Chief Architect
Architectural Home Design Software

Creating a Post and Beam Pavilion

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QUESTION

How do I create a post and beam pavilion in Chief Architect?

ANSWER

There are a wide variety of post and beam construction styles, and a variety of different methods that can be used to model this type of structure in Chief Architect.

> To learn more about post-frame construction for the purposes of creating a pole building or pole barn, please refer to the resources in the Related Articles section.

In this article, a simple pavilion composed of posts, beams, trusses, and purlins is created.

To create the perimeter

1. Select **Edit> Default Settings** from the menu.

2. In X17 and newer versions, select **Framing> Manual Framing** from the list and click the **Edit** button.

    - Switch to the BEAMS panel and under Floor/Ceiling Beams, set the Depth and Width. In this example, **5 ½"** is used for both.

    - Set the Placement to **Under Joists**.

    - On the POSTS panel, set the Depth and Width to match the beam width of **5 ½"**.

    - Click **OK**.

    - While still under **Framing**, select **Trusses> Roof Trusses** and click the **Edit** button.

    - On the GENERAL panel, under the Member Sizing heading, set the Top and Bottom Chords, as well as the Webbing to **5 ½"**.

    - Click **OK** and **Done** to make these changes and close the dialogs.

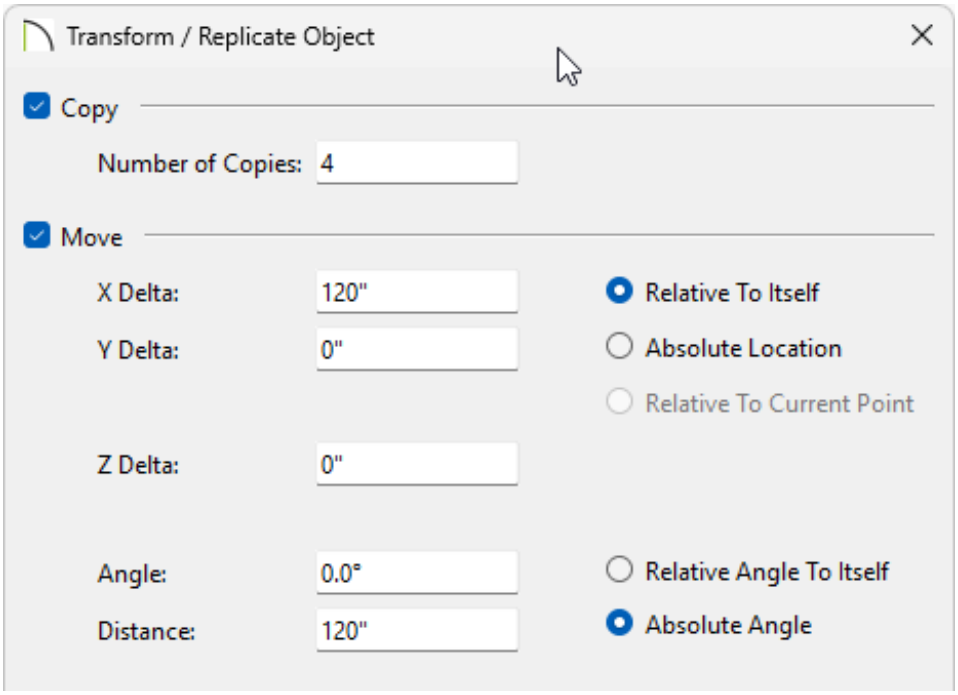
In X16, select **Framing> General Framing** from the list and click the **Edit** button.

- Switch to the BEAMS panel and under Floor/Ceiling Beams, click the **Edit Floor Beam Defaults** button.
- Under the GENERAL panel of the **Floor Beam Defaults** dialog, set the Depth and Width of the beam. In this example, **5 ½"** is used for both.
- Click **OK**, then set the Placement to **Under Joists**.
- On the POSTS panel, click the **Edit Post Defaults** button and set both Width 1 and Width 2 to match the beam width of **5 ½"**.
- Click **OK**.
- On the TRUSSES panel, under the Member Depth heading, set the Top and Bottom Chords, as well as the Webbing to **5 ½"**.
- Click **OK** and **Done** to make these changes and close the dialogs.

3. Next, select **Build> Framing> Post**  from the menu, and click in the drawing area to place a post.

> If you don't have the "Framing, Posts" layer turned on, you may see the message: "The layer "Framing, Posts" is not displayed. Do you want to turn on the display of this layer in the current view?". Click Yes if you see this message.

4. Click on the post to select it, then click the **Transform/Replicate Object**  edit tool. In the **Transform/Replicate Object** dialog:



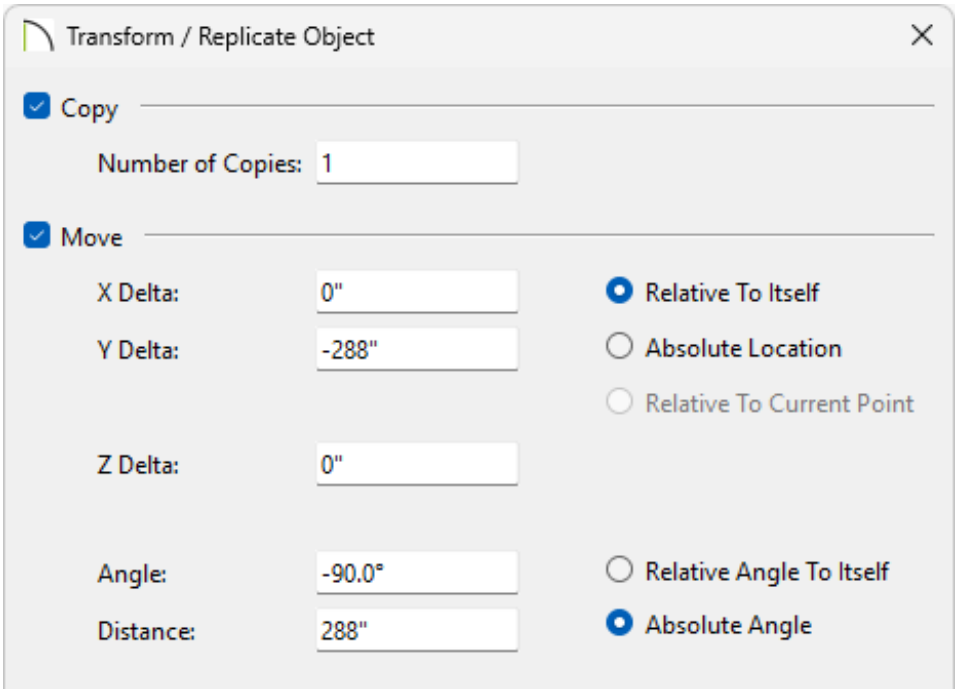
- Check the box beside **Copy** and specify the number of copies you would like to make. In this example, **4** copies are created.

- Check the box beside **Move** and specify the interval at which you would like the copied posts to be created. In this example, a **Move** interval of **120"** along the **X Delta** is used.

- Click **OK** to close the dialog and create the copies at the specified interval. In this example, a total of five posts spaced 10 feet (On Center) apart are produced.

5. Next, using the **Select Objects** tool, click and drag a rectangular marquee around all five posts to group-select them.

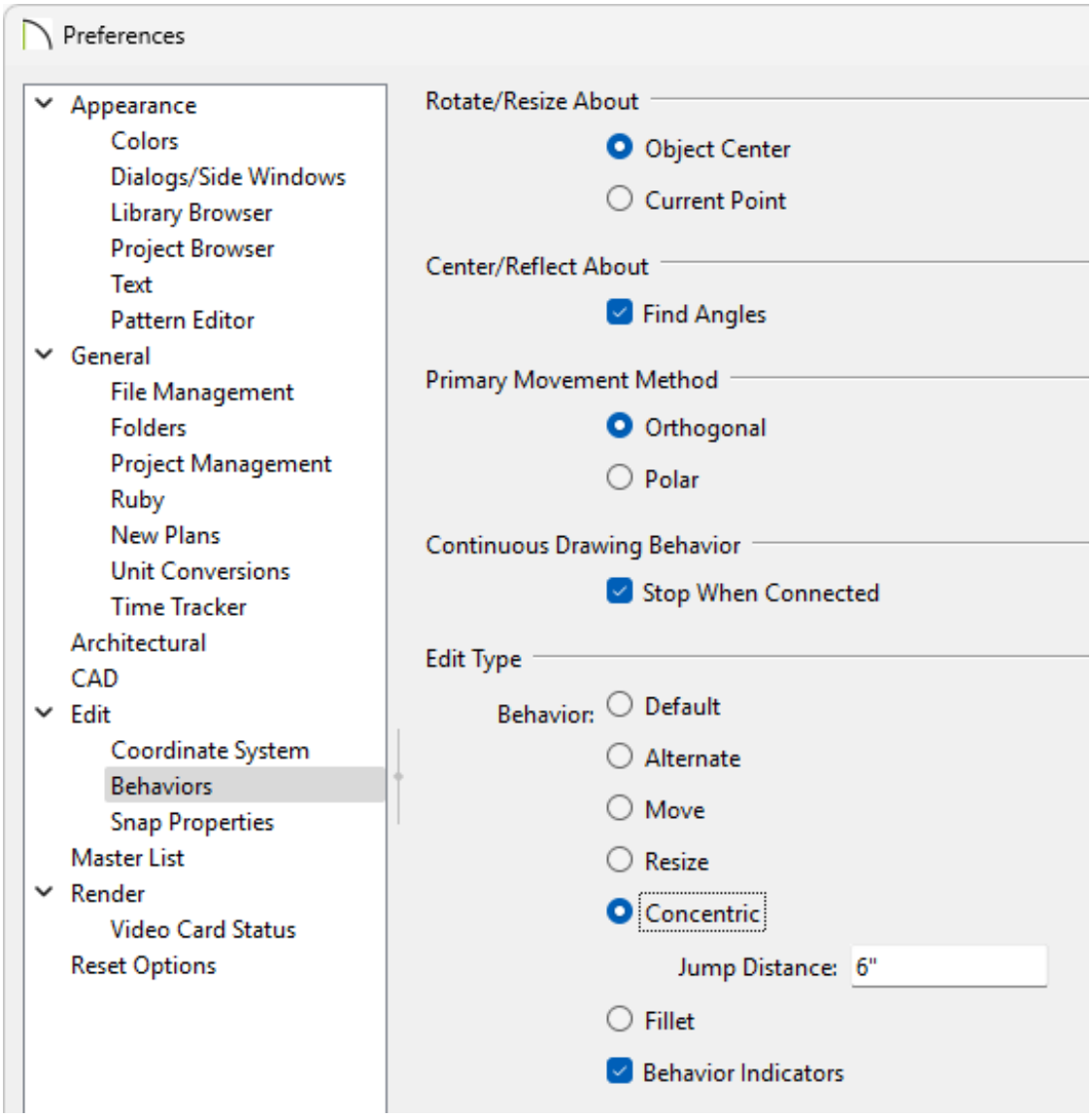
6. With the five posts selected, click the **Transform/Replicate Object** edit button again. In the **Transform/Replicate Object** dialog:



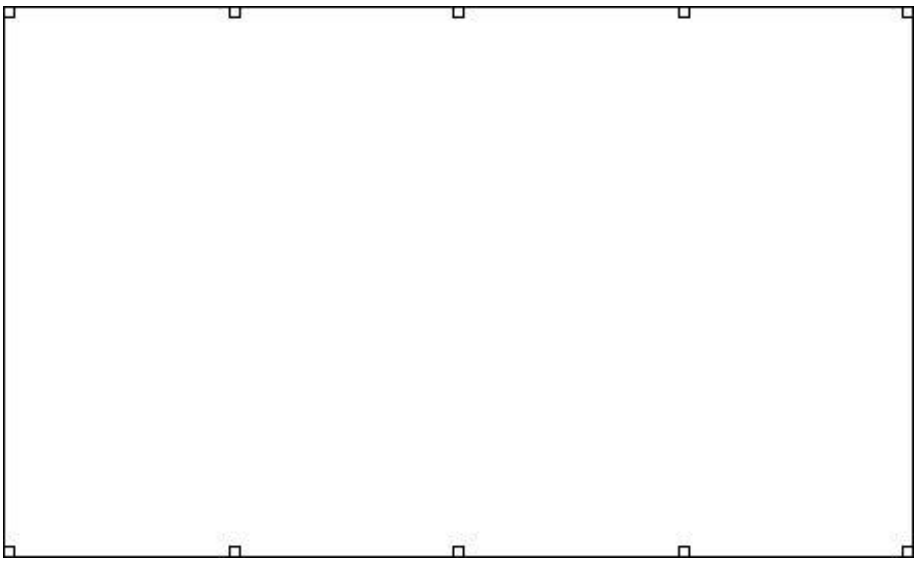
- Check the box beside **Copy** and specify **1** copy.
- Check the box beside **Move** and specify the interval to move the copied posts. In this example, the posts are moved 24 feet down on-screen, or **-24'** on the **Y Delta** then press your **Tab** key on your key board. You will see a value of **-24'** converts to **-288"**
- Click **OK** to close the dialog and create the copies at the specified interval.

7. Open your program **Preferences**, and on the BEHAVIORS panel, move the radio button to **Concentric** and set the **Jump** value, which is the distance you want between the outside of the posts and the edge of the pavilion's concrete slab, then click **OK**. In this example, **6"** is used.

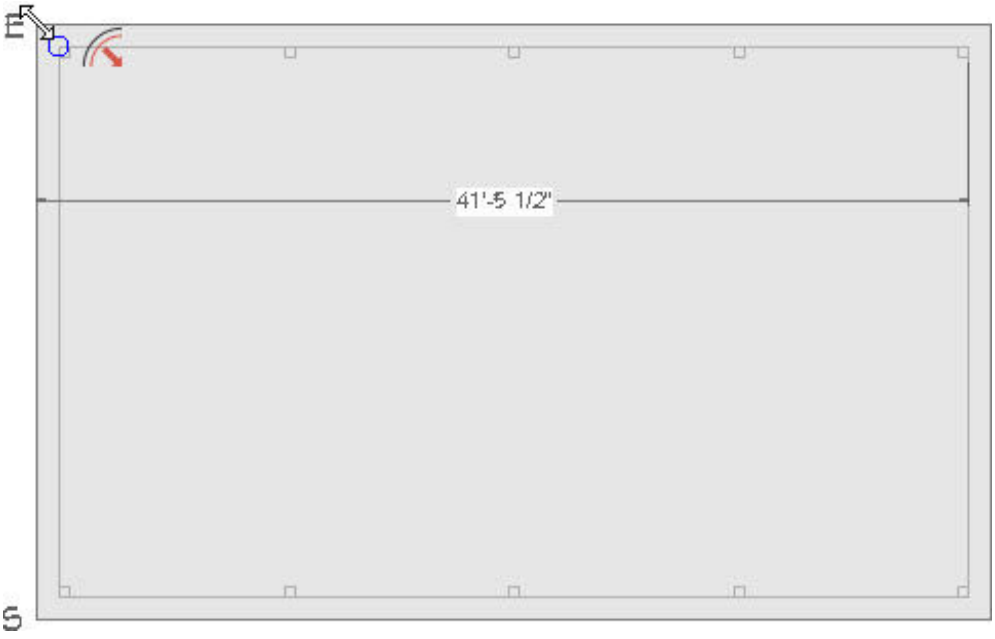
On a Windows PC, Preferences can be found by selecting Edit> Preferences from the menu. On a Mac, select Chief Architect> Preferences from the menu instead.



8. Next, select **CAD> Boxes> Rectangular Polyline** from the menu, then click and drag a polyline that snaps to the outside of the array of posts.

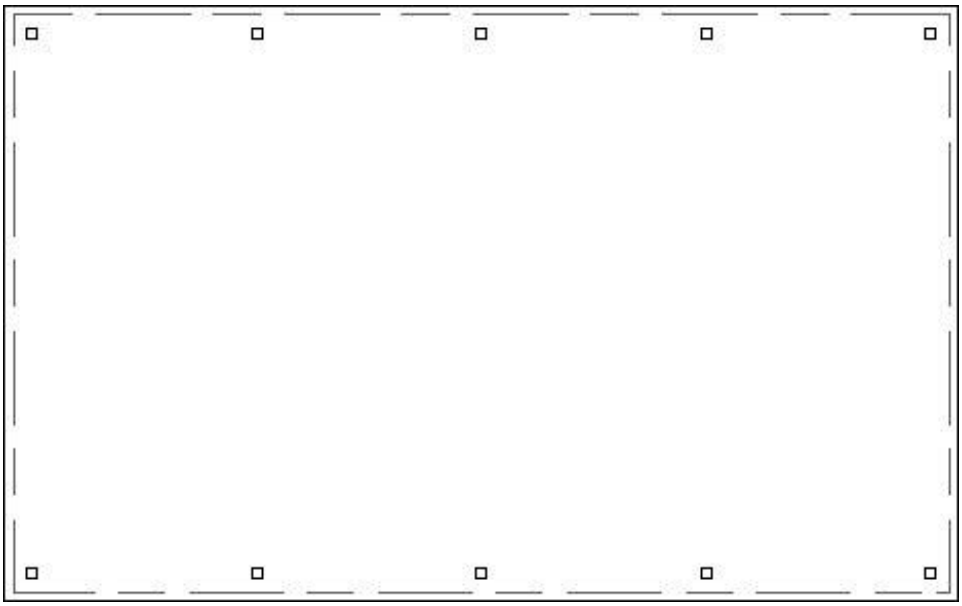


9. Concentrically resize the polyline, so it represents the size of the slab you need by clicking on the polyline to select it, then **Zoom** in on a corner of the polyline. Since you've already set **Concentric** as the active Edit Behavior, slowly drag the corner outward until it snaps to one Jump increment of 6", then release the mouse button.



10. Select **Edit> Edit Behaviors> Default** to return to the Default edit behavior.

11. Select **Build> Wall> Room Divider** from the menu, then draw Room Divider walls over the polyline that you created in the previous steps. When the Room Dividers completely surround the area they will automatically convert to full width, invisible walls.

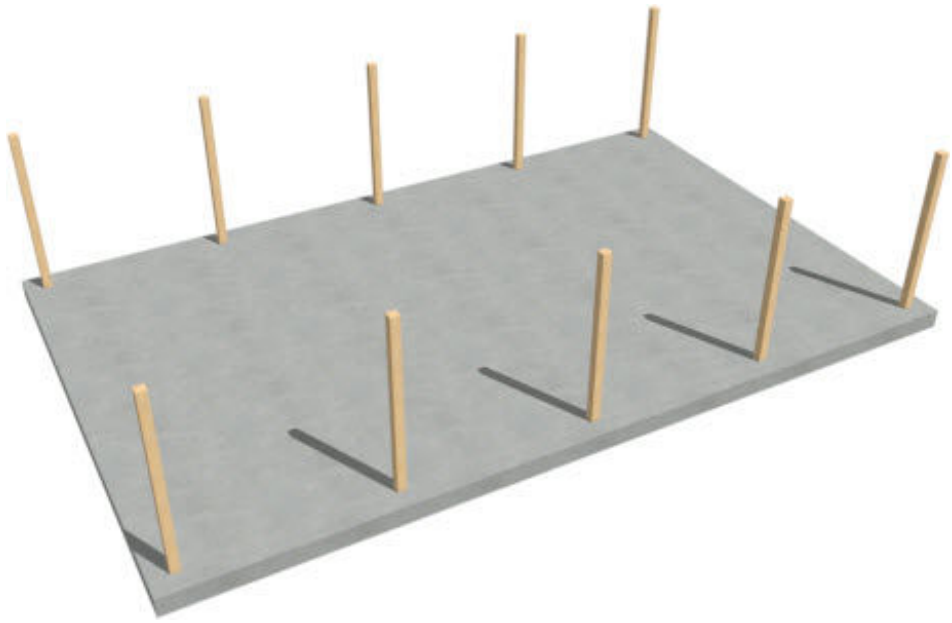


12. Using the **Select Objects** tool, click inside of the room's floor area to select the room, then click on the **Open Object** edit tool.

13. On the GENERAL panel of the **Room Specification** dialog, change the **Room Type** to **Slab** so there is no additional flooring on top of the slab foundation, then click **OK**.

14. Next, navigate to **Build> Floor> Build Foundation** from the menu, and in the **Build Foundation** dialog, move the radio button under Foundation Type to **Monolithic Slab**, then click **OK**.

15. Finally, select **3D> Create Perspective Overview> Perspective Framing Overview** from the menu to see the results so far.



To add roof trusses

1. Select **File> Close View** from the menu to close the framing overview and return to the floor plan view.

2. From the currently active foundation level, go **Up One Floor** to Floor 1, select the two vertical side walls that were created using the Room Divider tool, then click on the **Change to Gable Wall(s)** edit tool on the Edit toolbar to change them to gable walls.

3. With the two vertical side walls still selected, click on the **Open Object** edit tool.

4. On the ROOF panel of the **Wall Specification** dialog, under Roof Options uncheck **Include Automatic End Truss Above**, then click **OK** to close the dialog.

5. Select **Build> Roof> Build Roof** from the menu. In the **Build Roof** dialog:

    - On the ROOF panel, check **Trusses** for the Framing Method.

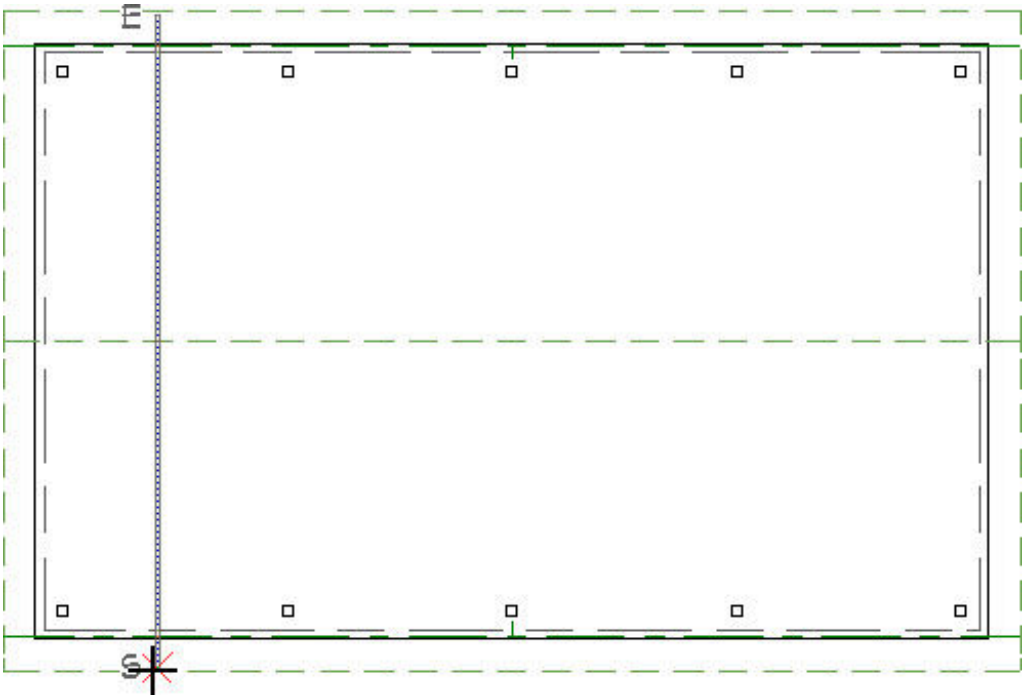
    - Specify the desired **Pitch (in12)**, **Overhang**, as well as any other settings, such as

MATERIALS.

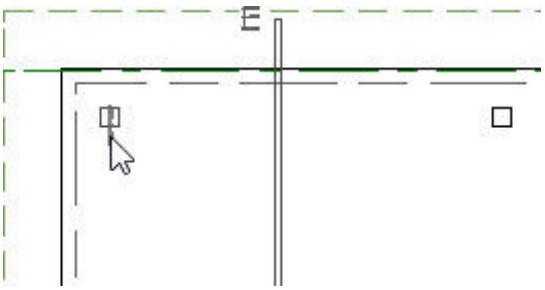
- Check the box next to **Build Roof Planes**, then click **OK** to close the dialog and build a roof over the structure.

6. Select **Build> Framing> Roof Truss** from the menu, then click and drag a line perpendicular to the roof ridge from one exterior wall to the opposite wall to draw a roof truss at that location.

> If the "Framing, Roof Trusses" layer is not being displayed, then you may receive the following message: "The layer "Framing, Roof Trusses" is not displayed. Do you want to turn on the display of this layer in the current view?". Click Yes on this message to turn on the display of Roof Trusses in this view.



7. To move the truss over the top of the first two posts on the left side of the building, select the truss and then click on the **Center Object** tool. Place your mouse over the top of one of the first posts until you see the vertical centerline indicator, then click.



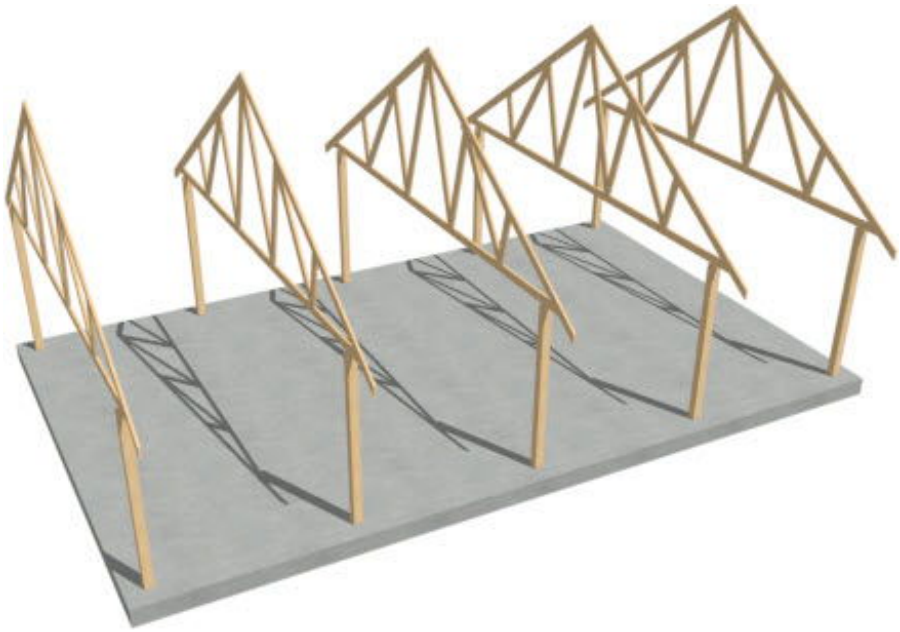
8. With the truss still selected, click the **Transform/Replicate Object** edit button. In the **Transform/Replicate Object** dialog:

    - Specify the number of copies that you want across the building. In this example, **4** copies are specified.

    - Set the distance between each truss by selecting the **Move** box and specifying a value in the **X Delta**. In this example, a value of **120"** is used, which if you recall, is the same distance between each of the posts that we placed earlier.

    - Click **OK** to close the dialog and create the copies at the specified interval.

9. Create a **Perspective Framing Overview** to see the results. Select **File> Close View** from the menu when you are finished to return to floor plan view.



To add beams

1. **Zoom** in on the two posts located at the top left corner of the structure.

2. Select **Build> Framing> Floor/Ceiling Beam**, then click and drag to draw a beam between these two posts. Drag the beam's end point to fall just short of the 2nd post.

   > If the "Framing, Ceiling Beams" layer is not turned on for display in this view, then you may receive the following message: "The layer "Framing, Ceiling Beams" is not displayed. Do you want to turn on the display of this layer in the current view?". Click Yes to this message to turn on the display of the Ceiling Beams in this view.

   By default, beams will snap along their centerlines as they are drawn, and you can snap them to the post's midpoints.

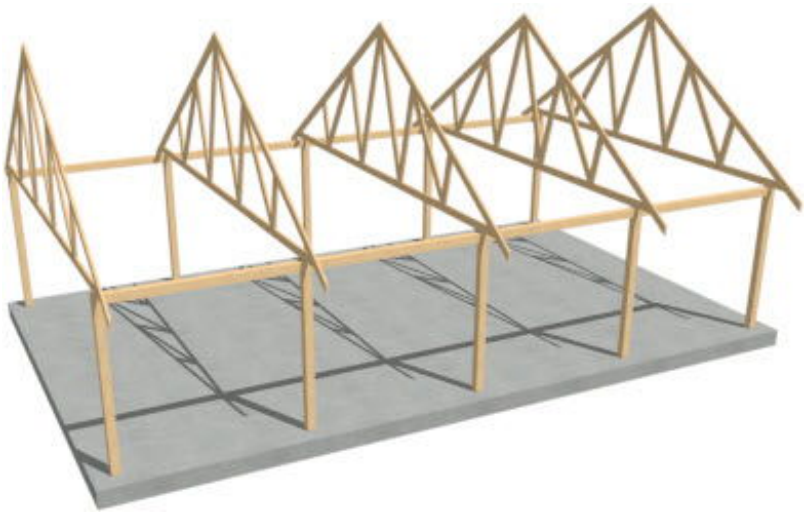
3. Navigate to **Window> Fill Window Building Only**.

4. Select the beam, then click and drag the end edit handle to the right. Cross over the top of all the posts and snap to the right side midpoint of the last post on the right side of the structure.

5. To copy the beam to the line of posts on the opposite side of the building, select the beam, click on the **Copy/Paste** edit button on the edit toolbar, click on the **Reflect About Object** edit button on the edit toolbar, hover over the roof ridge line until you see the horizontal center line indicator, then click.

You should now have beams over each line of posts.

6. Create a **Perspective Framing Overview** to see the results.



To add purlins

1. Select **Build> Roof> Build Roof** from the menu.

2. On the GENERAL panel of the **Build Roof** dialog, ensure that either **Build Roof Planes** or **Auto Rebuild Roofs** is checked.

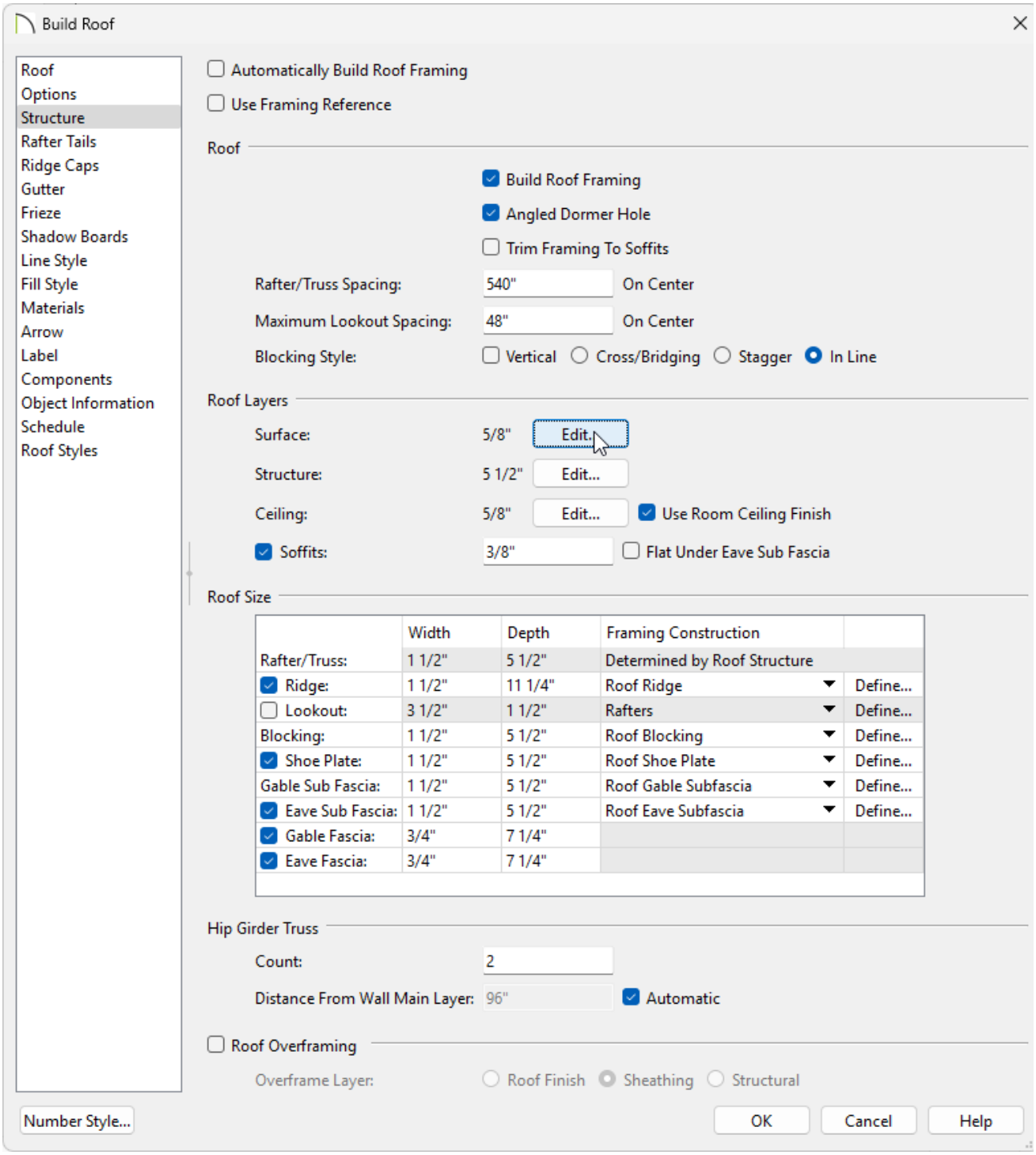
3. On the STRUCTURE panel:

    - Check the **Build Roof Framing** box.

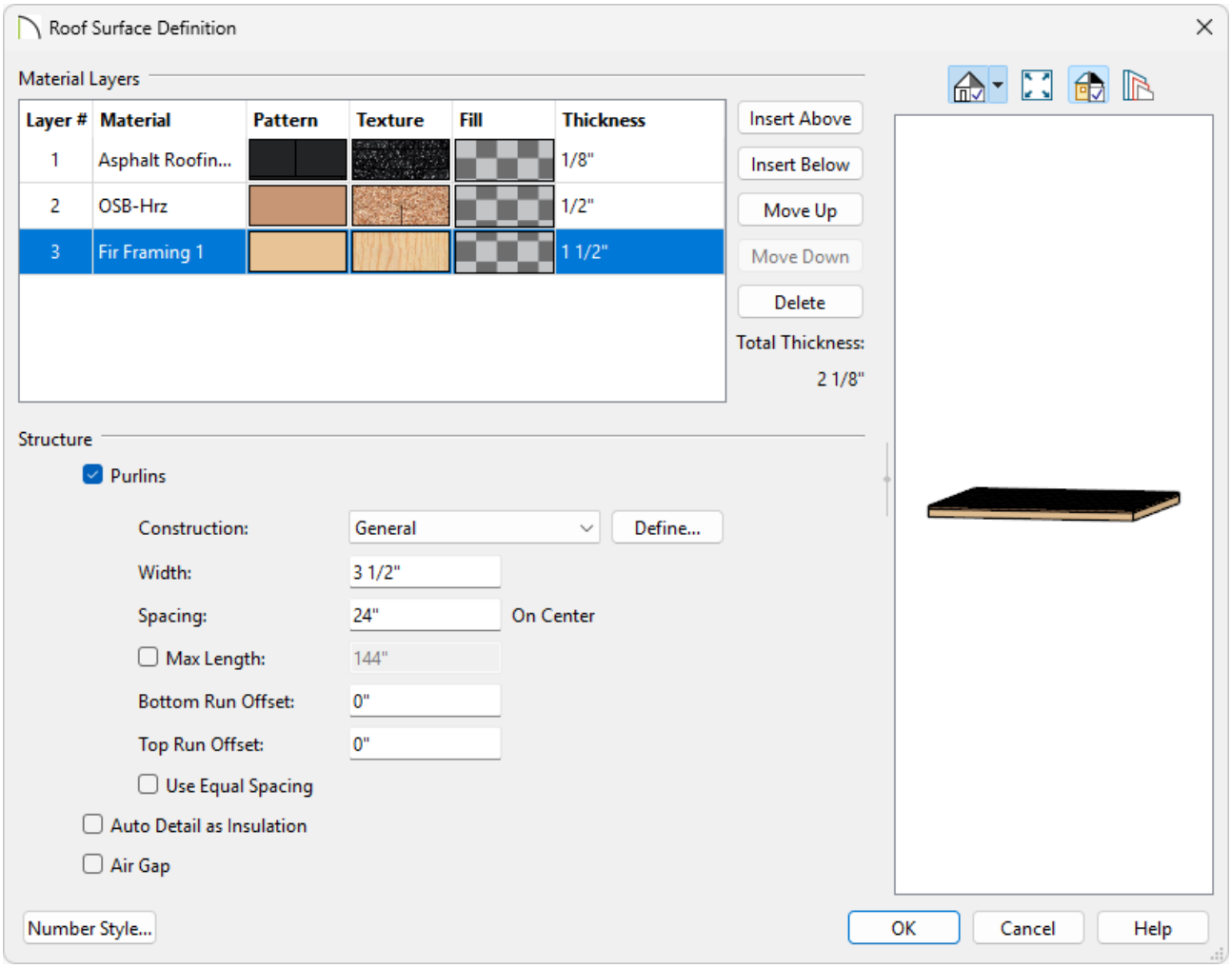
    - Change the **Rafter/Truss Spacing** to be equal to, or greater than, the length of the building to prevent roof rafters from generating. In this example, **45'** is specified.

    - Uncheck the **Lookout** box, as well as any other boxes associated with framing that you don't want to build.

4. Click on **Edit** next to **Surface** under the Roof Layers section.



5. In the **Roof Surface Definition** dialog:



- Add a bottom layer with the framing material for the purlins and set the **Thickness**.
- With that new layer selected, check the **Purlins** box and then set the desired **Type**, **Width**, and **Spacing**.
- Check the box if you want to specify the **Max Length** of the purlins. This is available in X14 and newer program versions.
- Set the **Bottom Run Offset** and **Top Run Offset**.
- Check the box for **Use Equal Spacing** if you want to space the purlins equally between the top and bottom runs.

6. Click **OK** to close the dialog and **OK** again to build the purlins.

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Related Articles

- Creating Roof Trusses (/support/article/KB-00981/creating-roof-trusses.html)
- Designing a Structure Using Post-Frame Construction (/support/article/KB-03137/designing-a-structure-using-post-frame-construction.html)
- Manually Drawing Framing Members (/support/article/KB-00727/manually-drawing-framing-members.html)

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