Creating a Structure that is Built on Piers

Reference Number: **KB-00752**

Last Modified: **July 20, 2021**

The information in this article applies to:

PRO   ARCH   SUITE

QUESTION

I am designing a house in an area that gets flooded and I need to build up on piers. How can I design a house that sits on piers or pilings using Home Designer?

ANSWER

Many local building codes require that houses built on flood plains be built a certain height above flood stage. Typically, this requirement is met by building on piers or pilings. To create a house on piers, follow the steps outlined in this example:

To build a house above ground level

In most situations, it's best to draw the first floor of a house plan on Floor 1 in the program. However, in the case of a house on piers, the first floor will actually be an open area in which you will place piers to support the structure above.

1. Select **File> New Plan** 📄 from the menu to open a new, blank plan and select **Edit> Default Settings** 🔧 from the menu.

2. In the Default Settings dialog, expand **Floors and Rooms**, expand **Floor Levels** and then click on **1st Floor** to highlight it, then click on the **Edit** button to display the Floor Defaults dialog for Floor 1.

> When this Floor Defaults dialog is opened, it will apply to the currently active floor only. That is, if Floor Defaults is opened on Floor 1, it will set the defaults for Floor 1; if it's opened on Floor 2, it will set the defaults for Floor 2; and so on.

3. On the STRUCTURE panel of the **1st Floor Defaults** dialog, specify a **Finished Ceiling** height of 10' (120"). This will raise the bottom of the <u>floor platform</u> for the first floor in your house 10' above the ground.
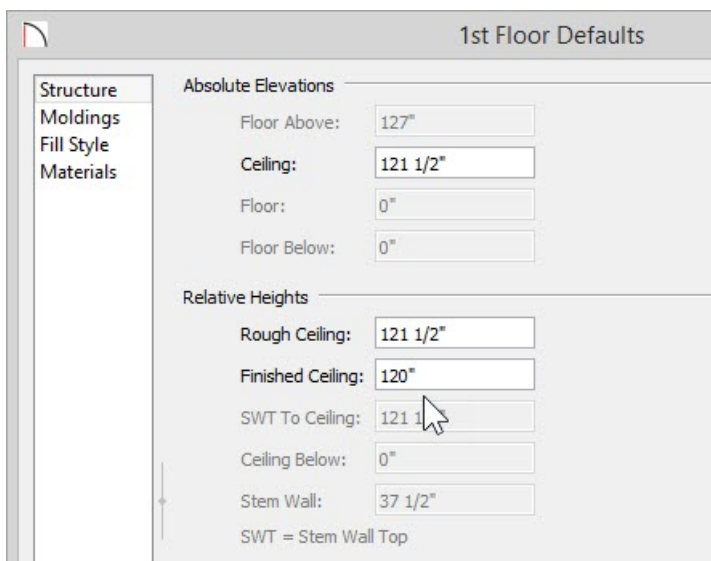
4. Click **OK** to close this dialog, then click **Done** to close the **Default Settings** dialog.

5. Next, select **Build> Floor> Build New Floor** ⊞.

   ○ When prompted to derive the new floor from the plan below, click **OK**.

   ○ As nothing has been drawn on Floor 1, the result will be a blank Floor 2.

6. Before drawing anything on Floor 2, you should also set up your Floor 2 default ceiling height. If you skip this step now, later you can select **Edit> Default Settings** 🔧 from the menu, then specify the default ceiling

height for the 2nd Floor as described in Steps 2 and 3 above.

7. Select **Build> Walls> Exterior Wall** 📐 from the menu, then click and drag the exterior walls of your plan, drawing in a clockwise direction.

8. Use temporary dimensions and/or the **Dimension** 📏 tools to help you position the walls precisely. When you are satisfied with the placement of the exterior walls, it's time to place piers beneath them.
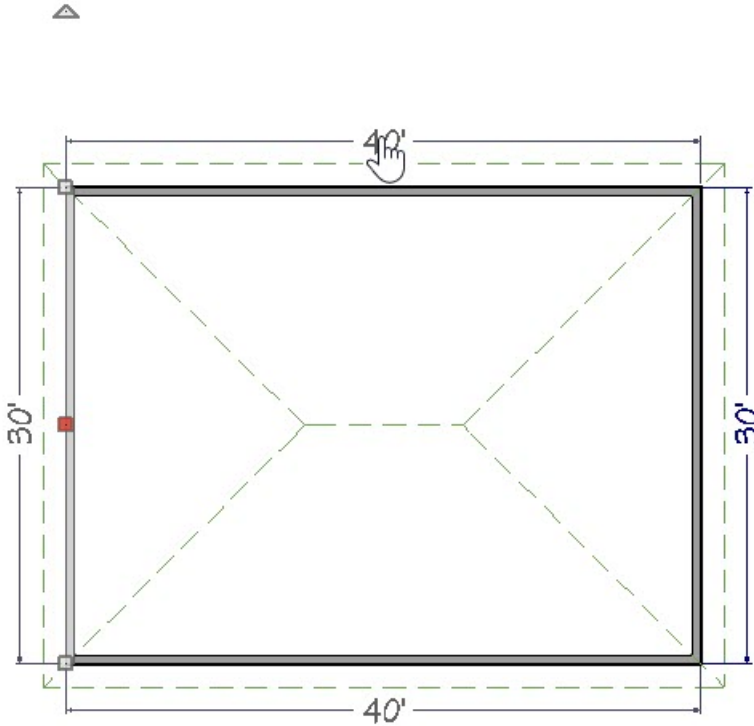
## To place piers beneath the elevated floor plan

Once your floor plan is done on Floor 2, you can insert piers on Floor 1 to support it.

1. To return to Floor 1, select **Tools> Floor/Reference Display> Down One Floor** ⌄ from the menu.

2. In order to place the piers in the correct locations under the walls above, you need to turn on the Reference Display. Select **Tools> Floor/Reference Display> Reference Display** 📚 from the menu. The outline of the walls created on Floor 2 will now display as red lines on Floor 1.

3. You now need to create piers using one of the geometric shapes found in the Library Browser. Select**View> Library Browser** 📚 to open the Library Browser window and navigate to the Shapes folder.

   In Home Designer 2014 and prior versions, the Library Browser was accessed under the Library menu.

   ○ In this example, the Vertical Cylinder is used, although the Closed box, or perhaps one of the Pedestals or Columns from the Architectural> Millwork catalog could also work.

4. Using the red lines of the Reference Display as a guide, click at a corner of your exterior walls to place a pier at that location. If you need to adjust the pier's location, click on it to select it and move it using the **Move** ✛ edit handle that displays at the object's center.
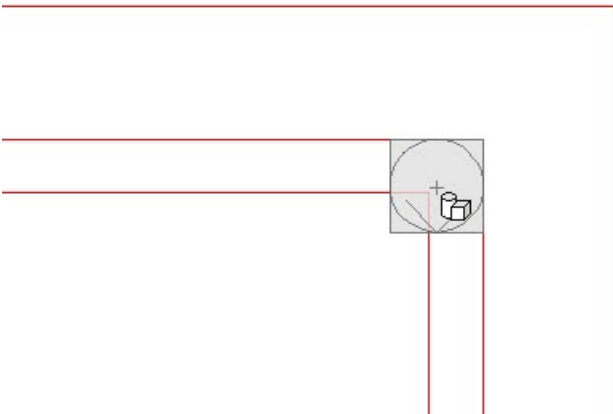

5. With the pier still selected, click the **Open Object** ▯ edit button to open the **Geometric Shape Specification** dialog. On the GENERAL panel:

   ○ Specify the desired **Height** of your pier. In most cases, this will be the default ceiling height of Floor 1, specified in the first part of this article.

   ○ Specify the **Width** and **Depth** of your pier. These values correspond to the cylinder's diameter and will be the same in most instances.

6. Then, on the MATERIALS panel:

   ○ Click on the indented line, then click the **Select Material** button.

   ○ In the **Select Material** dialog, browse to the Concrete category of the Materials library.

   ○ In the Smooth sub-folder of the Concrete folder, click on a concrete material to select it and click **OK** to return to the **Geometric Shape Specification** dialog.

   ○ Click **OK** to close the **Geometric Shape Specification** dialog and apply your change.

7. Select **3D> Create Camera View> Elevation** 🏠 from the menu and click and drag a camera arrow perpendicular to either wall above the new pier. In Home Designer Pro, use **3D> Create Orthographic View> Cross Section/Elevation** 🏠.

   ○ In the Elevation view, click on the pier to select it and use the **Move** ✛ edit handle that displays at its center to adjust its location so that it lines up correctly with your main structure.

   ○ Use the top edit handle to make any needed adjustments to the height so that it meets the bottom edge of the wall above.

   ○ If you have trouble viewing the pier, select **Window> Zoom** 🔍 from the menu and click and drag a

rectangle around the part of the view that includes the pier and the wall above. The program will zoom in to fill the view window with the contents of that rectangle, allowing you to edit the pier more easily.

- When you are satisfied with the appearance of your pier, select **File> Close View** to close the Elevation view and return to floor plan view.
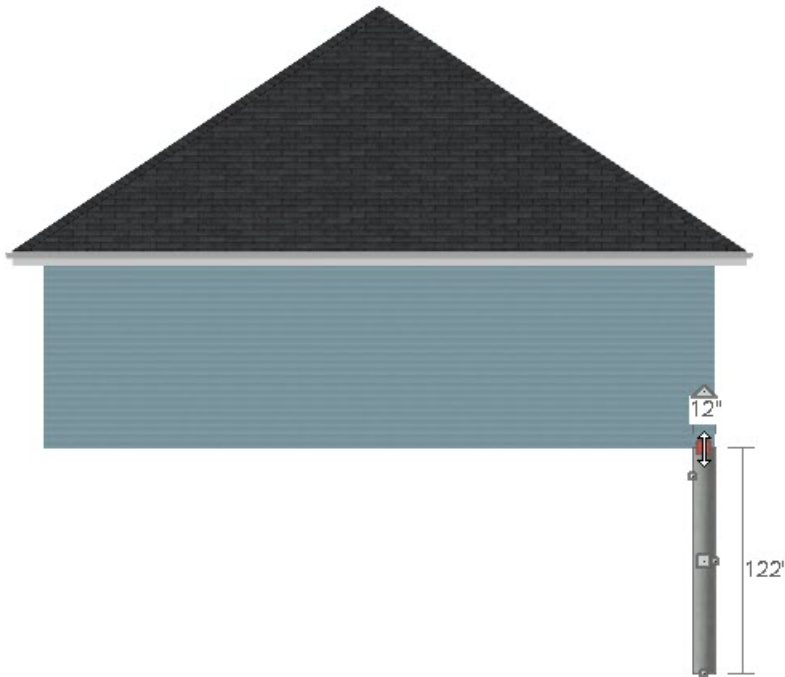
8. Now that the pier has the correct material and size specifications, you can make copies of it and place them around the plan as needed.

- In floor plan view, click on the pier to select it, then click the **Copy/Paste** edit button, and then click the **Sticky Mode** edit button. Your cursor will now display the Copy/Paste icon. Clicking the Sticky Mode tool after selecting Copy/Paste allows you to paste as many copies as you like, rather than just one.

- Click at a location that needs a pier to place one there, then continue clicking until all needed piers have been created around the perimeter and in the middle of the plan as appropriate for your design.

- Do not worry about placing them precisely at this time as they can be positioned more accurately and height adjusted if you have uneven terrain in a moment.

- When you are finished pasting copies of your pier, disable the Paste function by clicking the **Select Objects** arrow button.

9. You can use the **End to End Dimension** and the **Center Object** tools to position your piers accurately. Slide the piers to the end of the walls using the **Move** edit handle.
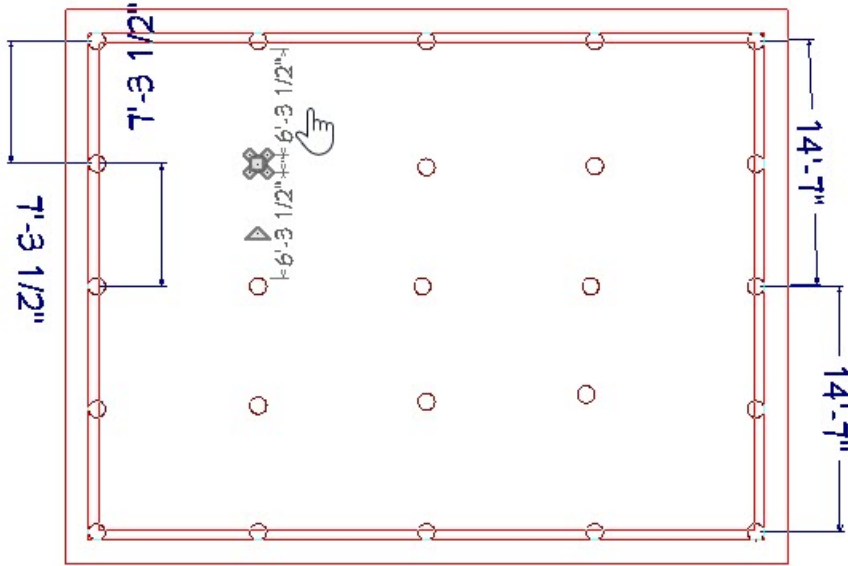
10. When the piers are in their correct positions, the dimension lines can be deleted.
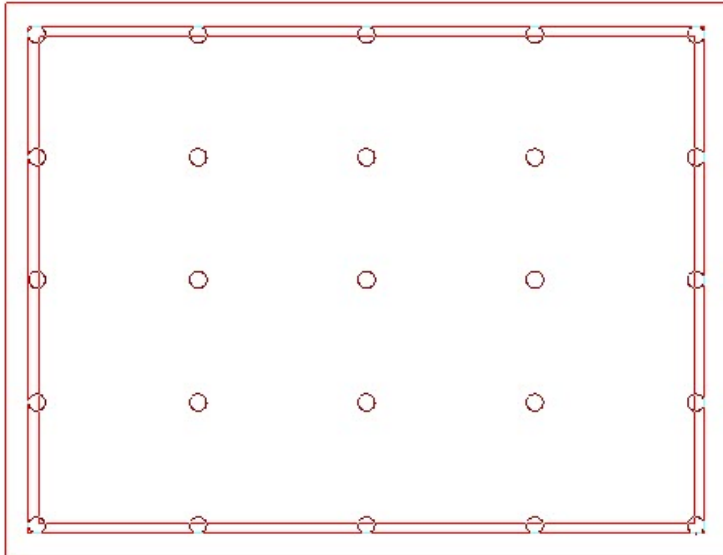

To create stairs that reach the ground

With the house elevated on piers, you can now create stairs from the floor to the ground. Normally, stairs generate from the current floor upwards to the floor above and snap precisely to both floor heights. When stairs are built from a floor to the ground, a different approach can be used.

1. Select **Tools> Floor/Reference Display> Up One Floor** ⋀ from the menu to go the Floor 2.

2. Select **Build> Stairs> Draw Stairs** 🪜 from the menu, then hold down the **Alt** key on your keyboard and click and drag to create a stairway. Holding **Alt** while you draw stairs directs the program to draw them in a downward direction rather than upward.

3. When you release your mouse button, a warning message will caution you about drawing stairs in a downward direction. Click **OK** to close the message box.

4. To create a landing between two runs of straight stairs, create the stair sections as described above, leaving a space between them where you would like a landing.
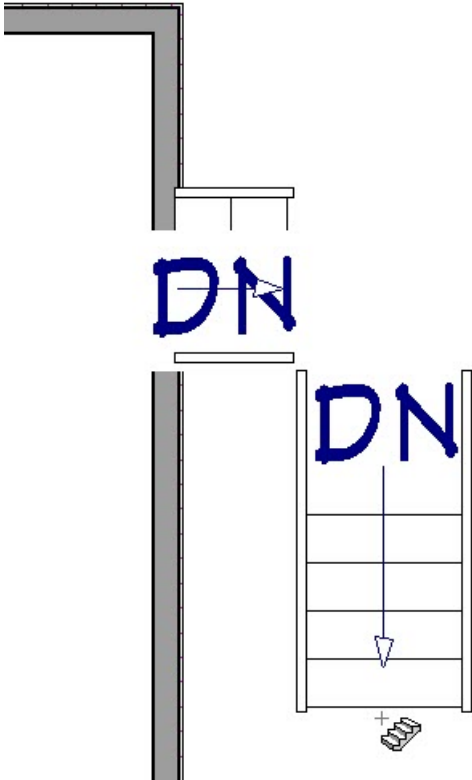
5. With the **Draw Stairs** tool selected, click once in the landing area to create a landing that joins the two stair sections.
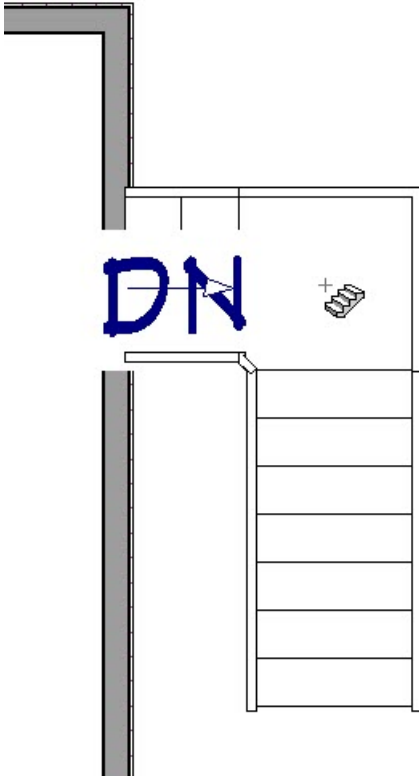
6. Select **Build> Door> Hinged Door** and then click on the wall at the top of your staircase to place a door.

7. Select **3D> Create Camera View> Perspective Full Overview** from the menu to view your elevated house on a pier foundation.