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Architectural Home Design Software

Creating an Attic Truss

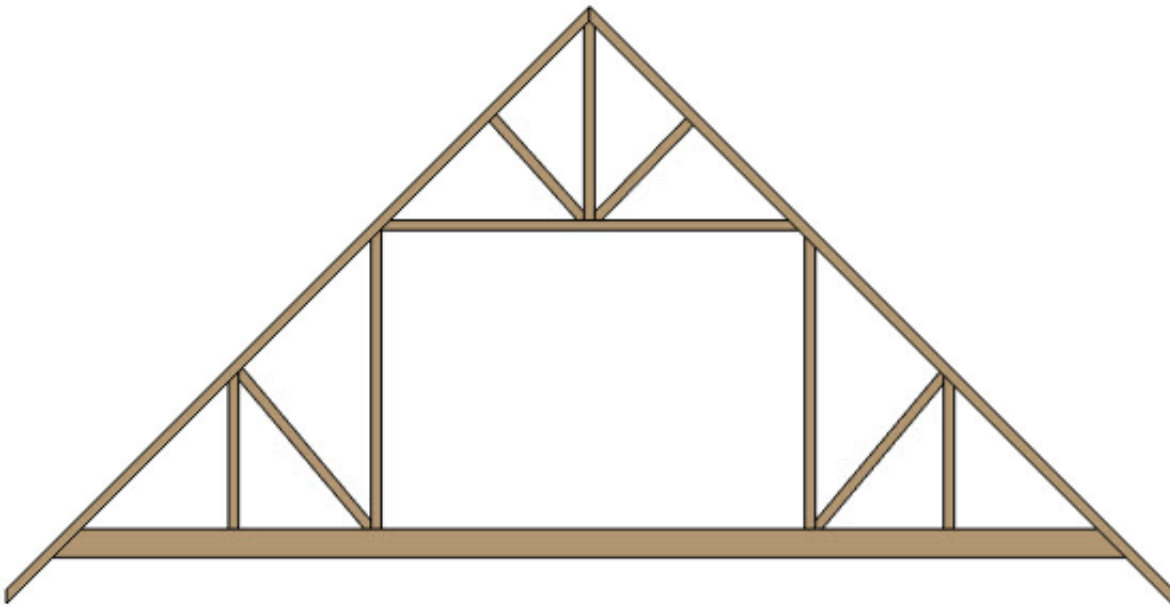The information in this article applies to:

QUESTION

How do I create an attic truss?

ANSWER

An attic truss is a type of roof truss with an open space at its bottom center to accommodate a living space, with webbing above and on either side of this living space.

In order to create an attic truss, certain conditions must be met in the plan:

- The structure must be wide enough and the roof steep enough to allow space for a loft area with attic rooms on either side of it.The loft area must have Attic rooms on both sides and must be separated from these Attic rooms by Knee Walls.

- The loft area cannot be on Floor 0 or Floor 1 - it must have a living space below it that has a flat ceiling.

- The roof must bear on the walls defining the floor below the loft area. It cannot bear on knee walls.

- Each side of the roof must be composed of a single roof plane forming a continuous slope with a single pitch from baseline to ridge.

- The loft area must have a flat ceiling.

To create the structure

Because attic trusses require specific conditions to be met before they can be created, we'll begin by drawing a simple structure that meets those requirements.
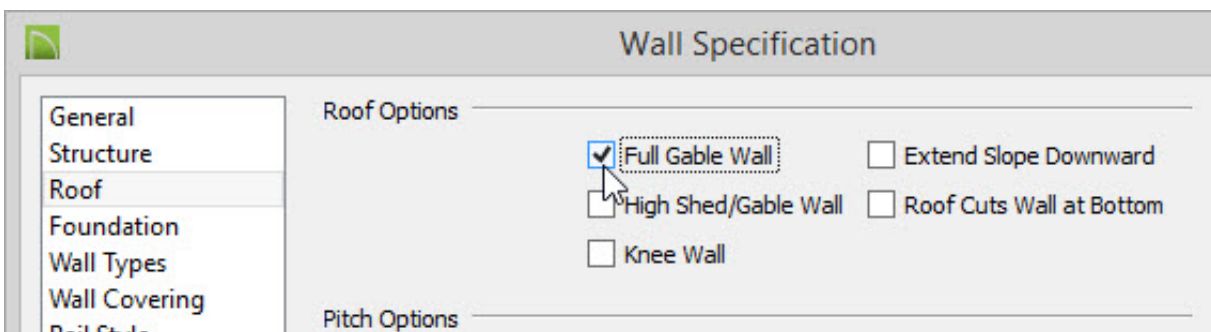
1. Select **File> New Plan** 📄 from the menu to open a new, blank plan.

2. Select **Build> Wall> Exterior Wall** 🧱 from the menu, then click and drag to draw a rectangular structure.
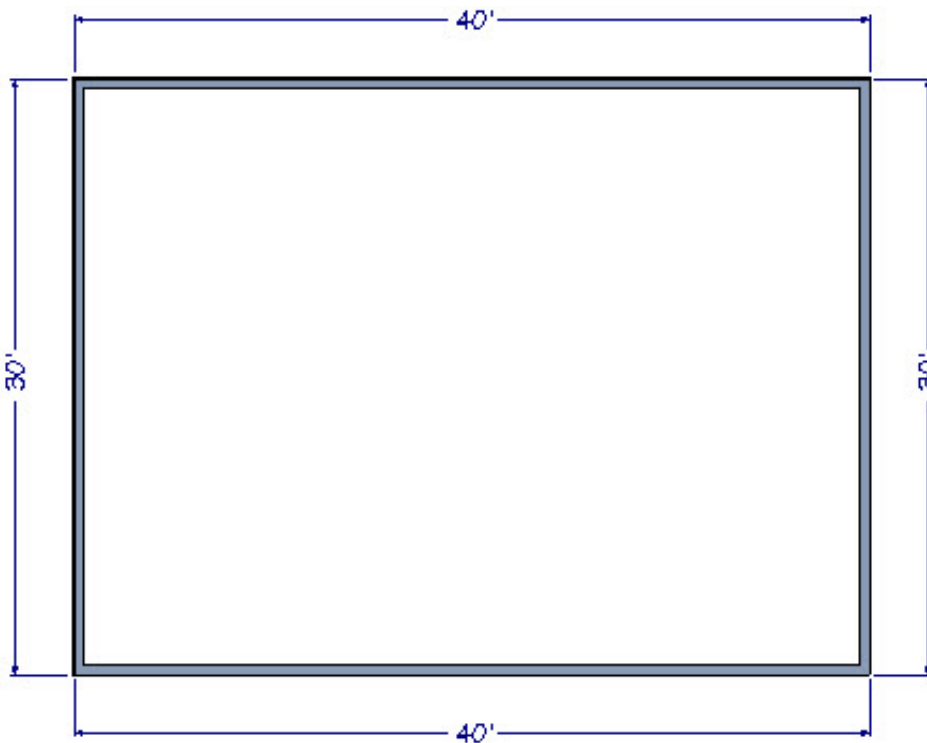
   o In this example, a structure measuring **30' x 40'** is used.

3. Click the **Select Objects** ▷ button, then click on the vertical wall on the left to select it then click the **Open Object** 🚪 edit button.

   o On the ROOF panel of the **Wall Specification** dialog, check **Full Gable Wall** and click **OK**.

   o Repeat this step with the vertical wall on the right, as well.

4. Select **Build> Floor> Build New Floor** from the menu, and build a second floor based on the first floor plan.

5. Select **Build> Roof> Build Roof** from the menu, and on the BUILD panel of the **Build Roof** dialog:

   o Check the box beside **Build Roof Planes**.

   o Specify the **Pitch** of the roof to be built. In this example a **12** in **12** pitch is used.

   o Check the box beside **Trusses (no Birdsmouth)**.

   o Check the box beside **Ignore Top (2nd) Floor**.

   o Click **OK** to close the dialog and build the roof as specified. It will bear on the top plates of the first floor walls.

6. Notice the dashed lines that now display in the 2nd floor room area on floor plan view.
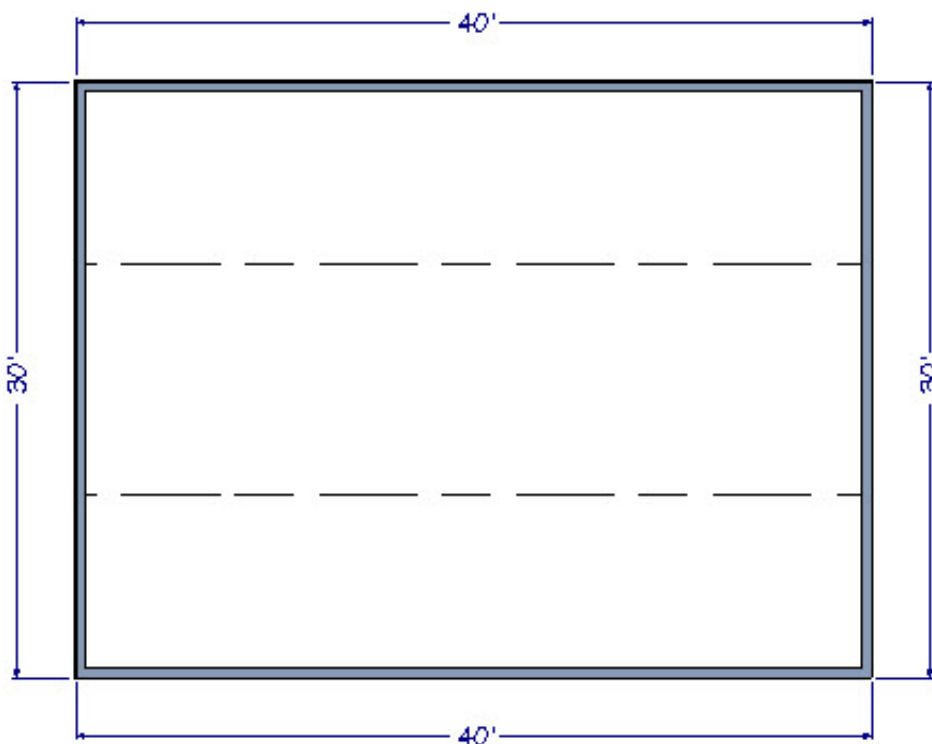
   o These are ceiling break lines, which represent the division between the flat, full height ceiling in the center of the room and the low, sloped ceilings on either side.

- The area with the flat, full height ceiling is loft area that will be accommodated by the open space at the center of your attic trusses.

7. Select **Build> Wall> Straight Interior Wall** ▨ from the menu, then click and drag two interior walls along the ceiling break lines.

   - It's easiest to draw them near the ceiling lines, then move them into position after their drawn.

   - If you want, you can create a custom wall type with sheetrock on only one side if the rooms with the low ceilings are to be unfinished.

8. Select each of these two interior walls and click the **Open Object** ▯ edit button. On the ROOF panel of the **Wall Specification** dialog, specify them as **Knee Walls**.

9. Next, click the **Select Objects** ▷ button, then click in one of the rooms with a low, sloped ceiling and click the **Open Object** ▯ edit button.
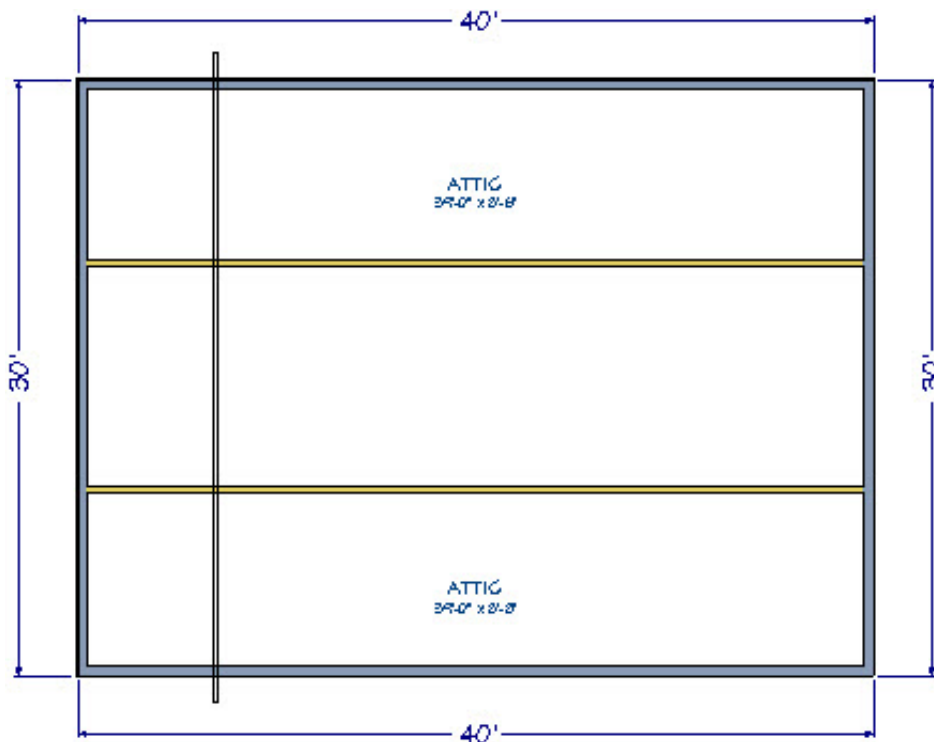
   - On the GENERAL panel of the **Room Specification** dialog, select **Attic** from the **Room Type** drop-down list.

   - Repeat this step with the room on the other side of the loft area.
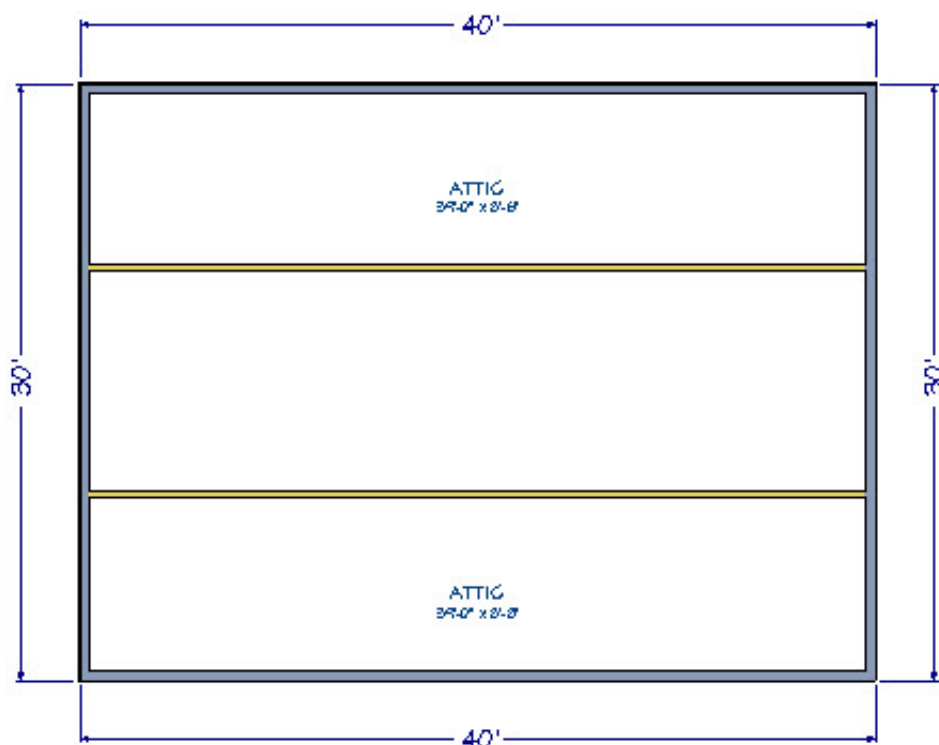
The conditions necessary to produce attic trusses are now in place.

To create an attic truss

1. Select **Build> Framing> Roof Truss** from the menu, then click and drag a line that is perpendicular to the ceiling break lines and runs from exterior wall to exterior wall.

   o   The resulting truss will automatically extend out to the eaves.

2. Select the roof truss and click the **Open Object** edit button. On the GENERAL panel of the **Roof Truss Specification** dialog:

Roof Truss Specification

General
Line Style
Fill Style
Materials
Label

Member Sizing

Top Chord: 3 1/2"
Bottom Chord: 9 1/2"   ←
Webbing: 3 1/2"
Thickness: 1 1/2"
Maximum Height: 0"
Ceiling Step: 48"

Maximum Horizontal Span

Top Chord: 60"
Bottom Chord: 75"

Options

☐ Require Kingpost   → ☑ Force Truss Rebuild
☐ End Truss   ☐ Lock Truss Envelope
☐ Energy Heel   ☐ No Special Snapping
☐ Drop Hip Truss
☐ Reduced Gable
→ ☑ Attic Truss

- Change the **Bottom Chord** depth to match your floor structure depth for **floor 2**. In this case, **9 1/2"** will be used.

- Check the box beside **Attic Truss**.

- Check the box beside **Force Truss rebuild**.

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

3. Create a **Framing Overview** to see the results so far.
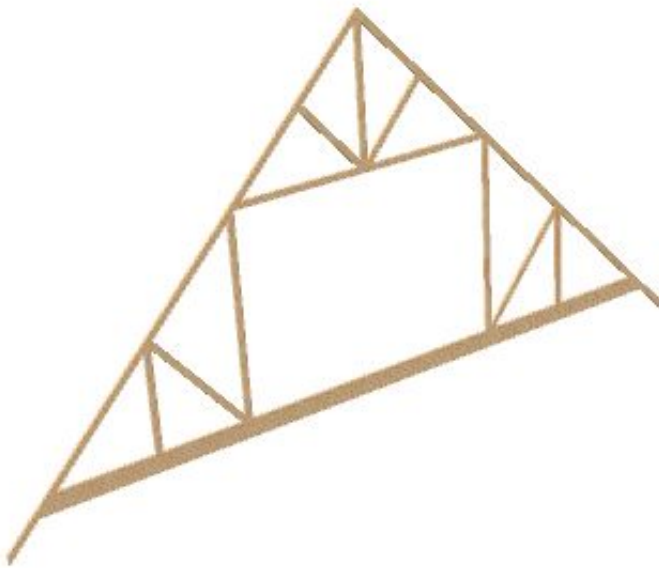
4. Select **File> Close View** to return to floor plan view.

5. Make sure **Temporary Dimensions** are toggled on, click the **Select Objects** button then click on the attic truss to select it.
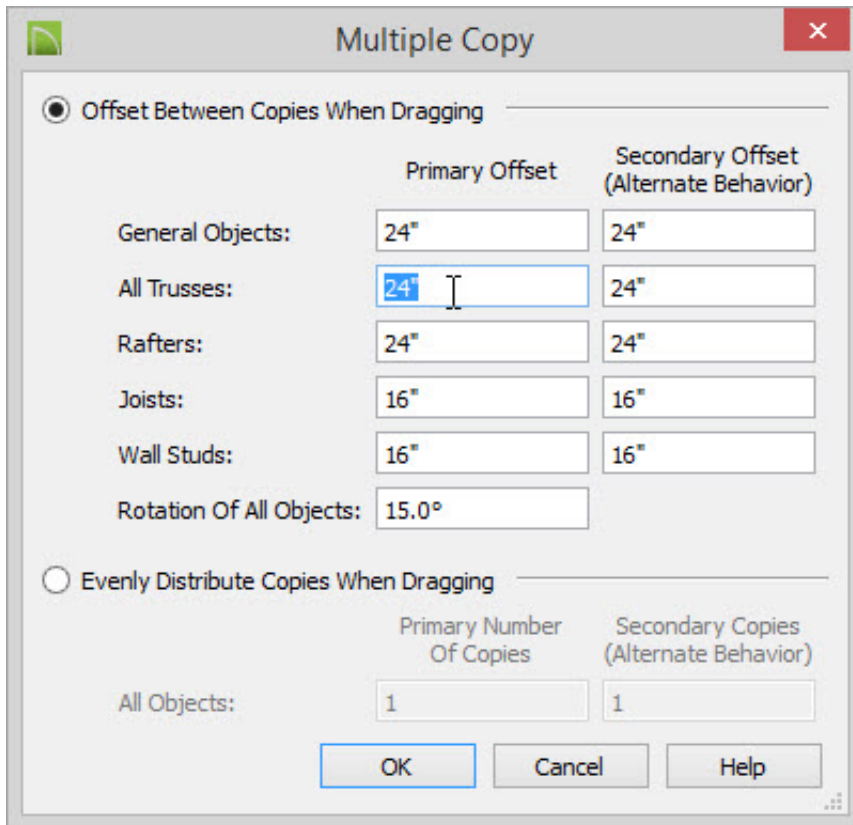
6. Click on a temporary dimension that shows how far the truss is from either end wall, and type the distance that the first attic truss should be from the wall.
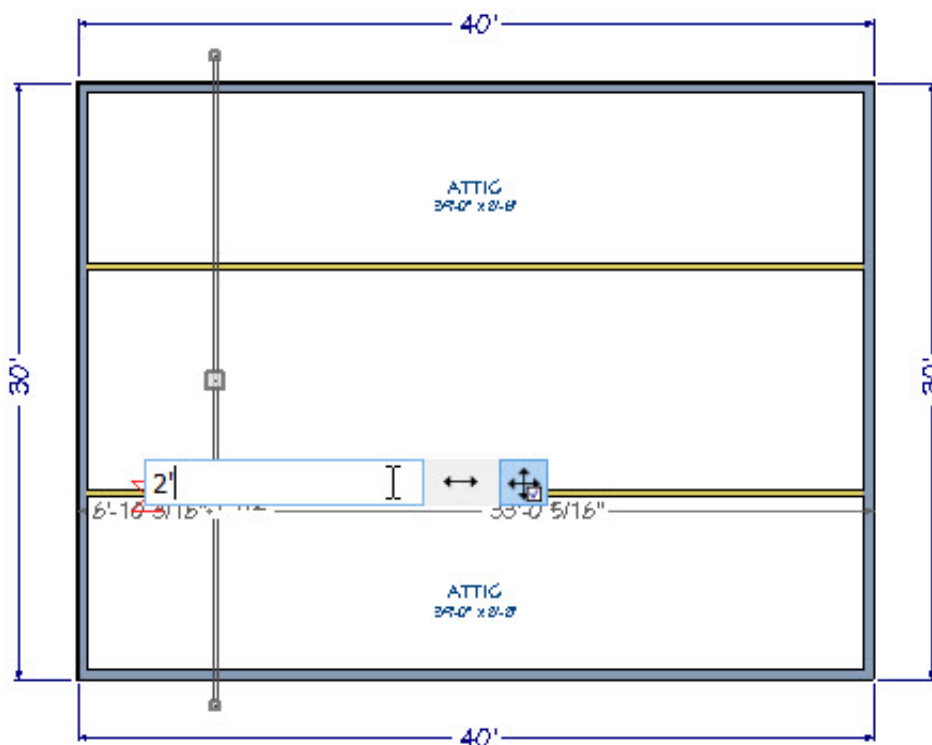
   o In this example, the truss is placed **24"** from the outside of the wall's framing.

7. With the truss still selected, click the **Multiple Copy** edit button.

8. Click the **Multiple Copy Interval** edit button to open the **Multiple Copy** dialog, specify the desired Primary Offset for All Trusses, then click **OK**.

   o The **Primary Offset** is the interval at which trusses will be replicated when **Multiple Copy** is used.

   o In this example, the default value of **24"** is used.

9. Click and drag the selected truss's **Move** edit handle across the structure, in the direction of the opposite end wall.

   o As you drag, the preview outlines of new trusses display at **24"** intervals.

   o When you release the mouse button, the new trusses are created.

40'

30'

30'

40'

ATTIC

ATTIC

10. Create a **Framing Overview** to see the results.