

Creating an In-ground Swimming Pool

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The information in this article applies to:



QUESTION



I would like to create a ground-level swimming pool with rounded edges and a sloped bottom with different depths. How do I do this?



ANSWER

Using the Terrain Feature Tools, Polyline Solids and 3D Molding Polylines, you can create a custom ground level swimming pool.


To create a hole for the pool

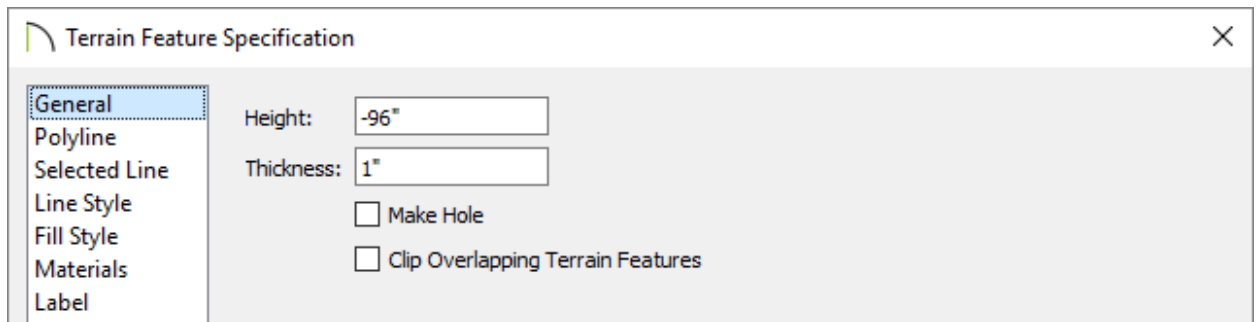
1. Select **Terrain> Create Terrain Perimeter**  from the menu to create terrain in which the pool can be designed. You can skip this step if you have a terrain perimeter already drawn.
2. Select **Terrain> Feature> Rectangular Feature**  from the menu, then click and drag to draw a rectangular feature polyline contained inside the Terrain Perimeter.
 - In this example, a 20' x 30' rectangular polyline is used.




This polyline will form the hole for the swimming pool.

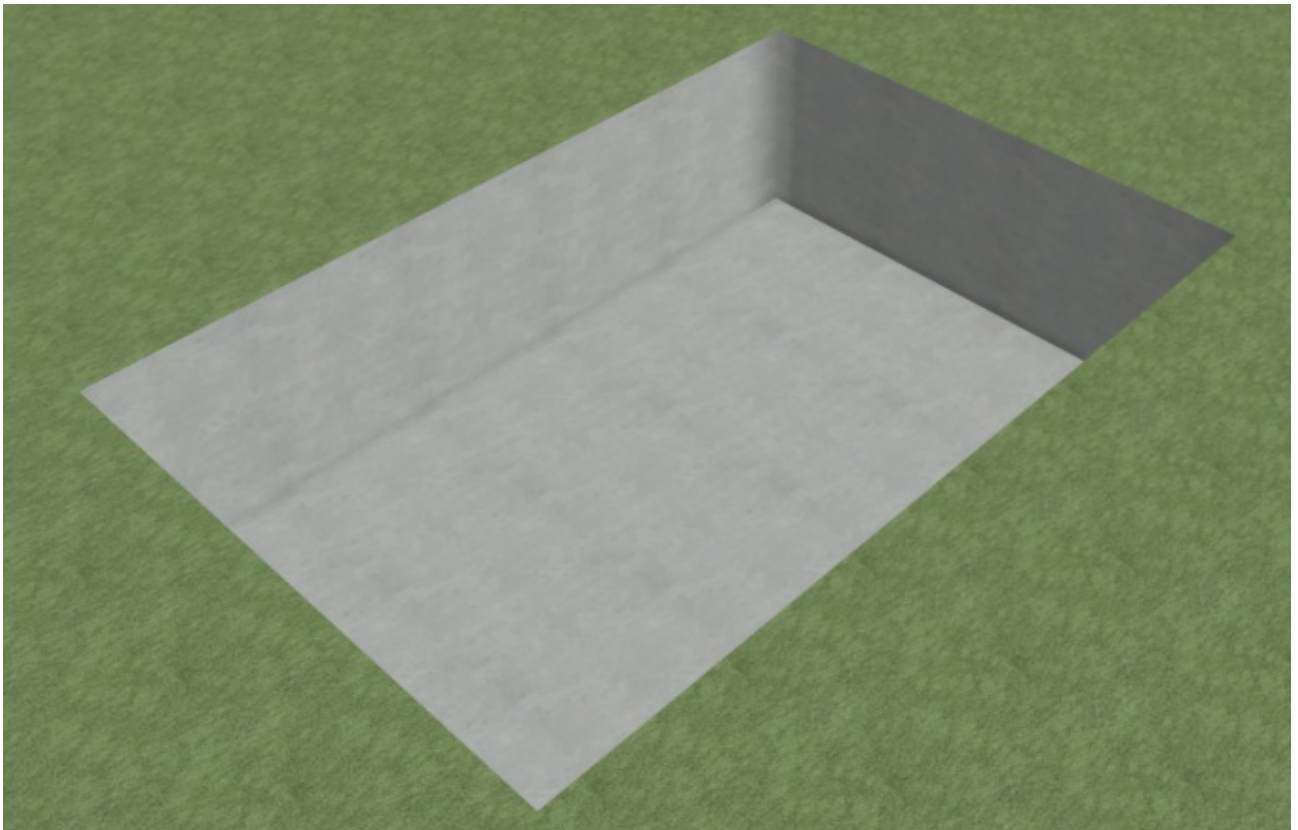
Features follow the contours of your terrain. If you place a feature on a slope, it will follow the slope rather than form a flat area. If your terrain is sloped, use Elevation Lines or a Flat Region to create a level area to place your pool in.

3. Select the Polyline and select the **Open Object**  edit button.
4. On the **GENERAL** panel of the **Terrain Feature Specification** dialog that opens:
 - o Change the **Height** to the desired depth of the pool's deepest point.




In this example, -96" is used.

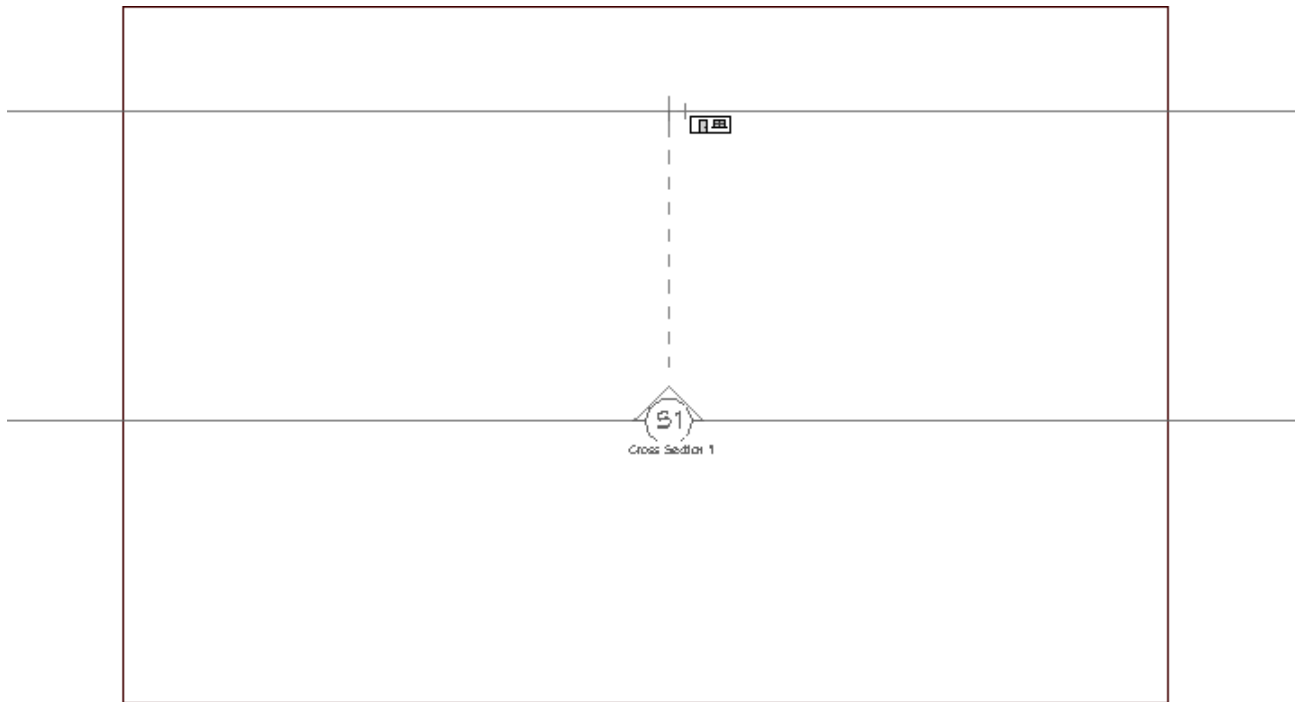
- o Click **OK** to close the dialog and apply your changes.
5. Next, select **3D> Create Perspective View> Perspective Full Overview**  so that you can see the results so far.




6. Once you have verified the camera view, select **File> Close View** to return to floor plan.

To slope the bottom of the pool

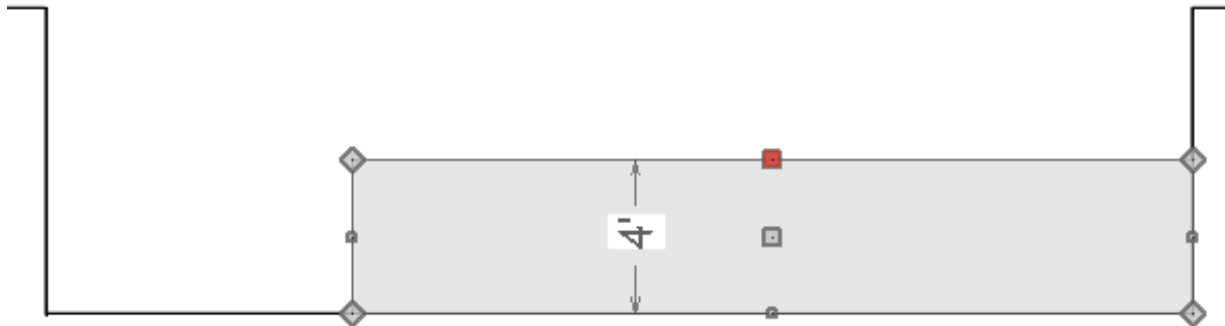
1. Select **3D> Create Orthographic View> Backclipped Cross Section** , then click and drag a camera arrow that runs perpendicular to the slope that you wish to create.




2. In the backclipped cross section view, select **CAD> Boxes> Rectangular Polyline**  from the menu, then click and drag to draw a rectangle along the bottom part of the pool.

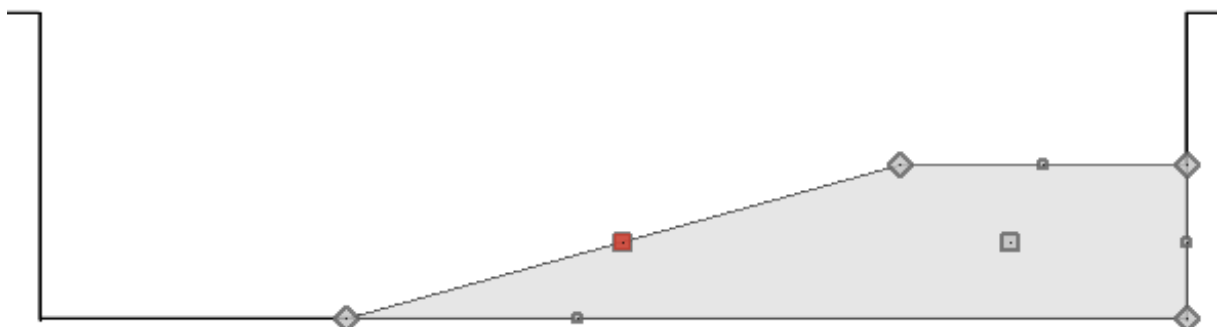
This rectangle will form the shallow end of the pool, as well as the slope to the deep end.


3. Click on the top edge of the polyline to select it, then click on the temporary dimension that displays between it and the bottom edge to specify the height above the deep end that you would like the shallow end to be.



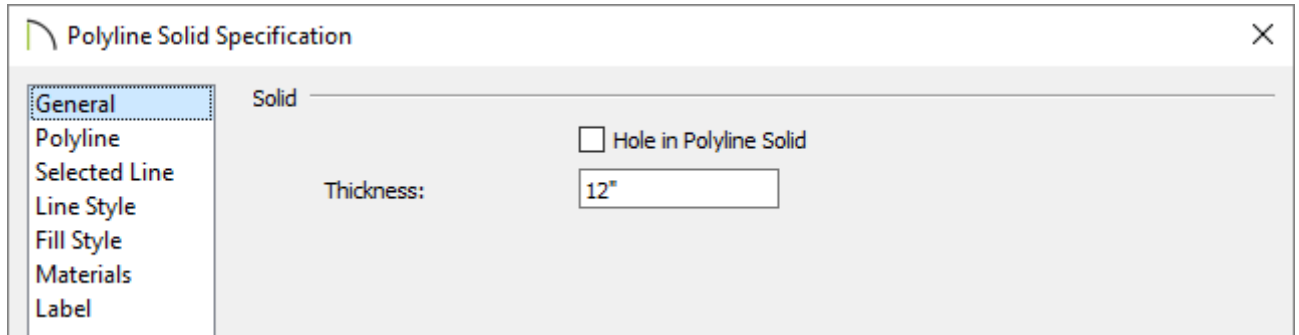
In this example, 48" is used.

4. With the rectangle still selected, click the **Break Line**  edit button and click along the top edge of the rectangle to place a break at that location.
5. Next, drag the top left corner down to create a slope, as demonstrated below.

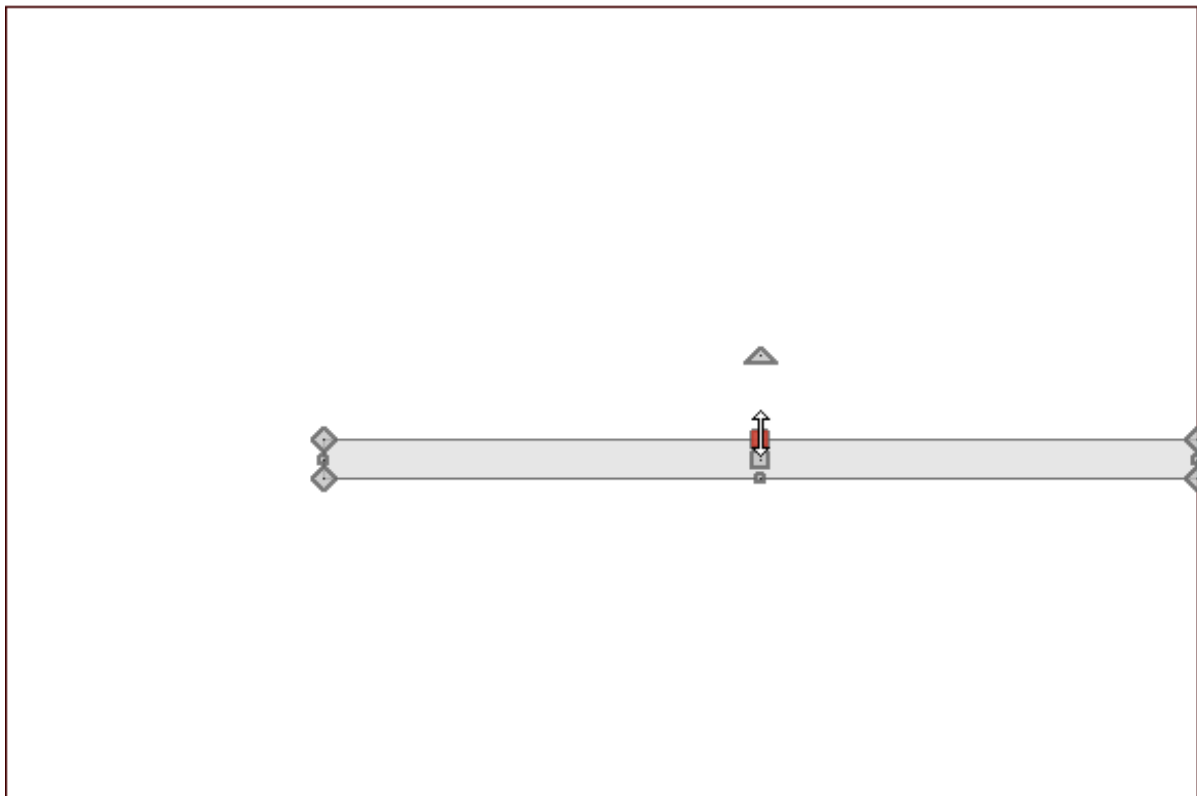


6. With the rectangular polyline still selected, click the **Convert Polyline**  edit button, and in the **Convert Polyline** dialog that displays, choose the **Polyline Solid** option, then click **OK**.

7. On the **GENERAL** panel of the **Polyline Solid Specification** dialog that opens next, change the **Thickness** to 12", then click **OK**.




8. Select **File> Close View** to close the cross section/elevation view and return to floor plan view.
9. In floor plan view, select the newly-created polyline solid and use the edit handles to adjust its width to match the width of the pool.



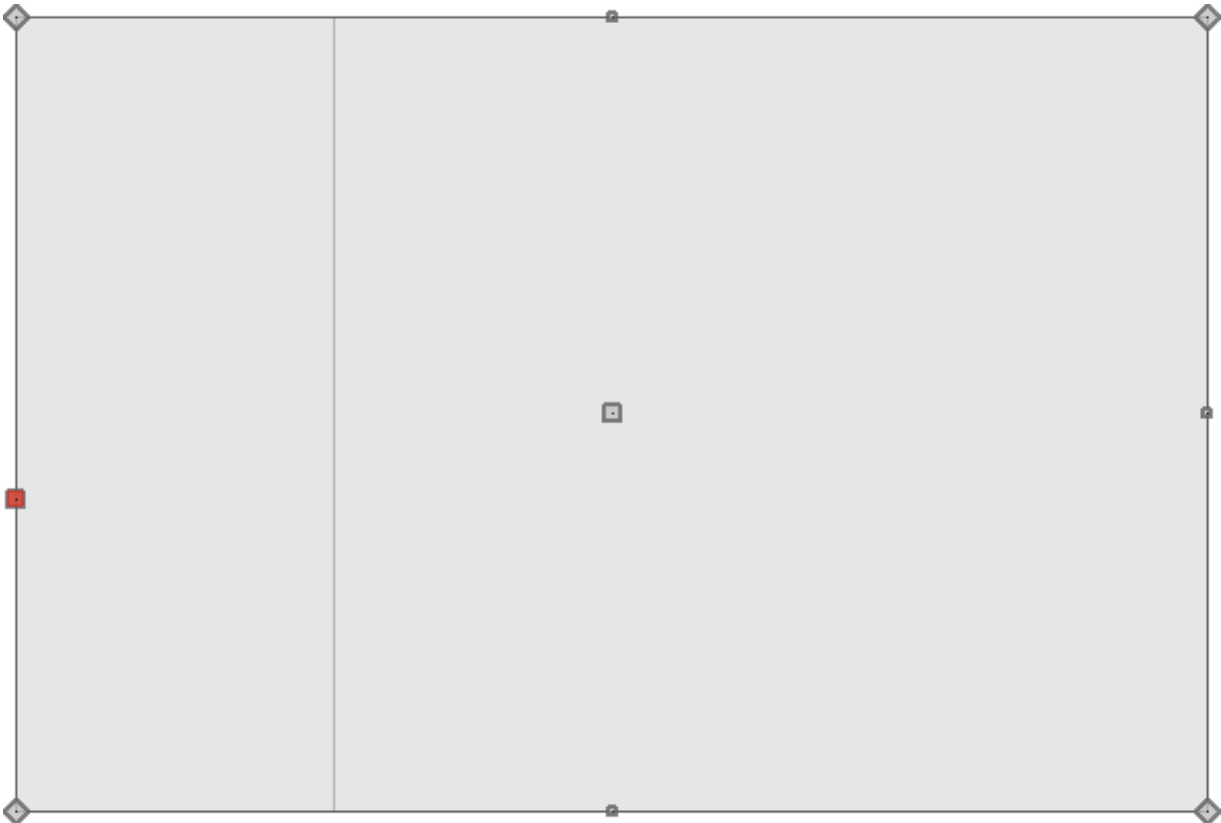
10. If you like, repeat these steps to create a sloped section for the other part of the L.

To create a rounded ledge around the pool

1. Select **Edit> Edit Behaviors** and click on **Concentric** , which allows you to resize objects so that the distance moved by each edge is the same.

Note: You will notice once you have selected this option that the Concentric icon may stay next to your mouse cursor until you return to the Default edit behavior depending on the version you're using.

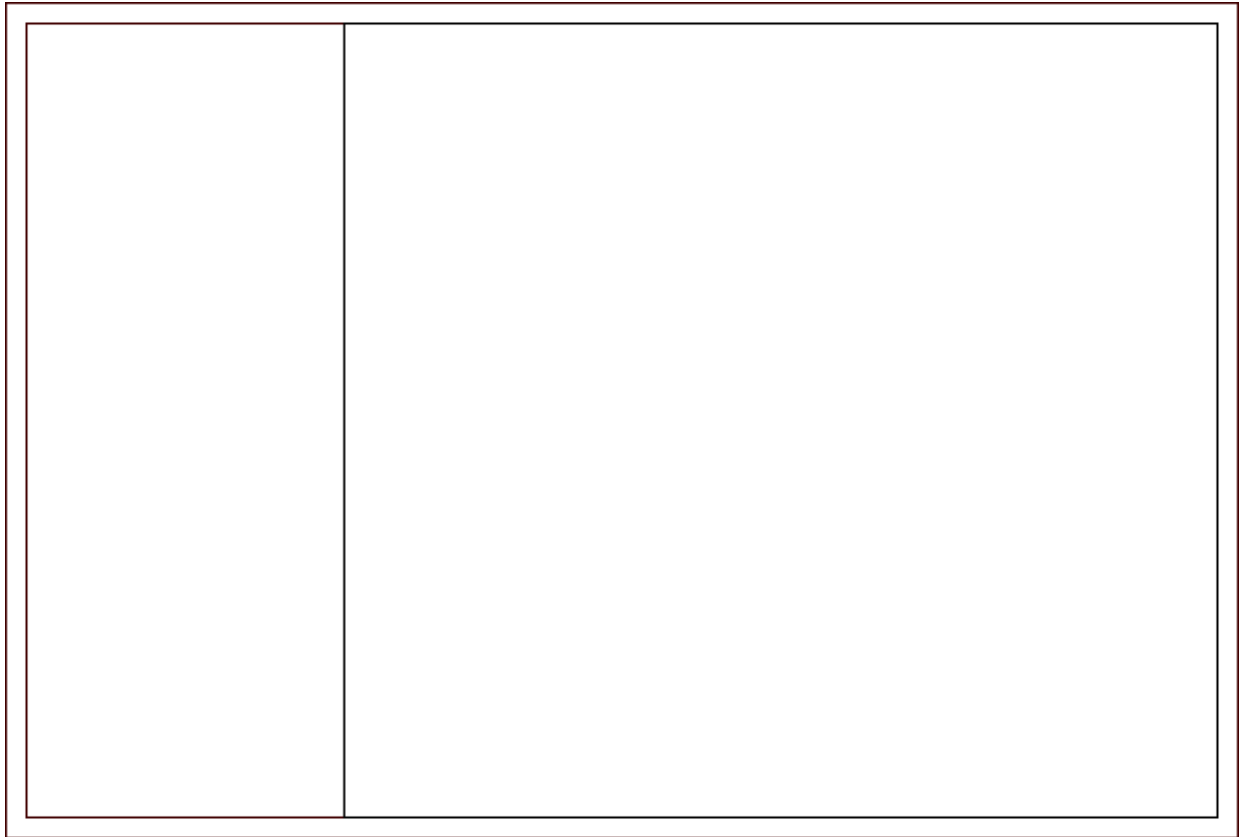
2. Using the **Select Objects**  tool, click on the pool feature region to select it and click the **Copy and Paste In Place**  edit button.





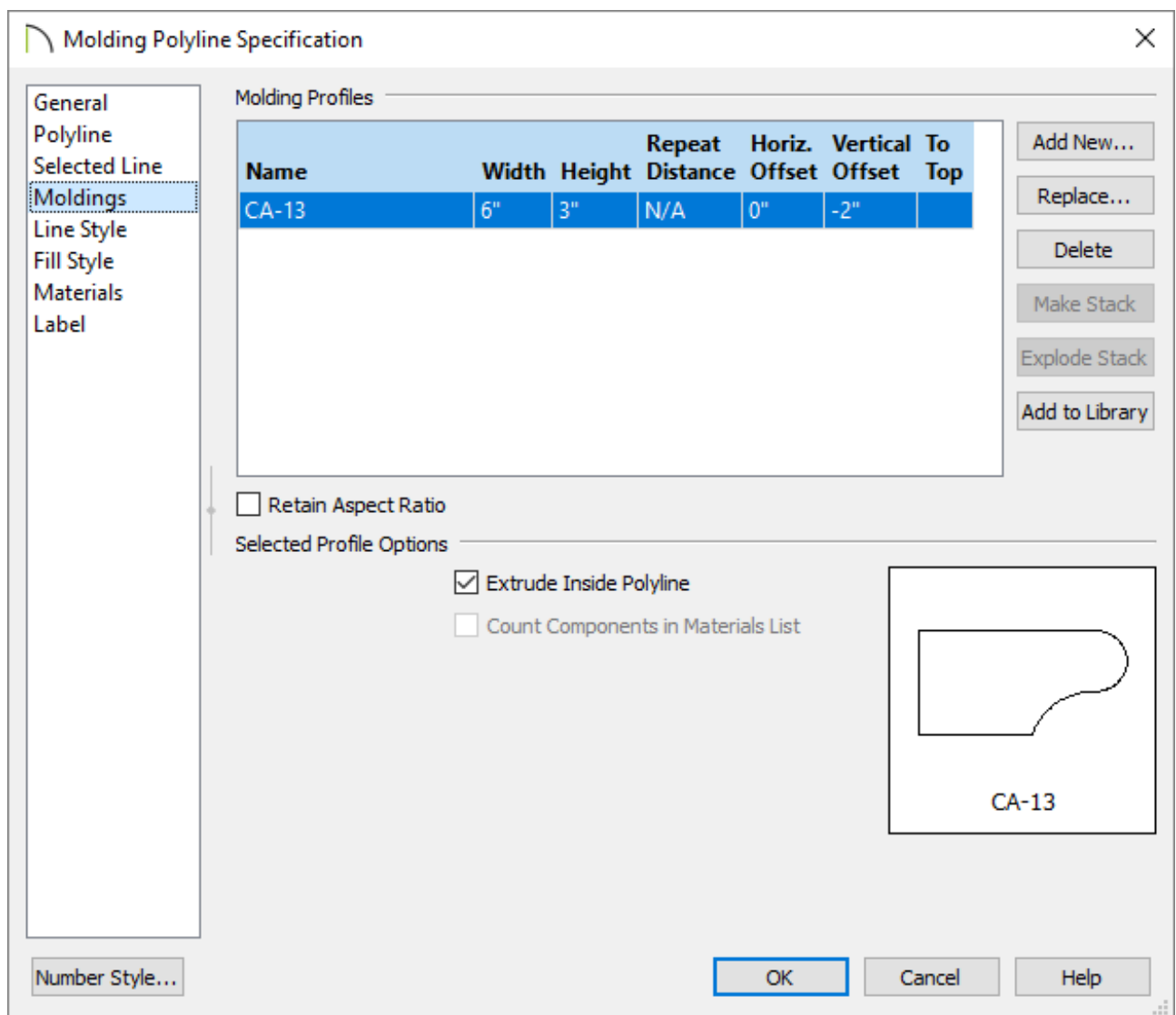
- o Place the mouse pointer over one of the diamond shaped corner handles.
- o Click and drag the handle slowly away from the pool. You will see that it snaps at

1 inch increments.

- Release the mouse button so that a new region is created 3 inches out from the original.



3. With the newly created feature region still selected, click the **Convert to Plain Polyline**  edit button so that it is no longer a terrain feature.
4. Next, with the new plain polyline selected, click the **Convert Polyline**  edit button, and in the **Convert Polyline** dialog that displays, choose the **Molding Polyline** option, then click **OK**.
5. On the **MOLDINGS** panel of the **Molding Polyline Specification** dialog:



- Click the **Add New** button, browse to **Chief Architect Core Catalogs> Architectural, Moldings, Profiles, Extrusions> Chair Rail**, and choose a molding profile.


In this example, **CA-13** is used.

- Set the **Height**, **Width**, and **Offsets** to your liking.

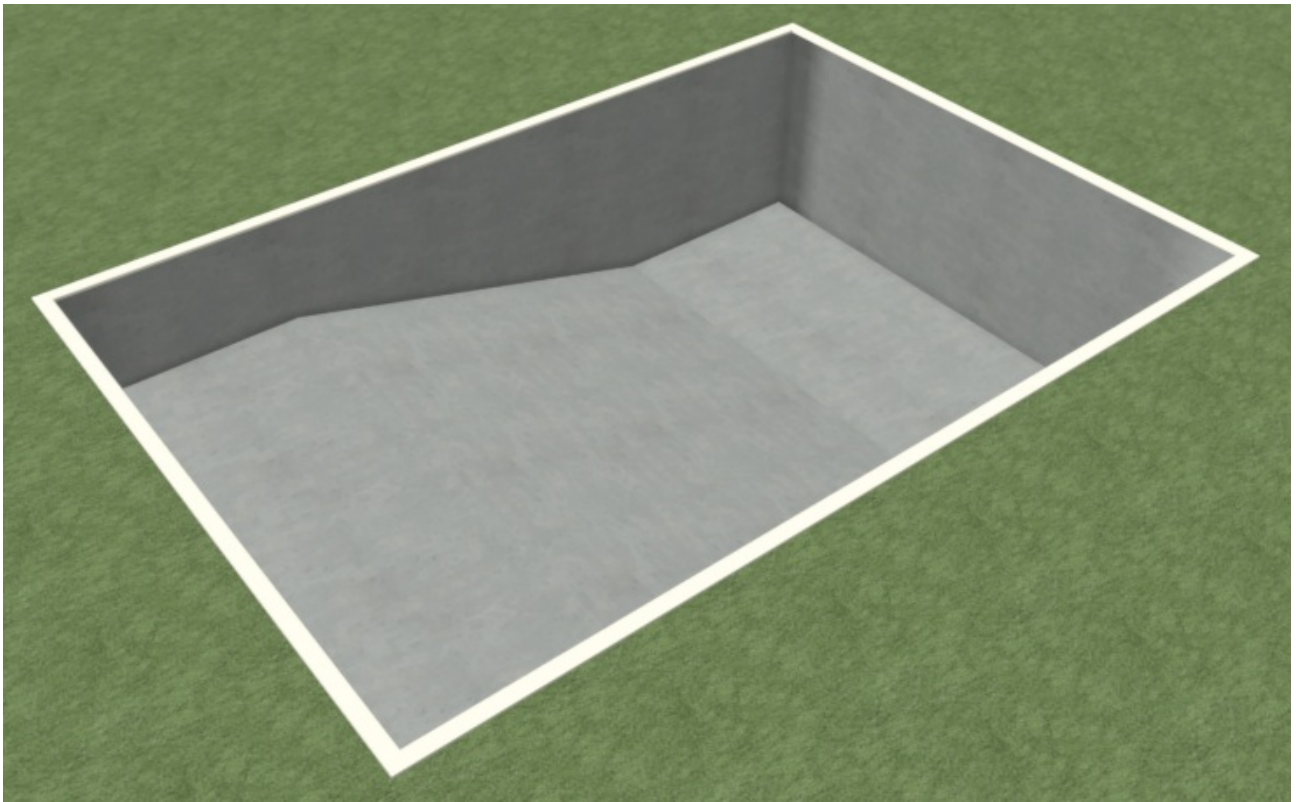
In this example, a width of 6", a height of 3", and a vertical offset of -2" is used.

- Make sure that the box beside **Extrude Inside Polyline** is selected.
- Make any other desired changes such as the material that is used on the **MATERIALS** panel, then click **OK**.

6. Now that we are finished using the concentric edit behavior, select **Edit> Edit**

Behaviors> Default  to return the default edit behavior.

7. Take a **Perspective Full Overview**  to see the results so far.



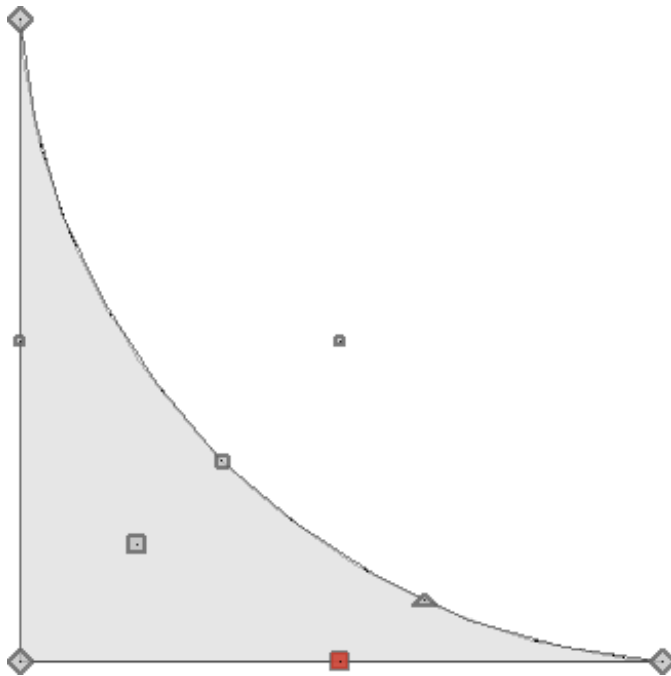
8. Once you have verified the camera view, select **File> Close View** to return to floor plan.

To create a molding profile for the pool


1. From the menu, select **CAD> CAD Detail Management** , then click on the **New** button to display the **Create New CAD Detail** dialog.

Give the detail a name of "Pool Molding" and click **OK** to open a new, blank CAD detail window.


2. Using the CAD drawing tools, create the profile of the curve that you would like to use where the pool walls meet the bottom.

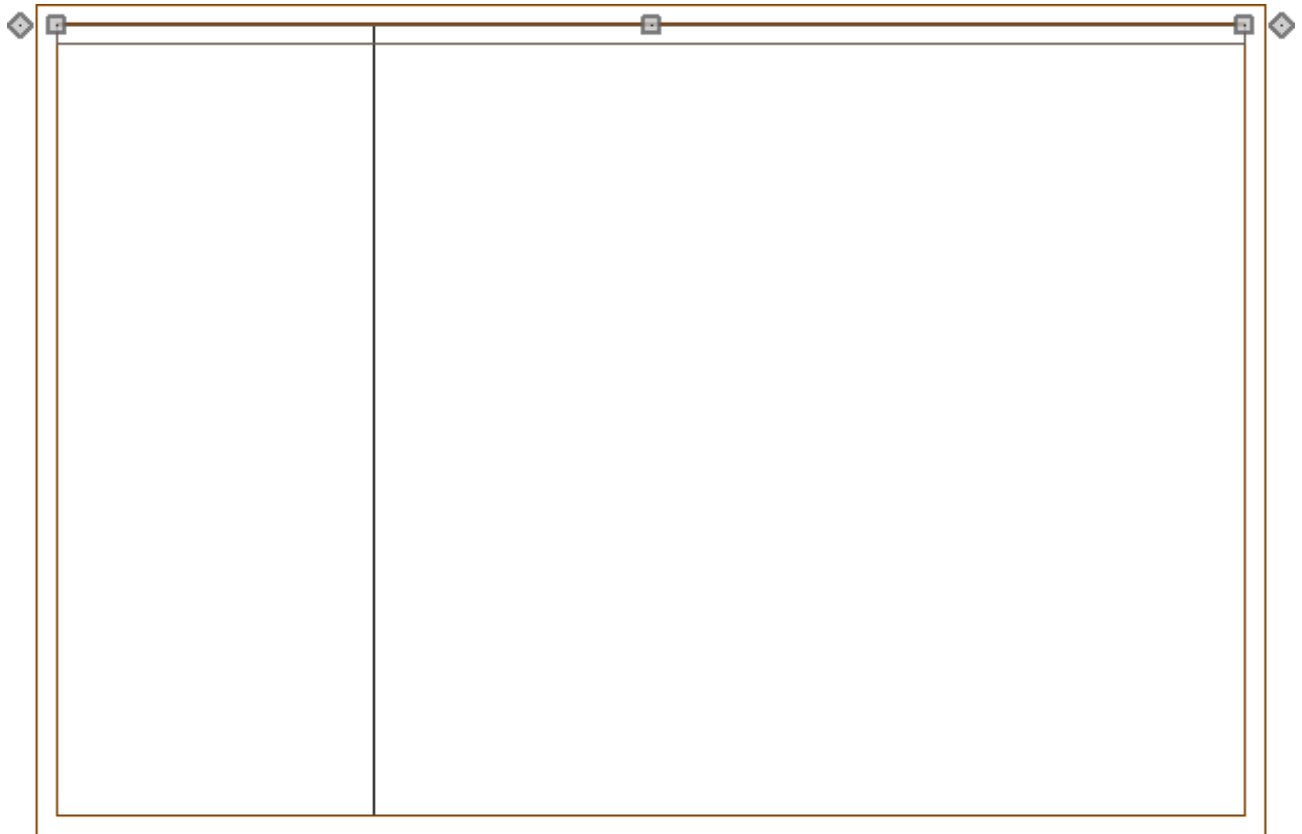



Draw this profile the actual size of the rounded corners you want at the bottom of the pool. This will save you the step of resizing it later. For more information about how to create a custom molding profile visit the [Related Articles](#) section below.

3. Once created, use the **Add to Library** + edit tool to add this molding profile to the User Catalog in the Library Browser.
4. Finally, select **File> Close View** to close the CAD Detail window and return to floor plan view.

To create curved edges at the bottom of the pool

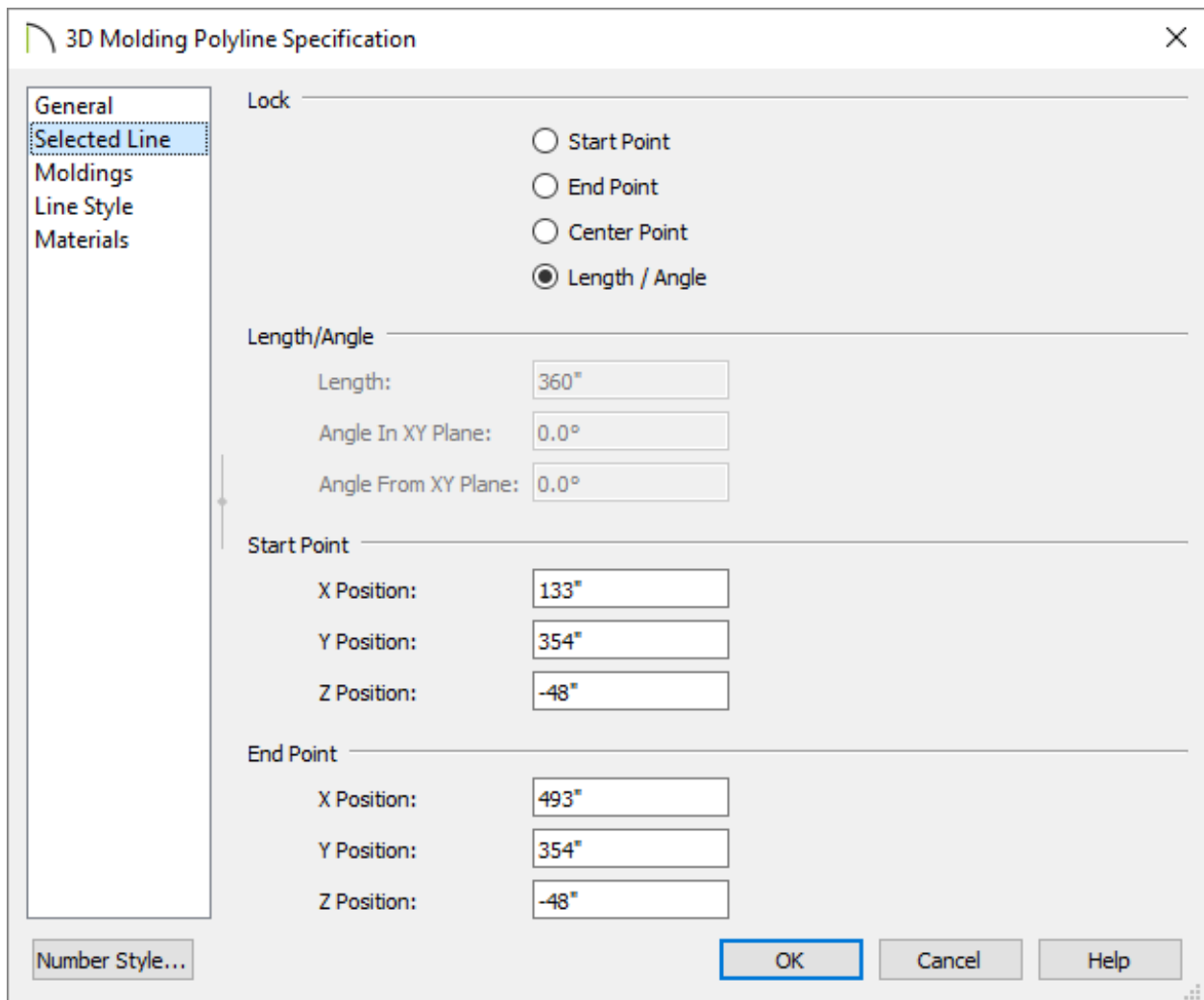
1. Select the Pool Molding profile that was saved to Library in the previous section, select **Build> Trim> 3D Molding Line**  from the menu, then click and drag to draw a molding line starting in the top left corner of the pool and ending in the top right corner.




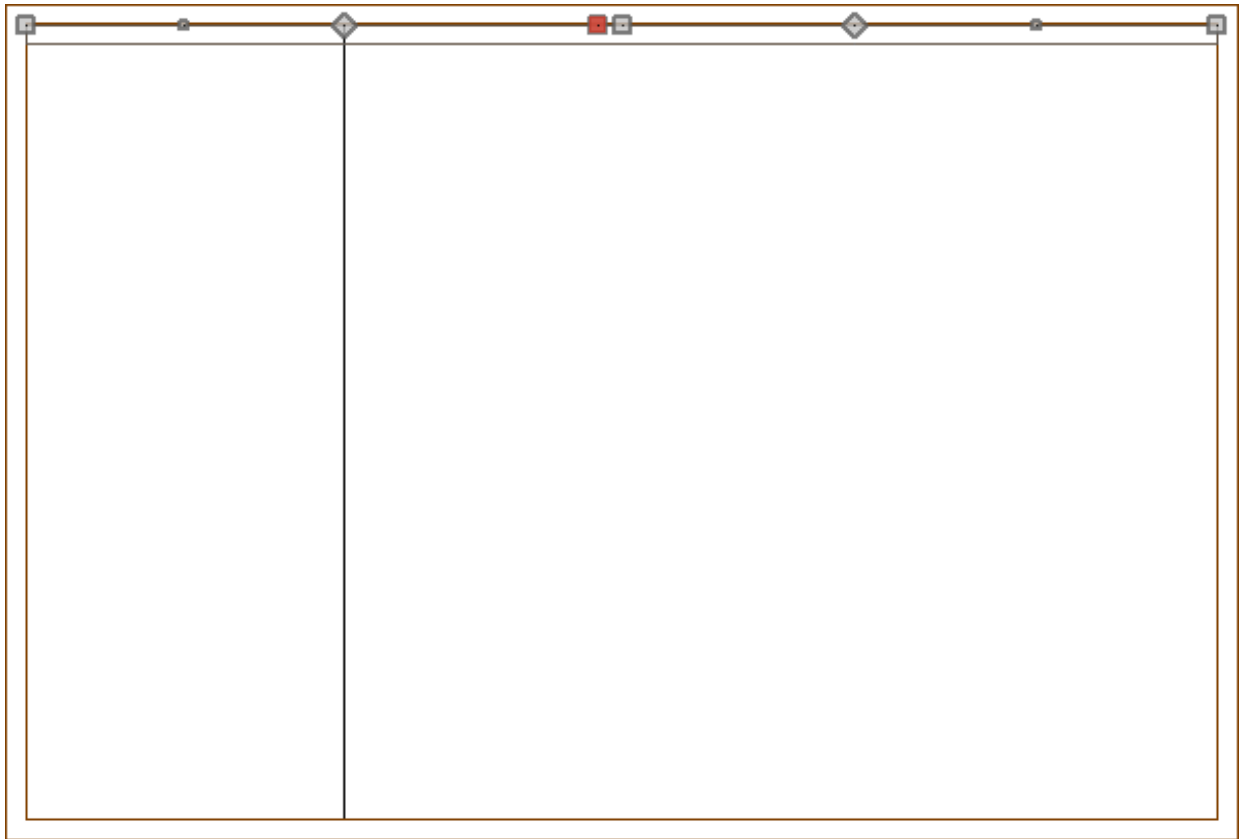
2. With the newly created 3D molding line still selected, click the **Open Object**  edit button.

If you have trouble selecting the 3D Molding Line, you can use the Next edit tool or Tab key on your keyboard to select the next object until the 3D Molding Line is selected.


3. In the **3D Molding Polyline Specification** dialog that displays:

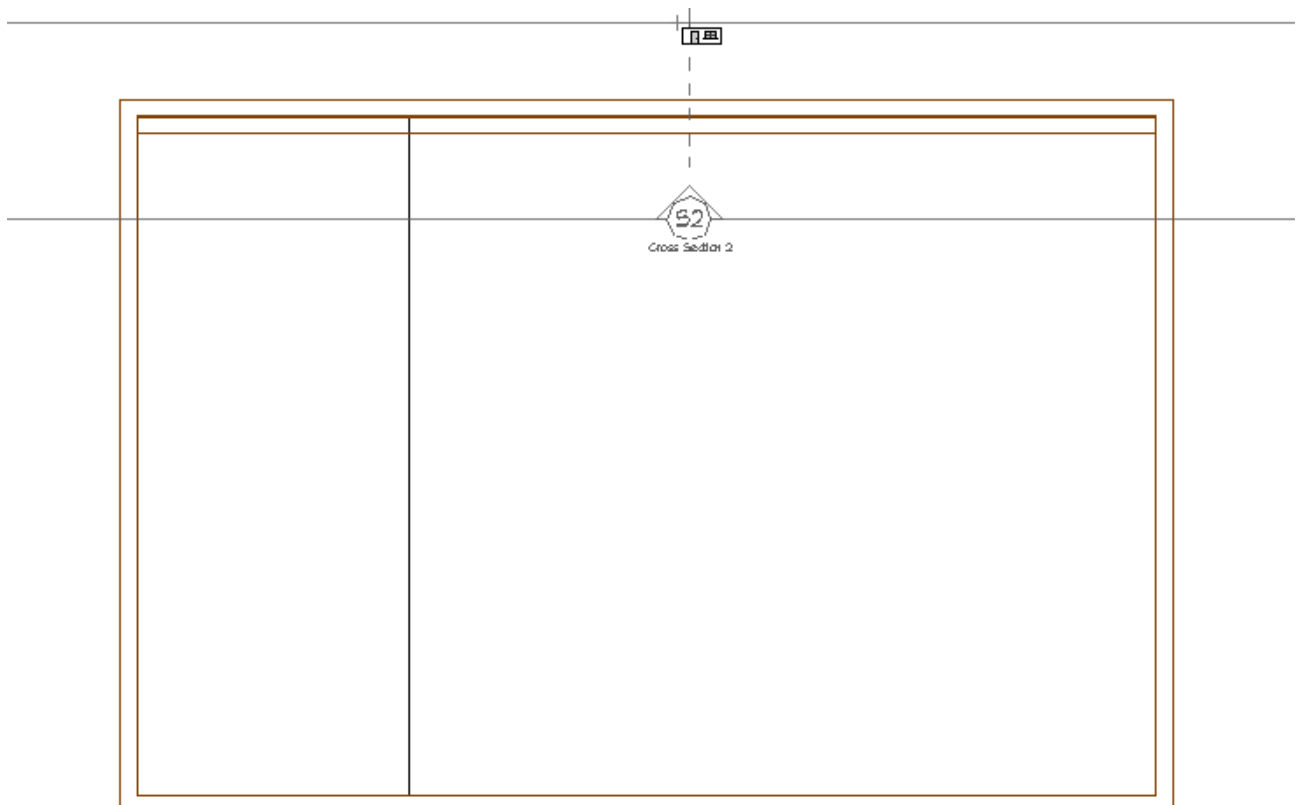


- On the **SELECTED** Line panel, choose to Lock the **Length / Angle**, then change the **Z Position** of the Start Point to -48".
 - Make any other desired changes, then click **OK** to close the dialog.
4. With the 3D molding line still selected in floor plan view, use the **Break Line**  edit tool to place two breaks along the line, each being where the elevation of the pool changes.

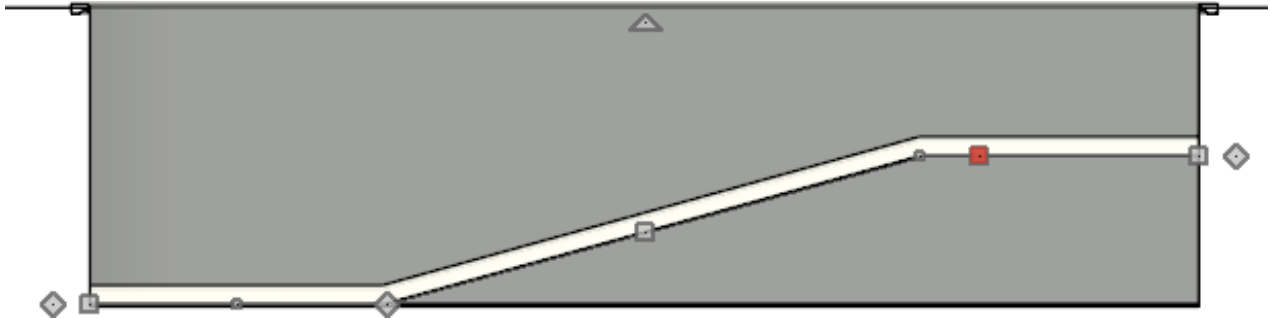


These breaks, shown above with the diamond edit handles, will allow you to edit the polyline so it follows the slope of the pool bottom.

5. Next, select **3D> Create Orthographic View> Backclipped Cross Section** , then click and drag a camera arrow to create a view looking directly at this molding line.



- In the cross section view, click on the 3D molding line to select it, and then use its edit handles to reshape it to fit to the bottom of the pool.

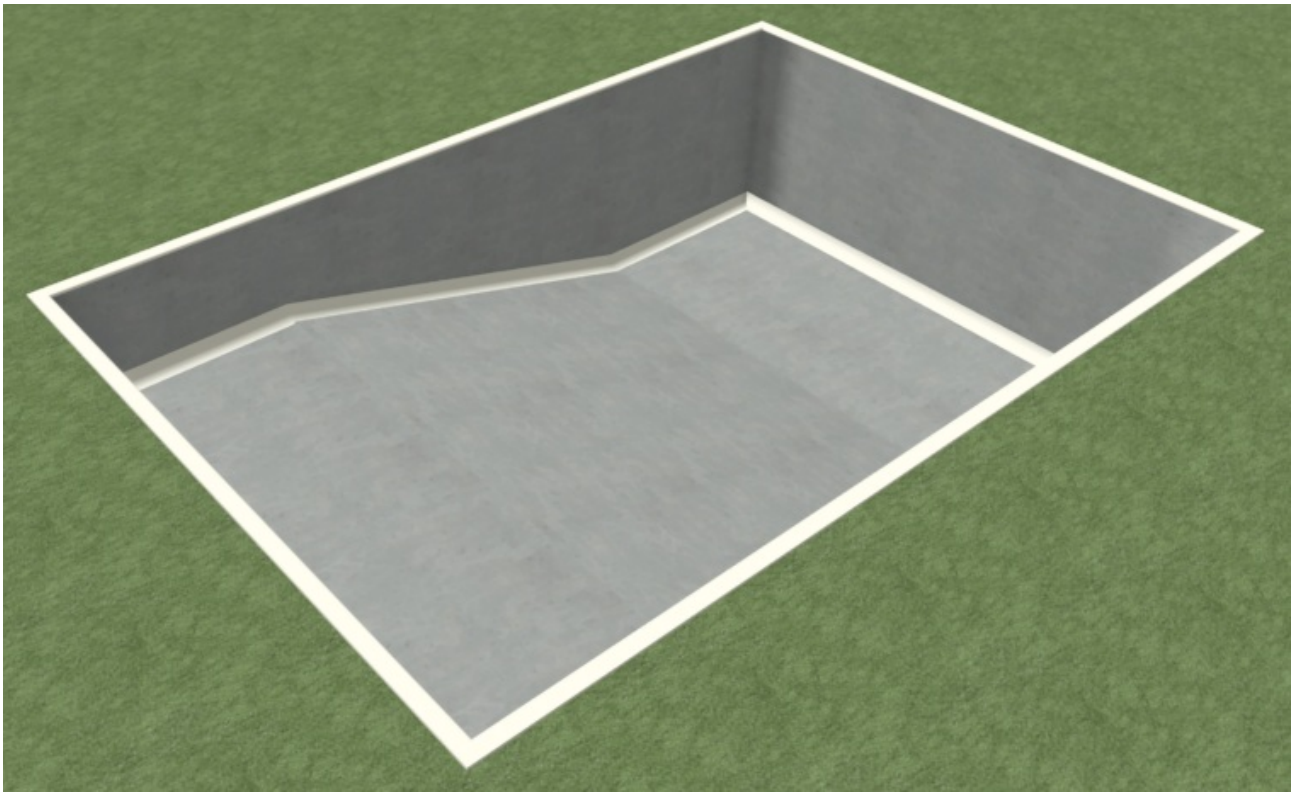


Note: You can also use the Break Line edit tool while in a cross section view to place additional break points, if needed.





- Return to floor plan view and repeat these steps, drawing 3D Molding Lines for each side of the pool, one at a time.
 - In order to make sure the molding lines connect to each other, be sure to set the ending point of the old line and starting point of the new line at the same height.
 - For example, if you proceed clockwise around the pool and draw the second molding line along the top of the pool, you will need to set the Z value to be -48".

A 3D Molding Polyline can also be used to create these curved edges along the bottom perimeter of the pool. Simply repeat steps 2-6 in this section after using the 3D Molding Polyline tool.

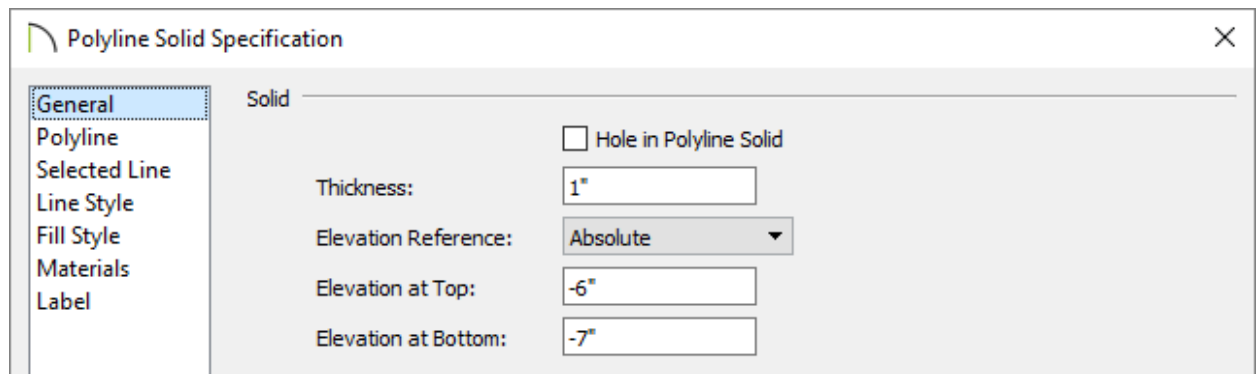
- Take a **Perspective Full Overview**  to see the results so far.



To add water to the pool

1. Select the pool terrain feature created in the first section of this article.
 - If you initially select an object other than the terrain feature, click the **Select Next Object**  button or press the **Tab** key on your keyboard.
2. With the Terrain Feature selected, click on the **Copy/Paste in Place**  edit button.
3. With the pasted terrain feature still selected, click on the **Convert to Plain Polyline**  edit button.
4. With the now plain polyline selected, click the **Convert Polyline**  edit button, and in the **Convert Polyline** dialog, choose **Polyline Solid**, then click **OK**.
5. In the **Polyline Solid Specification** dialog that displays next:

- On the **GENERAL** panel, set the **Elevation at Top** to -6" and the **Thickness** to 1".

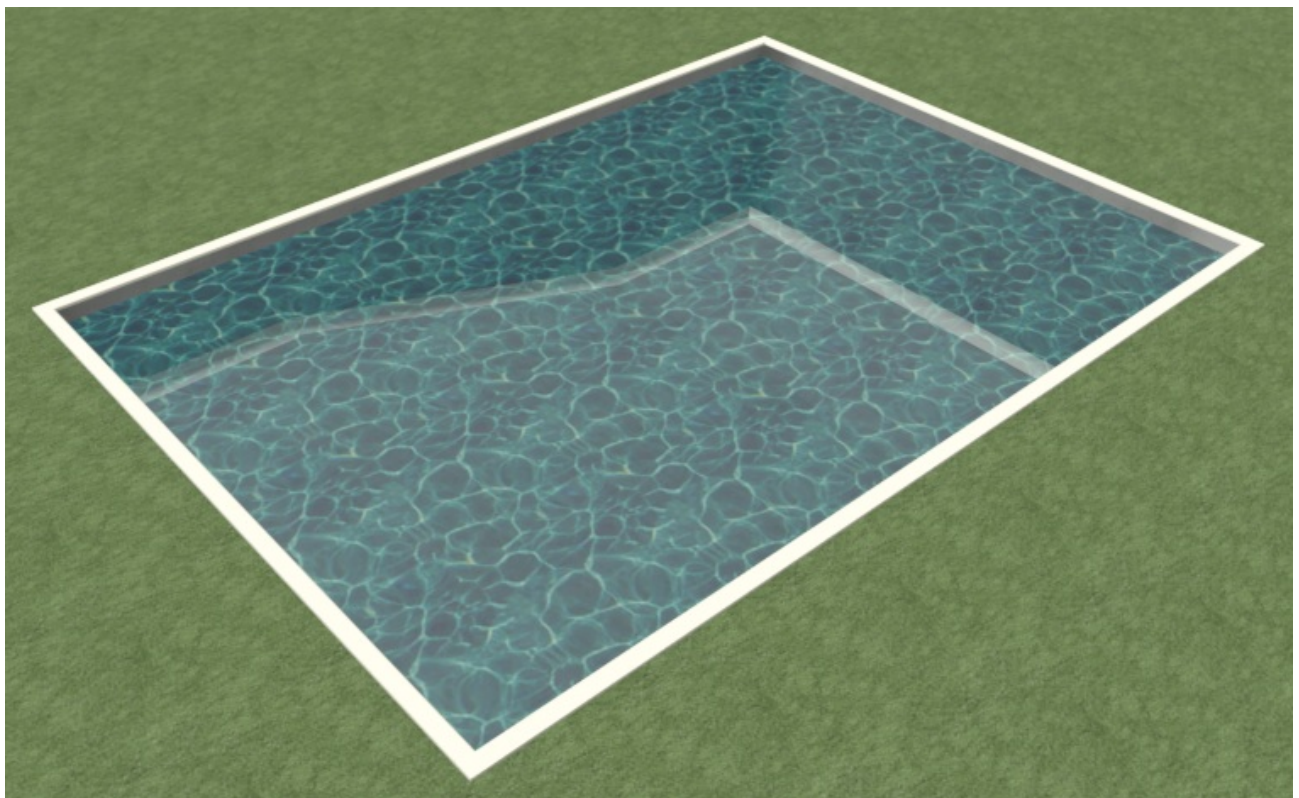



- On the **MATERIALS** panel, select the Polyline Solid component, and click on the **Select Material** button.
- In the **Select Material** dialog, browse to **Materials> Landscaping & Roadways> Water** and choose a water material.

In this example, **Water1** is used.

- Click **OK** and **OK** again to close the dialog and apply your changes.

6. Finally, take another **Perspective Full Overview**  to see the results.



You can now close the view, or use the **Window> Tile Vertically**  feature to tile the floor plan and camera views, and adjust the materials of the other elements in the design, such as the terrain feature and molding polylines.

To accessorize the pool area


A patio area around your pool can be designed using one or more terrain features with different heights and materials. Avoid drawing a terrain feature over the pool feature, as it will cover it up.

Suitable patio materials can be found in the Masonry & Stone and Tile folders in the Materials catalog in the Library Browser.

Furniture, games, and other accessories can also be found in the Library Browser.

Additional poolside objects and materials can be found by accessing the 3D Library (<https://www.chiefarchitect.com/3d-library/index.php?r=site/library&reset=true>).

Related Articles

 [Creating a Custom Molding Profile \(/support/article/KB-00166/creating-a-custom-molding-profile.html\)](/support/article/KB-00166/creating-a-custom-molding-profile.html)