

TurboCAD® Architectural

Version 15

Getting Started Guide

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Getting Started Guide

This guide is designed to get you acquainted with the basics of the tools available to you in the TurboCAD Architectural Edition. It is not designed to teach you CAD or the basics of TurboCAD itself. Before using this guide, you should read the Getting Started Guide that came with your application (if one was provided) and you should familiarize yourself with the manual and TurboCAD itself.

Best Practices

If you are just learning the application it is OK to just dive right in and begin modeling. However, before you begin creating production models, there are some things you should keep in mind. These are called Best Practices.

Best Practices for Setup

Setting up the application and your drawing setting is a key step in making your modeling experience more productive and efficient. The following is a checklist of things you should do before you begin:

- Select the units and unit system you will be using in your drawing.
- Set up the grid and grid settings that will make using the grid easiest for you.
- Set up the layers that you will be using in your drawing. If your company or clients have standards for layers, use those.
- If you use standardized line styles or print styles, create them before you start.
- Save your setup drawing as a template. This will ensure that you do not have to walk through the setup process every time you start a model.
- If you start with a template to start, remember to save the file under a new drawing file name before you proceed. This will prevent you from accidentally overwriting your template.
- Set up and understand the Snaps and Geometric Alignment Aids you will be using.

Best Practices While Modeling

Once you have set up your drawing, there are some steps that will maximize your efficiency while you are modeling. The following is a checklist of these practices.

- Use blocks, which increase the efficiency of your model. Blocks reduce file size and make your operations more effective. A good rule of thumb: If you use an object or part more than once in your model, make it a block first.
- Use Layers, Categories and Graphics available from the Design Director, to keep your drawing organized. This might take some time at the front end of a project, but in the long run this will save you time and make your modeling smoother.
- Save frequently - there is no better way to prevent the loss of hours of work. Make sure that both the Auto Save and Backup functions are turned on.
- Name your saved files using a sequential naming scheme: e.g. “model_ version1,” model_version2,” etc. This will allow you to jump in and make changes from a particular point in the modeling process. If you use a source control application to protect your files, use it daily to protect your work.
- When possible, perform your edits in the Selection Info palette, rather than using Undo/Redo. This will keep your models more robust, and will give you greater control over model changes.
- Use SEKEs, Snaps, and Geometric Alignment Aides to ensure accuracy.
- Keep your drawing clean. Remove drawing and modeling elements you no longer need. If you think you may need them again, move them to a hidden “Trash” layer.

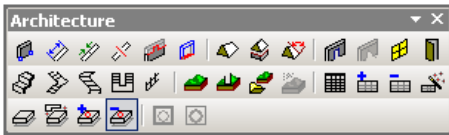
The Architectural Pack Tools

The tools provided with the Architectural pack are as follows:

- Additional Parametric Doors
- Additional Parametric Windows
- Profiles for windows and doors
- Custom Profile Creation
- Slabs
- Stairs
- Rails
- Schedules
- AEC Dimensions

The Project

To review these tools we will create a simple 3D model that will use each of these tools to achieve the final result. You can display the **Architecture** toolbar by right-clicking in any toolbar area and selecting **Architecture**.



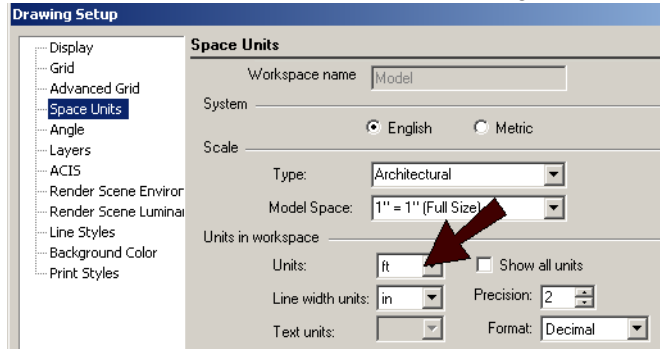
These tools are also available on the fly-out toolbar from the **Drawing Tools**.



Starting the Model

We will start the model with a box. Start a new drawing, use the default TurboCAD settings. This means that the units will be in inches. We need to change those units first.

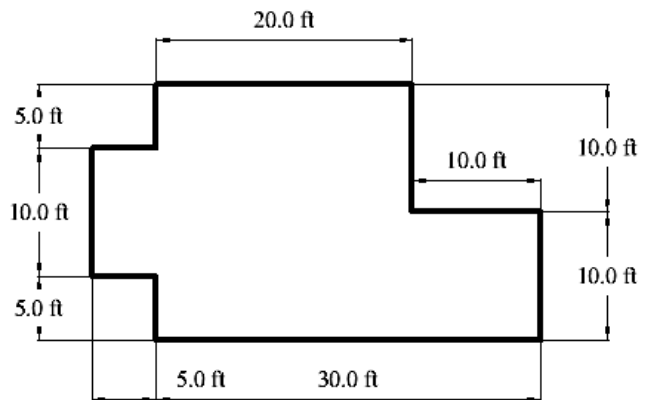
1. Select **Options / Space Units**.
2. Under **Units** select the drop-down arrow then select **ft.** to make feet the units for the drawing.



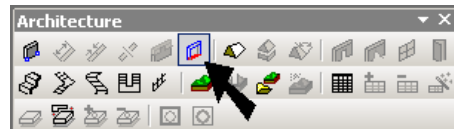
Draw the Walls

We will create a polyline, then use the **Convert to Wall** tool.

1. Make sure you are in **World Plan** view. If you use a grid, make sure that it is visible.
2. Activate the **Polyline** tool.
3. Draw the following polyline, proceeding in a counter-clockwise direction. If the grid is on, use the **G** key (G SEKE), or you can Tab into the Inspector Bar to enter length and angle values manually. Make sure to finish the polyline using the **Close** option.

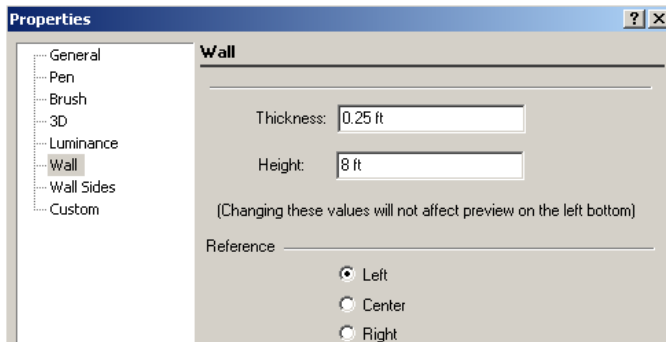


1. Activate the **Convert to Wall** tool.

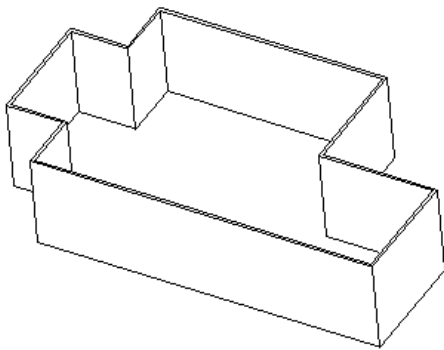


2. Right-click and select **Properties** from the local menu.

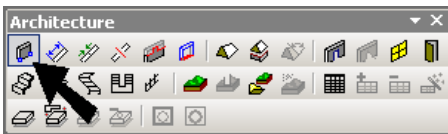
3. Open the **Wall** page of the **Properties** and set these properties: **Thickness** = 0.25 ft, **Height** = 8 ft, **Reference** = Left. Click **OK** to close the window.



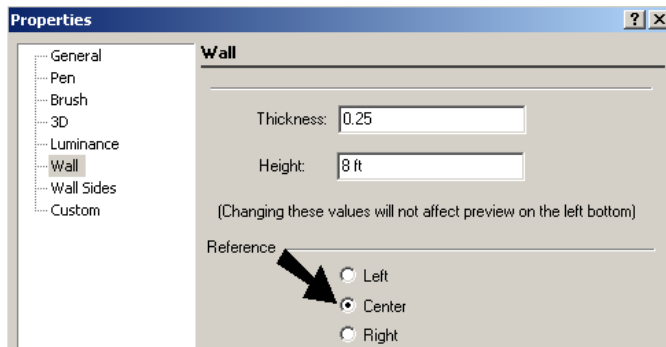
4. Click the polyline, and select **Finish** from the local menu or Inspector Bar. This creates the walls.



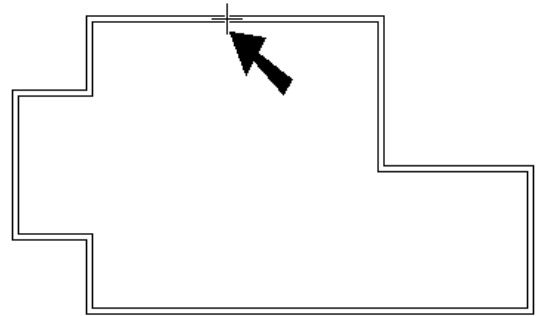
5. Go back to **World Plan** view.
6. To add an interior wall, activate the **Wall** tool.



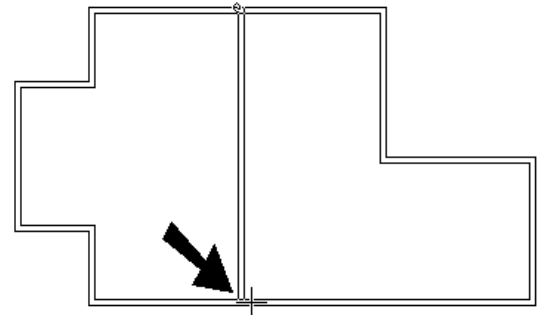
7. Open the **Properties** and set the **Reference** option to **Center**.



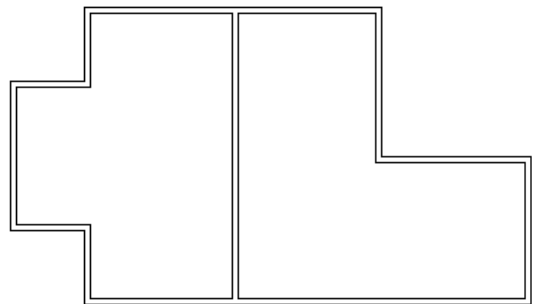
8. Position the cursor near the middle of the wall at the top of the drawing. Use the M SEKE to snap to the middle of the wall.



9. Press Shift to make the wall vertical, and move the cursor to a point just inside the lower wall.



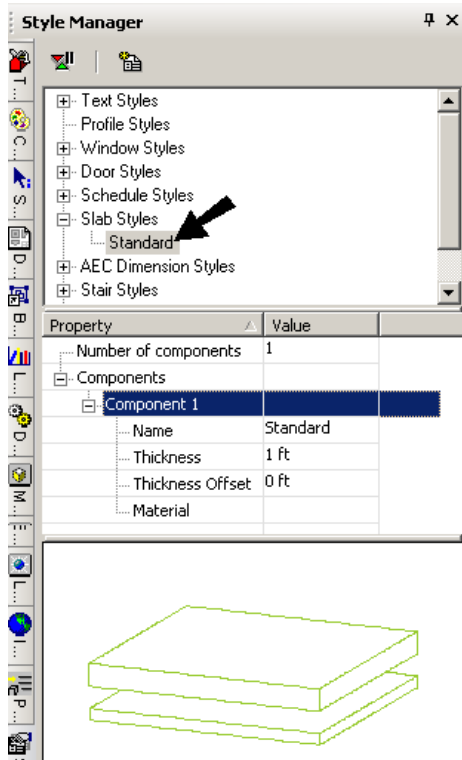
10. Click to create the wall.



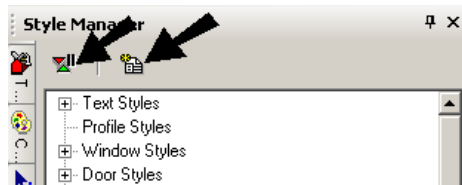
Add Slabs

Before adding slabs to create the floor, we will create a slab style.

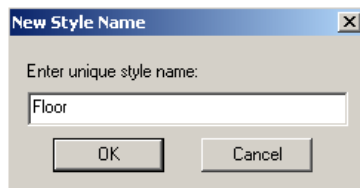
1. Select **View / Style Manager**, and open **Slab Styles**. There is one style defined, called “Standard.” The properties are listed below: this slab has one component with a name, thickness, offset and material.



2. Highlight “Standard” and then click **Create New Style**. Also, make sure **Delay Style Modification** is off.



3. Name this new style “Floor.”



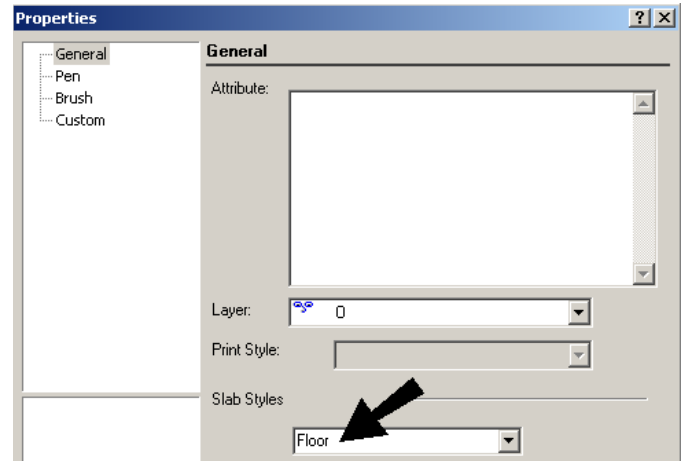
4. For the new “Floor” style, change the **Thickness** to 0.25 feet.

Property	Value
Number of components	1
Components	
Component 1	
Name	Standard
Thickness	0.25
Thickness Offset	0 ft

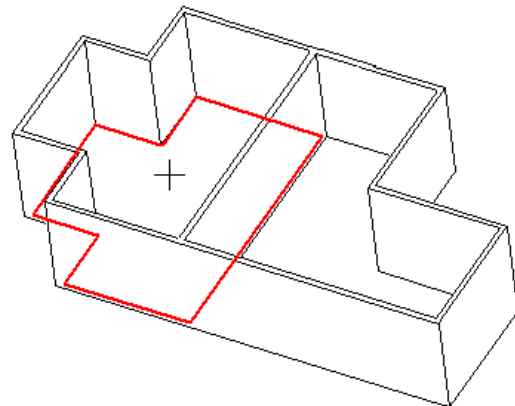
5. Open the **Properties** for **Add Slab by Click**.



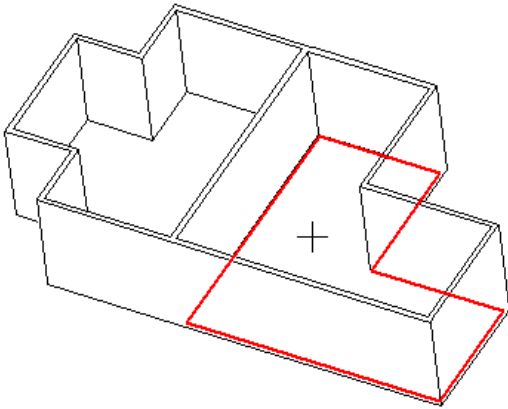
6. On the **General** page you can specify the **Slab Style**.



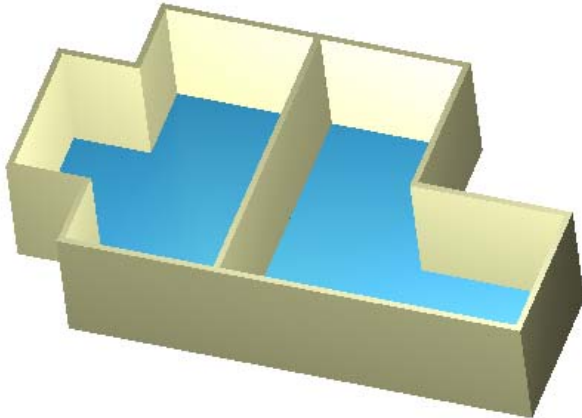
7. Activate **Add Slab by Click**. Move your mouse inside the walls, and the potential floor highlights. Click to add a slab here.



8. Add a slab in the other room as well.



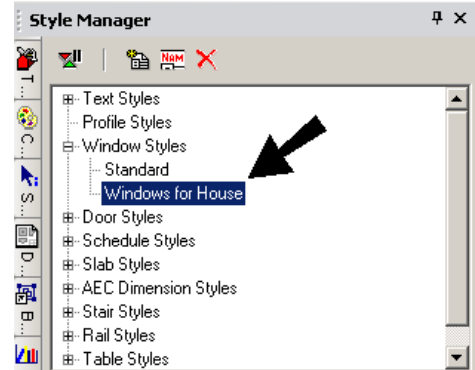
9. Assign colors or materials to the walls and floors, and view the model in **Draft** or **Quality** rendering.



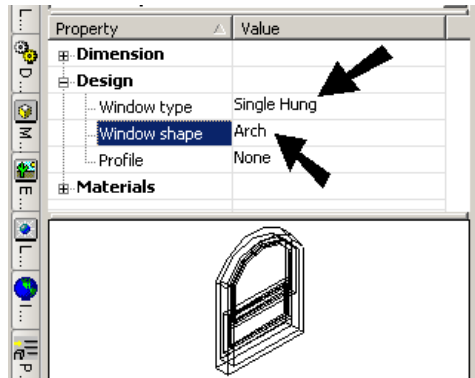
Add Windows

The Style Manager can also be used to define many types of windows.

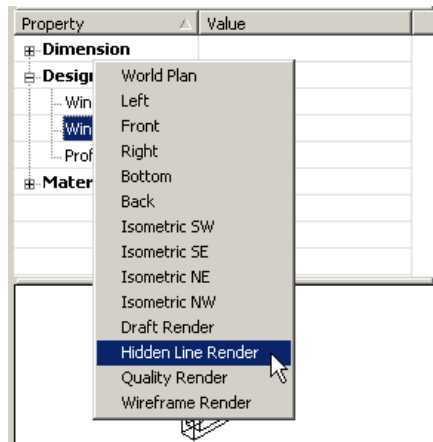
1. In the Style Manager, highlight the “Standard” style under **Window Styles**. Then use **Create New Style** to make a new style called “Windows for House.”



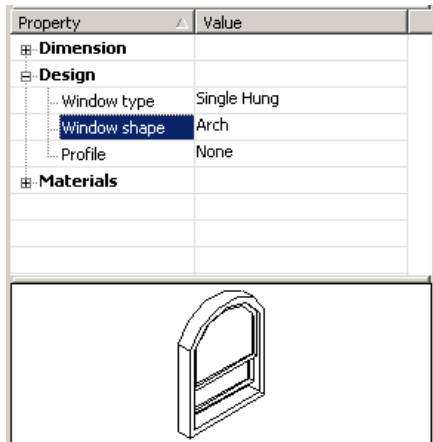
2. For this new style, under **Design**, make the **Window type** “Single Hung” and the **Window shape** “Arch.”



3. To change the appearance of the window preview at the bottom of the Style Manager, right-click on it and select **Hidden Line Render** from the local menu.

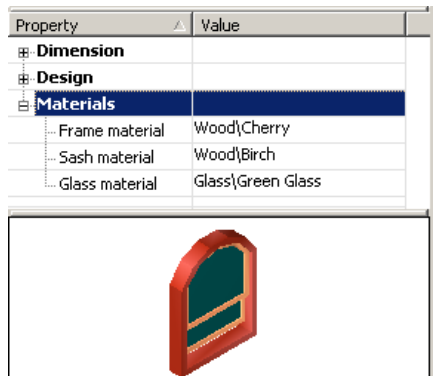


Now the preview is shown without hidden lines.



TIP: You can orbit the preview by holding the middle mouse button while moving the mouse. Clicking once on the preview will zoom it. Clicking once with the middle mouse button will zoom it to extents.

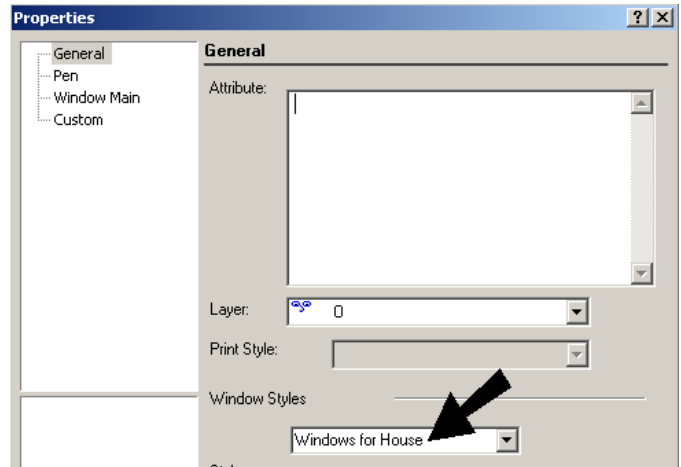
- Under **Materials**, choose materials for the frame, sash, and glass. Right-click in the preview window and select **Draft Render** or **Quality Render** to see how the materials look.



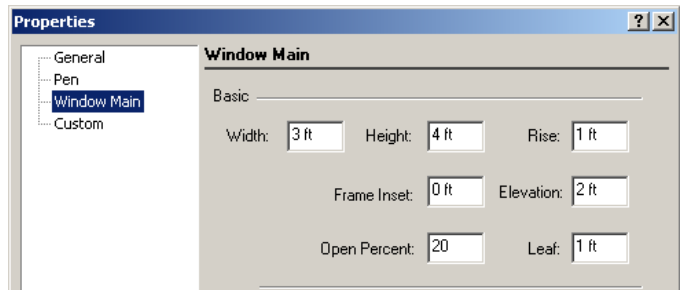
- Open the **Properties** for the **Window** tool.



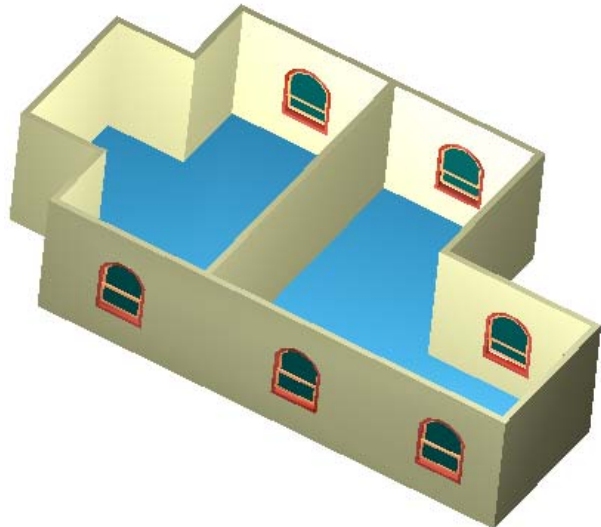
- Set the new style on the **General** page.



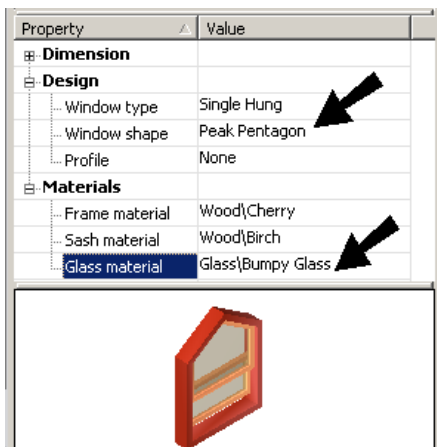
- Open the **Window Main** page, where you can set these overall dimensions for the window.



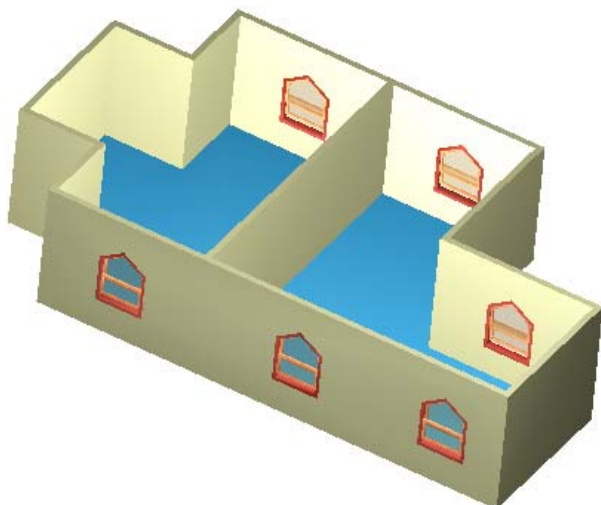
- Activate **Window**, and click along the walls to place some windows. Each one has the shape and material set in the style.



- To make global changes to these windows, to back to the Style Manager. Change the shape to “Peak Pentagon” and change the glass material.

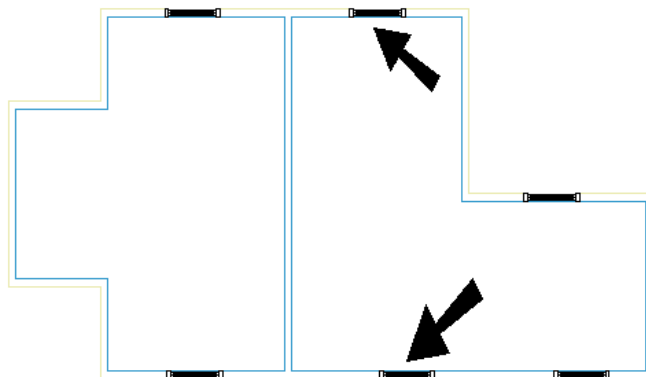


- The windows update automatically. (If the walls don't update properly, switch to **Wireframe** render and then switch back to **Draft** or **Quality**.)



NOTE: If you wanted to update the overall dimensions of one or all windows, you would select the ones you want to change, and make the changes in the **Window Main** page of the **Properties**. Or you could make the changes in the **Selection Info** palette.

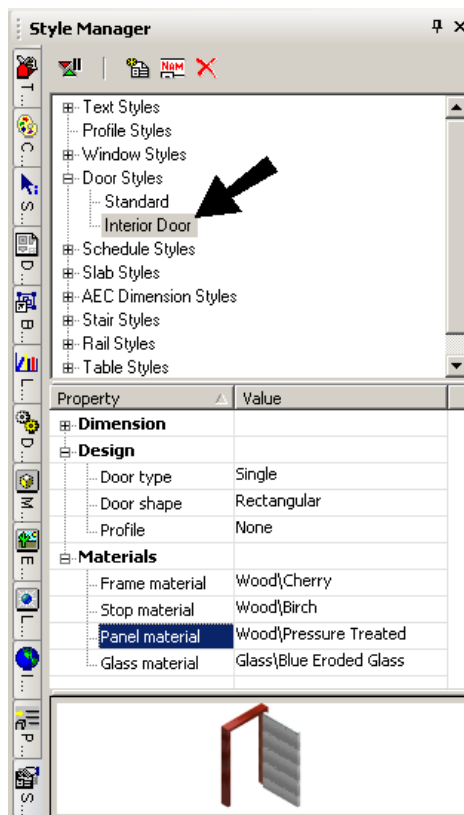
- Switch to **World Plan** and **Wireframe** render to see the 2D window symbols.



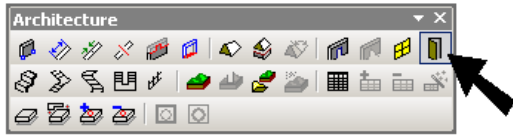
Add an Interior Door

The next object is a door that will be placed in the interior wall.

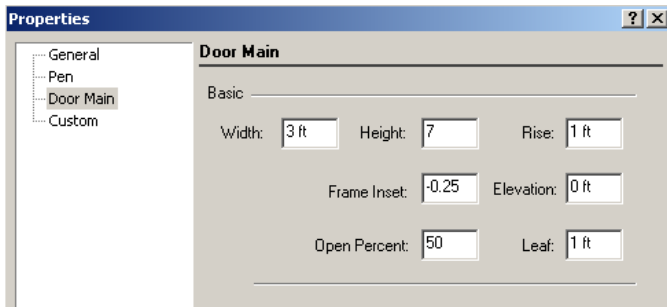
- Under **Door Styles**, make a new style called “Interior Door.” Set the **Design** and **Materials** properties shown here.



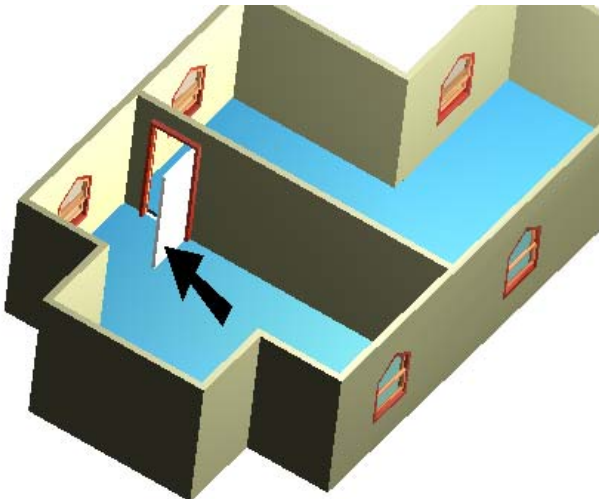
- Open the **Properties** for the **Door** tool.



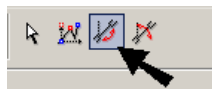
- Set the door type on the **General** page of the **Properties**.
- On the **Door Main** page, use these values:



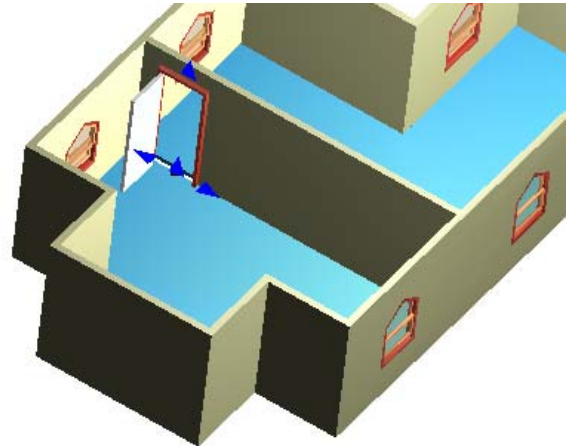
- Activate **Door** and place the door here:



- To flip the hinge side, activate the **Edit Tool**, and click on the door. From the Inspector Bar or local menu, select **Flip Right-Left**.



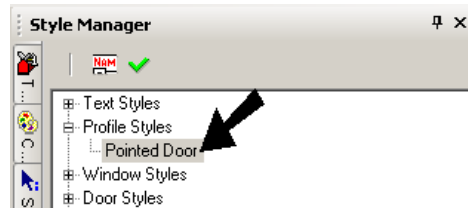
Now the door hinges are on the other side of the frame.



Add an Exterior Door with Custom Profile

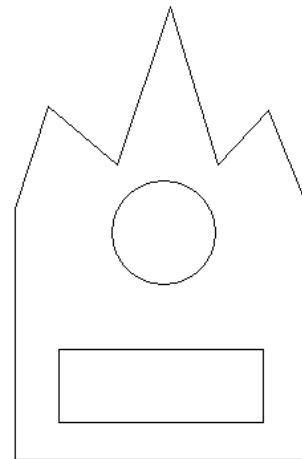
You can define a profile that will be used to cut the shape of a window or door.

- Under **Profile Styles**, create a new style called “Pointed Door.”

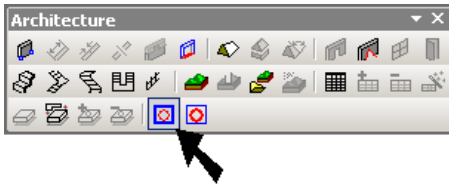


The model disappears, and you are now in “Edit Geometry” mode.

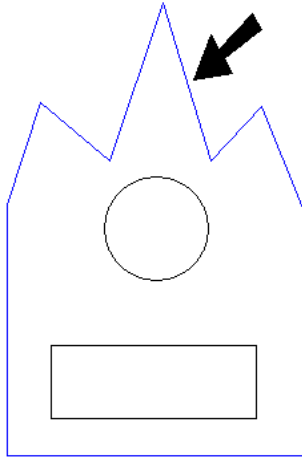
- Switch to **World Plan**.
- Create a door profile like this. For the outer shape, use **Polyline** to create the rectangle with the jagged top. For the interior shapes, draw a circle and rectangle. These will become windows in the door.



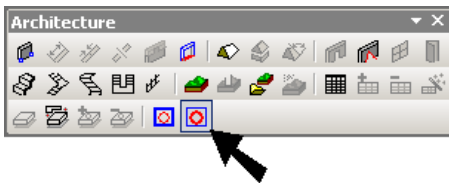
4. Click **Edit boundary profiles**.



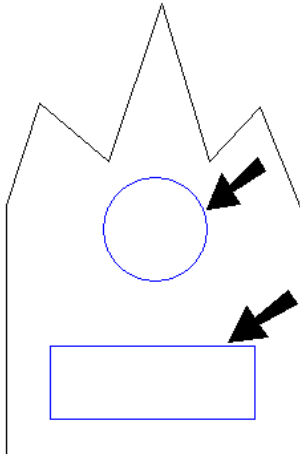
5. Click the jagged polyline, then select **Finish** from the local menu or Inspector Bar.



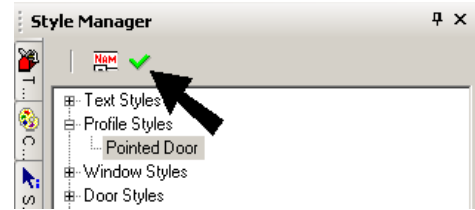
6. Next, click **Edit hole profiles**.



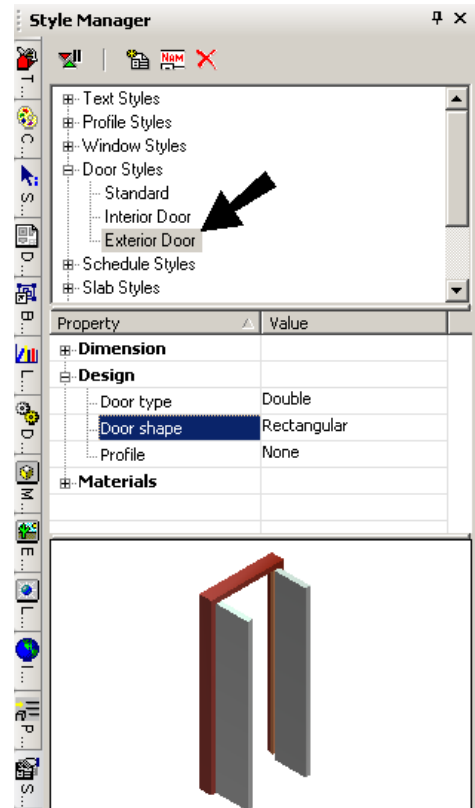
7. Click the circle and rectangle, then select **Finish**.



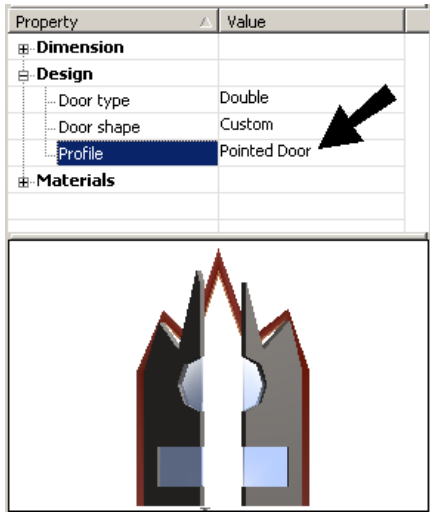
8. Finally, click **Finish to Edit Geometry** at the top of the Style Manager.



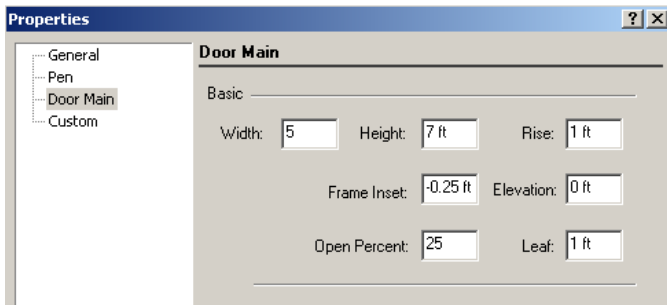
9. Create a new door style called “Exterior Door” with “Double” type and “Rectangular” shape.



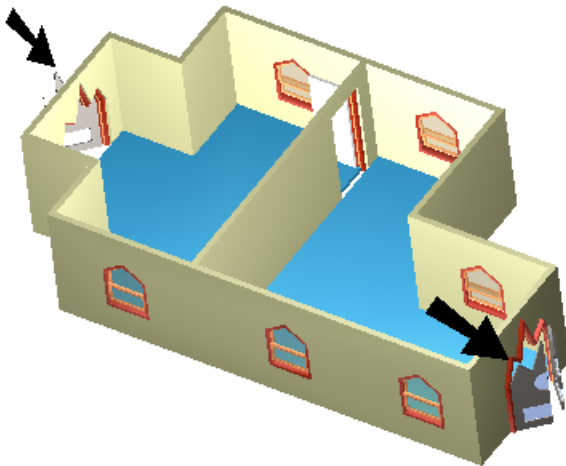
- Change **Profile** to “Pointed Door.” The preview updates to show the jagged shape and the two windows.



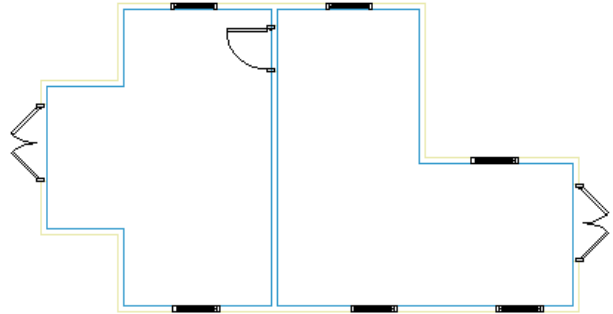
- In the **Door Properties**, set the “Exterior Door” style in the **General** page. On the **Door Main** page, set these values:



- Place two of these doors - one at each end of the house.



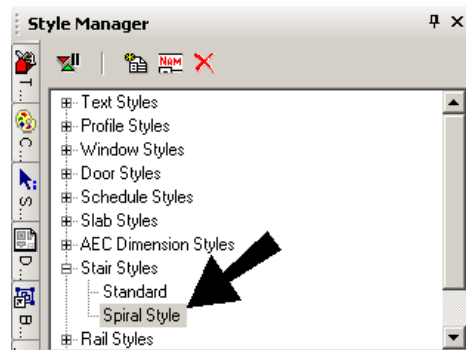
- Go back to **World Plan** and **Wireframe** rendering to see the 2D door symbols.



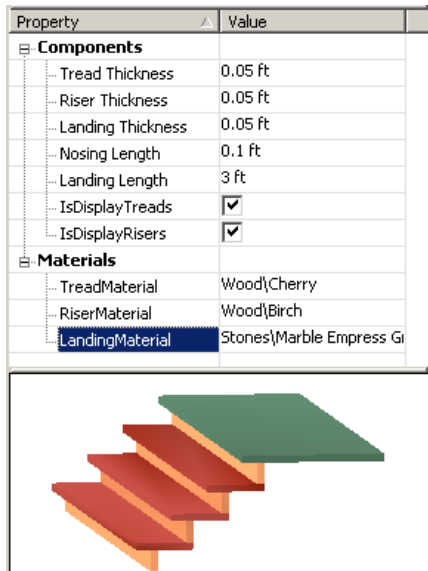
Add a Staircase

The TurboCAD Architectural Edition comes with several different stair types. We will cover only the Spiral Stair here.

- Under **Stair Styles**, create a new style called “Spiral Style.”



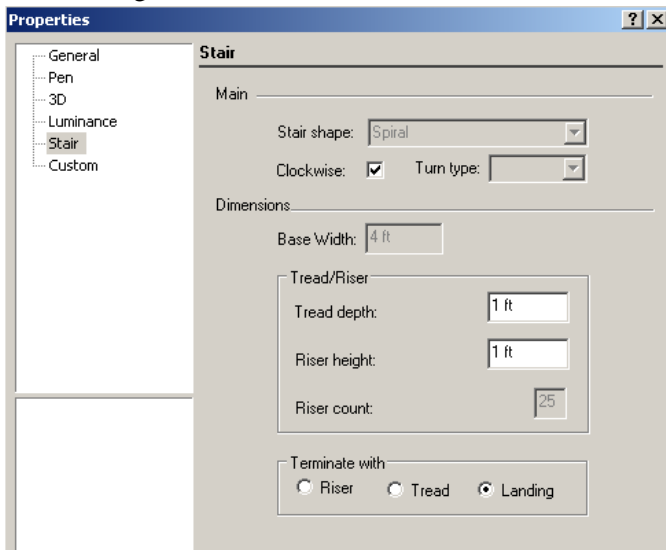
2. Use the values below for **Components**, and set any **Materials** you like. **Landing length** controls how far the landing will extend past the top step, and **Nosing length** sets how far a tread will extend over the front of a riser.



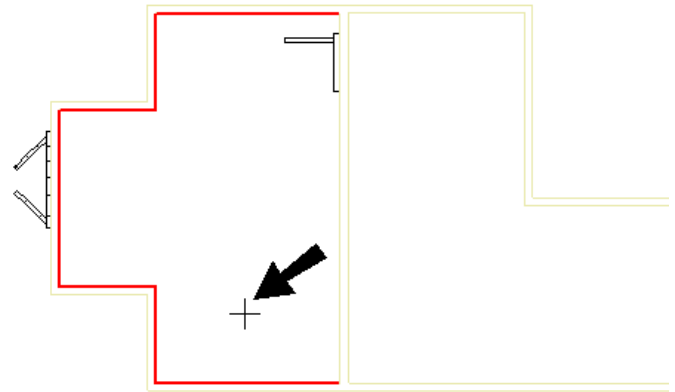
3. Open the **Properties** for the **Spiral Stair** tool.



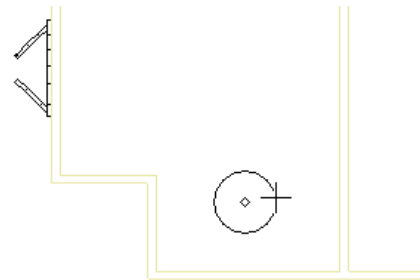
4. Set the new style in the **General** page.
 5. On the **Stair** page, check **Clockwise**, and set a 1-foot **Tread depth** and **Tread height**. Also, check **Landing** so that the staircase will end with the landing.



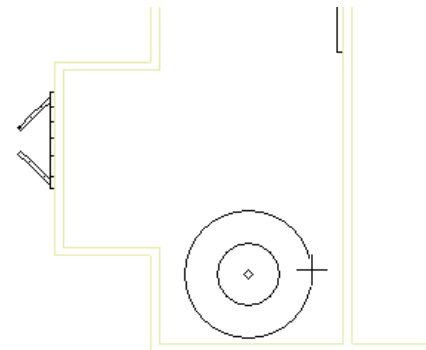
6. Activate **Spiral Stair** and Switch to **World Plan**. Place the center of the spiral somewhere around this part of the floor:



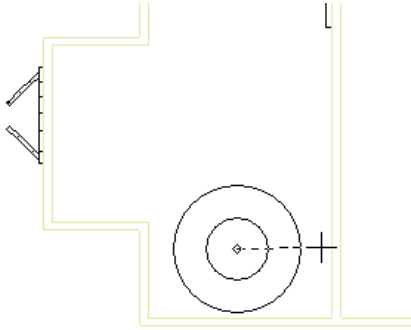
7. The next click sets the inner radius.



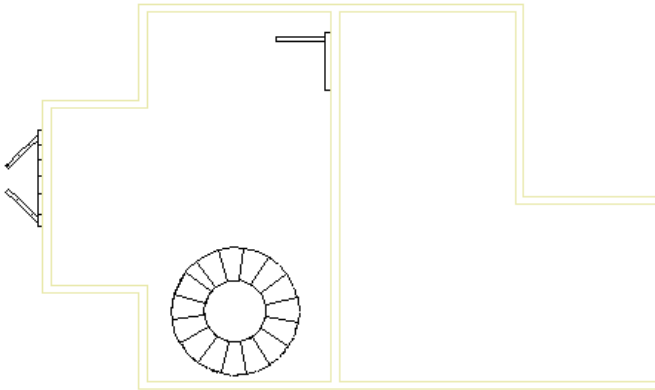
8. And the next click sets the outer radius.



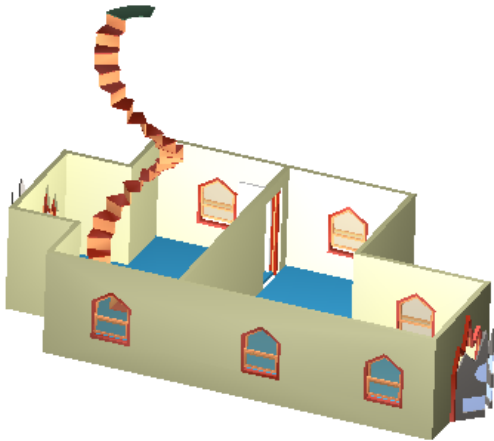
9. To set the start point for the stairs, move the cursor to the right side of the outer circle, and use the Q SEKE (Quadrant Snap) to snap to the right quadrant point.



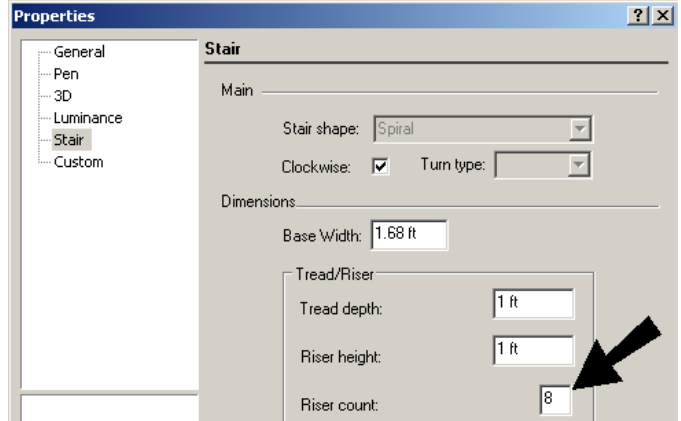
The steps are created.



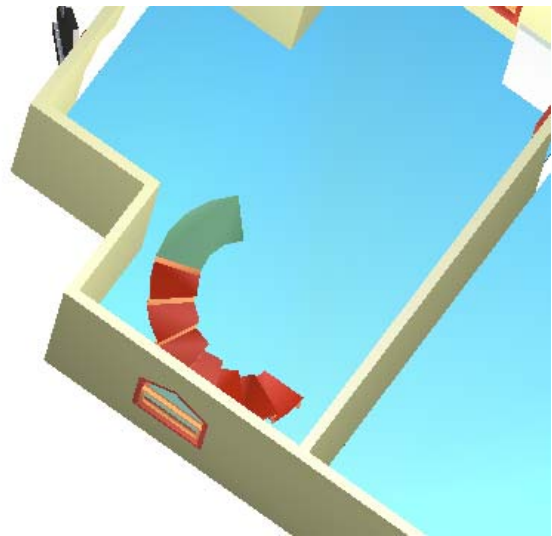
10. In an isometric view, you will have too many stairs.



11. Open the **Properties** for the staircase, and on the **Stair** page, change the **Riser count** to 8.



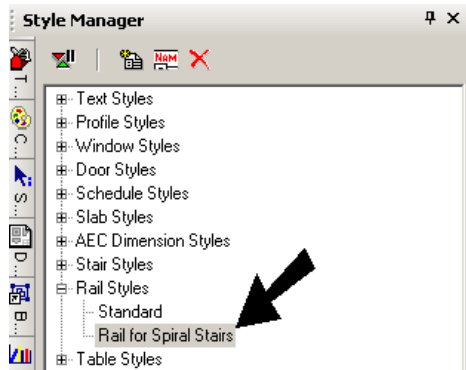
Now the staircase is the right height (each tread is 1-foot high, for a total of 8-feet).



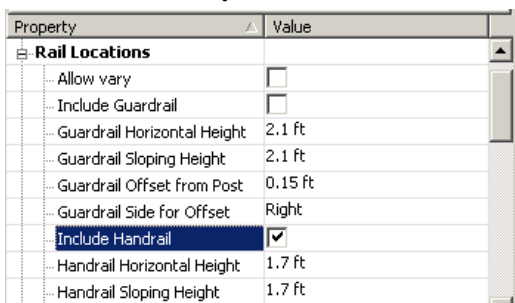
Add a Railing

Rails can be added to a staircase, or created as stand-alone objects. We will create one along the spiral staircase.

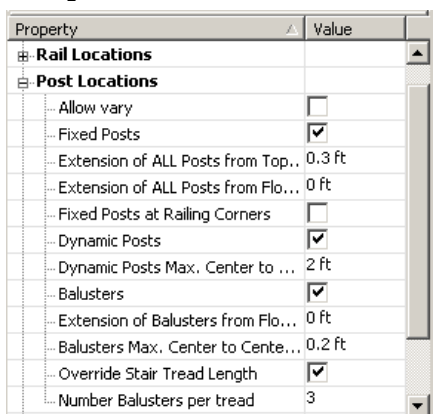
1. Under **Rail Styles**, create a new style called “Rail for Spiral Stairs.”



2. The properties for rails include a huge number of components, but we’ll keep ours simple. Under **Rail locations**, check only **Include Handrail**.



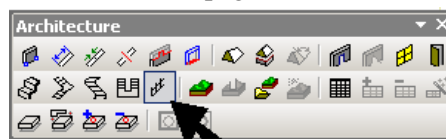
3. Under **Posts**, check **Fixed Posts** (posts at either end of the staircase), **Dynamic Posts** (intermediate posts), and **Balusters**. Also, check **Override Stair Tread length**, and specify 3 for **Number of Balusters per tread**.



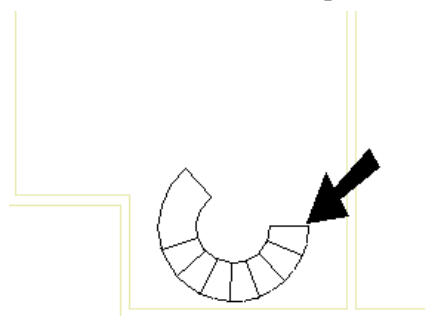
4. Under **Materials**, we only need materials for the handrail, both fixed posts, the dynamic posts, and balusters.

Railing Extensions	
Materials	
Guardrail Material	
Handrail Material	Metals\Polished Brass
Bottomrail Material	
First Fixed post Material	Metals\Steel
Last Fixed Post Material	Metals\Steel
Other Fixed Post Material	
Dynamic Post Material	Metals\Steel
Baluster Material	Metals\Polished Brass

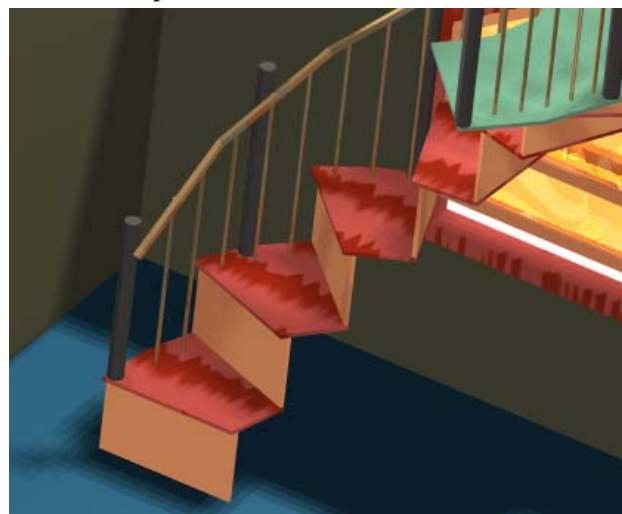
5. Open the **Properties** for the **Railing** tool, and set the style on the **General** page.



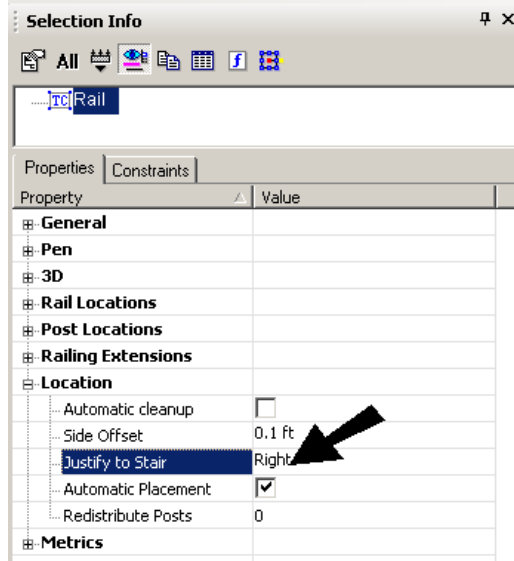
6. Activate **Railing**, and click the spiral staircase.



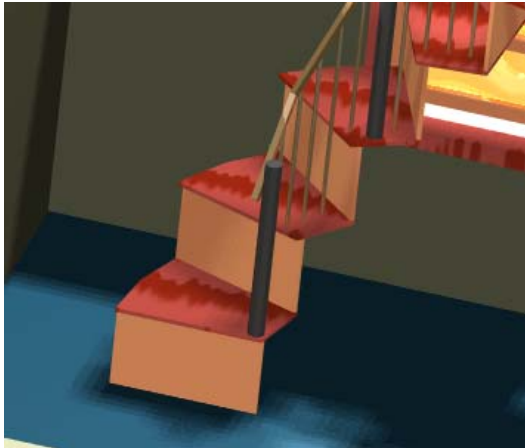
The railing is placed along the staircase, with three balusters per tread.



- To move the railing to the other side of the staircase, select the railing and open the Selection Info palette. Under **Location**, change **Justify to Right**.



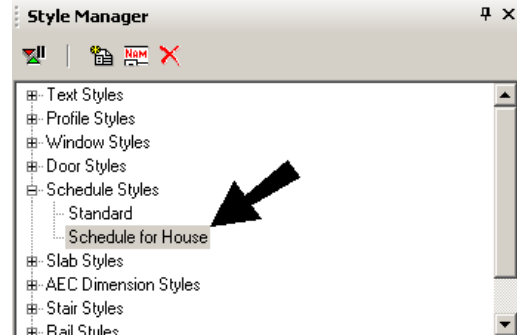
The railing is now on the right side of each tread.



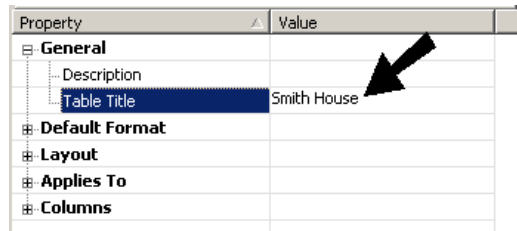
Create a Schedule

The **Schedule** tool makes it easy to create a table containing lists of doors, windows, walls, and slabs.

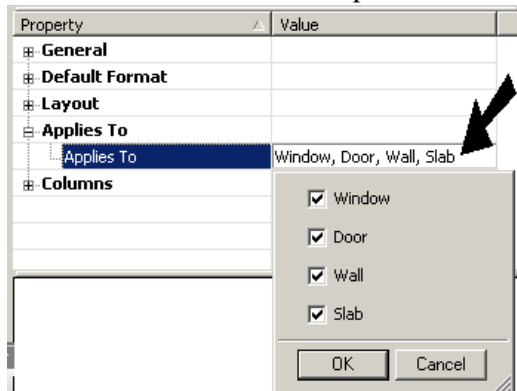
- Under **Schedule Styles**, create a new style called "Schedule for House."



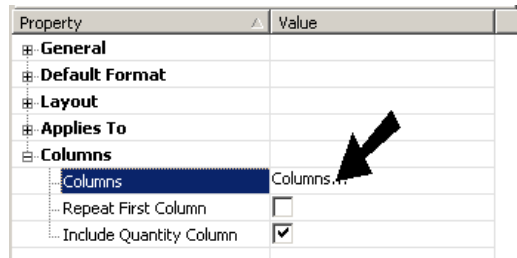
- Under **General**, change the **Table Title**.



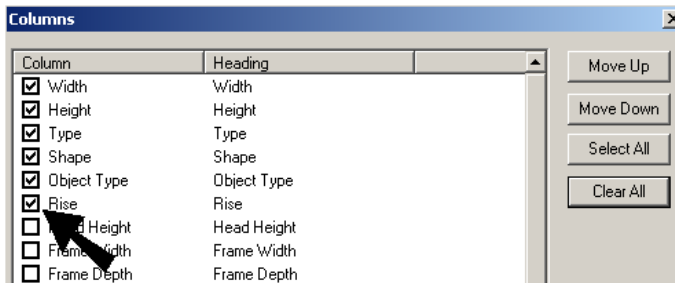
- To specify which types of architectural objects will be included in the table, click the field next to **Applies to**. You could remove any of these objects, but leave them in for this example.



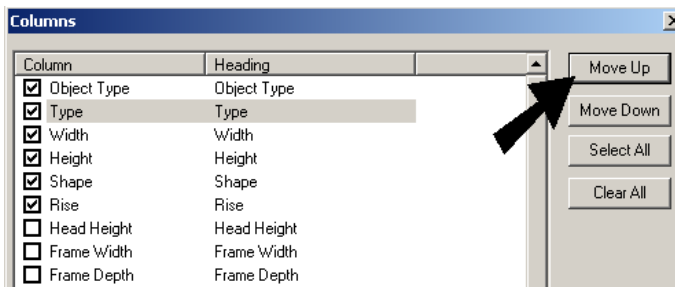
- To set the columns, click in the **Columns** field.



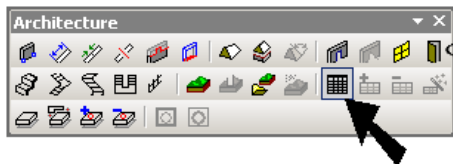
- The **Columns** window contains object properties you can include in your schedule. In addition to the defaults already checked, add **Rise**.



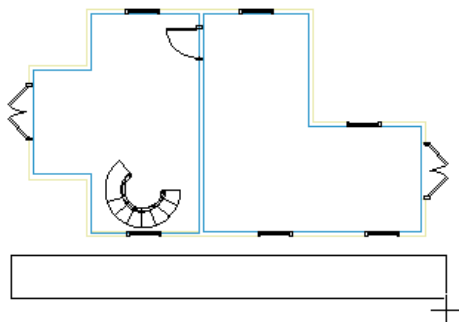
- To place the columns in a different order, highlight a column name, such as “Object Type” and use the **Move Up** button to move it to the top of the list. Use this method to set the order like this:



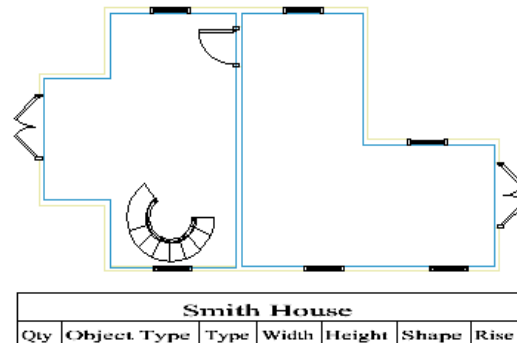
- Set the **Schedule** properties so that the new style is on the **General** page.



- Activate **Schedule**. In **World Plan**, click two corners to define the size of the table header.



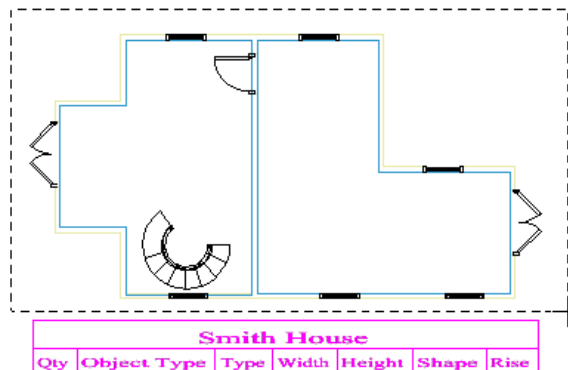
The table header is then filled in with the schedule title, and columns you defined in the style.



- To fill the rows, click **Add Object to Schedule**.



- Click the schedule header.
- Then drag a window around the entire plan so that all objects will be included in the schedule.



- Select **Finish**. The schedule is filled in with all windows, doors, slabs, and walls.

Smith House						
Qty	Object Type	Type	Width	Height	Shape	Rise
11	Wall		0.40	8.00		-
2	Slab		-	-		NI
6	Window	Single Hung	3.00	4.00	Peak Pentagon	1.00
1	Door	Single	3.00	7.00	Rectangular	NA
2	Door	Double	5.00	7.00	Custom	NA

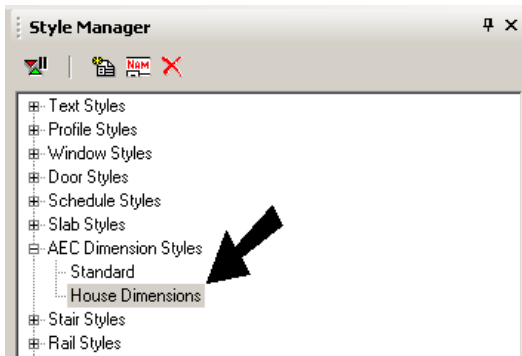
If you want to change or add columns, you can make the changes to the schedule style and the schedule will update automatically.

TIP: The **Fill Schedule Wizard** is another way to add objects to a schedule. With this tool, you can specify layers to scan, and TurboCAD includes all objects found on those layers.

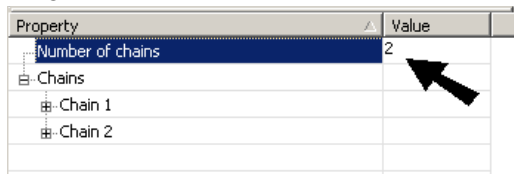
Add AEC Dimensions

The last items to add are dimensions. As usual, we'll start by creating a style.

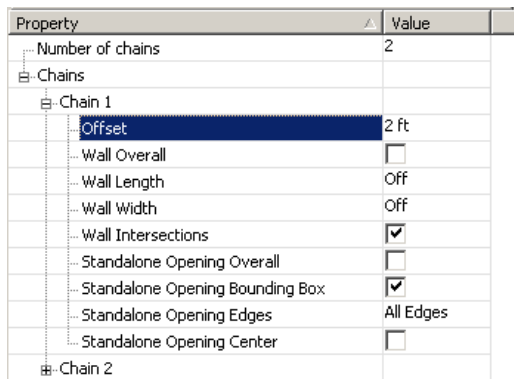
1. If the schedule is directly below the house plan, move it away, since this is where we will place the dimension chains.
2. Under **AEC Dimension Styles**, add "House Dimensions."



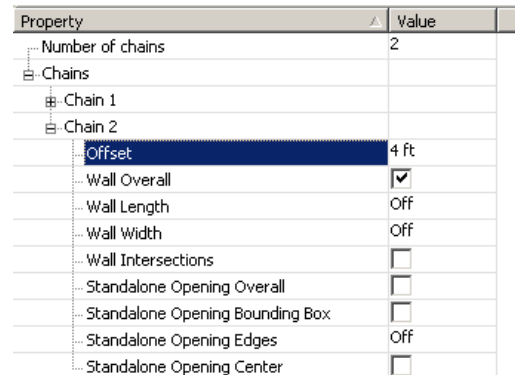
3. Change the **Number of Chains** to 2.



4. For **Chain 1**, check only **Wall Intersections** and **Standalone Opening Bounding Box**. Also, set an **Offset** of 2-feet. This chain will dimension the window openings.



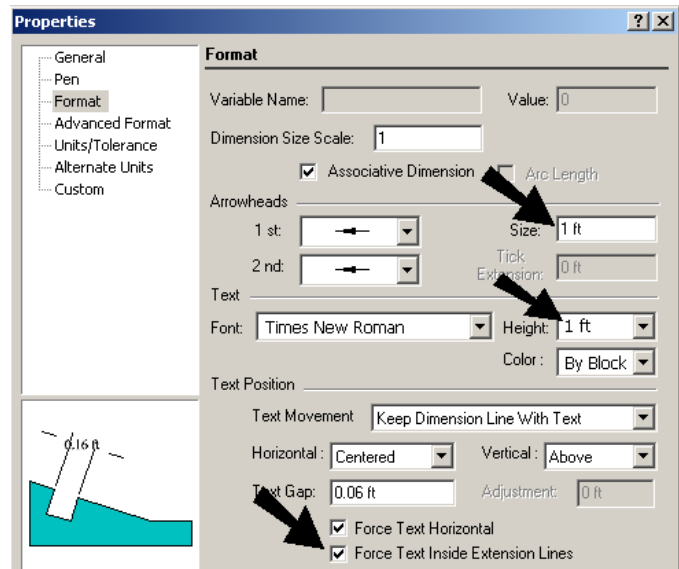
5. **Chain 2** will dimension the overall wall lengths. So check only **Wall Overall**, and make the **Offset** 4-feet.



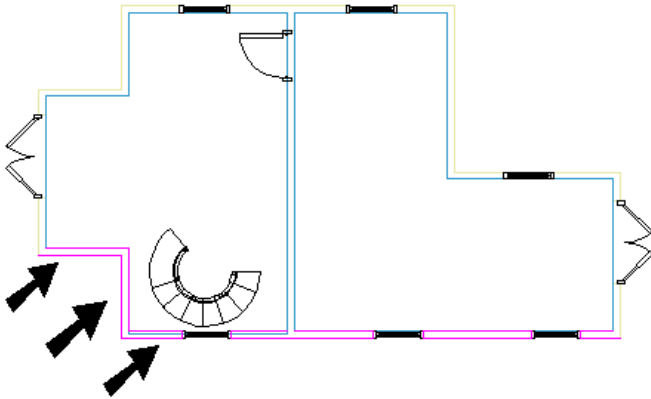
6. Open the **Properties** for the **Wall Dimension** tool.



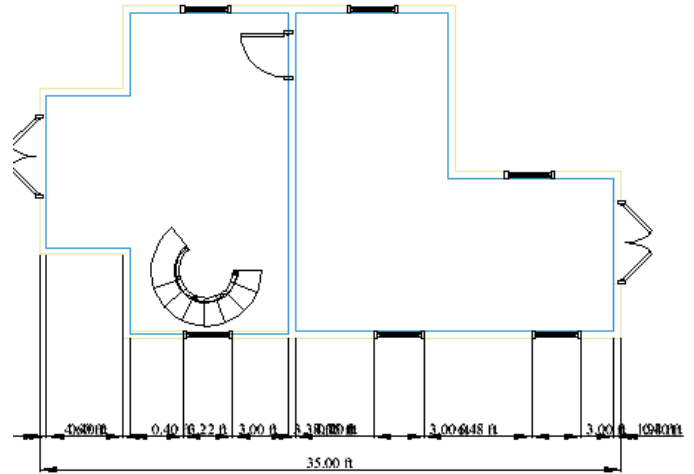
7. On the **Format** page, set the **Arrowhead** and **Font** sizes to 1-feet, so they will be large enough to see. Also check **Force Text Inside Extension Lines**.



8. Press Shift and click these three walls as a chain.

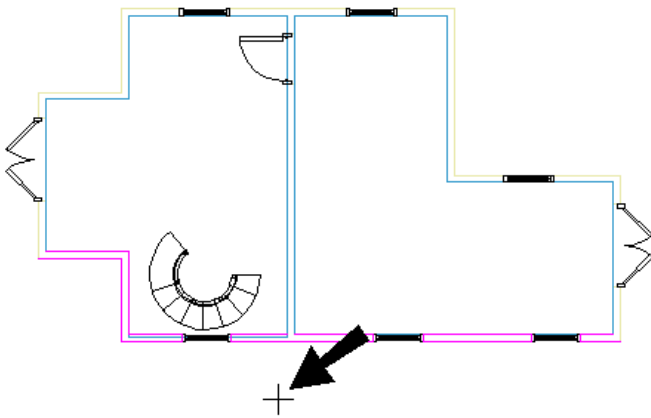


The two dimension chains are automatically created.

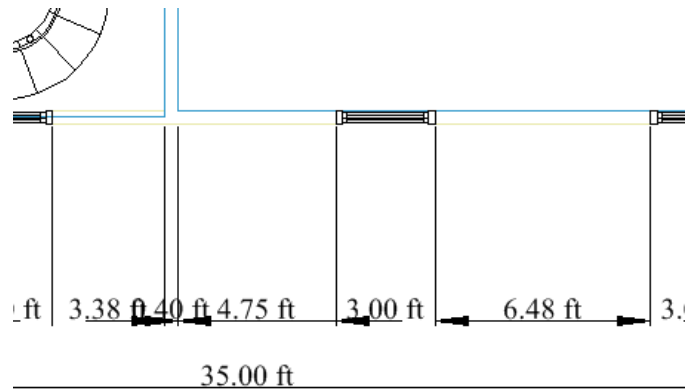


9. Select **Finish**.

10. Click somewhere below the plan to define the baseline of the dimension chains. The chain **Offset** values will be relative to this point.



12. You can zoom in to see detail dimensions.



11. Next, click directly below the previous point, so that the chains will be perpendicular to this line (and therefore horizontal).

