

Creating a Vaulted Ceiling and Scissor Trusses

Reference Number: **KB-00068**

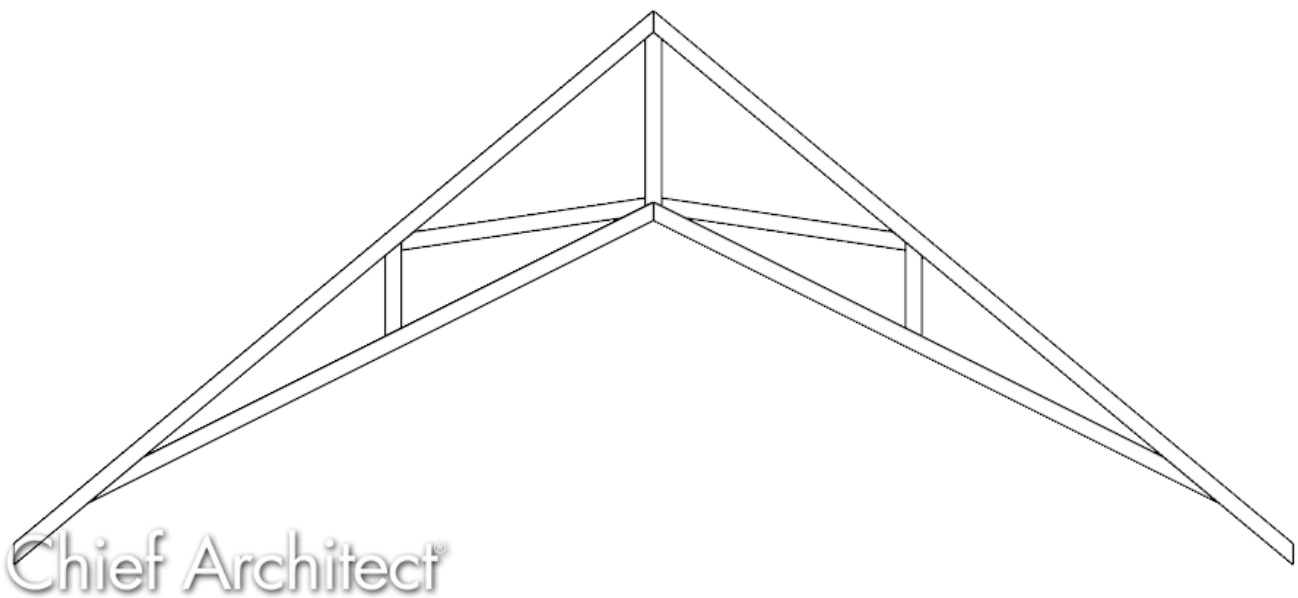
Last Modified: **August 22, 2024**

The information in this article applies to:



QUESTION

How do I create a vaulted ceiling and scissor trusses?



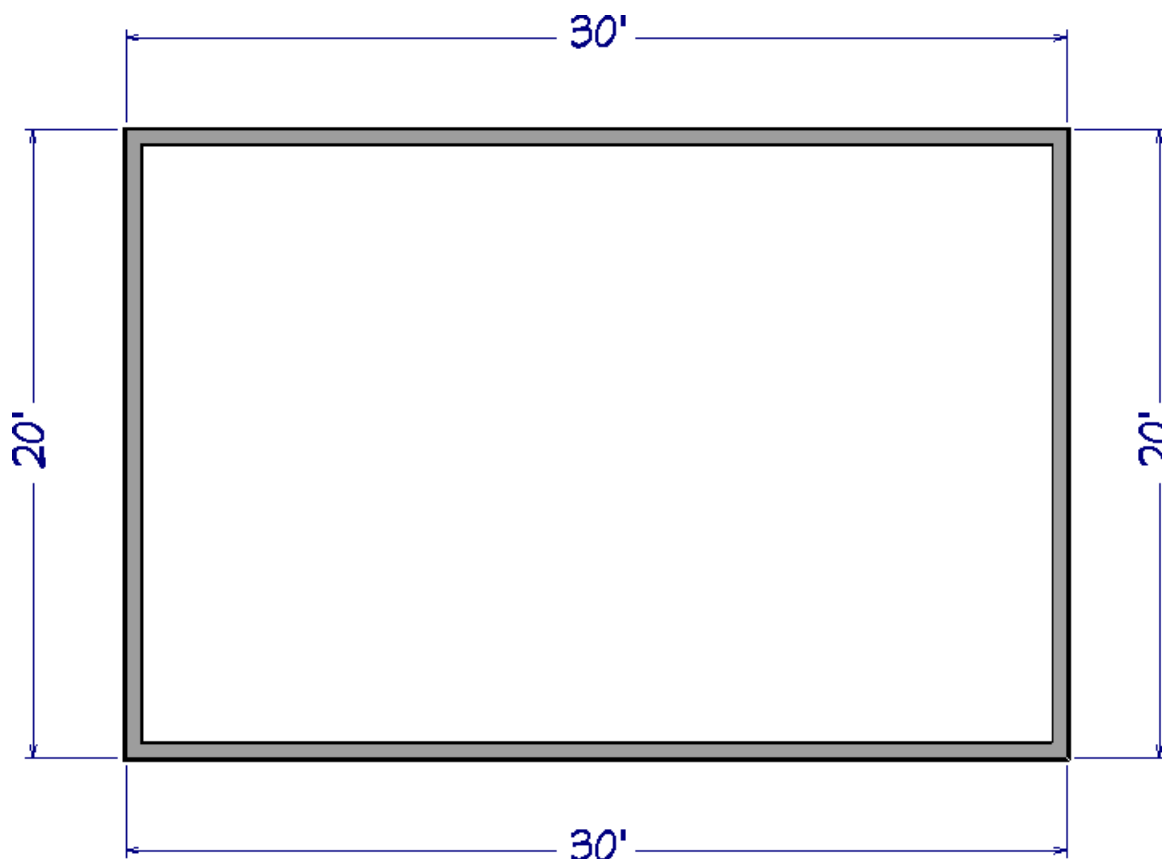
ANSWER



In Chief Architect, roof trusses are generated in the space between roof planes and ceiling planes. When a vaulted ceiling has a different pitch than the roof planes above, scissor trusses are produced.

To build the structure and roof

1. Access the file in which you would like to create scissor trusses within.

In this example, we will be creating scissor trusses within a simple 20' x 30' rectangular structure.

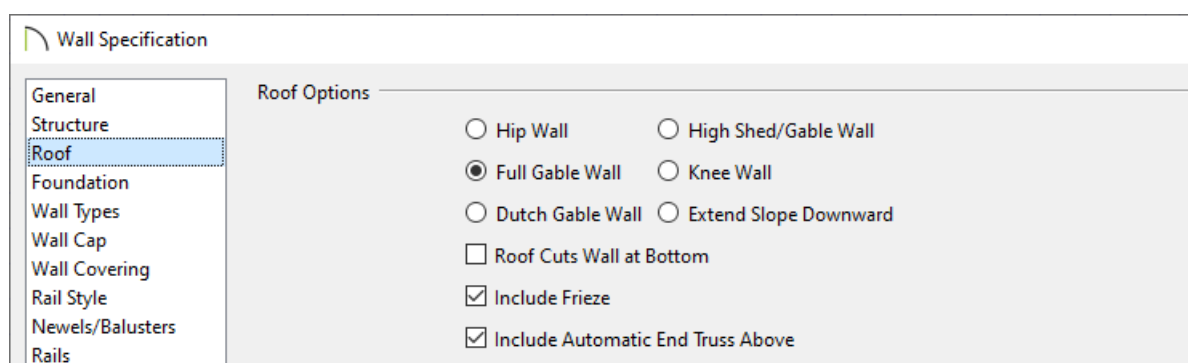


2. Using the **Select Objects**  tool, select the walls that you would like to make gable walls, then click the **Open Object**  edit button.

In this example, the left and right walls were selected and opened.

3. On the **Roof** panel of the **Wall Specification** dialog, select the **Full Gable Wall** option and click **OK**.

Note: You can also use the Change to Gable Wall(s) edit tool to convert hip walls to gable walls without having to open the Wall Specification dialog.



4. Select **Build> Roof> Build Roof**  and on the Roof panel of the **Build Roof** dialog that displays:

- Check **Auto Rebuild Roofs** if it's not already checked.
- Select the **Trusses** Framing Method.

In X14, Home Designer Pro 2023, and prior versions, check the **Trusses (no Birdsmouth)** box instead.

- Set the desired **Pitch (in 12)**.

In this example, a 10" in 12 pitch is used.

- Set the **Heel Height** to your liking.



In X14, Home Designer Pro 2023, and prior versions, you must uncheck Automatic Birdsmouth Cut to define a raised heel.

In this example, the value of 0" is used.

- Click **OK** to build the roof.

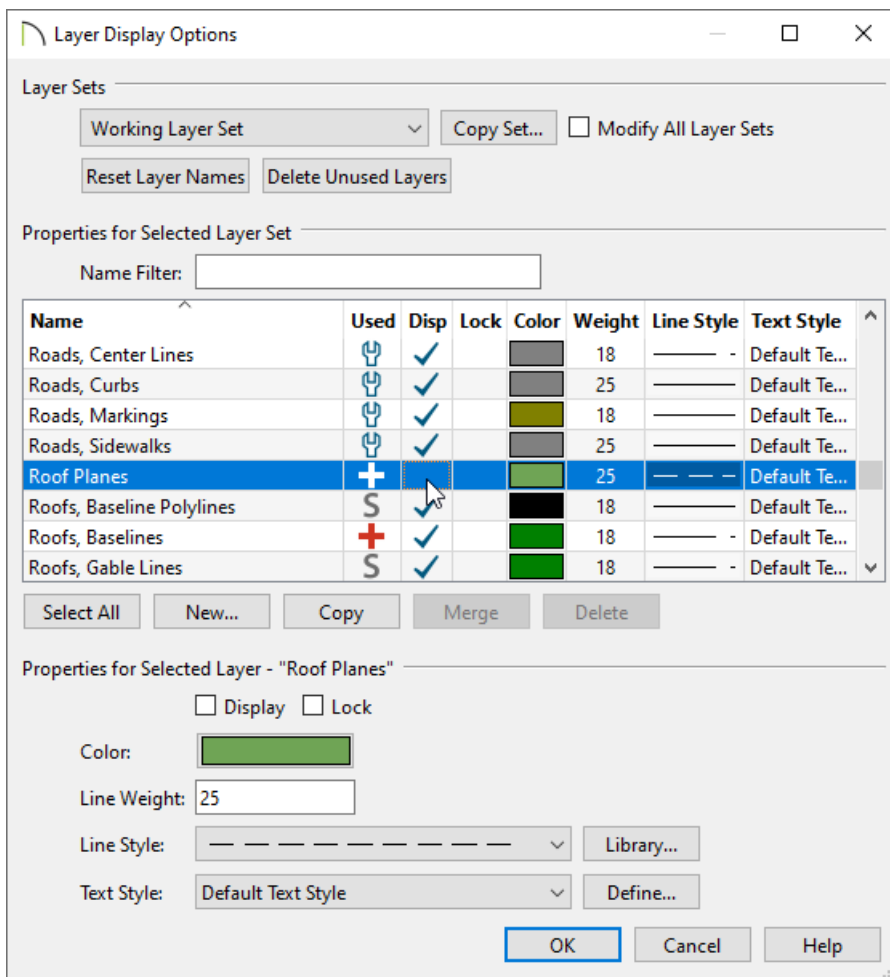



To build the ceiling

1. Using the **Select Objects**  tool, click in the room that will have a vaulted ceiling to select it, then click the **Open Object**  edit button.
2. On the **STRUCTURE** panel of the **Room Specification** dialog, uncheck **Flat Ceiling Over This Room**, then click **OK**.

Note: You can also use the Turn Off Ceiling edit tool to remove the flat ceiling from the room without having to open the Room Specification dialog.

3. To make it easier to draw ceiling planes, select **Tools> Layer Settings> Display Options**  and in the **Layer Display Options** dialog for the active layer set:



- Scroll down to the "Roof Planes" layer and remove the check in the **Disp** column or from the **Display** checkbox.
 - Click **OK** to close the dialog and turn off the display of the roof planes in the plan.
4. Select **Build> Roof> Ceiling Plane**  from the menu.
- Click and drag a baseline along the outside of a wall defining the room that will have a vaulted ceiling.
 - When the baseline is complete, click once in the room to set the ceiling planes ridge.



5. Click on the ceiling plane to select it, then use the edit handles that display to stretch it across the room to the inside surfaces of the gable walls.

In this example, two ceiling planes will form a ridge in the center of the room, so make sure the ridge edge of this plane does not extend past the middle of the room.



6. With the ceiling plane still selected, click the **Open Object**  edit button and on the GENERAL panel of the **Ceiling Plane Specification** dialog:

Ceiling Plane Specification

General

Structure
Polyline
Selected Line
Line Style
Fill Style
Label
Components

Height/Pitch

Elevation Reference: **Absolute**

Ridge Height: **166 3/8"** ☐ Lock

Height Inside Wall: **109 1/8"** ☐ Lock

Height Outside Wall: **106 3/8"** ☐ Lock

Pitch (in 12): **6"** ☒ Lock

☐ Pitch in Degrees

Heights are measured from bottom surface of rafters or trusses.

Measurements

Structure Thickness: **3 1/2"**

Vertical Rafter Depth: **3 15/16"**

Top of Plate: **109 1/8"**

Overhang from Wall Inside: **5 1/2"**

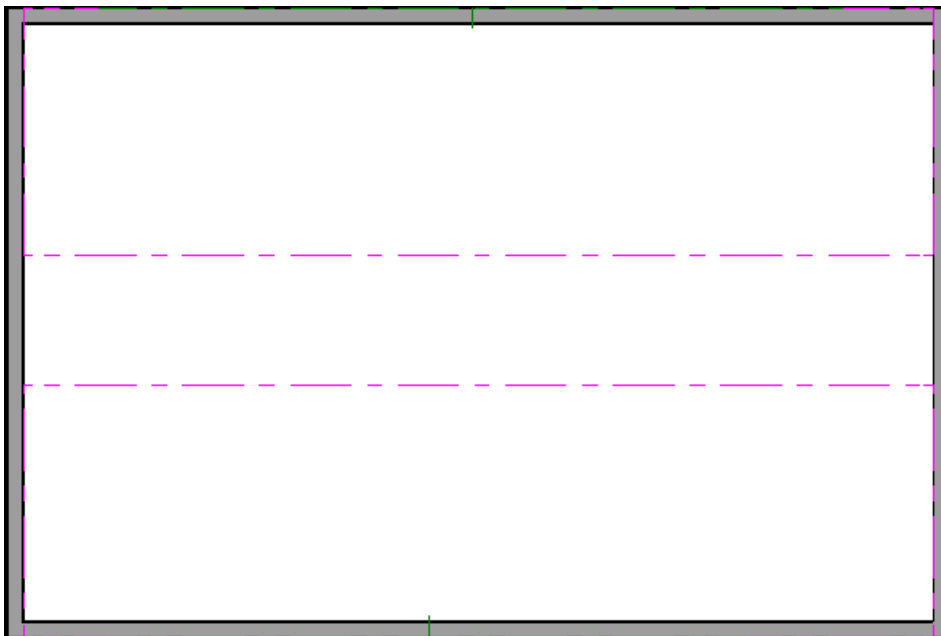
Clip End: **2 3/4"**

- Specify the desired **Pitch** for your vaulted ceiling.

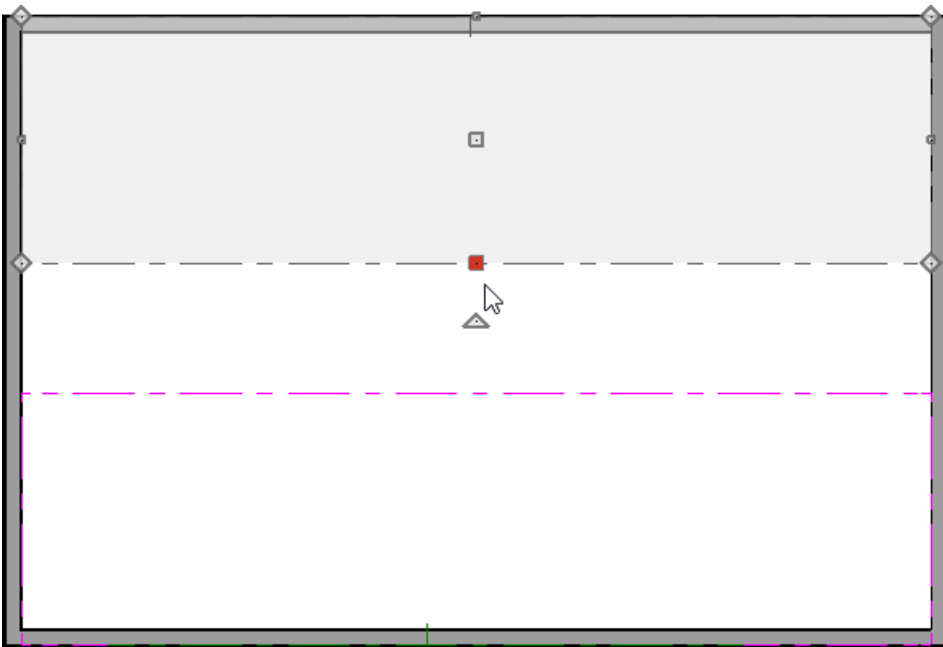
In this example, 6" in 12 is used.


- Now lock the **Pitch** and set the **Height Inside Wall** value to match the Top of Plate value.
- Click **OK** to close the dialog and apply the change.

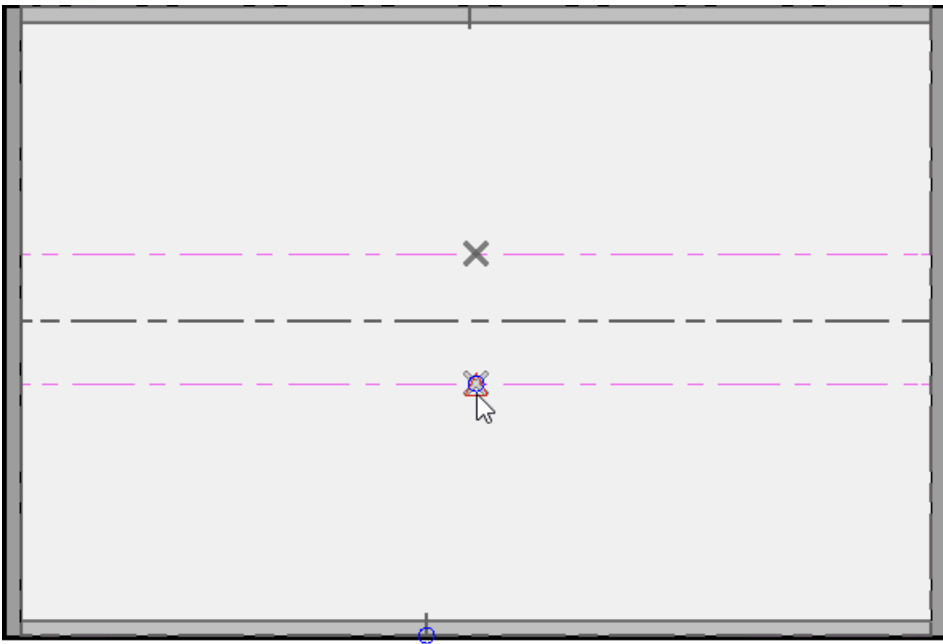
- Repeat steps 4 through 6 to create a second ceiling plane opposite the first one.



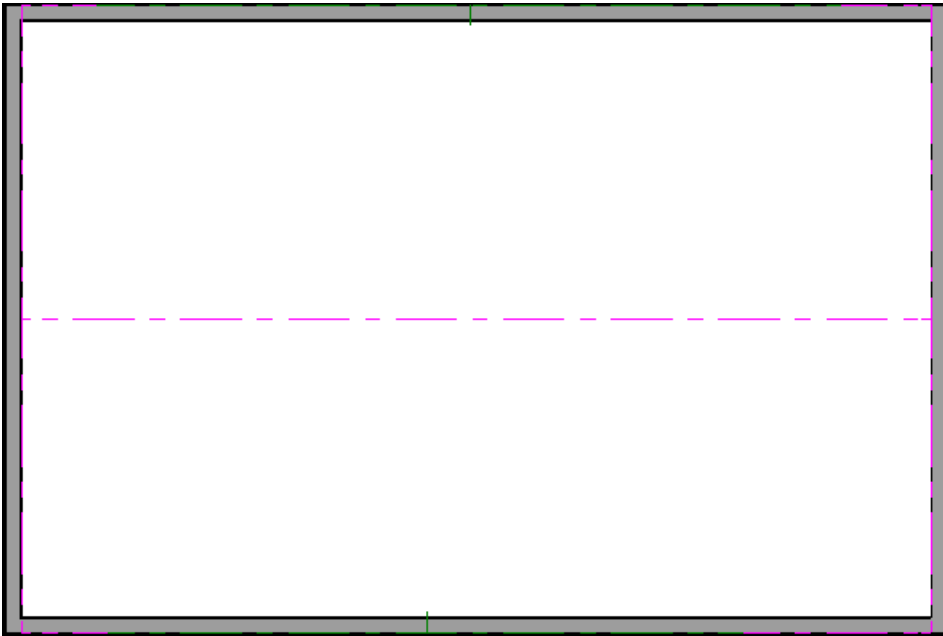
- Click on the ridge edge of one of the ceiling planes,



9. Click the **Join Roof Planes**  edit button then click the ridge edge of the other ceiling plane.



10. The two ceiling planes will join along the selected edges.



If you wish, you can now turn the display of roof planes back using the Layer Display Options dialog or Active Layer Display Options side window.

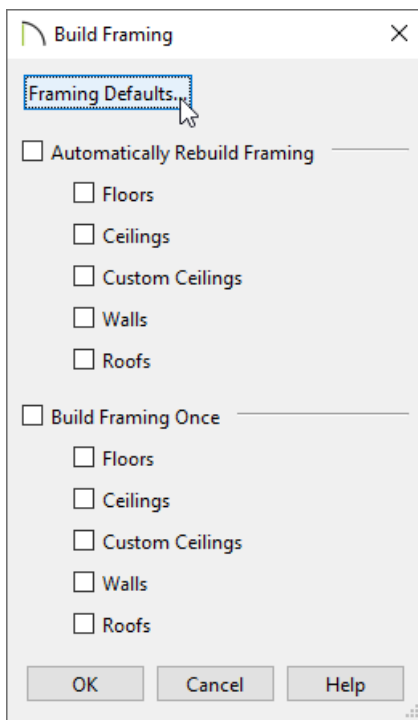
With both the ceiling and roof planes in place, you can now create roof trusses.

To create scissor trusses automatically*

**Applies to Chief Architect Premier X15, Home Designer Pro 2024, and newer versions.*

1. Select **Build> Framing> Build Framing**  from the menu.
2. In the **Build Framing** dialog that appears, click on the **Framing Defaults** button.

In X15 and Home Designer Pro 2024, skip this step and proceed to Step 3.



3. Access both the ROOF and TRUSSES panels in the dialog that appears, and verify that the settings are set to your liking.

Framing Defaults [X]

Foundation
1st
Wall
Openings
Fireplaces
Beams
Posts
Roof
Trusses
Plan Display
Materials

☐ Use Framing Reference

Roof

☒ Angled Dormer Hole
☒ Trim Framing To Soffits

Rafter/Truss Spacing: On Center
Maximum Lookout Spacing: On Center

Blocking Style: ☐ Vertical ☐ Cross/Bridging ☐ Stagger ☒ In Line

Roof Layers

Surface: 5/8"
Structure: 3 1/2"
Ceiling: N/A ☒ Use Room Ceiling Finish
☒ Soffits: ☐ Flat Under Eave Sub Fascia

Roof Size

	Width		Depth
Rafter/Truss:	1 1/2"	X	Determined by Roof Structure
<input type="checkbox"/> Ridge:	1 1/2"	X	11 1/4"
<input checked="" type="checkbox"/> Lookout:	3 1/2"	X	1 1/2"
Gable Sub Fascia:	1 1/2"	X	5 1/2"
<input checked="" type="checkbox"/> Eave Sub Fascia:	1 1/2"	X	5 1/2"
<input checked="" type="checkbox"/> Gable Fascia:	3/4"	X	7 1/4"
<input checked="" type="checkbox"/> Eave Fascia:	3/4"	X	7 1/4"
Blocking:	1 1/2"	X	5 1/2"

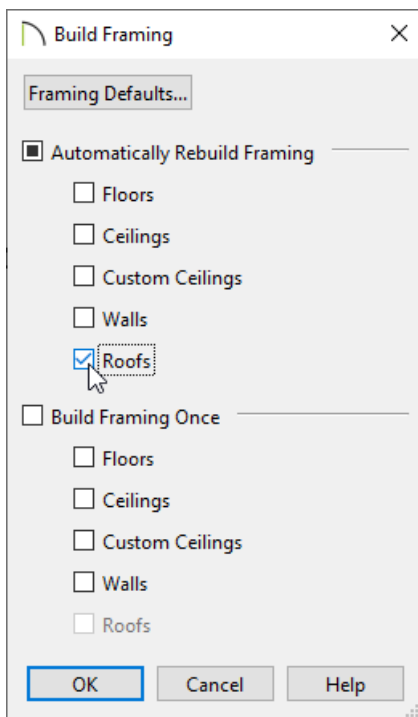
Hip Girder Truss

Count:
Distance From Wall Main Layer: ☒ Automatic

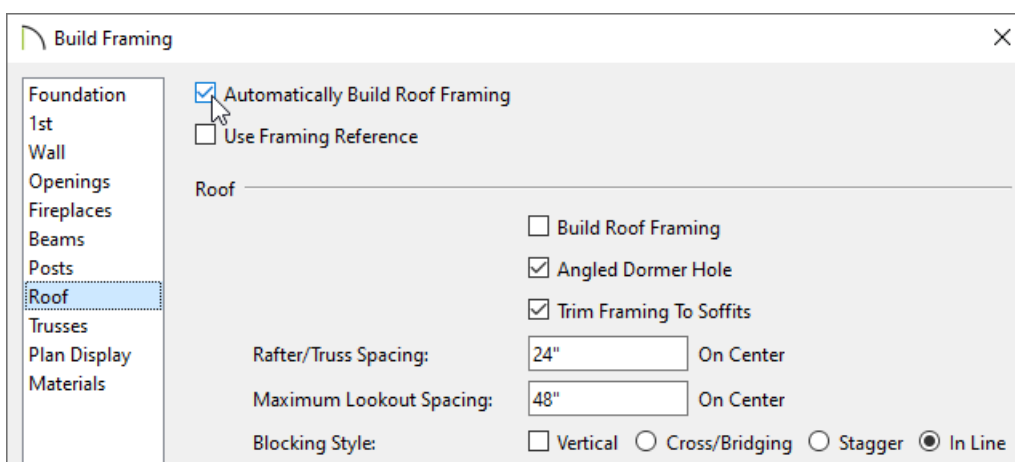
☐ Roof Overframing

Overframe Layer: ☐ Roof Finish ☒ Sheathing ☐ Structural

- Once your roof framing settings are setup to your liking, click **OK**, check the appropriate **Roofs** box in the **Build Framing** dialog, then click **OK**.



In X15 and Home Designer Pro 2024, check the **Build Roof Framing** or **Automatically Build Roof Framing** box located on the **Roof** panel of the **Build Framing** dialog instead, then click **OK**.

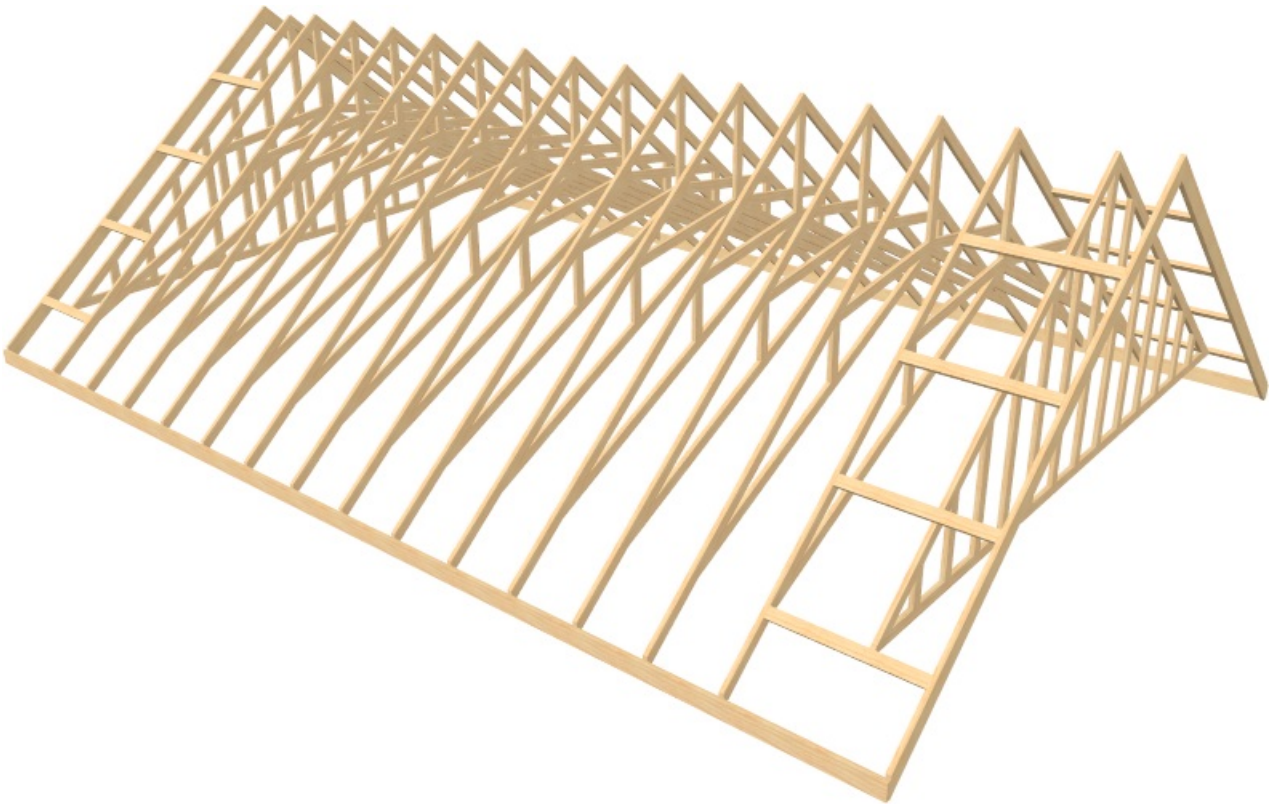


Automatic trusses, along with any other automatic framing components, such as blocking and fascia boards, will be generated.


You may also be prompted to choose whether or not to display roof framing layers in the active view. Whichever choice you choose will not affect the generation of the framing components.

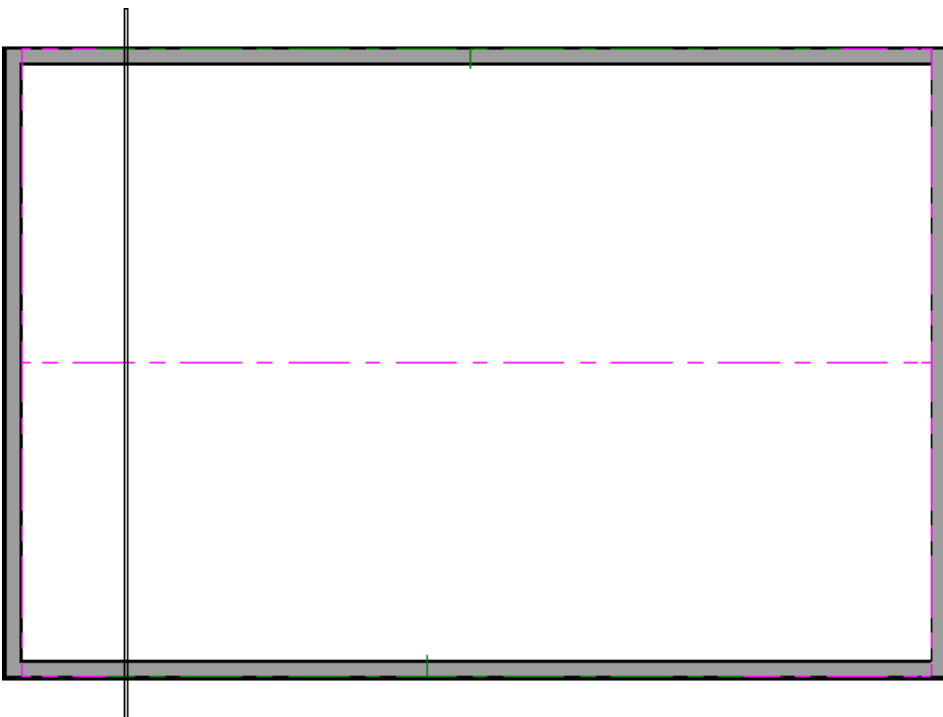
The trusses located on each end of the structure will be reduced gable end trusses. If you don't want these types of trusses to be built automatically, open the two gable walls up to specification, select the Roof panel, and uncheck the "Include Automatic End Truss Above" box. Once you regenerate the roof framing, end trusses will no longer be built.

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

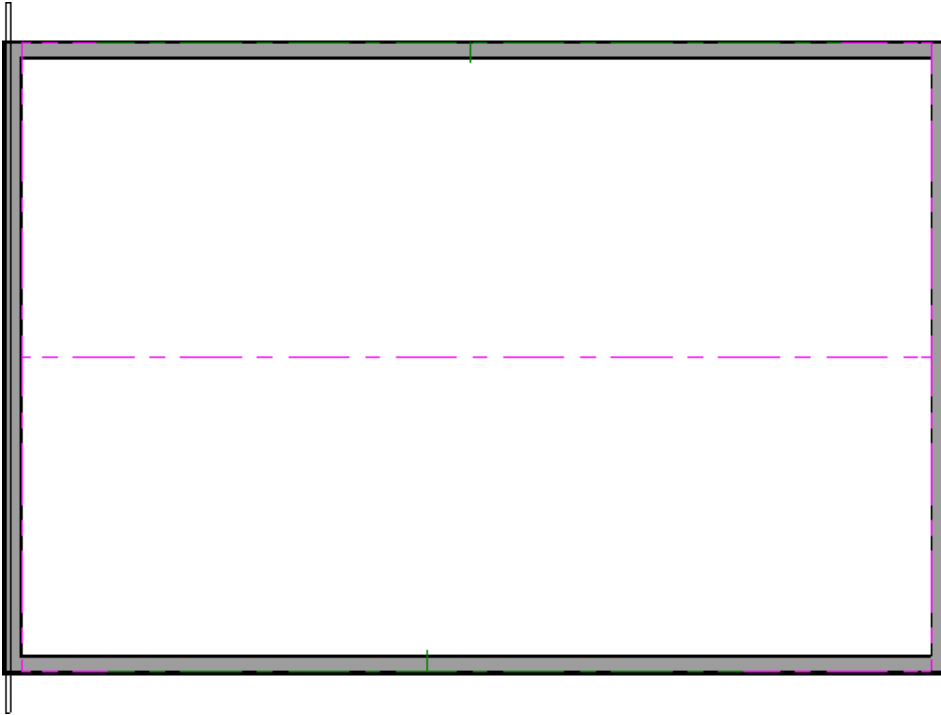




To create scissor trusses manually

1. Select **Build> Framing> Roof Truss**  from the menu.
2. Click and drag to draw a roof truss perpendicular to the ridge line of the roof and ceiling planes.




3. Click on the truss to select it and move it so that the exterior edge of the truss is aligned with the exterior edge of the framing layer of the wall.



- With the truss still selected, click the **Multiple Copy**  edit button, then click the **Multiple Copy Interval**  button to open the **Multiple Copy** dialog. Verify that **Offset Between Copies When Dragging** is selected and that the **Primary Offset** specified for **All Trusses** equals the desired O.C. truss spacing, then click **OK**.

In this example, the default Primary Offset value of 24" is used.

Note: Multiple Copy is not available in Home Designer Pro. Instead, use the Transform/Replicate edit tool. As an example, if you wanted to create 6 copies all separated a certain distance from each other, you would check the Copy box, set the Number of Copies to 6, then check the option for Move and set the X Delta to be 24". Negative values can also be set for each of the deltas if needed.


Multiple Copy
✕


☒ **Offset Between Copies When Dragging**

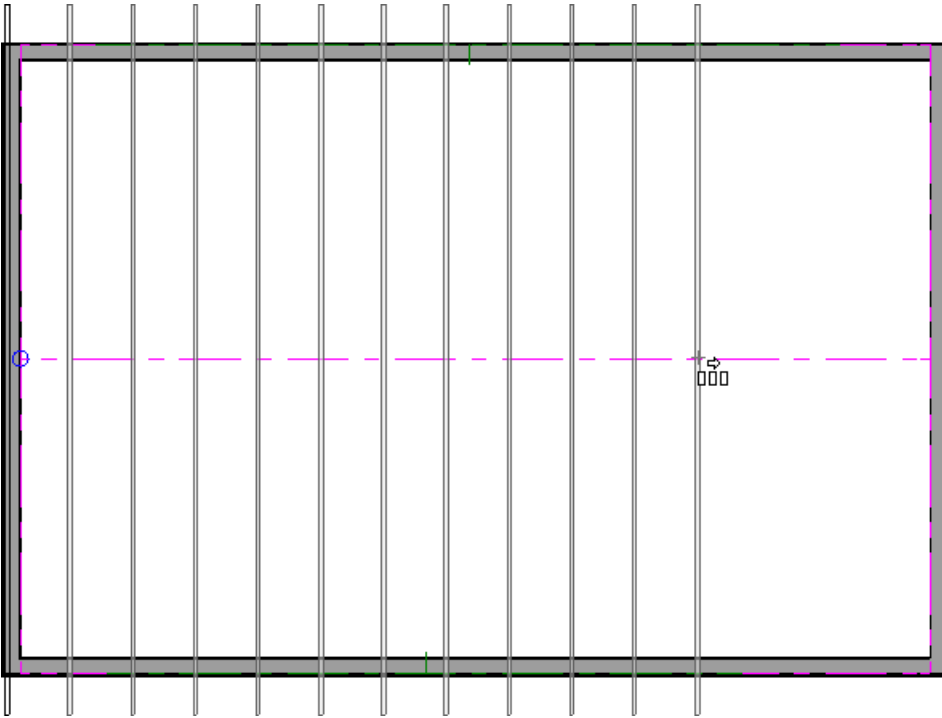
	Primary Offset	Secondary Offset (Alternate Behavior)
General Objects:	24"	24"
All Trusses:	24"	24"
Rafters:	24"	24"
Joists/Posts/Beams:	16"	16"
Wall Studs:	16"	16"
Rotation Of All Objects:	15.0°	

☐ **Evenly Distribute Copies When Dragging**

	Primary Number Of Copies	Secondary Copies (Alternate Behavior)
All Objects:	1	1

Number Style...
OK
Cancel
Help

5. Hover over the main Move edit handle on the truss until you see the **Multiple Copy**  cursor display, then click and drag across the structure to create copies 24" apart.






The trusses located on each end of the structure will be full size trusses. If you wish to have end trusses instead, select the trusses on each end, open them up to specification, check the "End Truss" and "Force Truss Rebuild" boxes, then click OK.

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

Now, additional framing components, such as lookouts and fascia boards, can be generated automatically using the Build Framing dialog.

Related Articles

-  [Creating an Attic Truss \(/support/article/KB-00933/creating-an-attic-truss.html\)](/support/article/KB-00933/creating-an-attic-truss.html)
-  [Creating Exposed Trusses in a Cathedral Ceiling \(https://www.chiefarchitect.com/support/article/KB-00416/creating-exposed-trusses-in-a-cathedral-ceiling.html\)](https://www.chiefarchitect.com/support/article/KB-00416/creating-exposed-trusses-in-a-cathedral-ceiling.html)
-  [Creating Roof Trusses \(/support/article/KB-00981/creating-roof-trusses.html\)](/support/article/KB-00981/creating-roof-trusses.html)