Creating a Custom Arch

The information in this article applies to:

Premier  Interiors

QUESTION

I would like to create a polyline solid that includes an arc with a precise radius; however, when I create a rectangular polyline solid using the Polyline Solid tool, I must use the Break Line tool to reshape the rectangle into an arc. This is very imprecise. How can I specify a precise value for the radius?
**ANSWER**

The Polyline Solid tool is a fast way to create a rectangular polyline solid; however, if you wish to create a polyline solid with precise dimensions that is not rectangular in shape, use the CAD drawing tools to create a closed polyline with the desired shape and then convert it to a polyline solid using the Convert Polyline tool.

To precisely define an arc

1. Begin by opening the Chief Architect plan or select **File > New Plan** from the menu to open a new plan.

2. If you would like the curve of the arc to be oriented vertically, select **3D > Create Orthographic View > Cross Section/Elevation**. Otherwise, remain in floor plan view and proceed to step 3.

3. Select **CAD > Arcs > Draw Arc** from the menu, then click and drag an arc of the approximate size needed. There is no need to worry about precision at this time.

4. Click on the arc to select it, then click the **Open Object** edit button.

5. On the **Arc** panel of the **Arc Specification** dialog, specify the desired attributes of the arc. The following describes how the arc in this example was created:
The start and end points of the arc were set when it was drawn, with the wall edges used as references. In this case, the Start Y and End Y values should be the same; if they are not, lock either the Start or the End of the arc at the upper left corner of the dialog and change the value that is available for editing on the right side.

With either the Start or the End still locked, specify the desired Arc Radius of the arc on the left side of the dialog, then press the Tab key on your keyboard to update the information in the dialog without closing it.

In this example, a radius of 120" (10') is used.

Specify the desired Chord Length, then press the Tab key.

In this example, the arc will be placed over a 144" (12') wide wall opening.

Click OK to close the dialog and apply your changes.
To create a closed polyline solid that includes the arc

Once the arc is defined and locked, we add CAD lines to create a closed polyline and then convert it to a solid. Taking advantage of some CAD editing options will help us do this effectively.

1. Click **Edit> Snap Settings** and make sure that **Object Snaps** and **Endpoint** snap settings are toggled on. This will allow us to precisely snap new lines to the ends of our arc.

2. Select **CAD> Lines> Draw Line** from the menu, then click and drag a line beginning at one end of the arc. Notice the square-shaped **Endpoint** snap indicator that displays where the line meets the arc.

3. Continue drawing and defining lines until you have created a closed polyline with the needed size and shape.

4. Using the **Select Objects** tool, click on the polyline near one of its edges to select it and then click the **Convert Polyline** edit button to open the **Convert Polyline** dialog.
5. Click on the radio button beside **Polyline Solid**, choose your preferred layer options, then click the **OK** button.

**Note:** If the Polyline Solid option is unable to be selected, a break in the polyline may have been created when the arc was edited. To reconnect the arc to the other segments, click on it, drag it away from the rest of the polyline, and then drag it back so that it reconnects.
6. When the Convert Polyline dialog closes, the **Polyline Solid Specification** dialog will open. This is where attributes of your polyline solid, including thickness, elevation, and materials can be specified. Click the **OK** button to close the dialog and return to either floor plan or Cross Section/Elevation view.

For the purposes of this example, use a thickness that matches that of the Interior wall type being used or 4 1/2".

7. The two-dimensional polyline that you drew is now a three-dimensional object with the selected material.

- In many cases, you will want to draw your polyline solid in place; in this example, however, the polyline solid was drawn in an empty space above the cross section to improve image clarity.

- It can now be selected and moved into place using the **Move** edit handle.

- Hold down the **Ctrl/Command** key on your keyboard to move an object such as the polyline solid through obstructions such as the ceiling as it's moved into place.

8. If you'd like to center the solid on a particular wall, click on the solid to select it, select
the Center Object ➔ edit button, then click on the wall once the perpendicular guidelines appear.

9. From a floor plan view, select 3D> Create Perspective View> Full Camera [🔗] and create a 3D view to see the results.

Use a 3D Molding Line from the Trim tools to create manual casing around the custom shaped arched opening.

Related Articles

- Adding a Polyline Solid to the User Catalog (/support/article/KB-00035/adding-a-polyline-solid-to-the-user-catalog.html)
- Changing an Open Polyline to a Closed Polyline (/support/article/KB-00171/changing-an-open-polyline-to-a-closed-polyline.html)
- Modeling Custom 3D Objects (/support/article/KB-00761/modeling-custom-3d-objects.html)
- Using the Fillet and Chamfer Edit Tools (/support/article/KB-00389/using-the-fillet-and-chamfer-edit-tools.html)