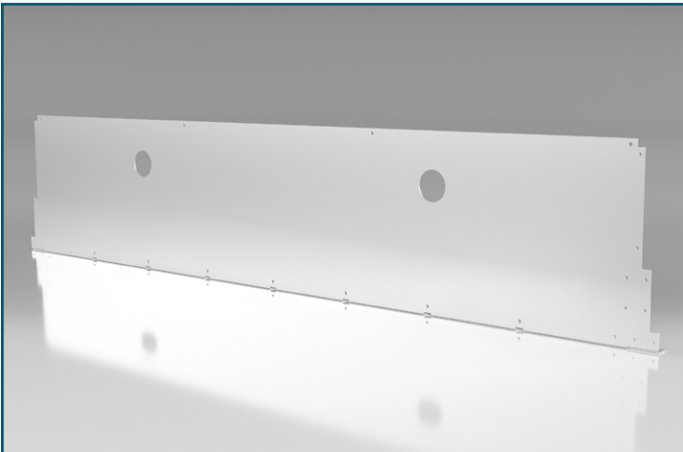
Spacer Plate (74599)



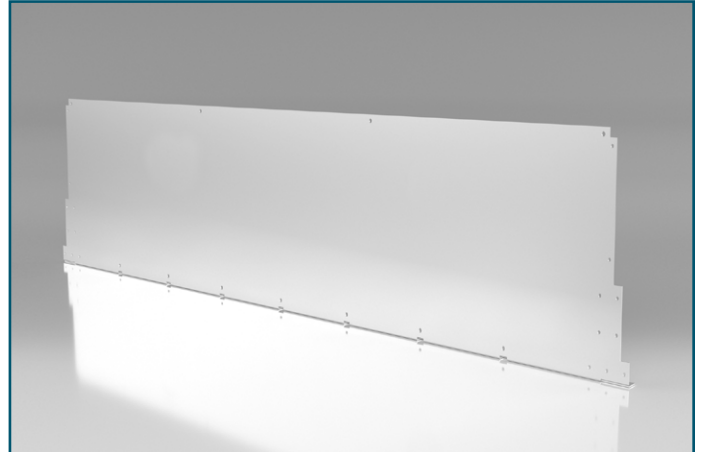
Curved Sheet Metal Fin - 24' Arch - LH (77114)



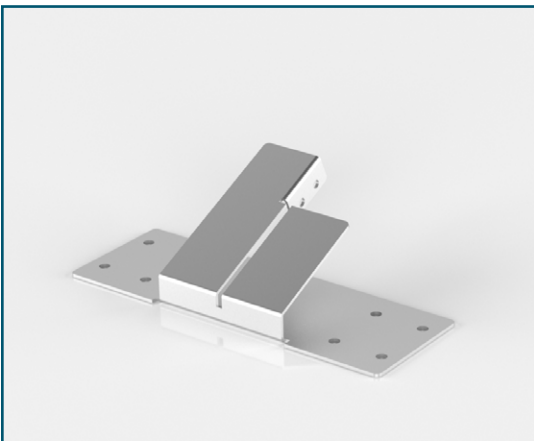
Curved Sheet Metal Fin - 24' Arch - RH (77113)



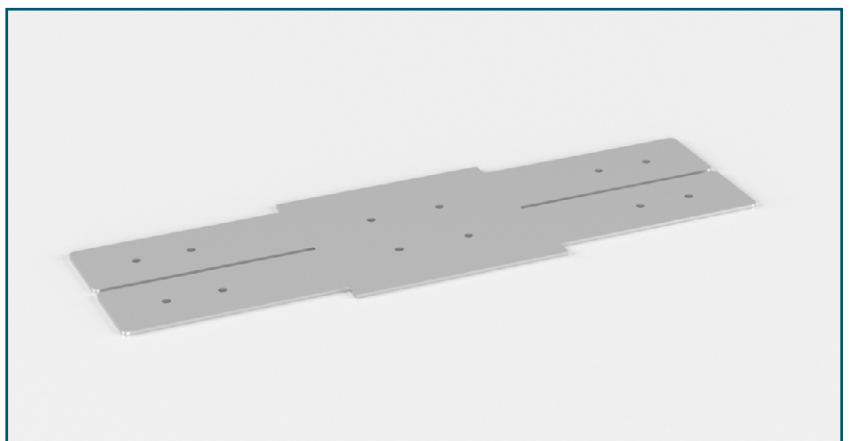
Sheet Metal Fin - 24' Arch - Standard (77112)



Sheet Metal Fin - 24' Arch - Parametric (74605)



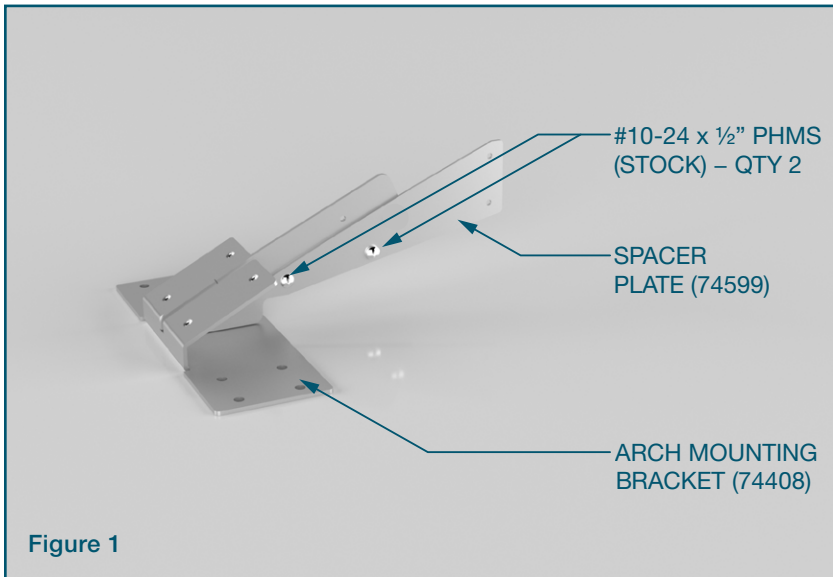
Lateral Bracing Cornice Mount Bracket
(76818)



Lateral Bracing Arch Connection Bracket (76819)

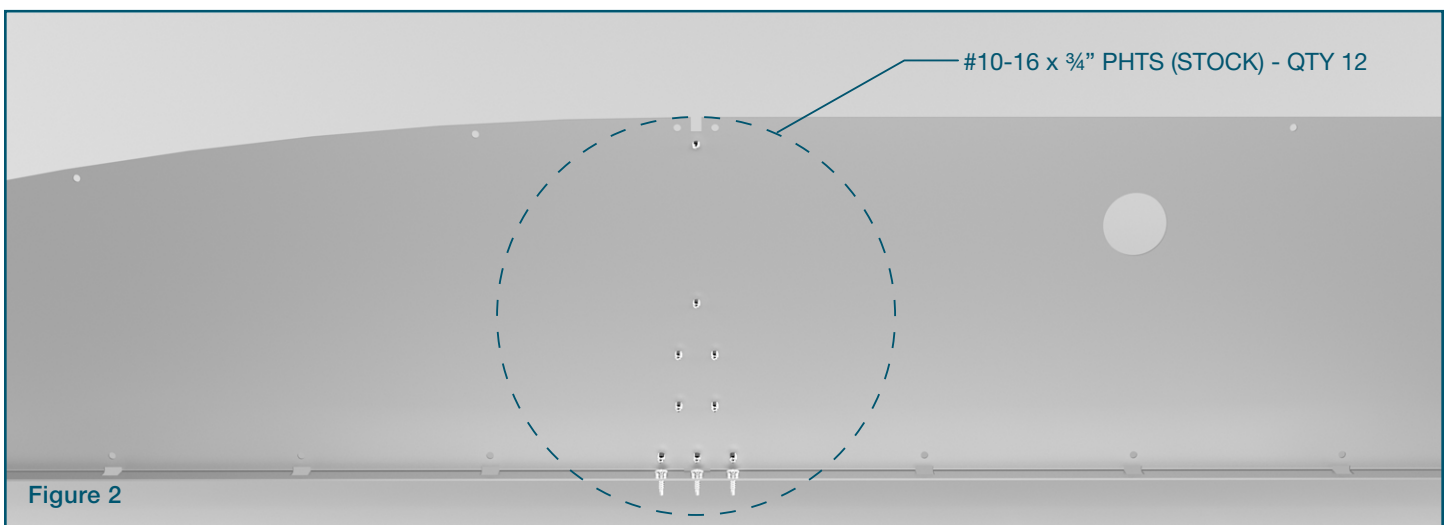
CEILING ARCH ASSEMBLY

- 01** Attach Spacer Plates (74599) to Arch Mounting Brackets (74408) with #10-24 x ½" Pan Head Machine Screw (PHMS) (STOCK) – QTY 2 where indicated (see Figure 1).



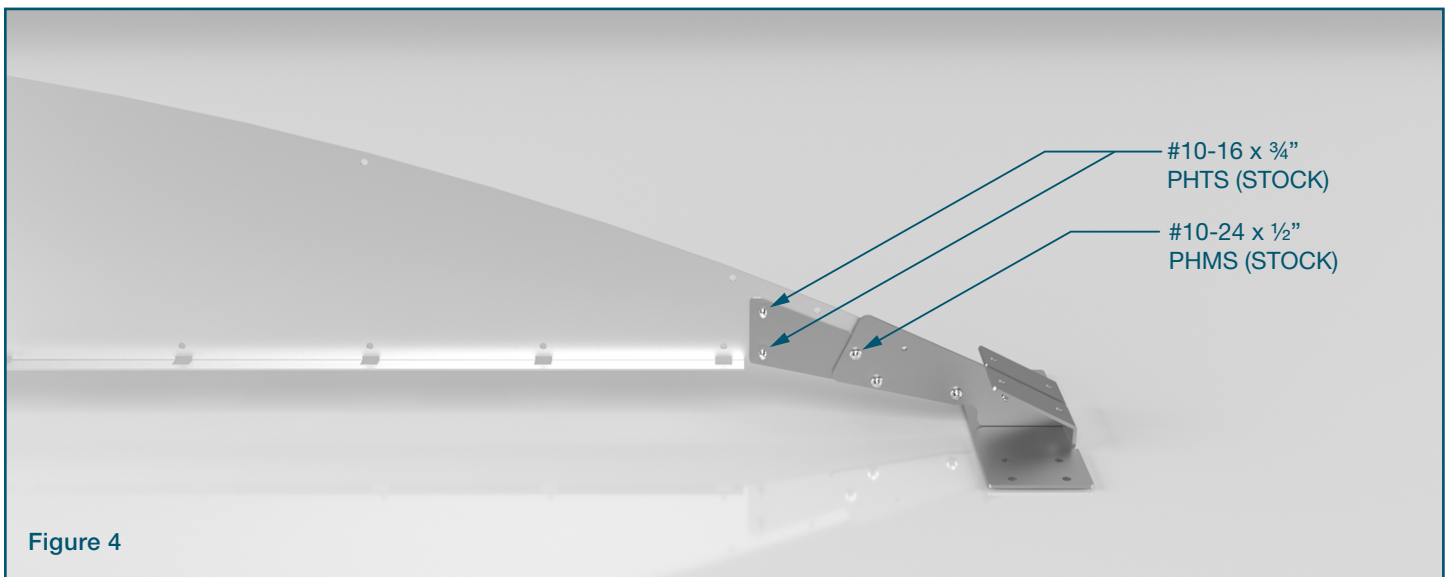
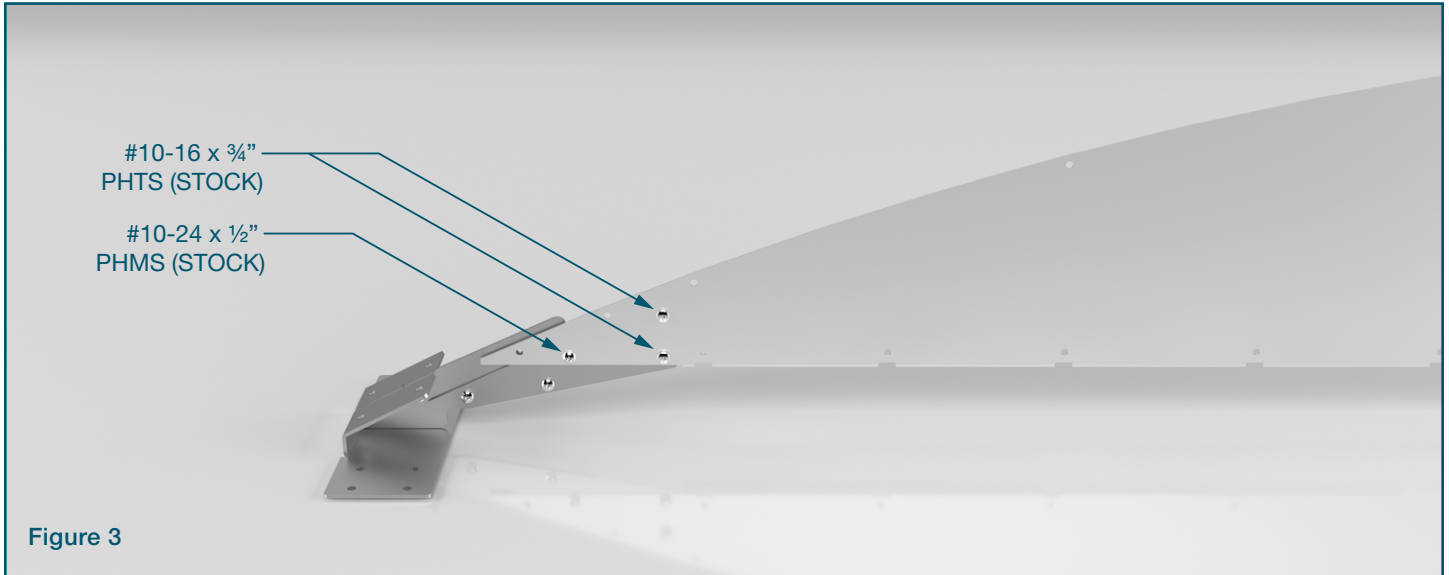
- 02** Attach all arch fins (see [Part References](#) for specific part numbers) together using #10-16 x ¾" Pan Head Tek Screw (PHTS) (STOCK) - QTY 12 per arch fin connection (see Figure 2). Ensure all holes at the joint get a screw, including the flanges. The screws can be installed in either direction.

NOTE: Ensure the flanges are all facing the same direction so they can be attached together.



03

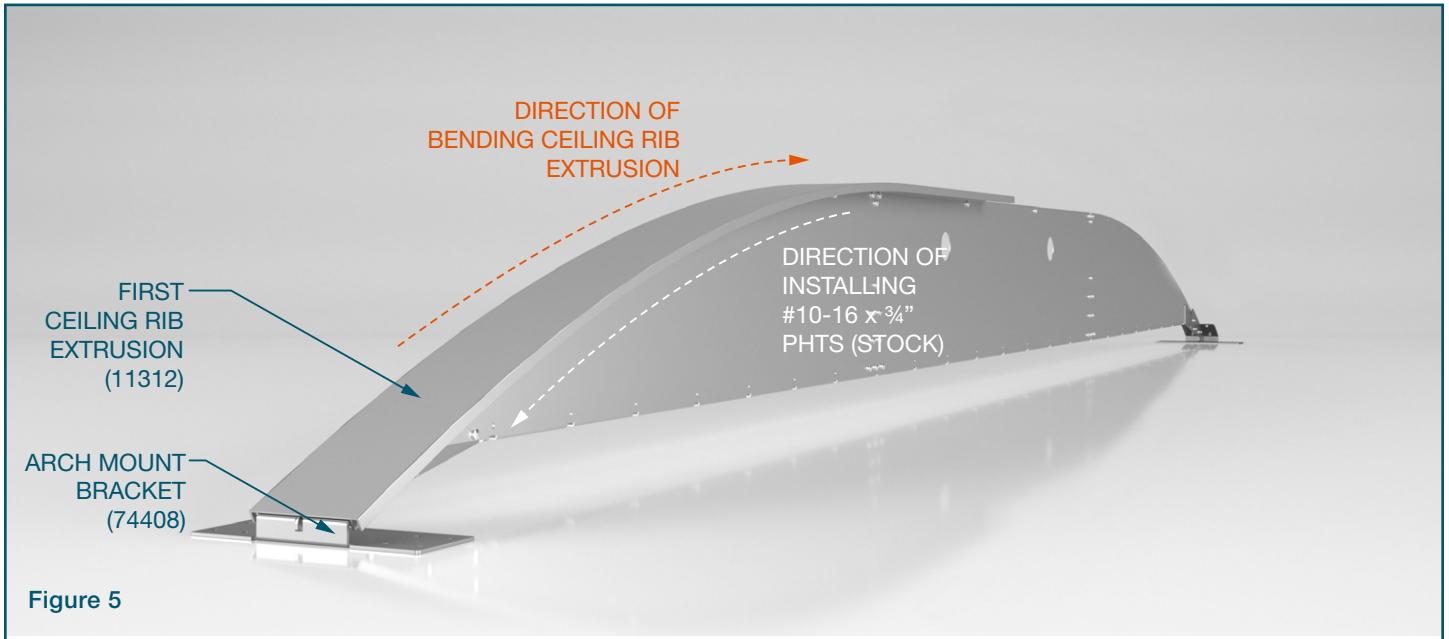
Attach the Arch Mount Bracket to the Sheet Metal Fins. First, install the #10-24 x 1/2" PHMS – QTY 1 through both the fin and the Arch Mount Bracket. Next, install the #10-16 x 3/4" PHTS – QTY 2 where indicated (see Figures 3 and 4). Installing the screws in this order will ensure the correct fitment for the Ceiling Rib Extrusions (11312).



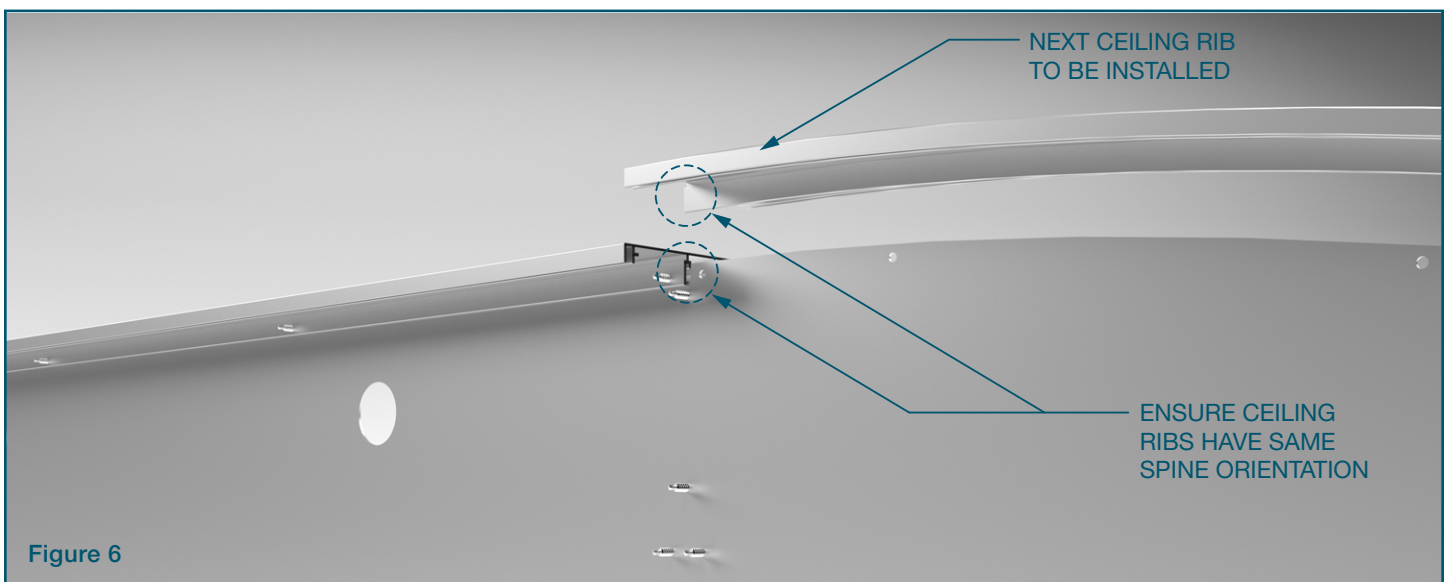
04 Slide one of the Ceiling Rib Extrusions (ceiling rib) all the way onto one of the Arch Mount Brackets. Bend the ceiling rib along the sheet metal fin (see Figure 5), then press it down along the flat section of the fin close to the curve. Ensure the fin is in the middle of the ceiling rib.

05 Fasten this first piece of the ceiling rib to the fin starting with #10-16 x $\frac{3}{4}$ " PHTS – QTY 2 at the flat center section close to the curve, then fill in the rest of the fasteners along the curved section (see Figure 5).

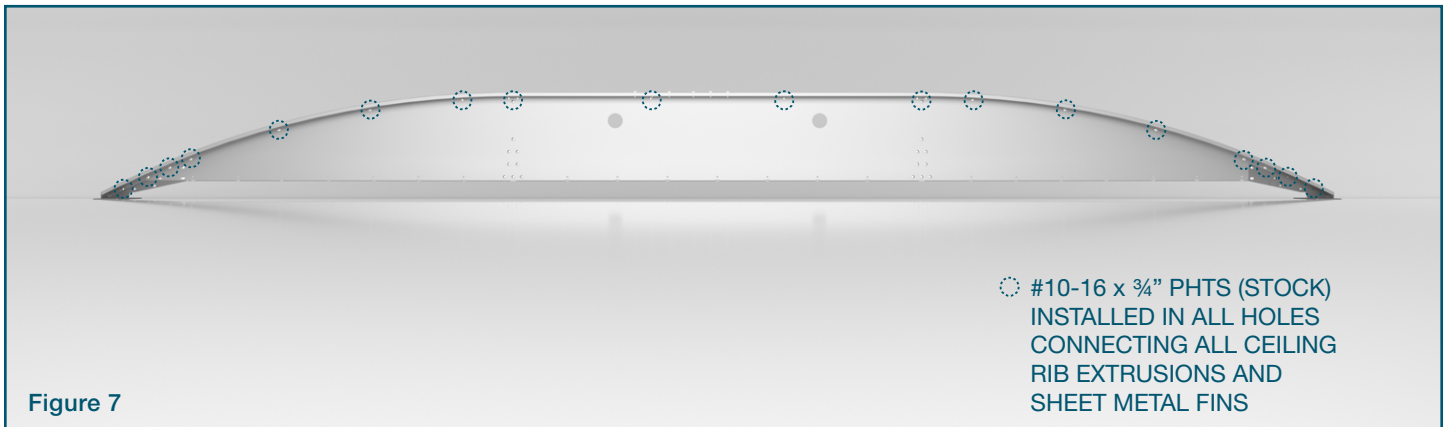
NOTE: It is more difficult to put in the PHTS starting with the curved section.



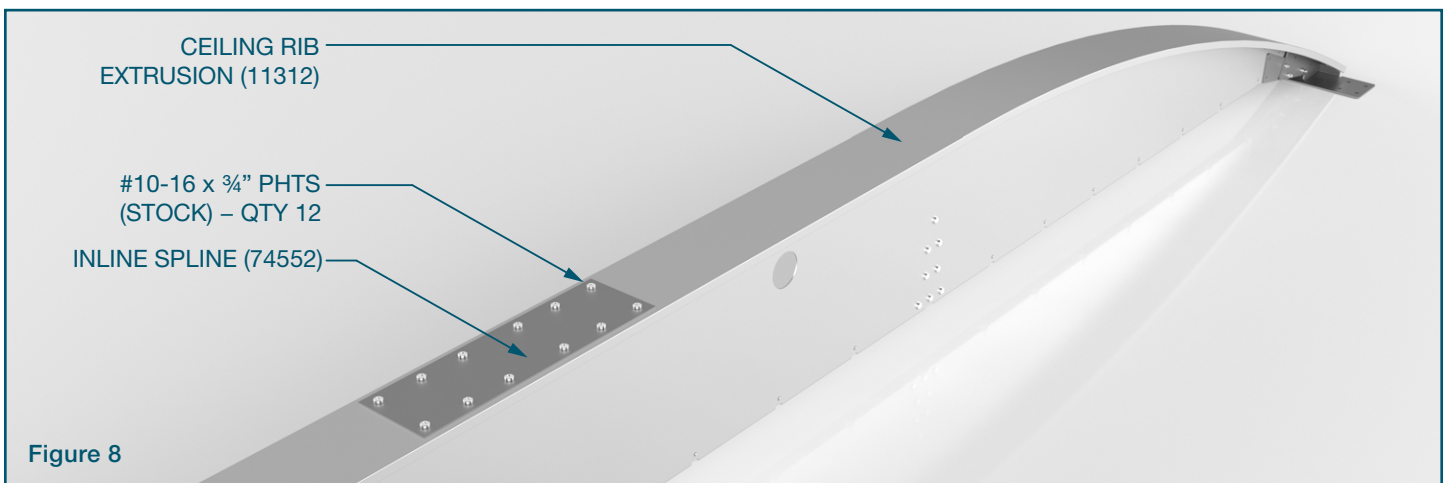
06 On the opposite end, ensure the spine of the next ceiling rib is oriented in the same direction as the previously installed rib (see Figure 6). Slide the rib over the opposite Arch Mount Bracket. Bend it along the fin and press it down along the flat center section. Ensure that the fin is in the middle of the ceiling rib.



- 07** Fasten this ceiling rib to the fin as explained in Step 05. Install all of the #10-16 x $\frac{3}{4}$ " PHTS along the length of the rest of the ceiling rib (see Figure 7).

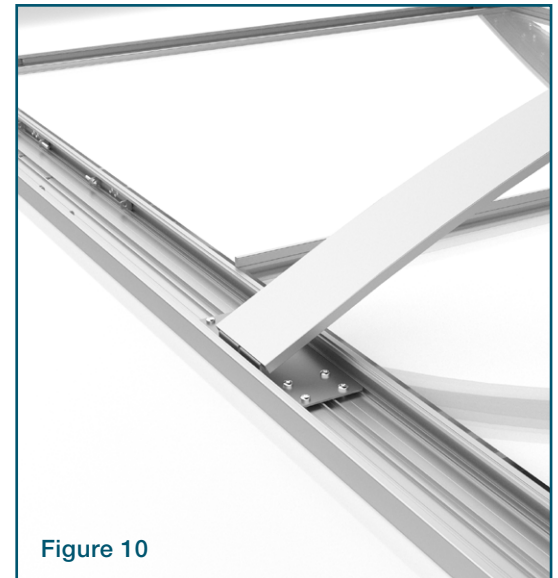
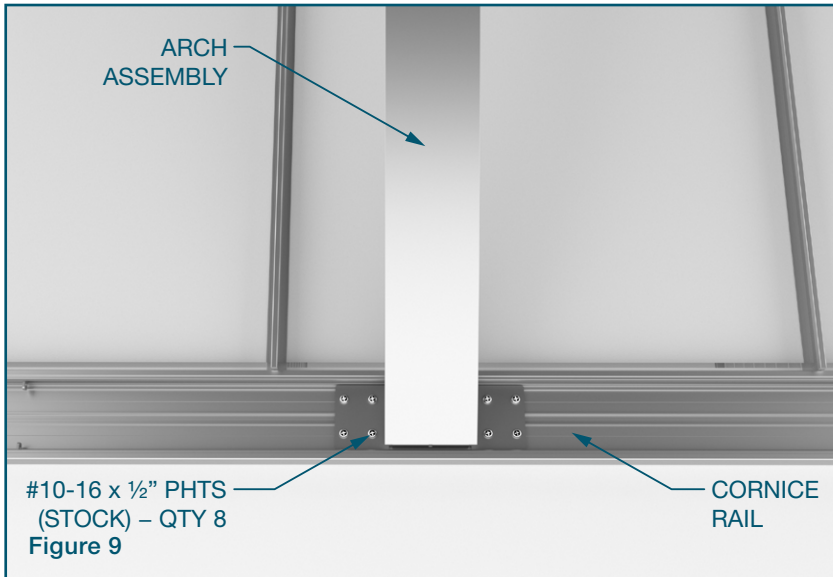


- 08** Attach the Inline Spline (74552) between all rib joints (see Figure 8) using #10-16 x $\frac{3}{4}$ " PHTS – QTY 12.

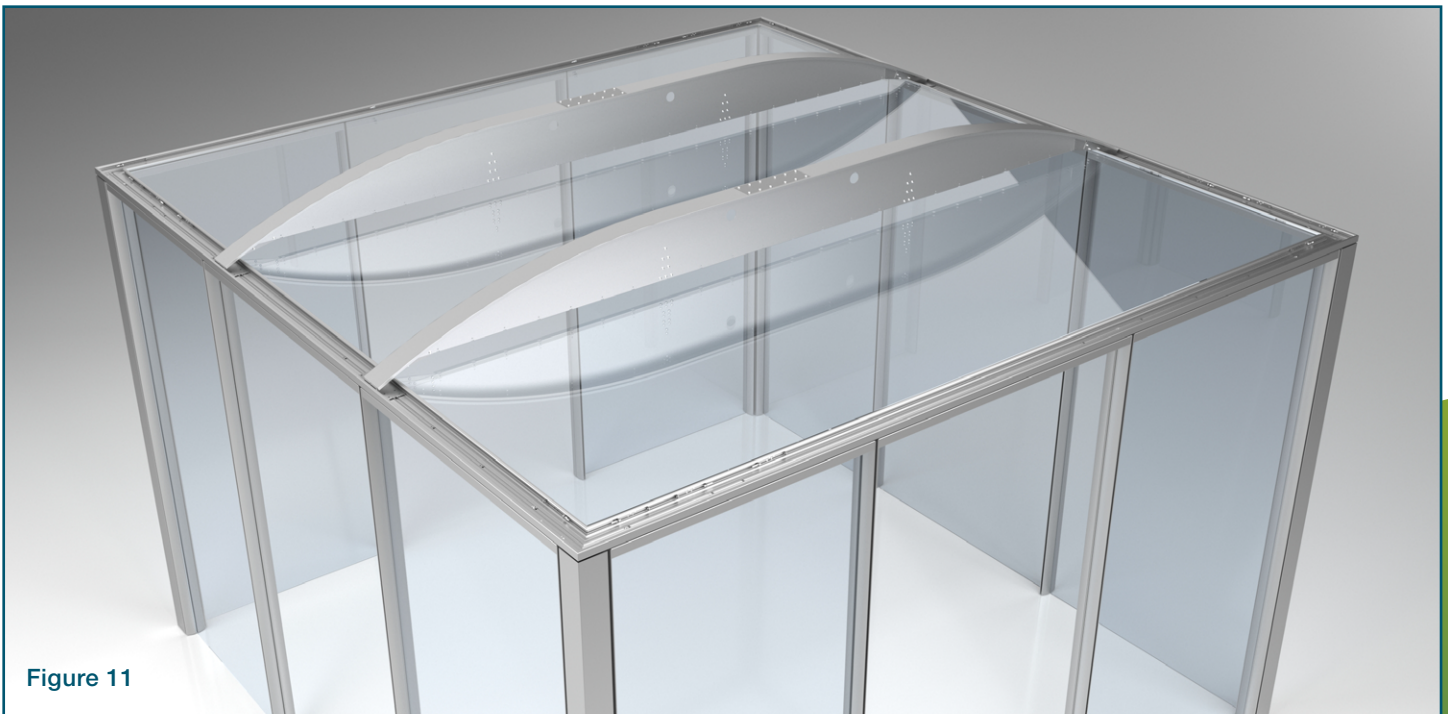


- 09** Lift the arch assembly, and set into the Cornice Rail in the appropriate location. Fasten the arch assembly to the Cornice Rail with #10-16 x ½" PHTS – QTY 8 (see Figures 9 and 10).

TECH TIP: A 24' (7.32m) Arch Assembly at full length weighs approximately 65 lbs (30kg).

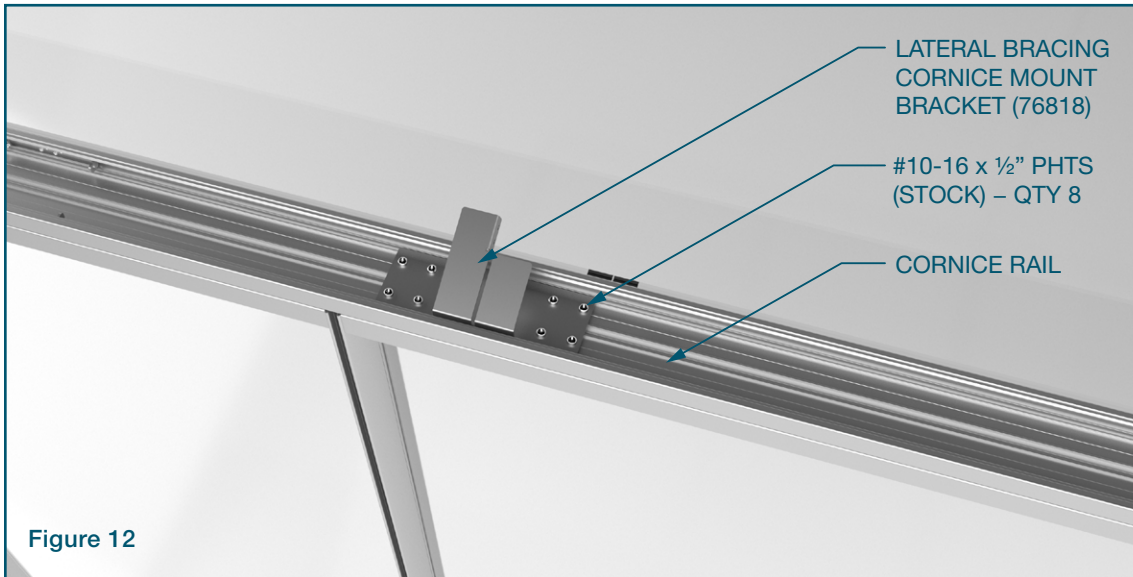


- 10** Repeat Steps 01 to 09 for each required arch beam (see Figure 11).



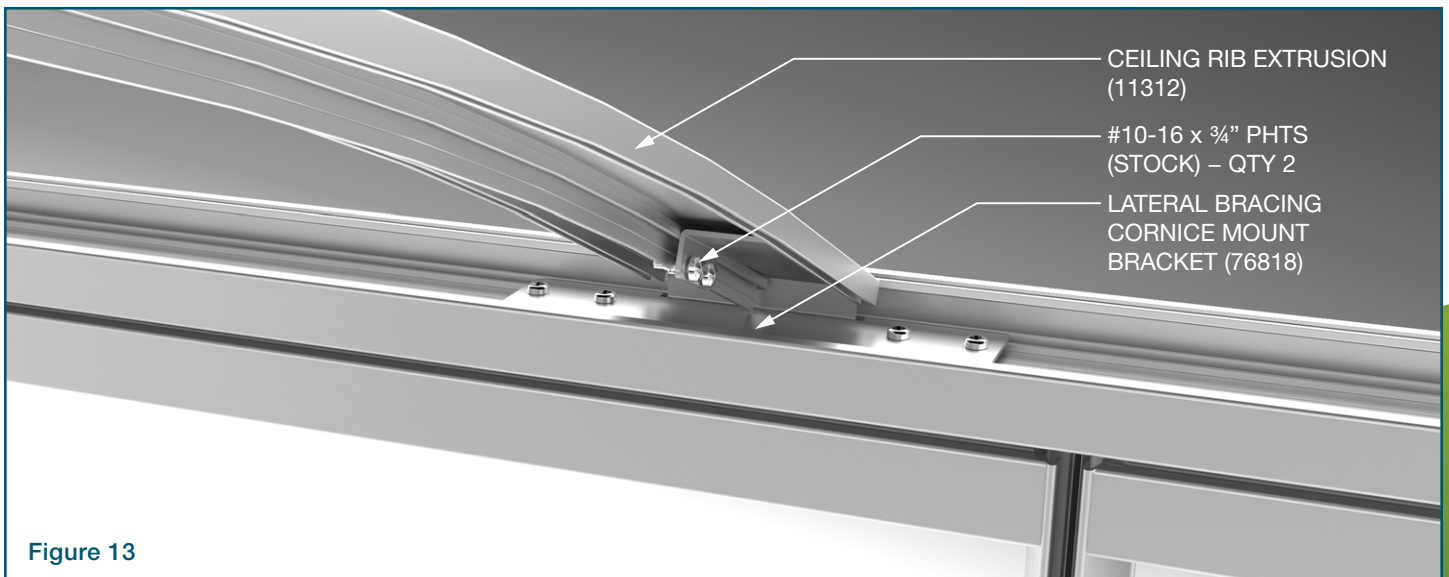
CEILING ARCH LATERAL BRACING

- 01** Place the Lateral Bracing Cornice Mount Bracket (76818) into the Cornice Rail at the appropriate location and fasten using #10-16 x 1/2" PHTS – QTY 8 (see Figure 12).

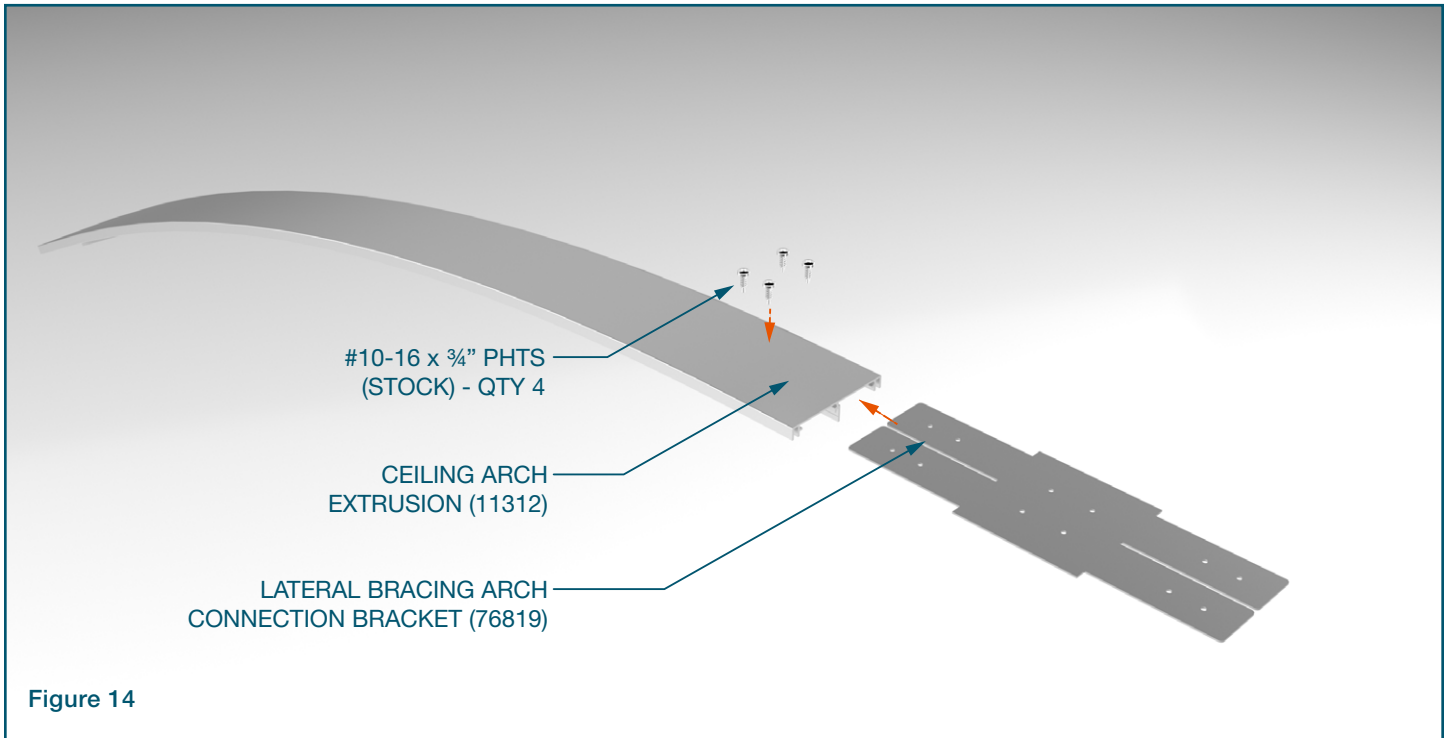


- 02** Cut the Ceiling Rib Extrusion to length based on the location of the arches. They will run from the Cornice Rail to the first arch and then between the arches.

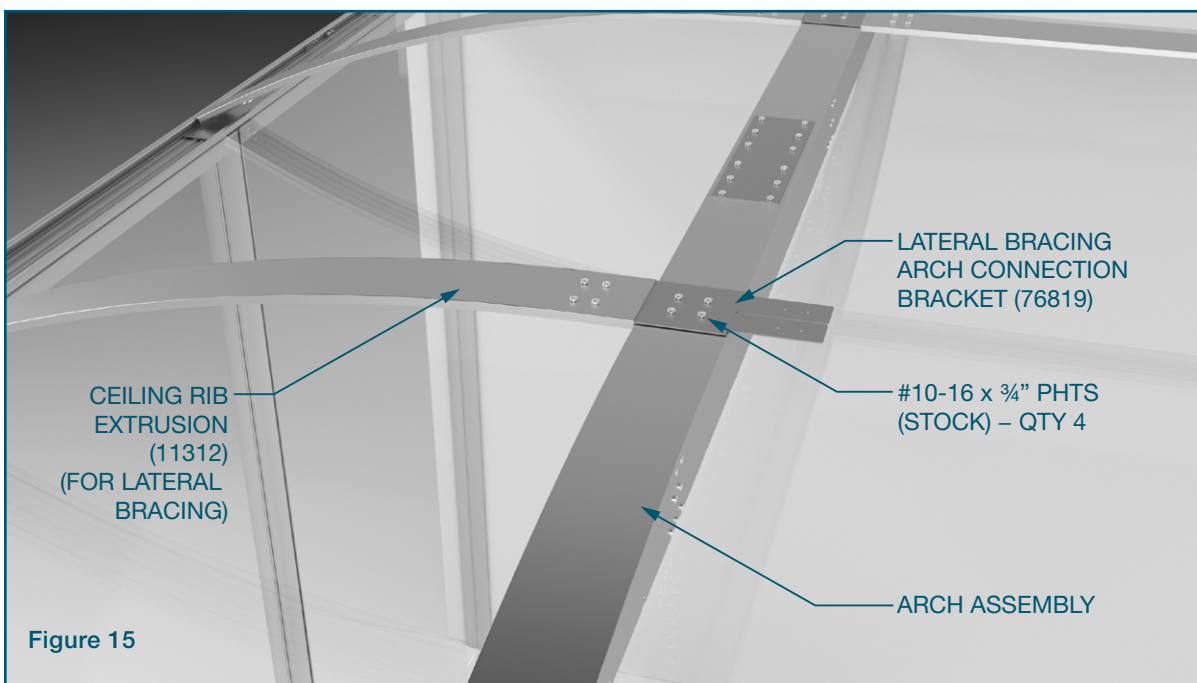
- 03** Slide the first piece of ceiling arch rib onto the Lateral Bracing Cornice Mount Bracket. Fasten the ceiling rib and cornice mount bracket using #10-16 x 3/4" PHTS – QTY 2 (see Figure 13).



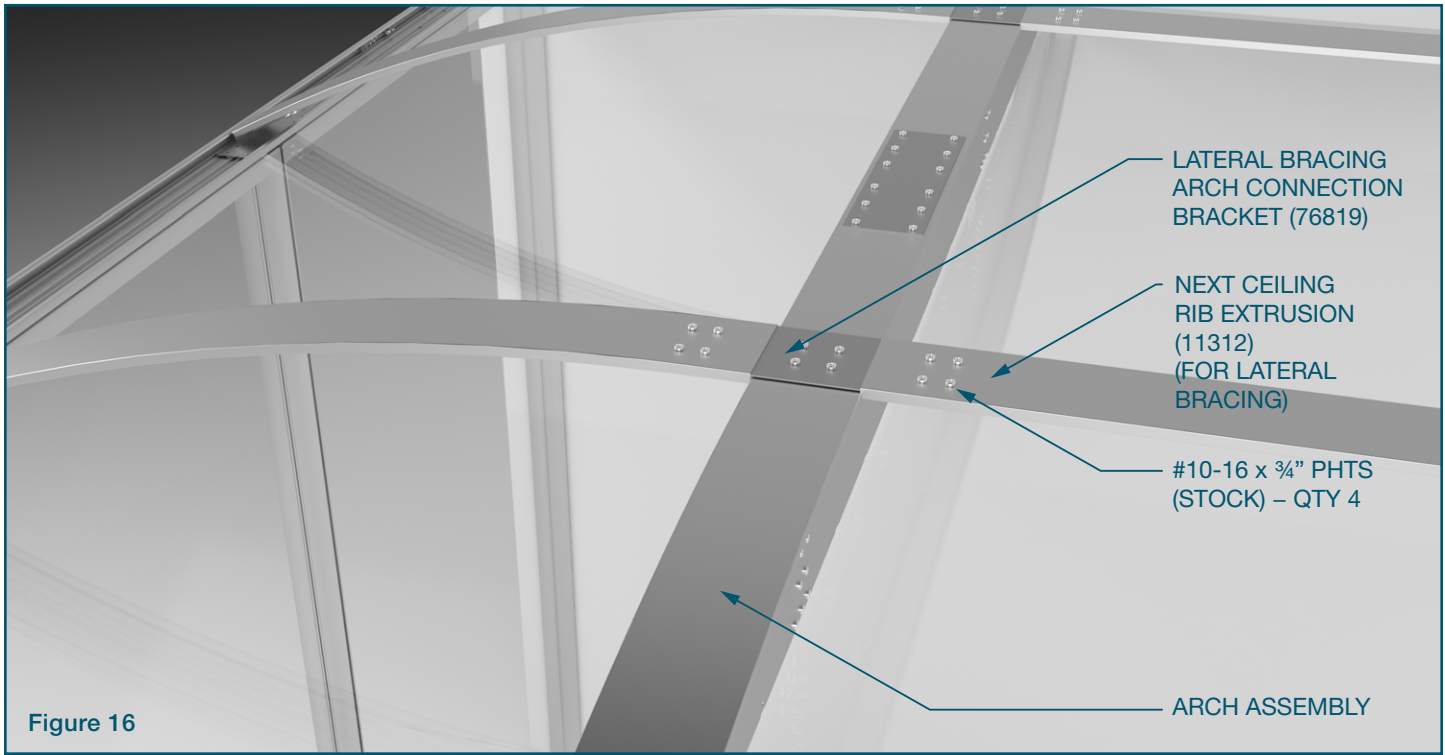
- 04** Slide the Lateral Bracing Arch Connection Bracket (76819) into the other end of the ceiling rib (see Figure 14) and fasten using #10-16 x $\frac{3}{4}$ " PHTS – QTY 4.



- 05** Bend the ceiling rib down and fasten the arch connection bracket to the top of the first arch using #10-16 x $\frac{3}{4}$ " PHTS – QTY 4 (see Figure 15).



- 06** Slide the next cut piece of ceiling rib over the other end of the arch connection bracket (see Figure 16) and attach with #10-16 x $\frac{3}{4}$ " PHTS – QTY 4.



- 07** Repeat Steps 04 to 06 until the final arch is reached.
- 08** Install the other ceiling rib between the final arch and opposite Cornice Rail by repeating Steps 01 to 03.
- 09** Slide the arch connection bracket into the ceiling ribs on either side of the final arch before attaching any of the PHTS. Press the arch connection bracket down and attach it to the top of the final arch. Attach the remaining PHTS to the lateral braces (see Figure 17).

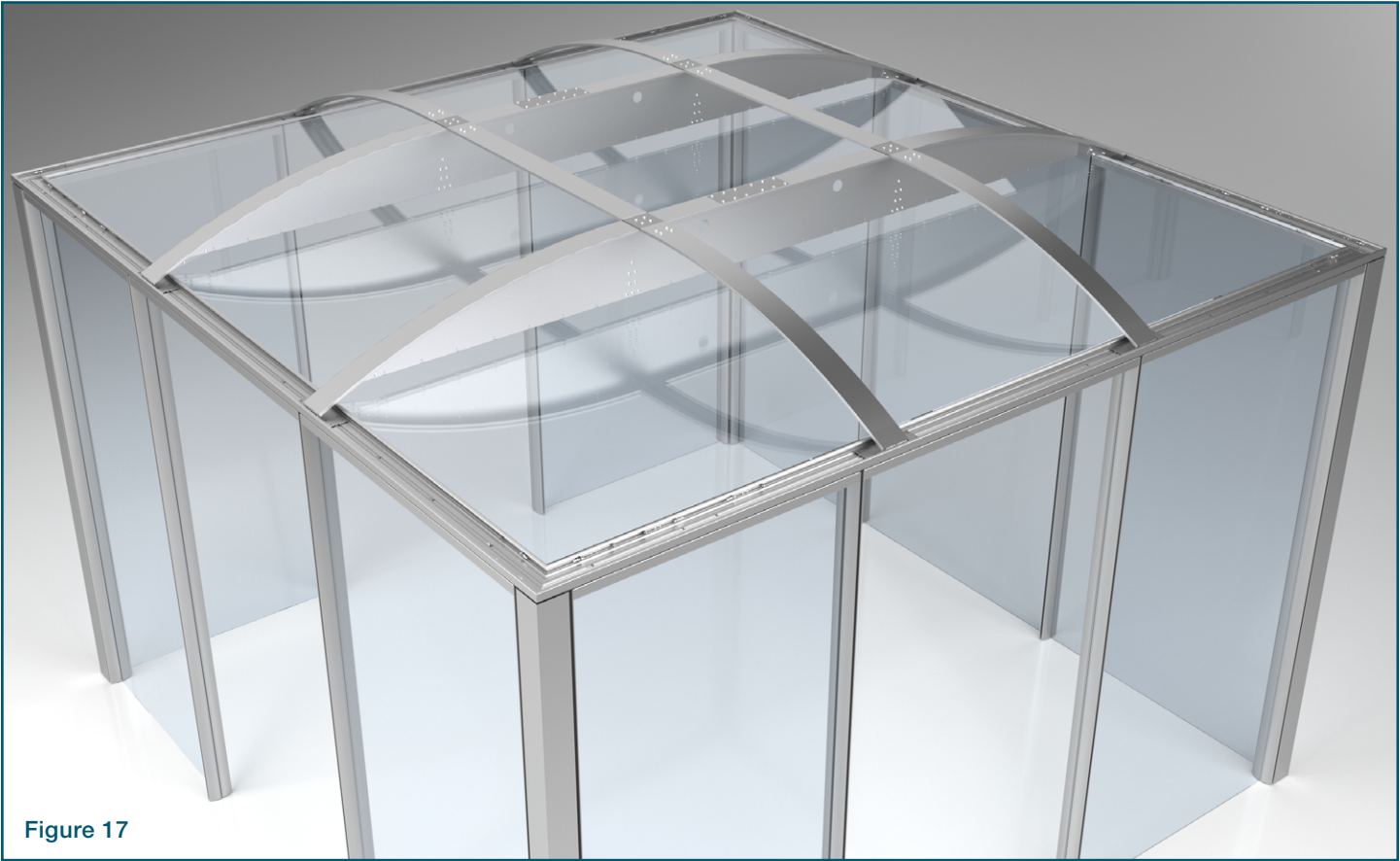


Figure 17

