Chief Architect
Architectural Home Design Software

Using 3D Solids to Create Custom Objects

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QUESTION

I need to create a custom object, what tool should I use?



ANSWER

A 3D Solid is a generic, 3D shape that has a specified thickness. They can be oriented either horizontally or vertically and is useful for creating custom details anywhere in your 3D model.

A horizontal 3D Solid can be created in floor plan view, or any 3D view, by selecting the 3D Solid tool and then clicking and dragging to draw a rectangle. A vertical 3D Solid can be

created in a cross section/elevation view in the same manner as in floor plan view. The 3D Solid is placed in front of any objects visible in the view. If no objects are behind, the 3D Solid is placed one foot in front of the camera.

3D Solids can be edited the same way as other closed polyline-based objects.

In this article, we will be creating the custom shaped mirror that can be seen in the above image.

> **Note:** For more information on 3DSolids, as well as primitives, please see the Related Articles section below or the Moldings, Primitives & 3D CAD video playlist (https://www.chiefarchitect.com/videos/playlists/98/moldings-primitives-3d-cad.html).
>
> In addition to 3D solids you can also use the molding line tool to create a decorative edge or ambient lighting to your 3D solid. For more information on using molding lines, see the Related Articles.

Creating and editing the shape of a 3D solid

1. From the menu, select **3D> Create Orthographic View> Cross Section/Elevation** and create an elevation view.

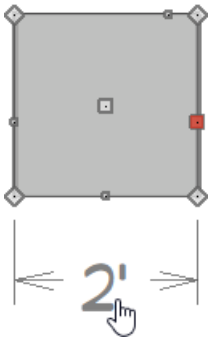
2. From this new elevation view, select **Build> 3D Solid> 3D Solid**, then click and drag to create a 3D Solid.



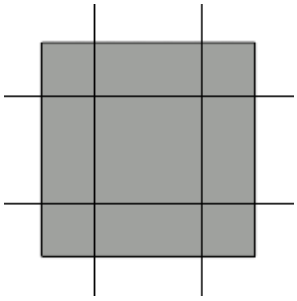
3. Click on one edge of the rectangle to activate that edge, then temporary or manual dimensions to resize the rectangle to a basic **24"** by **24"** square.

   If temporary dimensions are not enabled, enable them by going to **View> Temporary Dimensions**.

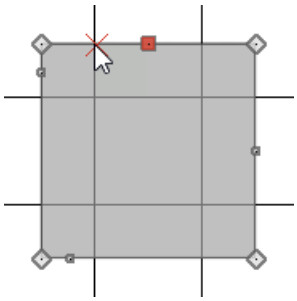
> The active edit handle will a different color than the rest. By default, the handle will be red, but it can be changed on the Colors panel that's located in the Preferences dialog.



4. Next, click **CAD> Lines> Draw Line**, then click and drag to draw four lines across the square **6"** from the sides as shown:

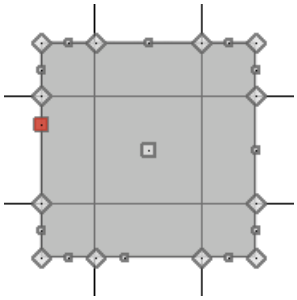


5. With the **Select Objects** tool active, select the 3D Solid, use the **Add Break** edit tool and use the **Intersections** snap indicator to help place breaks points precisely where the lines intersect the 3D Solid.

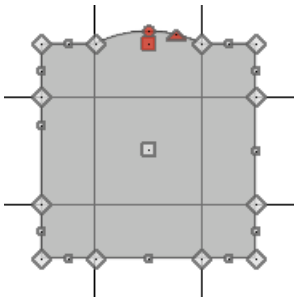


6. Continue making break points at all intersections.Select the **Sticky Mode** secondary edit tool if you'd like to place multiple break points without having to re-select the **Add**

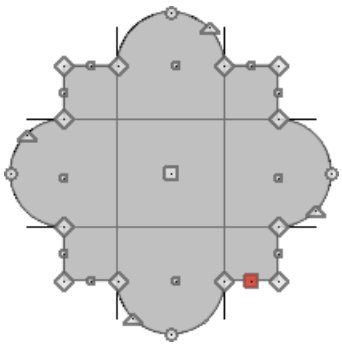
Break tool each time.



7. Using the **Select Objects** tool, select the top edge of the 3D/Polyline Solid and use the **Change Line/Arc** edit tool, then use the small triangular edit handle on the edge of the arc to increase the arc's height until it is **6"** tall.

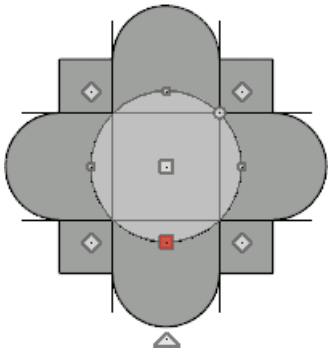


8. Continue using the **Change Line/Arc** edit button to convert the middle sections of each side to arcs of **6"** in height.



Creating a hole in the 3D solid

1. Select **CAD> Circles> Circle** from the menu, and using the CAD line intersections within the 3D Solid, click and drag to draw a circle.



2. Select the CAD circle and then use the **Convert Polyline** edit tool.

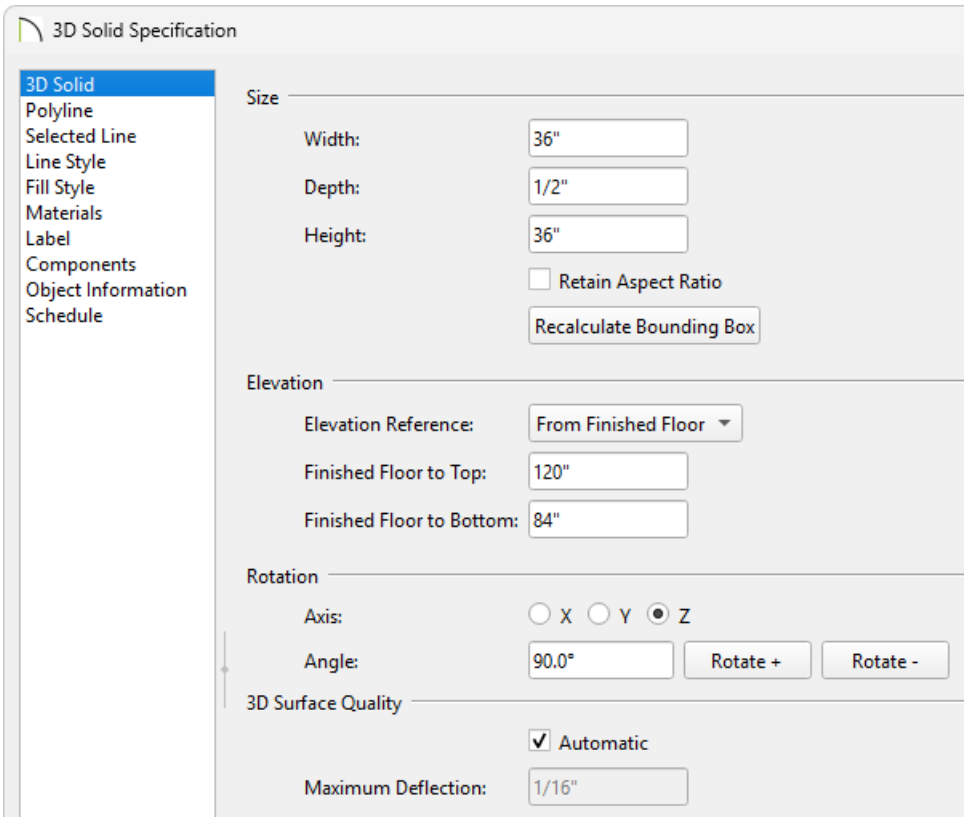
3. In the **Convert Polyline** dialog, select **3D Solid Hole** option and click **OK**.

> A hole can also be created by two different methods. First, by selecting the 3D Solid, selecting the 3D Solid Feature edit tool, then clicking and dragging inside the solid. Second, you can create another 3D solid and use the Subtraction tool to create a hole. For more information on using the Subtraction feature please see the Subtracting Polylines that Overlap (https://www.chiefarchitect.com/videos/watch/305/subtracting-polylines-that-overlap.html) training video.

Editing the thickness and material of the 3D solid

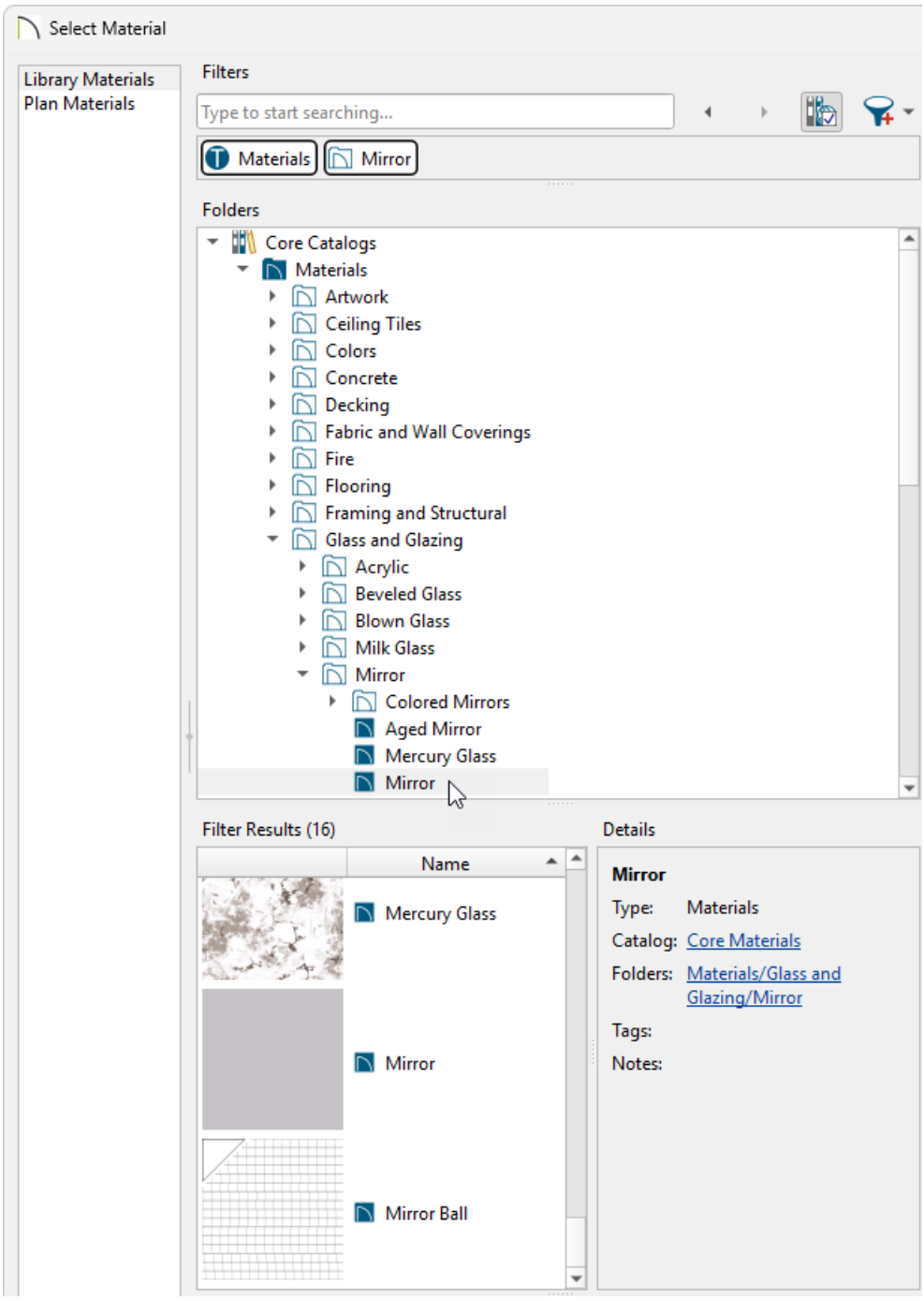
1. Using the **Select Objects** tool, select the main 3D Solid, then use the **Open Object** edit tool.

2. In the **3D Solid Specification** dialog that opens:



- On the 3D SOLID panel, set the Depth to **1/2"**.

- On the MATERIALS panel, select the **3D Solid** sub-component, click the **Select Material** button, then search for a Mirror material.



- Once the desired material is chosen, click **OK** and **OK** a second time to confirm the changes and close both dialogs.

Saving the 3D Solid to your User Catalog

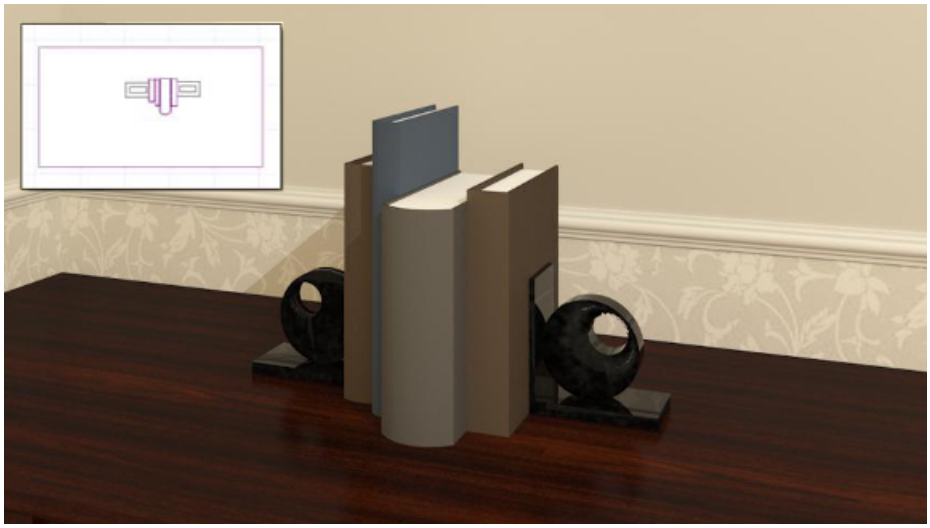
1. If not already open, open your **Library Browser** by going to **View> Library Browser**.

2. Using the **Select Objects** tool, select your 3D Solid and use the **Add to Library** edit tool to add the object to the **User Catalog**.

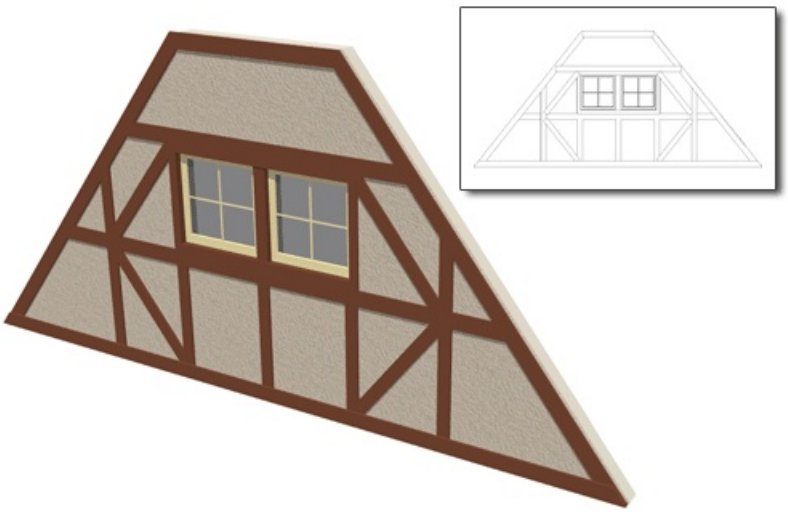
3. The 3D Solid will now be listed in your **User Catalog** and can be used in other projects.

Additional examples created using 3D Solids

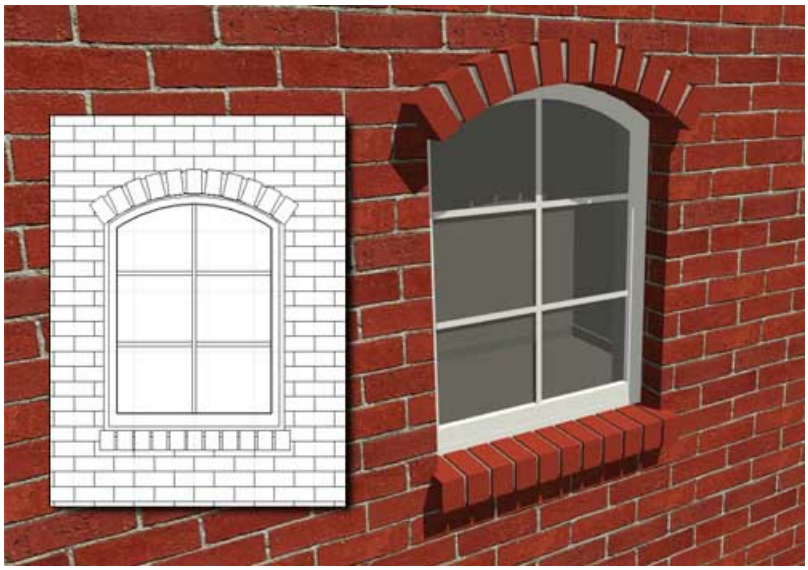
- Bookends



- Gingerbread fachwerk architecture



- An arched soldier course



Related Articles

- Adding a 3D/Polyline Solid to the User Catalog (/support/article/KB-00035/adding-a-3d-polyline-solid-to-the-user-catalog.html)
- Creating a Custom Arch Using a 3D Solid (/support/article/KB-00565/creating-a-custom-arch-using-a-3d-solid.html)
- Creating a Custom Door (/support/article/KB-01808/creating-a-custom-door.html)
- Creating a Sign with 3D Lettering (/support/article/KB-00709/creating-a-sign-with-3d-lettering.html)
- Creating a Soldier Course (/support/article/KB-00797/creating-a-soldier-course.html)
- Creating Custom Balusters and Railing Panels (/support/article/KB-02893/creating-custom-balusters-and-railing-panels.html)
- Modeling Custom 3D Objects (/support/article/KB-00761/modeling-custom-3d-objects.html)
- Using Molding Polylines (/support/article/KB-02882/using-molding-polylines.html)
- Using the Extrude Object Edit Tool (/support/article/KB-00931/using-the-extrude-object-edit-tool.html)