Chief Architect Premier X17

Professional 3D Home Design Software



Tutorial Guide

A step-by step introduction to drawing a model and creating construction documents.

Chief Architect, Inc
6500 N Mineral Dr
Coeur d'Alene, ID 83815
www.chiefarchitect.com

3/9/2026

Contents

Floor Plan Tutorials *3*
- Exterior Walls *3*
- Interior Walls *28*
- Multiple Floors *45*
- Interior Stairs *60*
- Doors and Windows *82*
- Decks and Porches *105*

Roof Tutorials *127*
- Getting Started with Automatic Roof Styles *127*
- Hip Roofs *129*
- Gable Roofs *130*
- Dutch Gable Roofs *131*
- Shed Roofs *131*
- Offset Gable Roofs *132*
- Gambrel Roofs *132*
- Gull Wing Roofs *133*
- Half Hip Roofs *134*
- Mansard Roofs *135*
- Finding the Start of an Upper Pitch *135*
- Chic Cottage Roof *136*
- Dormers *159*

Interior Design Tutorials *177*
- Custom Ceilings *177*
- Finish Materials *190*
- Room Moldings *211*
- Interior Furnishings *222*

Kitchen and Bath Tutorials *236*
- Cabinet Styles *236*
- Cabinet Layout *260*
- Appliances and Fixtures *277*
- Light Fixtures *299*
- Electrical Objects *318*

Framing Tutorials *331*
- Floor Framing *331*
- Wall Framing *348*
- Roof and Ceiling Framing *363*

Landscaping Tutorials *381*
- Plot Plans *381*
- Terrain Elevation *403*
- Driveways, Sidewalks, and Roads *420*
- Landscaping Design *433*

Layout Tutorials *452*
- Layout Page Templates *452*
- Title Blocks and Borders *462*
- Sending Views to Layout *485*
- Assessment Questions Answer Key *504*

Floor Plan Tutorials

Chapter 1

The Floor Plan Tutorials describe best practices for drawing a building's floor plan in Chief Architect.

In this tutorial you will learn about:

Exterior Walls

The first step in creating a structure in Chief Architect is to draw the exterior walls on Floor 1 of the plan.

Learning Objectives

This lesson describes best practices in Chief Architect for beginning a new plan and laying out the exterior, or perimeter, walls of a structure. Concepts introduced include:

File Management *3*

Saving Your Work *4*

Productivity Tips *4*

Using Plan Views *5*

Drawing Walls *7*

Zooming and Panning *8*

Working with Wall Type Definitions *8*

Setting the Defaults *11*

Drawing Exterior Walls *14*

Creating Room Definition *15*

Creating 3D Views *16*

Creating Dimension Lines *18*

Adjusting Wall Positions *20*

Adding Annotations *24*

Creating File Revisions *25*

File Management

A Chief Architect Project typically includes information from a variety of external files such as image files. In addition, there are often links created between Plans and Layouts. When Chief Architect Project Management is active, the program saves all such files in your Resource Store to help prevent links between files from being disrupted.

To create a new Project

1. Begin by selecting **File> New Project** or clicking on **New Project** in the Dashboard.
2. In the New Project from Template dialog:
   - Begin by specifying a **Project Name**. For this tutorial, the Project Name is "Chic Cottage".
   - Select the **Measurement Units** to be used throughout the Project. In this tutorial, "U.S. Units (inches)" are used.
3. Notice that the name you type automatically populates the **Plan Name** field.
   - Plans are where a Project's model is drawn, and each Project may have any number of archive and revision Plans.
   - Delete this name and instead type "CHIC COTTAGE-CURRENT". This name will help distinguish your working drawing from various saved archives that will be created as the model is developed.
   - Select “Residential Template.plan" from the **Plan Template** drop-down list.
4. The Project Name also automatically populates the Layout Name field.
   - A given Project typically only has one Layout so this name will be fine.
   - Select "Arch D 24x36 Layout Template" from the **Layout Template** drop-down list. See *Layout Tutorials on page 452*.
5. When you click OK, several things happen:
   - The CHIC COTTAGE-CURRENT Plan opens in a new view window.
   - The Chic Cottage Project is listed in the Project Browser side window.

The Project Browser side window is an important utility for managing your Projects and accessing a wide variety of important information in them. It will be used regularly throughout these tutorials.

To navigate the Project Browser

1. The Project Browser is docked on the right side of the program window by default.
   - Click on its tab to bring it to the front of the other side windows docked at that location.
   - If you do not see the Project Browser, select **View> Project Browser** .
2. Click the arrow to the left of Plan and Layout Templates and notice that the "Residential Template.plan" and "Arch D 24x36 Layout Template" are listed here along with a selection of other installed templates that are available for your use.
3. Below the Plan and Layout Templates, notice that Chic Cottage is listed. Click the arrow to its left:
   - CHIC COTTAGE-CURRENT.plan and Chic Cottage.layout are both listed.
   - As archives and revisions are added to the Project as it progresses, they will be listed here too.
4. Notice that CHIC COTTAGE-CURRENT.plan has an arrow to its left while Chic Cottage.layout does not. This is because CHIC COTTAGE-CURRENT is open. Click the arrow to its left:
   - A variety of different view types as well as schedules are listed and can be accessed here.

Saving Your Work

It is a very good idea to save your files often as you work, and this guide will remind you to do so regularly. It is also a good idea to implement a revision strategy. See *Creating File Revisions on page 25*, below.

Productivity Tips

As you learn how to lay out the exterior walls of a project, keep in mind these tips to improve your productivity.

Drawing and Editing

- Setting defaults before you draw saves time and reduces the chance of error.
- Draw exterior walls with Grid Snaps enabled.
- Draw walls to an approximate length and then position them with accuracy using dimensions.

Content

- A selection of name brand siding material catalogs are available for download in the "Materials and Surfaces" category of the 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.
- Create template plans that have your custom Wall Types set as defaults, and ready for use when you begin a new plan.
- Wall Types that have been customized can be imported into other plans.
- Customized Wall Types can also be saved in the Library for future use.

Interface

- The Status Bar at the bottom of the program window reports useful information about the active tool, the selected object, and more.
- Use the middle mouse button to pan and zoom the current view.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***F6*** - Fill Window
- ***Ctrl/⌘ + W*** - Close View
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Although Temporary Dimensions are toggled off in most of the images in this tutorial, it is assumed that they are on for the purposes of following the steps. Select **View> Temporary Dimensions** and confirm that there is a check mark in lower right corner of the tool icon.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views, each with customized settings for a range of purposes, and it is a good idea to consider which plan view to work in for each task.

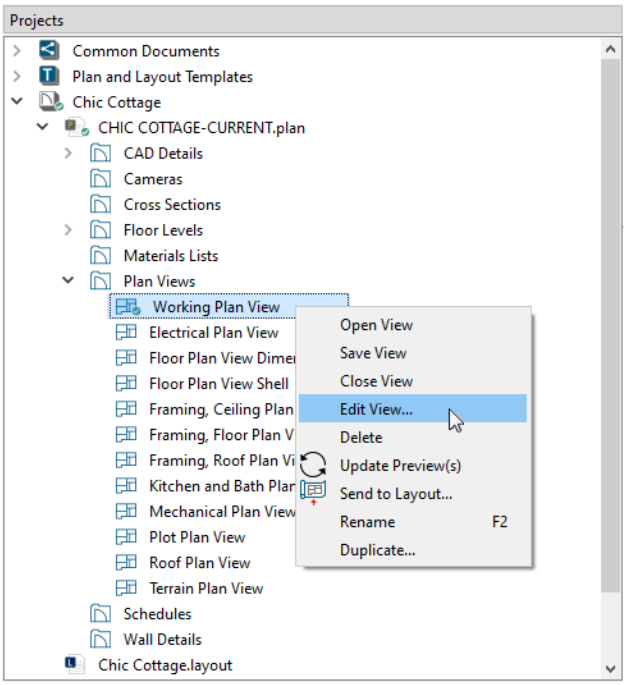
This functionality of plan views will be explored throughout this guide; however, to get started, the currently active Working Plan View will be used.

To see examples of Saved Plan Views and their settings, as well as other types of views saved with a plan file, use the Project Browser.

To examine a saved plan view's settings

1. The Project Browser side window is docked to the right side of the program window.
   - Click on its tab to bring it to the front of the other side windows docked at that location.
   - If you do not see the Project Browser, select **View> Project Browser** .

2. The CHIC COTTAGE - CURRENT document is listed under the Chic Cottage Project.
   - CHIC COTTAGE-CURRENT's should already be expanded but if not, click the arrow to the left of its name.
   - The various view types available in a Plan are organized in folders.
3. Click the arrow to the left of “Plan Views”. Notice that:
   - “Working Plan View” has an icon that indicates that it is Open.
   - There are a number of other Saved Plan Views created for various tasks.
4. Right-click on “Working Plan View” and select **Edit View** from the contextual menu.



5. In the Saved Plan View Specification dialog, you can see that a variety of settings can be saved with a view, including:
   - The current Floor.
   - The current Default Set, which can be used to select a pre-set collection of Layer settings and Saved Defaults, also found in this dialog.
   - The current Layer Set, which controls which objects display, and their appearance.
   - The active Saved Defaults, which determine the attributes of dimensions, text and other objects used to annotate plan views.
   - The Reference Floor and its attributes, which allows you to display information from other floors for reference, along with the current Floor.
6. Click OK to close the dialog.

Saved Plan Views are convenient and powerful, but you don’t have to master everything about them right now. Choosing an appropriate plan view is simply a good step to take before you begin any drawing task.

> Note: When a new plan is created using the Residential Template, both exterior dimensions and roof planes are generated as soon as walls are drawn to enclose a room area. By default, the Reference Grid and Crosshairs are also toggled on. To improve the clarity of illustrations in this tutorial, these are turned off.

Drawing Walls

Walls are arguably the most important type of object in Chief Architect because they define most of every building's structure. Walls are structural elements in and of themselves; but they are also used to define rooms, which are required in order to create floor and ceiling platforms.

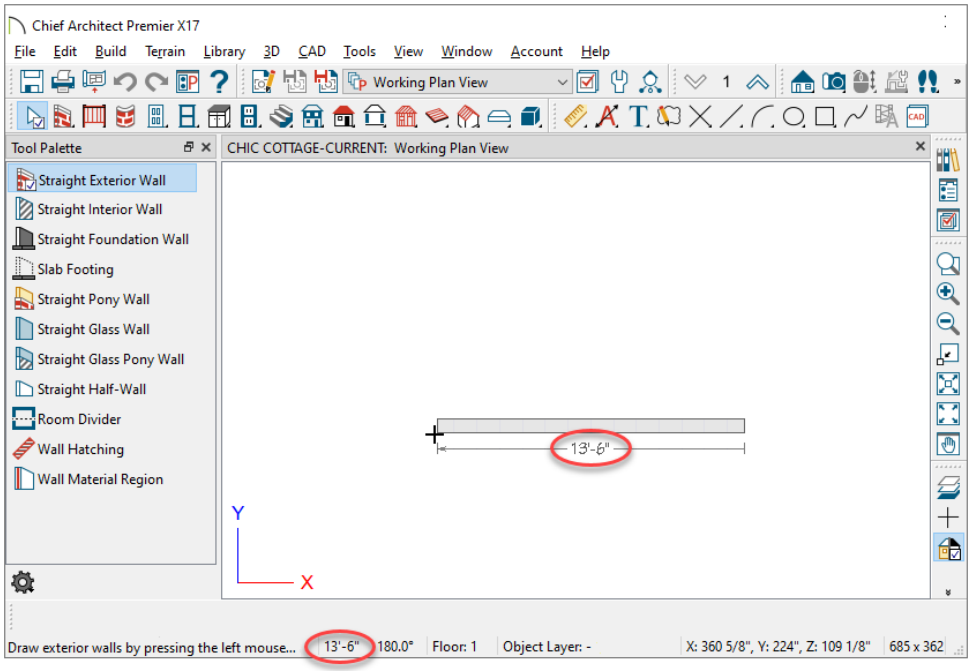
> Note: Whenever possible, default settings should be specified before objects of that type are drawn. As this is the case, most lessons in this guide begin with a Setting the Default section. This lesson is unique in that it begins with drawing an object in order to demonstrate what defaults do.

When a new plan is created using the Residential Template, the Reference Grid displays and both exterior dimensions and roof planes are generated as soon as walls are drawn to enclose a room area. For the purposes of this tutorial, these are turned off.

- To turn on/off the Reference Grid, select **View>Reference Grid** .
- To turn off/on Auto Exterior Dimensions, see *To set dimension defaults for locating walls on page 18*, below.
- To turn off/on Auto Rebuild Roofs, see *Auto Rebuild Roofs on page 129*.
- To turn on/off the Crosshairs, select **View> Crosshairs** .

To draw a wall

1. When drawing a structure's perimeter walls, it is recommended that you select **Edit> Snap Settings>** make sure **Grid Snaps** are turned on. You may choose to disable them, though, once the shell walls are in position.
2. Select **Build> Wall> Straight Exterior Wall** from the menu or click the corresponding toolbar button, then click and drag to draw a line from right to left.
3. As you draw a wall, its length displays in two places: below the wall and in the Status Bar at the bottom of the screen:



4. The wall's angle is also shown in the Status Bar. Wall angles are restricted to 15° increments, which makes drawing straight walls easy; however, you can toggle Angle Snaps on and off by selecting **Edit> Snap Settings> Angle Snaps** or pressing the F10 key.

5. When the wall is between 13 and 14 feet long and its angle is described as 180°, release the mouse button to create the wall.
6. As you draw walls, do not worry about their exact length. In Chief Architect, walls can be sketched out at their approximate lengths, allowing you to think creatively rather than focus on entering exact values. Once walls are in place, they can be positioned precisely using dimensions, which will be described later.

Zooming and Panning

Chief Architect plans can vary considerably in size, and often contain objects that are very large and those that are very small. You can control what objects are on-screen and how much detail is visible at any time by zooming and panning.

There are a number of ways to zoom and pan in the program, but one of the easiest is to use the scroll wheel on your mouse: scroll to zoom in or out, click and drag to pan.

To use the Zoom and Undo Zoom tools

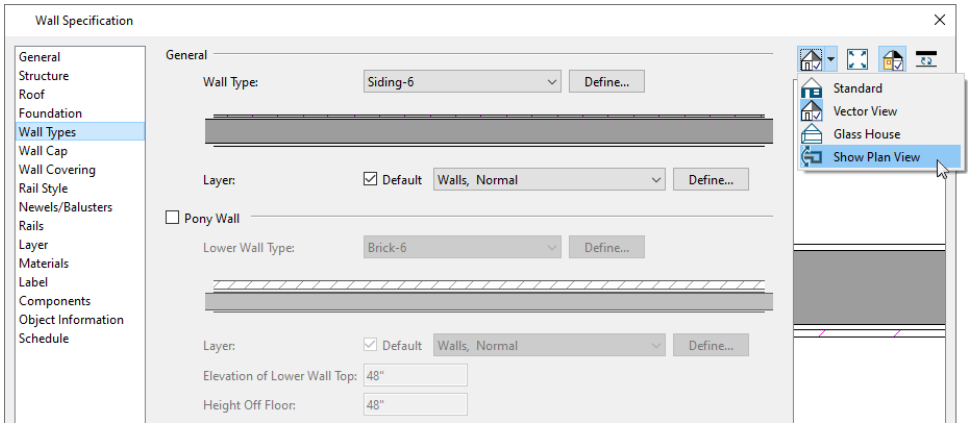
1. For a closer view of a certain area, click the **Zoom** tool, click and drag a box around the area you want to see in detail, and release the mouse button. That area fills the screen.
2. To return to the previous zoom factor, select **Window> Undo Zoom**.
3. Select **Window> Fill Window Building Only** to center your plan on screen.
4. To center all objects in the current view on screen, including the Living Area label and dimensions, select **Window> Fill Window**.

Working with Wall Type Definitions

Zoom in on the wall in your plan so you can see its layers and notice its appearance. The lines and colors represent the layers of the wall assembly, including its siding, sheathing, framing, and drywall. All of these characteristics are part of the wall's Wall Type Definition.

To specify a wall's Wall Type

1. Click the **Select Objects** button, then click on the wall to select it.
2. Click the **Open Object** edit button and go to the Wall Types panel of the Wall Specification dialog. Notice:



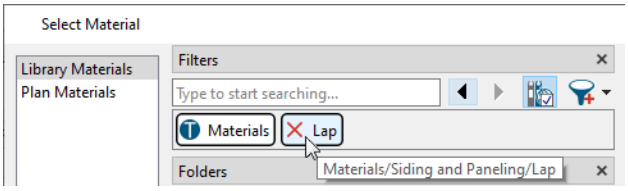
- The **Wall Type** name, "Siding-6".
- The 3D preview. Click and drag in the preview window to rotate its contents.
- Click the **Show Plan View** button above the preview.

3. Now click the **Wall Type** drop-down and note that there are numerous other Wall Types available. Select a different Wall Type and notice the object preview, which changes to show the new Wall Type. Switch back to “Siding-6”.
4. Click the **Define** button to open the Wall Type Definitions dialog. Notice that the Wall Type is composed of multiple layers with different materials and specific thicknesses.
5. Click the Cancel button to close both dialogs without making any changes.

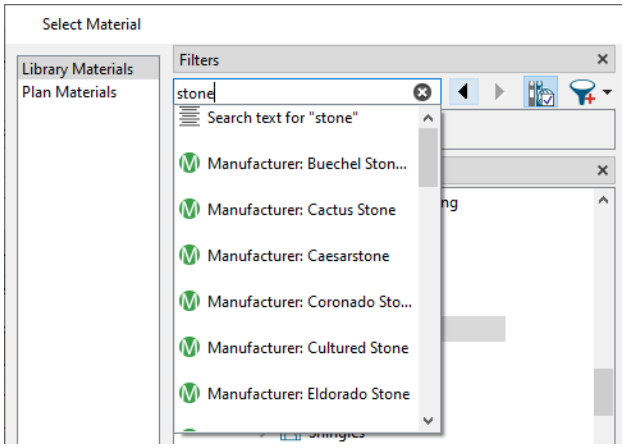
The Wall Type Definitions dialog can also be accessed from the program menu.

To create a new Wall Type

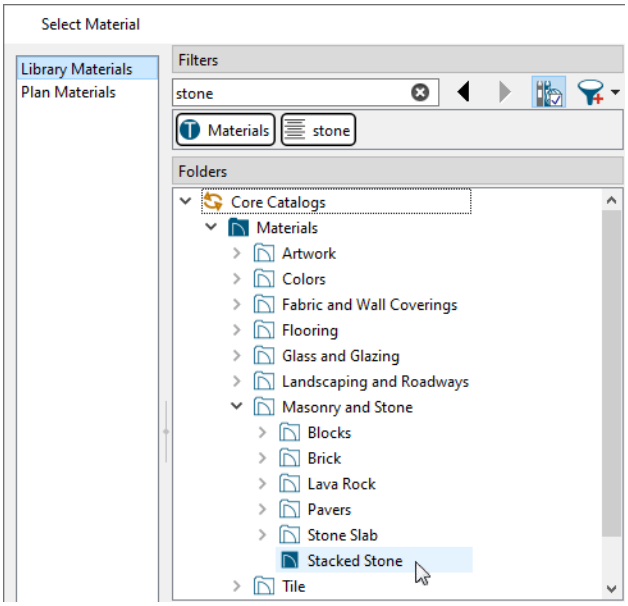
1. Select **Build> Wall> Define Wall Types**, then select “Siding-6” from the drop-down list at the top left corner of the dialog.
2. Click the **Copy** button, then type a short, descriptive Name for the new Wall Type. Here, “Stone-6” is used.
3. Specify a new **Thickness** for Layer 1 of this Wall Type:
   - Click in the Thickness cell for Layer 1.
   - Type 3" in the text field, then press the ***Tab*** key.
4. Specify a new **Material** for Layer 1 of this Wall Type: click in the Material, Pattern, or Texture cell for Layer 1 to open the Select Material dialog.
5. The LIBRARY MATERIALS panel of the Select Material dialog is a modal version of the Library Browser. In the Browser, a wide variety of items useful for creating a detailed design can be found. On the LIBRARY MATERIALS panel, however, the content is filtered to list materials only.
   - When accessed from a specification dialog, the content is further filtered to show the folder that the selected material is found in. Active filters are listed in rectangular shapes directly under the Search field at the top of the panel.
   - Here, the "Lap" **Folder** is used as a filter. You can mouse over its shape to see its location in the Folders list in a tool tip. To search for materials in other folders, click on the Lap filter shape to remove it.



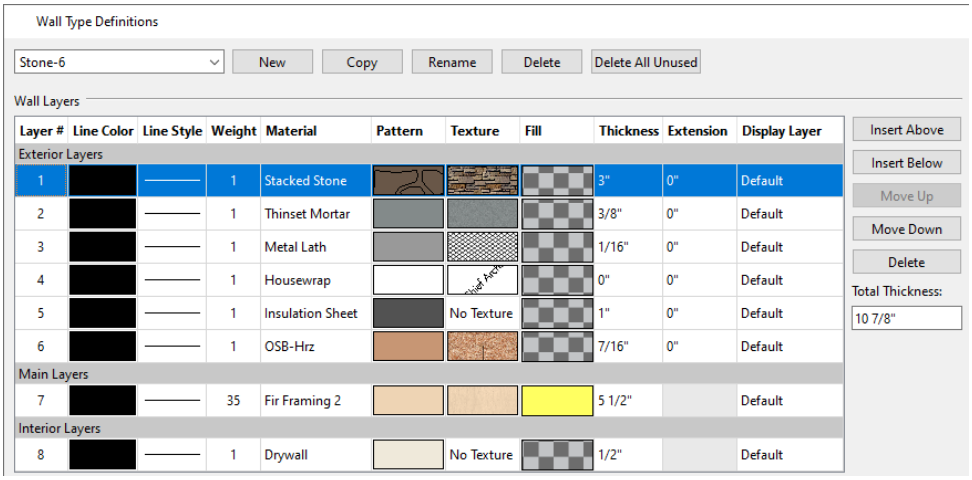
   - In the Search field, type "Stone" and notice that a drop-down list finds numerous items that match this search word, including downloadable **Manufacturer** catalogs. You can click on any of these items to use it as a filter. Here, though, press the ***Enter*** key to search for what you've typed as a **Text** filter.



- In the Folders panel, navigate the tree list to Core Catalogs> Materials> Masonry & Stone.
- Scroll down as needed to find the "Stacked Stone" material. Click on it to select it and click OK.



6. Remove the **Fill** from Layer 1 of this Wall Type:
   - Click in the Fill cell for Layer 1.
   - In the Layer Fill Style dialog, select “No Pattern” from the **Type** drop-down list, then click OK.
7. With the “Stacked Stone” layer still selected, click the **Insert Below** button. A copy of the selected layer is created directly below the original. Specify “Thinset Mortar” as the Material, a Fill of “No Pattern”, and a Thickness of 3/8".
8. Repeat step 6 to create a new layer below the “Thinset Mortar”. Specify a **Material** of “Metal Lath”, a **Fill** of “No Pattern”, and a **Thickness** of 1/16".
   - Create one more layer below the “Housewrap” layer. Specify a **Material** of “Insulation Sheet”, a **Fill** of “No Pattern”, and a **Thickness** of 1".
   - To help distinguish your new custom Wall Type from other walls, you can give its Main Layer a "Solid" Fill with a distinct color, such as yellow.



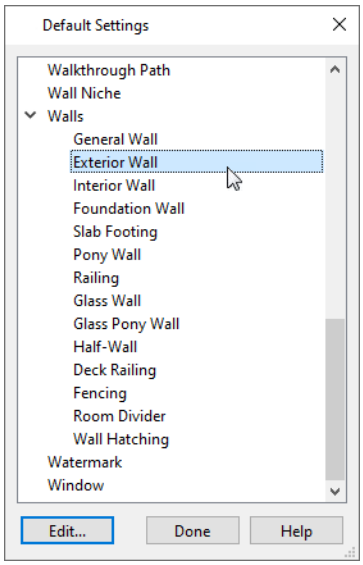
9. Specify how this Wall Type bears on foundation walls:
   - Under the wall layer table, select the Wall Properties tab.
   - Select "1 - Stacked Stone" from the **Foundation to Exterior of Layer** drop-down list.
10. Click OK to close the dialog and create your new Wall Type.
11. When you are finished, select **File> Save** .

SETTING THE DEFAULTS

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When drawing the shell of a plan, there are several defaults of particular importance.

To change the Default Exterior Wall Type

1. Select **Edit> Default Settings** to open the Default Settings dialog. Click the arrow to the left of “Walls” to expand the category, select "Exterior Wall", then click the **Edit** button.



2. On the WALL TYPES panel of Exterior Wall Defaults dialog:
   - Note that the selected **Wall Type** is “Siding-6”.
   - Select “Stone-6” from the drop-down list, then click OK.
3. Click the **Done** button to close the Default Settings dialog.
4. Select **Build> Wall> Straight Exterior Wall** and draw another wall connected to the left end of the existing wall, dragging in an upward direction about 10 feet. Notice:



5. The two walls snap together, forming an intersection.
6. Even though this wall and the wall to its right were drawn using the same tool, they have different Wall Types because a change was made to the default settings after the first wall was drawn.
7. Select the vertical “Siding-6” wall and click the **Open Object** edit button. On the WALL TYPES panel of the Wall Specification dialog, select “Stone-6” from the **Wall Type** drop-down list and click OK.

The Exterior Wall tool is used to draw a single Wall Type, like Siding-6 or Stone-6. Occasionally, though, walls are made of two different Wall Types: one built above the other. In Chief Architect, this kind of wall configuration is referred to as a Pony Wall.

To specify the Default Pony Wall

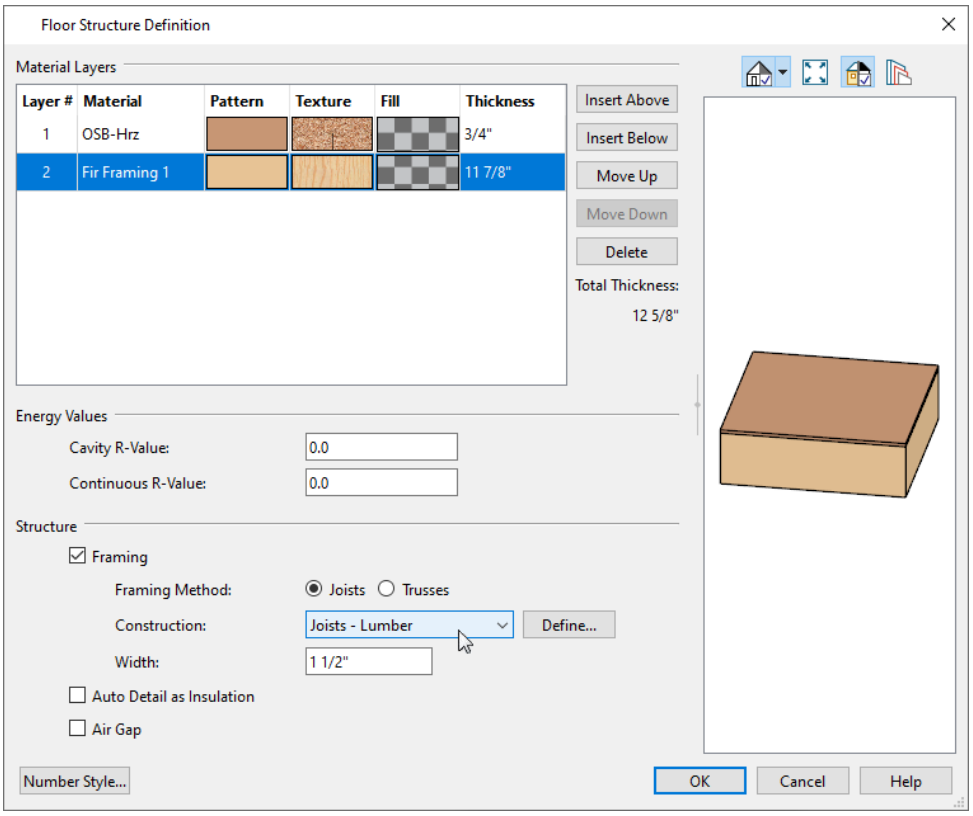
1. Select **Edit> Default Settings**, expand the “Walls” category, select “Pony Wall”, and click the **Edit** button.
2. On the WALL TYPES panel of the Pony Wall Defaults dialog, select “Siding-6” as the **Upper Wall Type** and “Stone-6” as the **Lower Wall Type**.
3. Specify the **Elevation of Lower Wall Top** as 20".
4. Specify how you would like these walls to display in plan view. Here, the **Upper Wall** is used.
5. Click OK.

The default floor structures can be set for different categories of rooms in the Room Defaults dialogs. These are considered critical because they influence the overall height of a structure. While not critical, the default floor and ceiling finishes can also be set in these dialogs. See *"To set flooring defaults" on page 203 of the Finish Materials Tutorial*.

To set the default floor structures

1. In the Default Settings dialog, expand the “Floors and Rooms” category, select “Floor/Ceiling Platform”, and click the **Edit** button.
2. In the Floor/Ceiling Platform Defaults dialog, click the **Edit** button to the right of the **Floor Structure** label.

3. In the Floor Structure Specification dialog:



- Notice that Layer 1 is composed of 3/4" OSB sheets while Layer 2 is a fir framing material.
- Click on the Layer 2 line item and notice that under the Structure heading below, its **Framing Method** is Joists and its structure **Construction** is "Joists - I-Joist".
- Change Layer 2's **Construction** to "Lumber" and its **Width** to 1 1/2". In the layers table, change its **Thickness** 11 1/4" to represent floor joists of conventional 2x12 lumber, then click OK.

4. The **Ceiling Structure** can be edited in a similar manner; however, it will not be changed in this example.
5. Click OK to return to the Default Settings dialog, then select "Room Types" and click the **Edit** button to open the Room Types dialog.
6. Notice the many Available Room Types that can be assigned to rooms in a plan. Room Types will be explored in *"Room Types" on page 32 of the Interior Walls Tutorial*.
7. For example, select "Garage" from the list of room types and click the **Edit** button.
8. On the STRUCTURE panel of the Garage Room Type Defaults dialog:
   - The default floor structure for Garage, Porch, and Slab room types can be set here.
   - In this example, 4" of concrete will be used so no changes are needed.
9. Click Cancel and to return to the Default Settings dialog.

When the exterior walls are finished, they will form the shell of Floor 1; so now is also a good time to set up important structural default settings in the 1st Floor Defaults dialog.

To set the 1st Floor Defaults

1. Select **Edit> Default Settings** and in the Default Settings dialog:
   - Click the arrow next to "Floors and Rooms";
   - Click the arrow next to Floor Levels".
   - Select "1st Floor", and click the **Edit** button.
2. On the STRUCTURE panel of the 1st Floor Defaults dialog:
3. Specify the **Ceiling Height** as 97 1/8".
4. Near the bottom of the panel, notice that the Floor Structure of 12" is drawn from the floor structure set in the Floor/Ceiling Platform Defaults dialog.
5. Click OK and then Done to apply your change and close both dialogs.
6. When you are finished, remember to **Save** your work.

> Note: The default Floor Height for Floor 1 cannot be changed. It is always 0.

Although dimensions are not structural objects, it is a good idea to set up how they locate structural objects as well. See *"To create automatic exterior dimension lines" on page 20 of the Exterior Walls Tutorial*, below.

DRAWING EXTERIOR WALLS

When drawing walls, do not try to size or position them precisely - they can be more easily positioned after they are created.

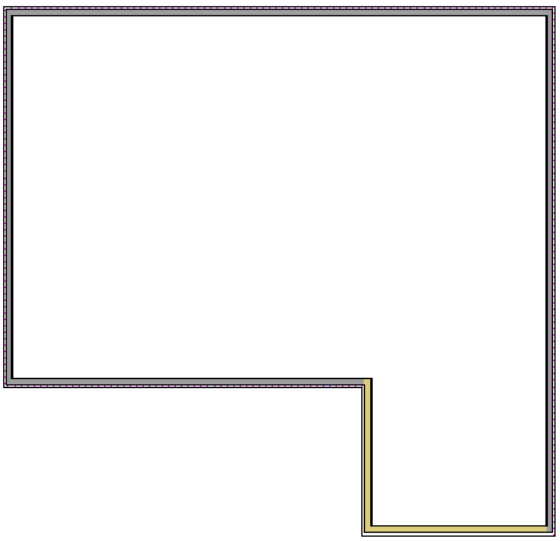
> Note: The “Auto Rebuild Roofs” and "Auto Refresh Exterior Dimensions" options have been turned off in this tutorial to simplify the display of the building in plan view.

The first two walls drawn in this plan were created using the Exterior Wall tool and the remaining walls will be Pony Walls

To draw exterior walls

1. Select **Build> Wall> Straight Pony Wall**, then click and drag a wall from the top of the vertical wall, extending about 28’ to the left.
2. Walls can be drawn in two ways:
   - Left-click, drag, and release to draw a wall. Place the pointer over an existing wall end and repeat to create a new wall section connected to the previous one.
   - Right-click, drag, and release. Move the pointer to a new location and click once to draw a new wall section connected to the previous one. Continue clicking to create more walls.

3. Continue drawing walls, creating a rough outline of the building's exterior, as shown in the following image:



   - Exact dimensions are not important yet, but keep the final size of the structure in mind as you draw. The overall lengths of this building's sides are approximately 40'.
   - It is helpful to draw exterior walls in a clockwise direction to ensure the proper orientation of wall surfaces.
4. When you are finished, **Save** your work.

Creating Room Definition

When the exterior walls completely enclose an area, room definition is established and:

- A Living Area label that states the enclosed area's size is created.
- A set of Auto Exterior Dimensions is created around the exterior walls.
- A roof is automatically generated.

When a room is defined, floor and ceiling platforms are also automatically created within it.

To confirm a room's structure

1. Click the **Select Objects** button, then click in an empty space in the room to select it. When a room is selected, it will become highlighted.
2. Click the **Open Object** edit button to open the Room Specification dialog.
3. On the STRUCTURE panel, notice that the **Ceiling Height** is 97 1/8": the value set in the 1st Floor Defaults dialog.
4. Also note that the Floor Structure matches what was set in the Floor/Ceiling Platform Defaults dialog, then click Cancel.

It is important to remember that in order for a room to be created, there can be no gaps in the walls that surround it. There are a number of ways to create openings in walls, however, and these will be discussed in the *Doors and Windows* tutorial. See also: *Interior Walls on page 28*.

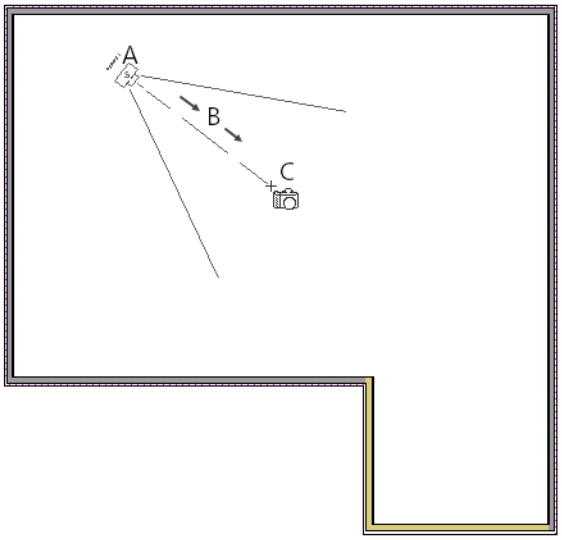
Rooms are discussed in further detail in the Interior Walls and Interior Design Tutorials. See *"Room Types" on page 32 of the Interior Walls Tutorial* and *"Interior Design Tutorials" on page 177 of the Interior Design Tutorials Tutorial*.

Creating 3D Views

As you draw walls in plan view, a 3D model is also being developed. Create a 3D view of the model to see how it looks so far.

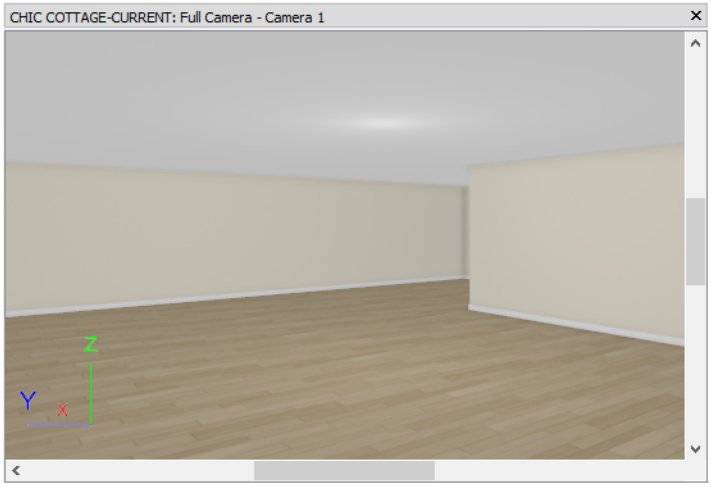
To create a camera view

1. Select **Window> Fill Window** to zoom out as needed to fill the view window with the entire drawing.
2. Select **3D> Create Perspective View> Full Camera**, then click and drag to draw a camera inside the area enclosed by walls.



- The point where you click (A) defines the location of the camera.
- The line created as you drag (B) defines the direction of perspective.
- The point where the mouse is released (C) is the camera's focal point.

3. Release the mouse button to create the 3D camera view and notice that the program has automatically generated a floor platform and a ceiling in the area enclosed by the walls.

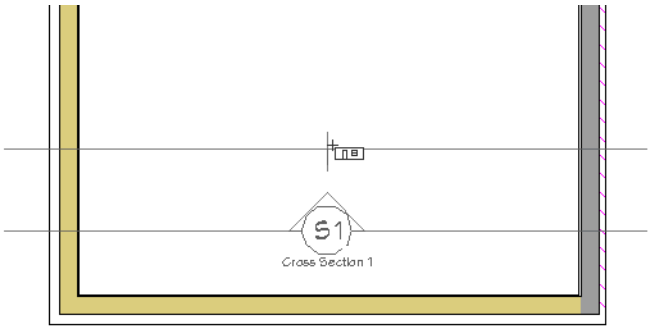


4. Notice, too, the mouse pointer icon . This indicates that the **Mouse-Orbit Camera** tool is active.
   - Click and drag the mouse in a circular direction and notice that the camera's direction rotates in response.
   - If you select a different tool, Mouse Orbit Camera will become disabled. Select **3D> Move Camera With Mouse> Mouse-Orbit Camera** to enable it again.
5. To return to plan view, select **File> Close View**.

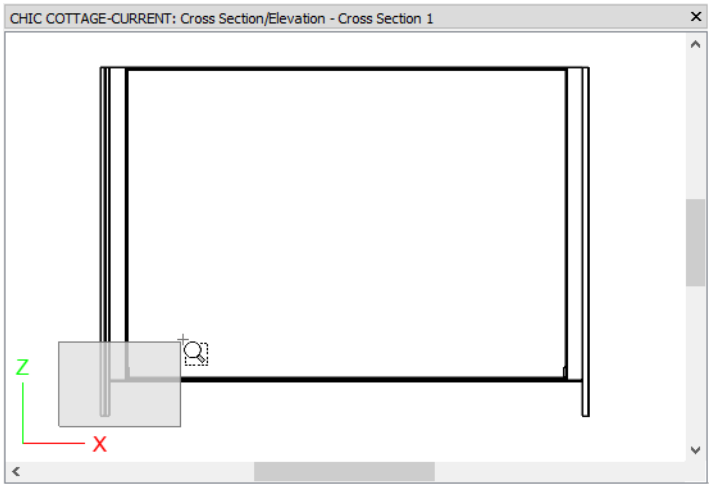
The structure of this room can be examined in more detail in a different type of camera view: a Back Clipped Cross Section.

To create a Back Clipped Cross Section

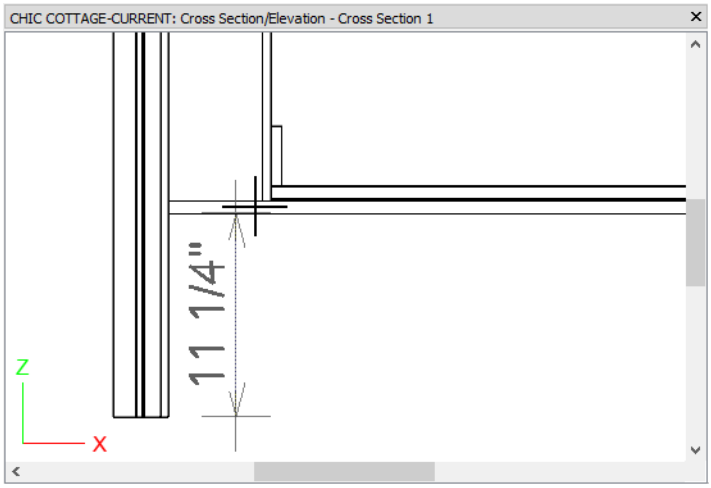
1. Select **3D> Create Orthographic View> Back Clipped Cross Section**, then:
   - Click and drag vertically to create a camera inside the bump out at the bottom right of the drawing.
   - Limit the length of the camera line to one or two plan feet and make sure that you draw the camera either straight up or straight down on-screen.



2. **Zoom** in on the bottom left corner of the structure so the wall and floor layers can be seen.



3. Select **CAD> Dimension> Tape Measure**, then click and drag to draw temporary dimension lines that measure the depths of these layers.



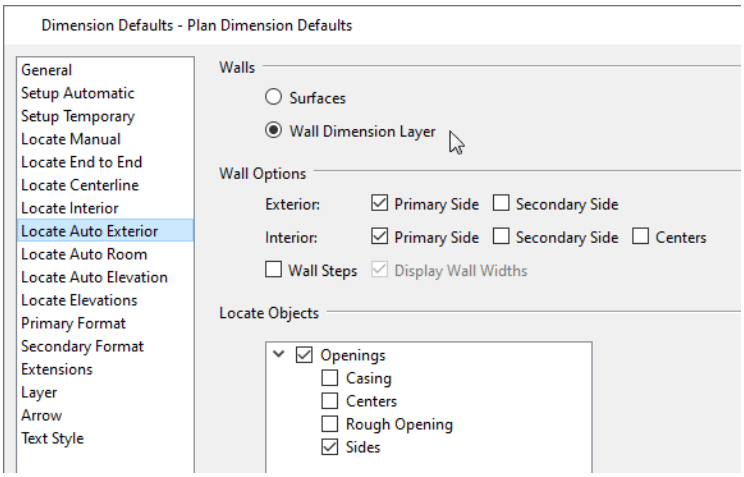
4. The distances between lines in the wall correspond to the layers of its Wall Type Definition.
5. The distances between lines in the floor correspond to the layers of the Floor Structure and Floor Finish Definitions set in the Floor/Ceiling Platform Defaults dialog
6. Select **File> Close View** to return to plan view.

Creating Dimension Lines

Dimension lines can be used to measure and position a wide variety of objects, including walls. A selection of automatically generated and manually drawn dimensions is available.

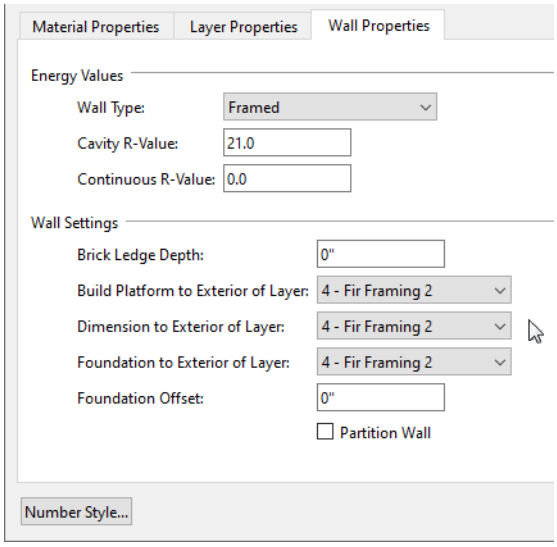
To set dimension defaults for locating walls

1. Select **Edit> Default Settings**, click the arrow next to “Dimension” to expand the category, then select “Dimensions” and click the **Edit** button.
2. Dimensions are an example of annotation tools that support multiple saved defaults. This guide will regularly explore multiple saved defaults and how they can be used, but for now note that "Plan Dimension Defaults" is selected and click the **Edit** button.
3. On the Setup Automatic panel of the Dimension Defaults dialog, under the "Exterior" heading, the **Auto Refresh** check box allows Auto Exterior Dimensions to stay up-to-date as changes are made to the model. For clarity, Auto Refresh is not used in the illustrations in this tutorial.
4. On the Locate Auto Exterior panel, note that there two options for locating Walls: at their **Surfaces** and at their **Wall Dimension Layer**.



- The **Surfaces** option directs Auto Exterior Dimensions to locate wall surfaces, which is helpful when drawing an existing structure.
- The **Wall Dimension Layer** option allows you to specify a particular layer in each Wall Type for dimensions to locate.

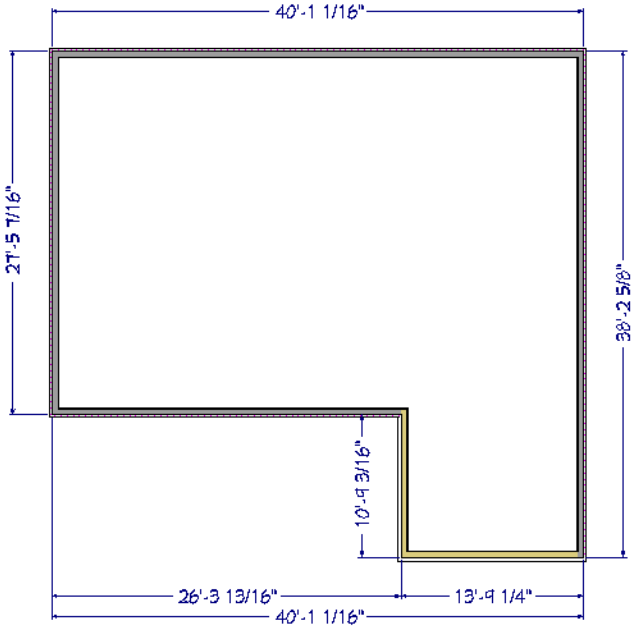
5. Leave **Wall Dimension Layer** selected and click Cancel, then click Done to close both dialogs.
6. Select **Build> Wall> Define Wall Types** and in the Wall Type Definitions dialog:



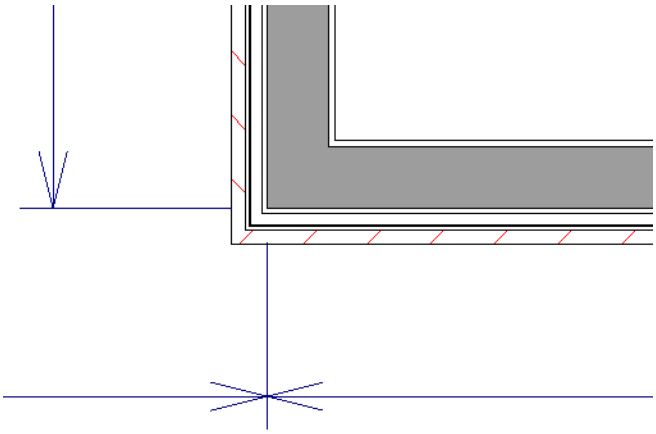
- Select “Siding-6” from the drop-down list at the top of the dialog.
- Select the Wall Properties tab located below the wall layers table.
- Note that **Dimension to Exterior of Layer** is set to “4: Fir Framing 2”. This means that dimensions will locate the outside of this Wall Type’s framing layer.
- Click Cancel to close the dialog without making any changes.

To create automatic exterior dimension lines

1. Select **CAD> Automatic Dimensions> Auto Exterior Dimensions** .



2. **Zoom** in on the far left corner at the front of the building.



3. Note that the dimension lines locate the walls at the outside of their framing layer.

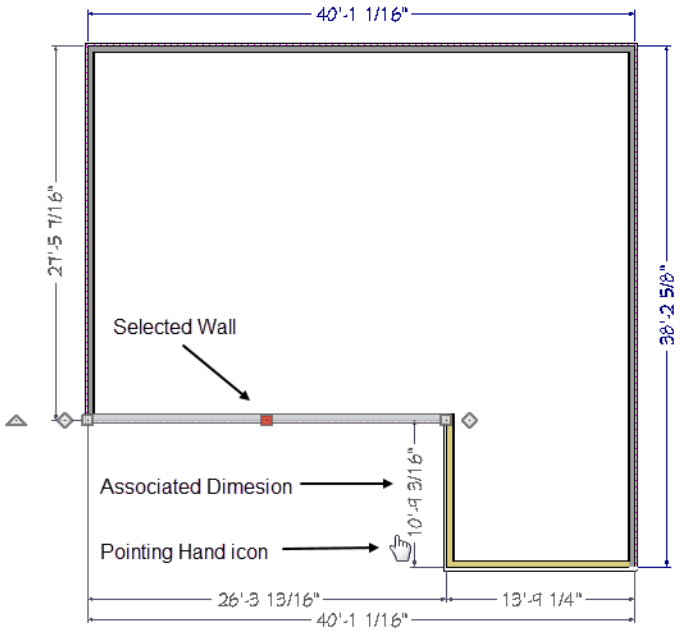
Adjusting Wall Positions

With the perimeter walls in place, you can adjust their position. There are several ways to do this, but the fastest and most accurate uses dimension lines.

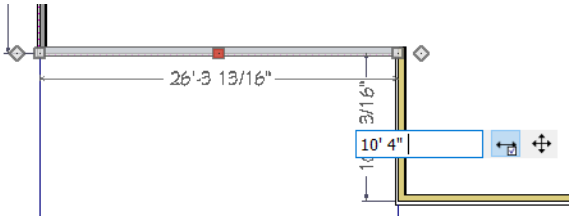
To move walls using dimensions

1. Begin by selecting **Window> Fill Window Building Only** .
2. Click the **Select Objects** button, then click on a wall that you want to move. Here, the horizontal wall at the lower left of the plan is selected.

3. Click on a dimension line that indicates how far the selected wall is from another wall. There are a couple of ways to determine which dimensions can be used for this purpose:
   - Move the selected wall and see which dimensions update.
   - Move your pointer over a dimension. If it is an associated dimension, the icon will change to a Pointing Hand.

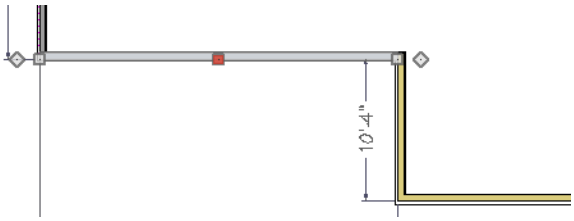


4. With the Pointing Hand icon visible, click on the associated dimension and enter a new value.

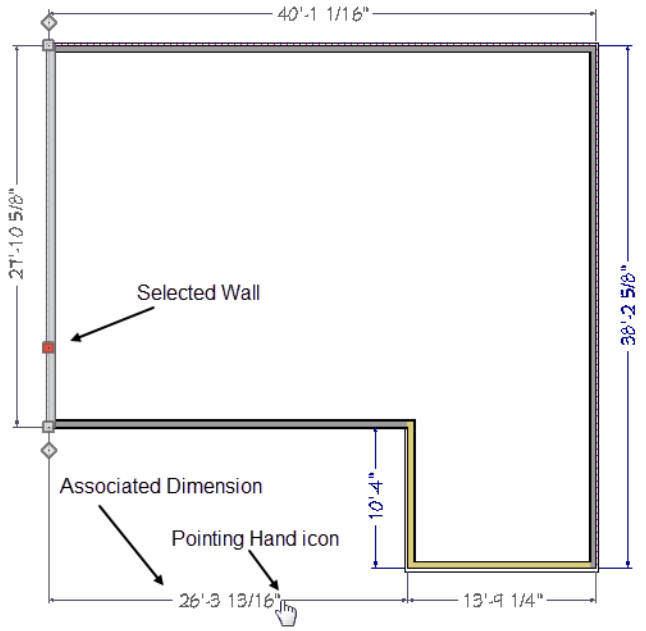


   - Remember: Type an apostrophe to denote feet and quotes to denote inches.
   - If neither apostrophes nor quotes are included, inches will be used.

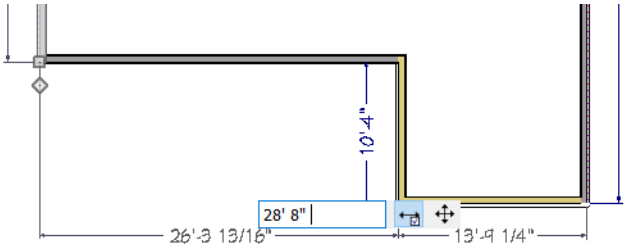
5. Press the ***Enter*** key to move the wall to the newly specified distance.



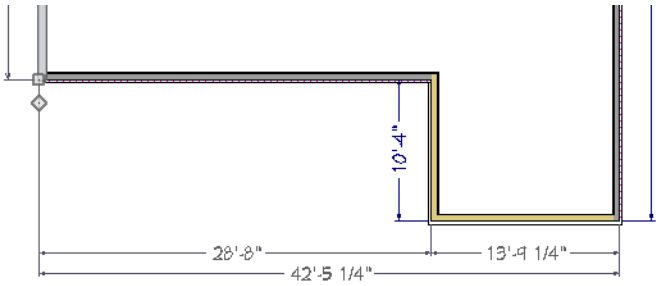
6. Repeat this process, proceeding in a clockwise direction: select the vertical wall on the left.



7. Mouse over a dimension line that shows how far the selected wall is from another wall. When the Pointing Hand icon is visible, click, then type in a new distance value.

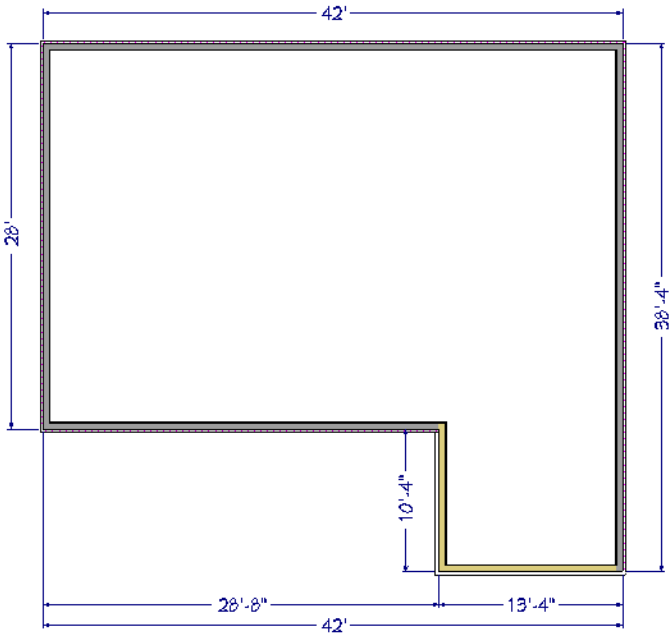


8. Press the ***Enter*** key to move the wall to the specified distance.



When using dimensions to reposition walls, work around the structure in the same direction: either clockwise or counterclockwise.

When you are finished, your dimensions should match those in the following image:



9. Remember to **Save** your work.

Dimensions can also be used to change the length of a selected wall.

To resize a wall using dimensions

1. Select a wall that you would like to resize.
2. Move your mouse pointer over a dimension line that states the length of the selected wall.
3. When the Pointing Hand icon displays, click on the associated dimension and then:
   - Select **Move Both Ends** to resize the selected wall by adjusting the position of both of its endpoints equally.
   - If the selected wall is oriented horizontally, select **Move Left End** to move only the wall's left endpoint or select **Move Right End** to move only its right endpoint.
   - If the selected wall is oriented vertically, select **Move Top End** to move only the wall's top endpoint or select **Move Bottom End** to move only its bottom endpoint.
4. Type the desired length in the text field and press the ***Enter*** key.
5. The wall will resize according to the option you selected. If an end moves, any walls connected to that end will also move.

Although using dimensions is generally the fastest and most accurate way to move walls, you can also move them using their edit handles.

To move walls using their edit handles

1. Click the **Select Objects** tool then click on an exterior wall to select it.
2. Click and drag the Move edit handle that displays at the position along the wall where you clicked. Walls can be moved perpendicular to the direction that they are drawn.
3. As you move the wall, the dimension lines that indicate how far it is from other walls will update.
4. When you are finished positioning walls, remember to **Save** your work.

If you have difficulty positioning a wall at a particular location, try zooming in on it using either the **Zoom** or **Zoom In** tool or by scrolling with your mouse wheel.

You can also use the ***Arrow*** keys to nudge a selected wall or other object up, down, left, or right on-screen.

You can continue working on this plan in the *Interior Walls* tutorial.

ADDING ANNOTATIONS

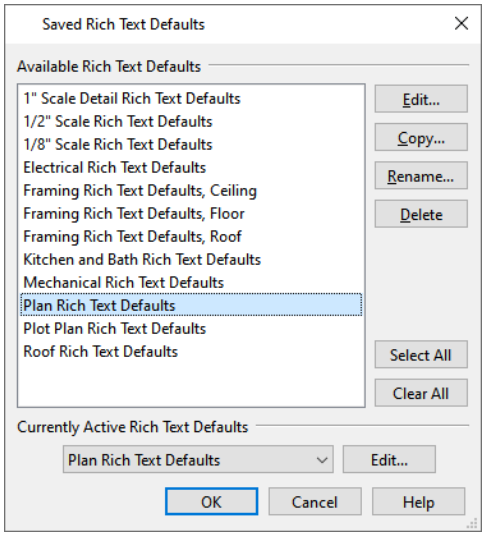
Floor plans typically include text calling out features of the drawing. With the exterior walls in place, some basic annotations can be added.

As with other objects, before adding annotations it is a good idea to make sure that the defaults are set up to meet your needs. Annotations are special, though, in that it is possible to create more than one saved default, each for a different purpose. In addition, the defaults for different annotation tools can be grouped together into a Default Set, as well as set up to display in some plan views but not others.

As noted earlier, the Working Plan View uses the "1/4" Scale Annotations". See *Using Plan Views on page 5*.

To set the rich text defaults

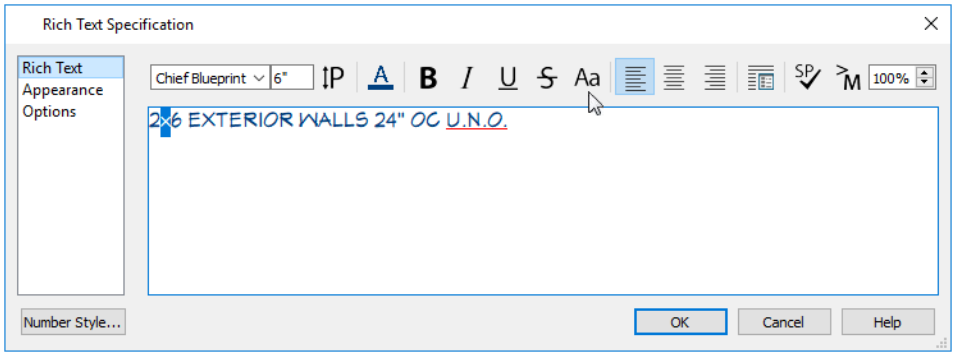
1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside "Text, Callouts and Markers" to expand the category.
   - Select "Rich Text" and click the **Edit** button.
2. In the Saved Rich Text Defaults dialog, which opens next:



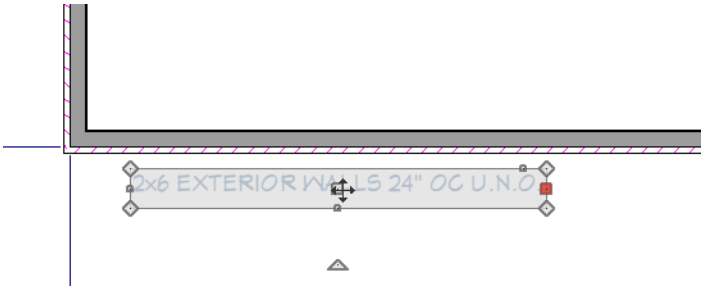
   - Notice that there are a number of different Saved Rich Text Defaults set up for particular drawing scales and tasks.
   - "Plan Rich Text Defaults" is selected in the list because it is the Saved Default that is currently active.
   - Recall that the "Working Plan View" uses "Plan Rich Text Defaults", as well.
   - With the "Plan Rich Text Defaults" selected, click the **Edit** button.
3. In the Rich Text Defaults dialog:
   - On the RICH TEXT panel, click the **Uppercase** Aa button.
   - On the APPEARANCE panel, note that Rich Text is placed on the "Text" layer by default.
4. Click OK and then Done to close all dialogs.

To add rich text annotations

1. Select **CAD> Text> Rich Text** , then click in the view, outside the bottom left corner of the structure.
2. On the RICH TEXT panel of the Rich Text Specification dialog:
   - Notice that the **Uppercase** button is highlighted, indicating that it is active.
   - In the text field, type the following: 2x6 exterior walls 24" OC U.N.O. and notice that all of the letters display in uppercase.
3. Use your mouse to highlight just the letter x in 2x6, then click the **Uppercase** button to remove that attribute from the selection. The rest of the text remains uppercase.



4. Notice that U.N.O. is underlined in red. This indicates that Chief Architect does not recognize this spelling and can be addressed in a moment.
5. Click OK to close the dialog and create a Rich Text object.
6. Click on the newly created text object to select it, then click and drag its square Move edit handle to adjust its position.



There are several ways to fix a spelling error. One way is to add the word to the program's dictionary

To remove a spelling error indicator

1. Select the newly created text and click the **Open Object** edit button.
2. On the RICH TEXT panel of the Rich Text Specification dialog, right-click on the abbreviation U.N.O.
3. Select **Learn Spelling** from the contextual menu, then click OK.
4. When you are finished, **Save** your work.

CREATING FILE REVISIONS

Saving revisions of your files allows you to develop different ideas for a project as well as create a history of your work that you can refer back to when needed.

When you are finished working on a file and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Shell. Then, click OK.
3. Notice that Chic Cottage-Shell is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

REVIEW

This lesson describes the best practices for starting a new plan and laying out exterior walls. It also discusses the important default settings associated with starting a new plan. These critical defaults include the Floor/Ceiling Platform Defaults, 1st Floor Defaults, Wall Defaults, and Dimension Defaults, and they are considered critical because they determine the size of the structure.

To create a new Project *4*

To navigate the Project Browser *4*

To examine a saved plan view’s settings *5*

To draw a wall *7*

To use the Zoom and Undo Zoom tools *8*

To specify a wall’s Wall Type *8*

To create a new Wall Type *9*

To change the Default Exterior Wall Type *11*

To specify the Default Pony Wall *12*

To set the default floor structures *12*

To set the 1st Floor Defaults *14*

To draw exterior walls *14*

To confirm a room’s structure *15*

To create a camera view *16*

To create a Back Clipped Cross Section *17*

To set dimension defaults for locating walls *18*

To create automatic exterior dimension lines *20*

To move walls using dimensions *20*

To resize a wall using dimensions *23*

To move walls using their edit handles *23*

To set the rich text defaults *24*

To add rich text annotations *25*

To remove a spelling error indicator *25*

To save a plan revision *26*

To save a plan revision *26*

To save a layout progress document *483*

Assessment Questions

Tutorial 1 - Exterior Walls

Why is it good practice to create file revisions?

- Saving revisions of your files allows you to develop different ideas for a project as well as create a history of your work that you can refer back to when needed.

What are default settings and why are they important?

- The initial attributes of most objects can be specified prior to actually drawing them using Default Settings.
- Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing.

Name a setting that is associated with a Saved Plan View.

- The floor level, Default Set (Layer Set and Saved Defaults), and Reference Floor are all part of a Saved Plan View.

What important defaults should you set up before drawing exterior walls?

- Before drawing the exterior walls of a plan, set the defaults for the Exterior Wall and other Wall Tools.
- The Floor/Ceiling Platform Defaults, structural Floor 1 Defaults, and Auto Exterior Dimension Defaults should be set in advance, as well.

Why are structural defaults considered critical?

- Structural defaults are considered critical because they affect the overall height of the structure.

What is room definition and why is it important?

- When walls completely enclose an area, room definition is established. Floor and ceiling platforms are automatically created within it and a Living Area label that states the enclosed area’s size is created.

What are two different ways to move walls?

- Walls can be moved using dimension lines: Select a wall, click on a dimension line that reports its distance from another wall, then type in the desired distance and press the Enter key.
- A selected wall can be also moved by clicking and dragging its Move edit handle.

When creating a new Wall Type, why might you specify a unique color for the Main Layer?

- Giving a Wall Type’s Main Layer a distinct color helps distinguish your new custom Wall Type from other walls.

What can you see in a cross section view that camera views do not show?

- In a cross section view, you can see structural information like floor platform depth and wall thickness.

How do you change the appearance of some of the characters in a Rich Text object?

- Highlight the characters that you want to customize so they are selected, then make the desired changes.

What is one way to prevent a word or abbreviation from being flagged as misspelled?

- Add the word or abbreviation to the program's dictionary.

Interior Walls

With the exterior walls in place, interior walls can be added to create rooms.

Learning Objectives

The previous lesson, *Exterior Walls*, explained how to draw and position the exterior walls of the main entry level of a structure in Chief Architect. This lesson describes best practices for creating interior rooms. Concepts introduced include:

Productivity Tips *29*

Setting the Defaults *29*

Using Plan Views *30*

Drawing Interior Walls *30*

Room Types *32*

Modifying Interior Wall Types *37*

Using Room Dividers *38*

Positioning Interior Walls *39*

Working with Wall Connections *42*

Adding Annotations *43*

Creating Revisions *44*

File Management

At this point in the design process, both the Chic Cottage-Shell and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Shell was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT. There are a number of ways to do this:

- In the Dashboard window, click on its name in the list of Recent Documents.
- Select **File> Recent Documents** from the program menu and click on its name in the submenu.
- Double-click on its name in the Projects panel of the Project Browser.
- Right-click on its name in the Project Browser and select **Open** from the contextual menu.

- Select **File> Open Plan/Layout** from the program menu.
- Right-click on a Project or Folder in the Project Browser's Project panel and select **Open All Plans/Layouts** from the contextual menu to open all documents saved within it.

The Recent Files List is a convenient way to access Plans and Layouts that you have been working on. You can pin important documents to the top of the list for added efficiency.

To pin a document to the top of the Recent Documents List

1. Click on the Dashboard's view window tab to make it the active window. If it is not open, select **File> Dashboard** .
2. Move your pointer over CHIC COTTAGE-CURRENT in the list of Recent Documents.
3. Click the **Pin File** icon to the right of the document name.

It is a very good idea to save your files often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create interior rooms, keep in mind these tips to improve your productivity.

Drawing and Editing

- When rooms are subdivided or merged, attributes from the larger room will be inherited by the smaller one.
- Select multiple objects for editing by holding down the ***Shift*** key.

Content

- Like exterior walls, customized interior Wall Types can be exported and imported in a template plan as well as added to the Library for future use.

Interface

- Use the Recent Documents List to quickly access documents associated with your active Projects.
- Use Object Snap Indicators like **Midpoint** △ and **Intersection** ✕ snaps to position and align walls with accuracy.
- **Floor Overviews** are a useful way to view the relationships between room spaces.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***F6*** - Fill Window
- ***Ctrl/⌘ + W*** - Close View
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When drawing interior walls, there are several defaults that should be borne in mind.

The Room Type Defaults dialogs can be used to set critical floor and ceiling structure definitions, as well as non-critical default finish materials for various room types. See *"To set the default floor structures" on page 12 of the Exterior Walls Tutorial* and *"To set flooring defaults" on page 203 of the Finish Materials Tutorial*.

The Floor Defaults dialogs allow you to set up important structural defaults on a floor by floor basis. See *"To set the 1st Floor Defaults" on page 14 of the Exterior Walls Tutorial*.

Before drawing interior walls, make sure that the Default Interior Wall meets your needs. See *"Working with Wall Type Definitions" on page 8 of the Exterior Walls Tutorial*.

To set the Interior Wall Defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside "Walls" to expand the category.
   - Select "Interior Wall" and click the **Edit** button.
2. On the WALL TYPES panel of the Interior Wall Defaults dialog, the selected Wall Type is named "Interior-4". Click the **Define** button.
3. In the Wall Type Definitions dialog, notice that it is composed of 2x4 framing with drywall on each side.
4. This Wall Type works well for most purposes, so click Cancel and then Done to close both dialogs.

There are several options for controlling how dimension lines locate interior walls that should be set before dimensions to these walls are drawn. See *Interior Walls on page 28*.

When adding interior walls, you may find it helpful to select the Auto Refresh option for Auto Exterior Dimensions. This can be done in the Auto Exterior Dimension Defaults dialog. See *To set Dimension Defaults on page 94*.

As with other objects, you should set the appropriate text defaults before annotations are created. See *"To set the rich text defaults" on page 24 of the Exterior Walls Tutorial*.

USING PLAN VIEWS

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

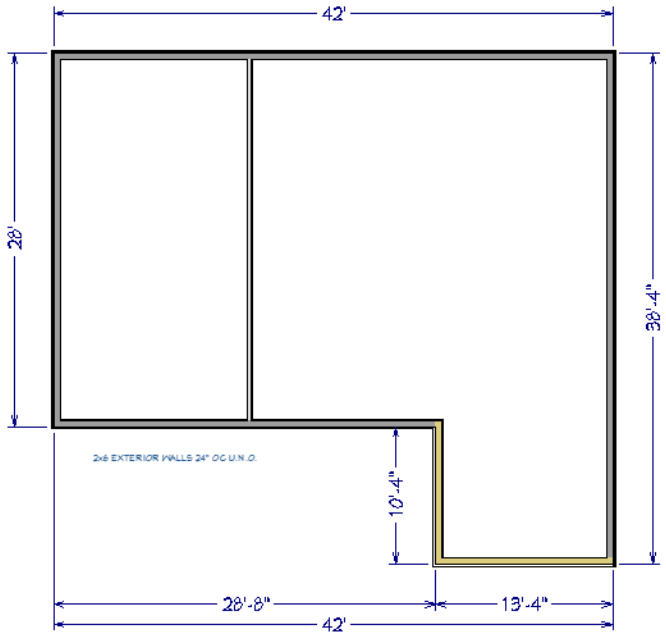
The Working Plan View will work well for drawing interior walls, as it did when drawing exterior walls in the *Exterior Walls* tutorial. See *To examine a saved plan view's settings on page 5*.

DRAWING INTERIOR WALLS

With the exterior walls in position, you can add interior walls to create multiple rooms.

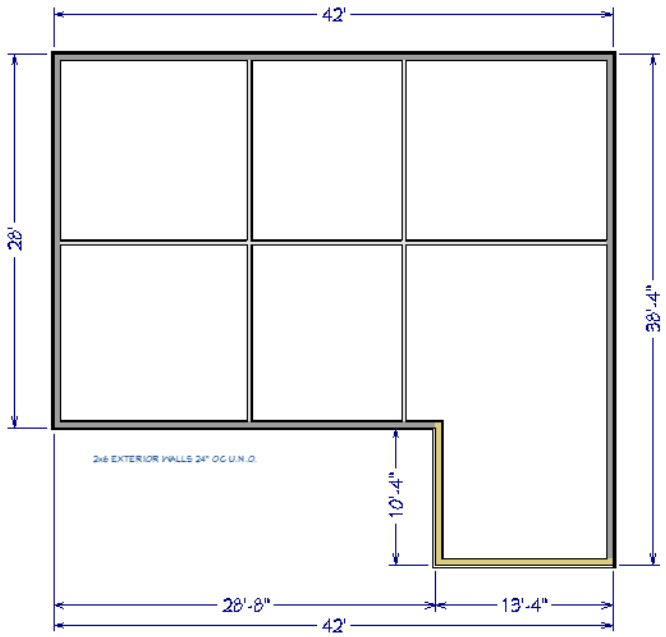
To define rooms using interior walls

1. Select **Build> Wall> Straight Interior Wall**, then move your mouse pointer over the horizontal wall at the lower left of the structure. When your mouse is near the midpoint of that wall, click and drag upward to the back wall of the structure.



- When **Object Snaps** are enabled, a red **Midpoint** Snap Indicator will display when your mouse is over the midpoint of the wall.
- As with exterior walls, though, it's not necessary to position interior walls exactly as you draw: they can be adjusted later on.

2. Draw a second vertical interior wall to the right of the first one.
3. Finally, draw a horizontal wall across the middle of the structure:



4. When you are finished, remember to **Save** your work.

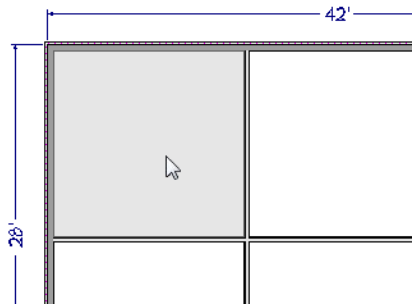
The floor plan has been divided into six separate zones, which can now be assigned Room Types that reflect how the spaces will be used.

ROOM TYPES

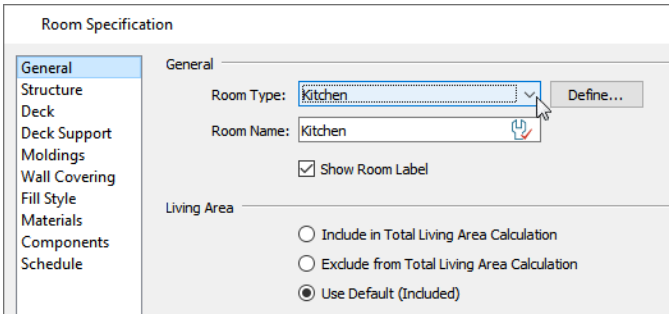
Rooms in Chief Architect are given special attributes when they are assigned a Room Type. For example, porches use a concrete floor material and have a ceiling and roof, while decks use floor planking and have no ceiling or roof.

To specify a room type

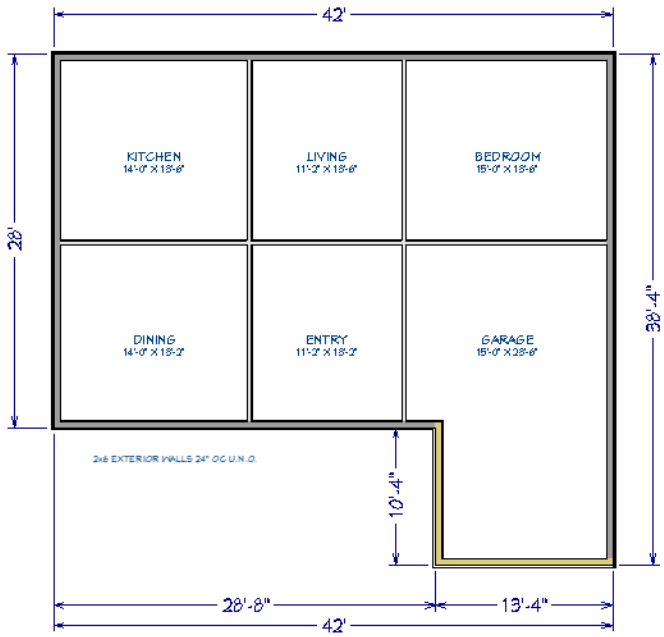
1. Click the **Select Objects** button, then click in the room at the top left corner of the structure to select it.



2. When the room is selected, it will become highlighted and you can click the **Open Object** edit button to open its specification dialog.
3. On the GENERAL panel of the Room Specification dialog, select "Kitchen" from the **Room Type** drop-down list.



4. Repeat steps 1-3 to create a Dining room, Living room, Entry, Bedroom, and Garage, as shown in the following image:

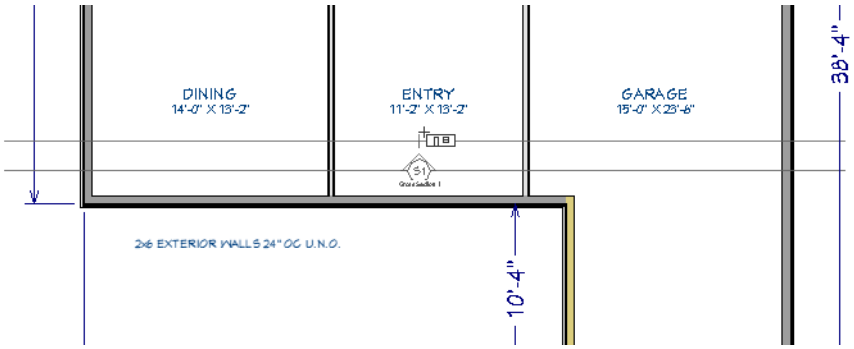


5. Notice that the horizontal wall snaps at intersecting walls and that a new, separate wall segment is drawn on the other side.
6. Remember to **Save** your work.

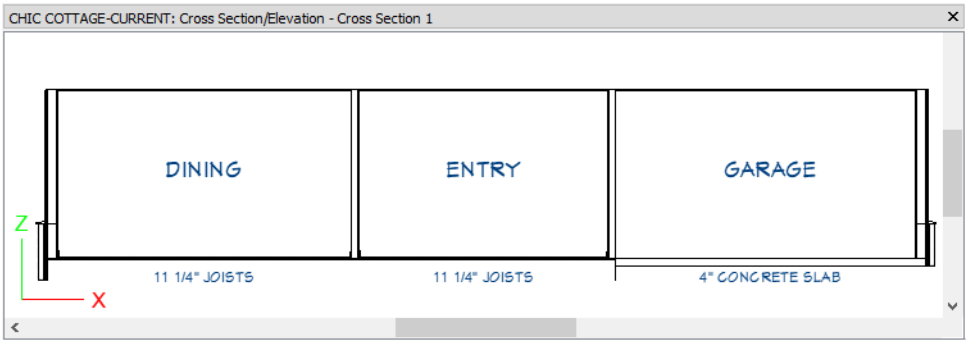
Differences in these rooms' properties can be seen in 3D views.

To view room types in 3D

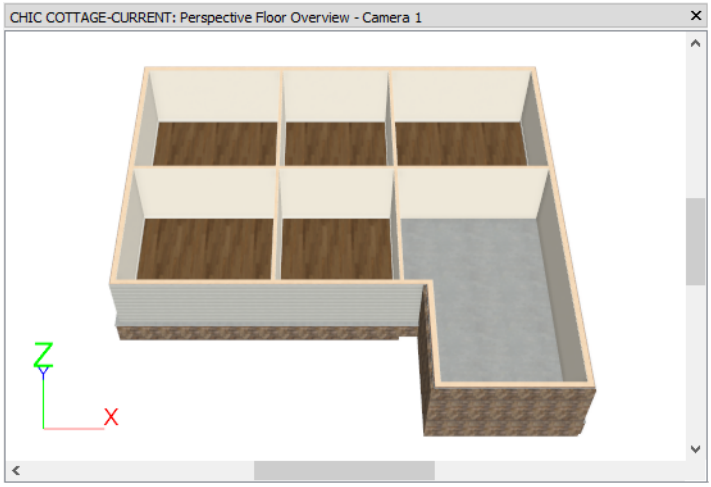
1. Select **3D> Create Orthographic View> Back Clipped Cross Section**, then:



- Click and drag vertically to create a camera inside the Entry room.
- Limit the length of the camera's line of sight to one or two plan feet and make sure that you draw the camera either straight up or straight down on-screen.
- Notice that the Garage has a different floor structure than the Entry or Living rooms:



2. Select **3D> Create Perspective View> Perspective Floor Overview** to see the differences in floor finish materials.

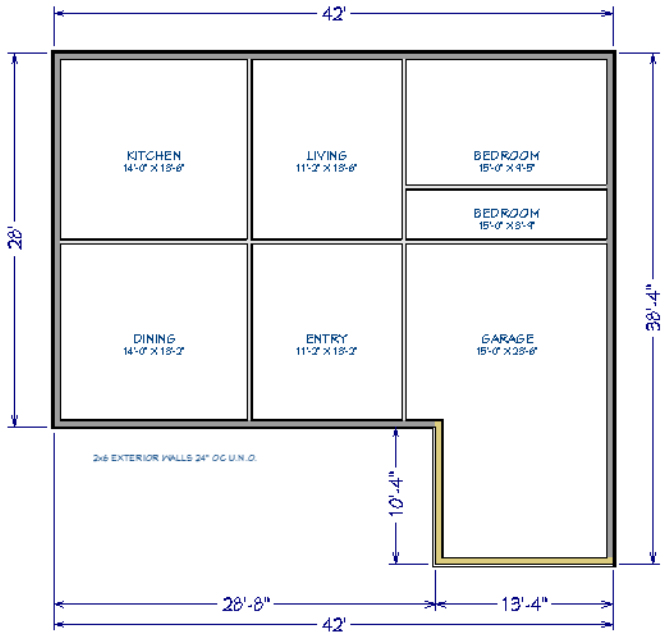


3. Select **File> Close View** in both views to return to plan view.

The six room areas created thus far can be subdivided further to create additional rooms.

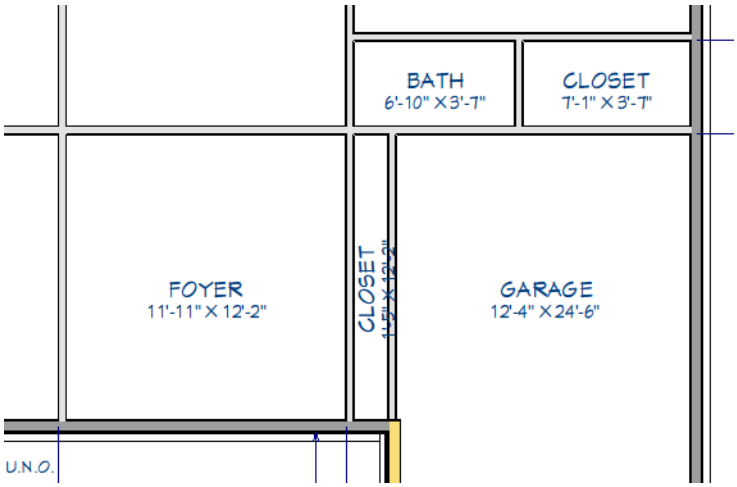
To subdivide room areas

1. Select **Build> Wall> Straight Interior Wall**, then click and drag from right to left to divide the Bedroom into two separate rooms.



- Notice that the new room inherits the Room Type of the larger room that it was created in.

2. Draw a vertical interior wall that divides the new, smaller Bedroom in two.
3. On the left side of the Garage, draw one more vertical interior wall straight up from that room's left exterior wall.
   - The new wall and the exterior wall that it's collinear with are aligned at the exterior surface of their framing layers. This creates a small jog on the interior that will be easily corrected later on. See *To align collinear walls on page 42*, below.
4. Click the **Select Objects** button, then assign room types to the new rooms as shown in the following image:



In the above image, note that a number of changes have been made to the room labels.

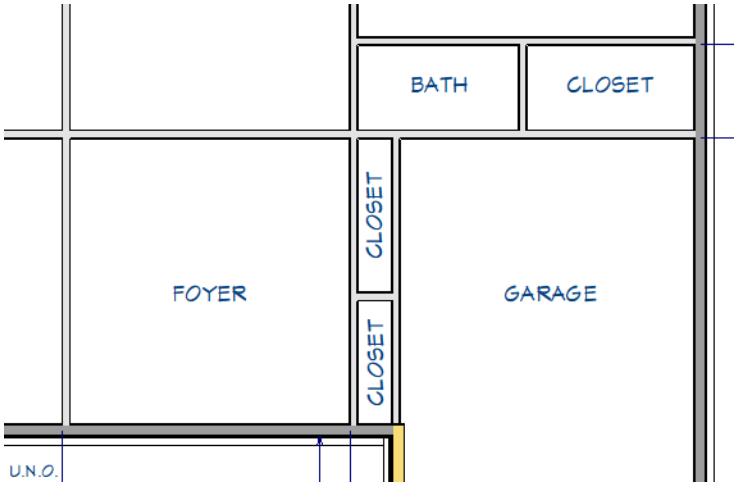
To control the display of room labels

1. Click the **Select Objects** button, click on a room label to select it, then click the **Delete** edit button.
2. To restore a room label that has been deleted, select the room in question and click the **Open Object** edit button. On the GENERAL panel of the Room Specification dialog, check **Show Room Label** and click OK.
3. To change the name of a room such as the Entry, select it and click the **Open Object** edit button. On the GENERAL panel of the Room Specification dialog, type a **Room Name** like "Foyer" in the text field and click OK.
4. Room labels can also be rotated and moved using their edit handles. Select the Foyer Closet's label, then click and drag the triangular Rotate edit handle to display it vertically instead of horizontally. Click and drag the square Move edit handle at the center of the label to adjust its position.
5. Open the Active Layer Display Options side window, which is docked to the right side of the program window by default.
   - Click on its tab to display it in front of the other side windows at that location.
   - If it is not open, select **View> Active Layer Display Options**.
6. Turn off the display of the "Rooms, Interior Dimensions" layer:
   - Type "room" into the **Name Filter** field.
   - The "Room Labels" layer controls the overall display of room labels.
   - The "Interior Area", "Interior Dimensions", and "Standard Area" layers control what room size information displays underneath the room name.
   - Click in the Disp column to remove the check mark for the "Rooms, Interior Dimensions" layer to turn its display off, then click OK.
7. When room labels look the way you want, **Save** your work.

Two rooms can be merged into one by either moving or deleting the wall that separates them. The smaller room will inherit properties from the larger one.

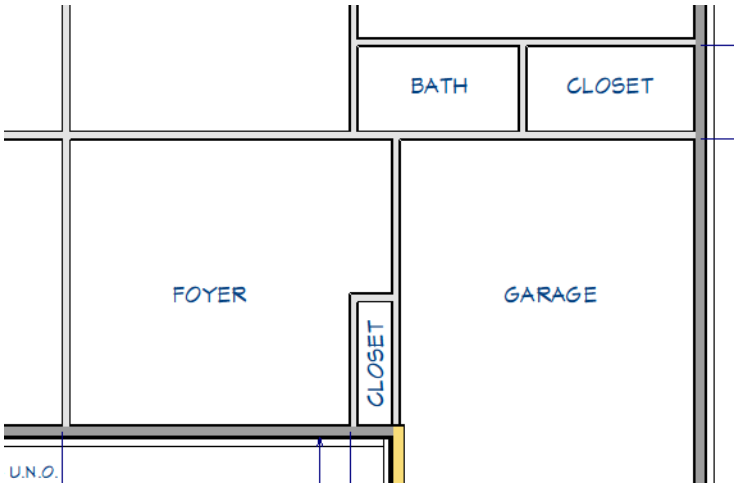
To merge room areas

1. Draw a horizontal **Straight Interior Wall** to divide the Closet to the right of the Foyer into two separate Closet rooms.
2. Select the vertical wall dividing the closets from the Foyer, click the **Add Break** edit button, then click on the selected wall at the intersection of the horizontal wall dividing the two Closets.



3. Select and resize the vertical wall separating the upper Closet from the Foyer:

- Click and drag the square Resize handle located at the bottom end of the wall and drag it upward until it snaps to the vertical wall separating the Foyer and Living rooms.
- The upper Closet room disappears and inherits the Room Type of the larger Foyer room that it merged into.



4. Remember to **Save** as you work.

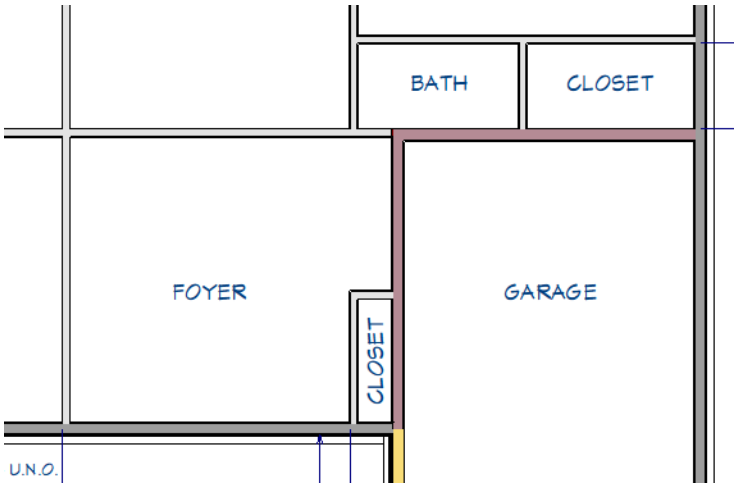
Modifying Interior Wall Types

Interior walls are typically built using 2 x 4 stock. Some interior walls, however, need to be thicker to accommodate plumbing or to provide support for the floor above.

To specify a different Wall Type

1. Click the **Select Objects** button, then click on the horizontal wall separating the Garage from the Bath.
2. If the wall has merged with the one to its left, use the **Add Break** edit tool to add a wall break at the bottom left corner of the Bath, as described above.
3. Next, hold down the ***Shift*** key and click on the wall separating the Garage from the Foyer. This will select the two walls as a group.
4. Click the **Open Object** edit button, and on the Wall Types panel of the Wall Specification dialog:
   - Click the arrow next to the **Vector View** button above the object preview on the right side of the dialog and select **Show Plan View** from the drop-down list.
   - Click the **Wall Type** drop-down and choose "Fire-6" from the list.
   - Notice that the preview updates to show the new, thicker Wall Type.
5. Click the **Define** button and note that the exterior layer material is a fire-rated drywall with a Solid red fill color.
   - Change the Fill of the Main Layer to a red color, too.

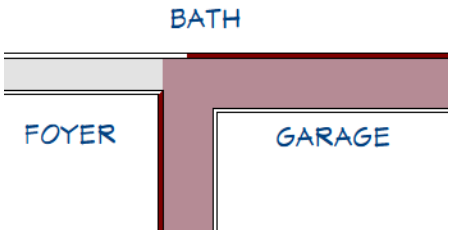
- Click OK to close both dialogs.



It is sometimes necessary to flip a wall's layers from one side to the other.

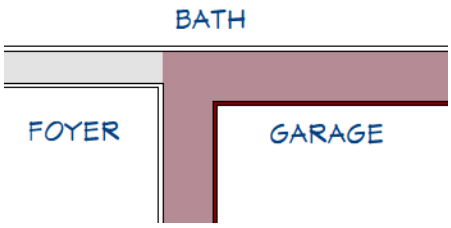
To reverse a wall's layers

1. Zoom in on the intersection of the two Fire-6 walls and notice that the red fire-rated drywall layer is facing away from the Garage.
2. Use the ***Shift*** key to select the two Fire-6 walls as a group, as described above.



3. Click the **Reverse Layers** edit button to flip the two walls' layers so that the fire-rated drywall faces the Garage.

   Because the fire-rated drywall is thicker than the regular drywall, it will be slightly out of alignment with the wall to its left when its layers are reversed. You can fix this by selecting the Fire-6 wall and gently dragging its Move handle slightly downward.



4. When you are finished, **Save** your work.

Using Room Dividers

Rooms are not always divided by a physical wall. For example, two separate room areas may be suggested by a change in the ceiling height or flooring material. In Chief Architect, a Room Divider or invisible wall can be used to define rooms without creating an actual wall.

A Room Divider is drawn the same way other walls are: select **Build> Wall> Room Divider**, then click and drag in any direction.

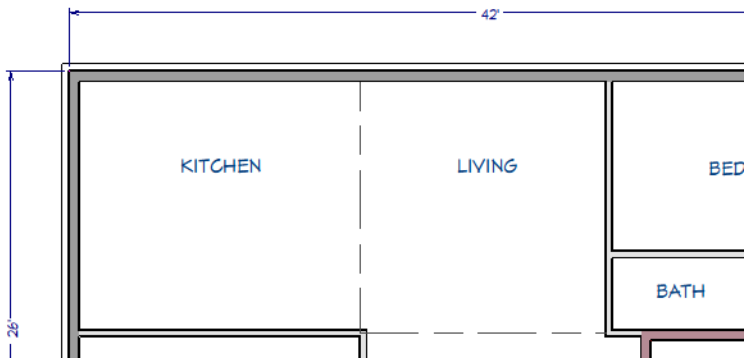
To replace a wall with a room divider

1. Select the horizontal wall separating the Entry from the Living room and drag the edit handle on its left end to the right until it snaps to the corner of the Bath. Notice that either the Entry's or the Living room's label disappears as that room merges with the larger room.
2. Select **Build> Wall> Room Divider**, then click and drag horizontally across the space where the edited wall used to be: from the top left corner of the Entry to the bottom left corner of the Bath.
3. A single dashed line representing a Room Divider is created, and both rooms have their original labels.

An existing wall can also be modified to serve as a Room Divider.

To change a wall into a room divider

1. Click on the vertical wall dividing the Kitchen and Living rooms to select it.
2. Click the **Add Break** edit button, then click on the selected wall at the bottom right corner of the Kitchen to divide the wall into two segments at that location.
3. Click the **Select Objects** button, then click on the wall segment separating the Kitchen from the Living room to select it.
4. Click the **Make Wall(s) Invisible** edit button and notice that the wall is now represented by a pair of dashed lines.
5. With the wall still selected, click the **Open Object** edit button.
6. On the GENERAL panel of the Wall Specification dialog:
   - Notice that the **Thickness** is 4 1/2" and that **Invisible** is checked.
   - Check **No Locate**, as well, to prevent the Room Divider from being located by Auto Exterior Dimensions.
7. On the WALL TYPES panel of the dialog, select "Room Divider" from the **Wall Type** drop-down list.
8. Return to the GENERAL panel of the dialog and:
   - Note that the **Thickness** of the wall is reduced to 0" and that the object preview on the right side of the dialog box now shows the wall as it looks in plan view.
   - Click OK.



9. Remember to **Save** your work.

POSITIONING INTERIOR WALLS

Like exterior walls, interior walls can be moved using their dimensions or their edit handles. It is a good idea to make sure that Dimension Defaults are set so that they meet your needs. See *"To set dimension defaults for locating walls" on page 18 of the Exterior Walls Tutorial*.

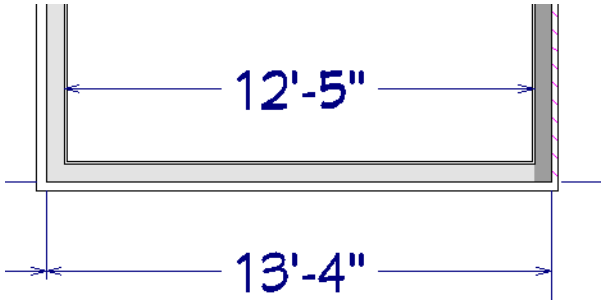
The Interior Dimension tool is ideal for laying out interior walls because unlike other Dimension Tools, it always locates exterior walls on their interior sides. This allows you to easily see the sizes of all of your rooms' interiors and adjust them as needed.

To set dimension defaults to locate interior walls

1. Select **Edit> Default Settings**, click the arrow next to "Dimension" to expand the category, then select "Dimensions" and click the **Edit** button.
2. In the Saved Dimension Defaults dialog:
   - Notice that there are multiple saved defaults for different scales as well as different purposes such as Electrical and Framing plans.
   - Note that "Plan Dimension Defaults" is listed as the Currently Active Dimension Defaults selected and that it is selected in the list.
   - Click the **Edit** button.
3. On the LOCATE INTERIOR panel of the Plan Dimension Defaults dialog, notice:
   - Walls are located at their **Main Layer Inside**, which is typically the framing layer, by default. They can be instead be located at their **Surfaces**, which is helpful when drawing an as-built structure.
   - There is only one **Wall Option** for locating interior walls: Display Wall Widths. When checked, Interior Dimension lines will measure the thicknesses of interior walls; when unchecked, wall widths are not measured.
   - These settings can be left unchanged for this example.
4. Click Cancel and then Done to return to plan view.

To draw an interior dimension line

1. **Zoom** out until you can see the front left corner of the front bump-out.
2. Select **CAD> Dimension> Interior Dimension**, then click and drag from side to side across the interior of the Garage.



3. Notice that the Auto Exterior Dimension and the Interior Dimension report different lengths for the same wall.
   - This is because Auto Exterior Dimensions locate the outside of the framing by default, while Interior Dimensions locate the inside of the framing.
   - The difference, 11", is equal to the thickness of the two walls' framing layers, which are each 5 1/2" thick.

Interior Dimensions can be produced along each wall in a room, or along each wall for all rooms on the current floor, with a single click.

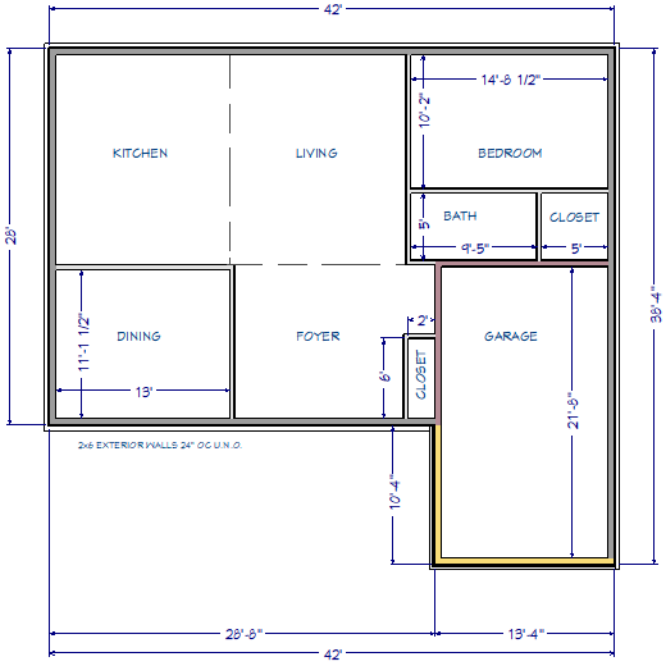
To dimension an entire room

1. Select **Window> Fill Window** so the plan fills the extents of the view window.
2. Click the **Select Objects** button, then click in the Entry room to select it.

3. Click the **Auto Room Dimension** edit button. A dimension line is generated along each of the walls that define the Entry.

Interior walls can be located by and repositioned using any type of dimension line. See *"Adjusting Wall Positions" on page 20 of the Exterior Walls Tutorial*.

Reposition the interior walls in this plan so their dimensions match those in this image:



When your interior walls are in position, you may find it helpful to delete some or all of the dimension lines.

To delete a dimension line

1. Click the **Select Objects** button, then click on a dimension line to select it.
2. Click the **Delete** edit button, select **Edit> Delete** , or press the ***Delete*** key on the keyboard.

To delete all dimensions in the current view

1. Select **CAD> Dimensions> Delete Dimensions** to delete all dimension lines displaying in the current view.
2. If some or all of the dimensions are set to Auto Refresh, the program will confirm that you wish to disable Auto Refresh.

To delete all dimensions in all plan views at once

1. Select **Edit> Delete Objects** to open the Delete Objects dialog.
2. Select the **All Rooms On This Floor** radio button, then under the CAD heading:
   - Check **Manual Dimensions** to delete manually-drawn dimension lines such as those drawn by the **Interior Dimension** tool.
   - You can also check **Automatic Dimensions** to delete automatically generated dimension lines such as those created by the **Auto Exterior Dimensions** tool. Bear in mind that dimensions as well as the Auto Refresh state in multiple Saved Plan Views will be affected by this option so it is not often recommended.

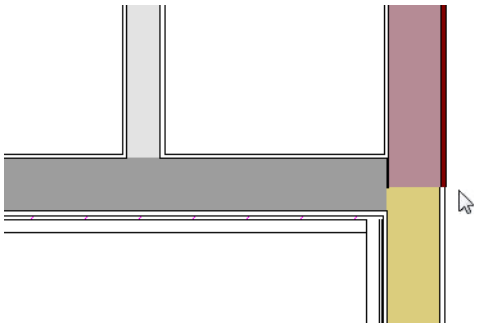
- Click the **Delete** button to delete the specified objects.
- Click the **Done** button to close the dialog.

Working with Wall Connections

Wall segments that are collinear but have different Wall Types usually snap together so that the outside of their Main Layers are aligned. In some situations, though, they can become unaligned. Walls can be easily realigned using their edit handles.

To align collinear walls

1. **Zoom** in on the left side of the Garage, where the Fire-6 wall meets the exterior walls.
2. Notice that the vertical walls are not perfectly aligned, producing a slight jog:

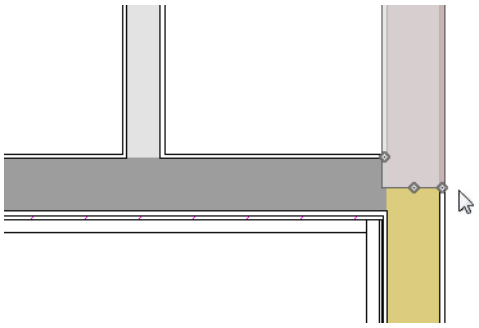


3. Click the **Select Objects** button, then click on the Fire-6 wall to select it.
4. Using the square Move edit handle that displays along the wall at the point where you clicked, gently drag the Fire-6 wall slightly to the right.
   - When **Object Snaps** are enabled, a red **Intersection** Snap Indicator will display when the inside surfaces of the two walls meet.
5. When the wall snaps into position, release the mouse button.
6. Select the front wall of the Closet and adjust its position so that the Closet depth is 2’.

With these two collinear walls properly aligned, their intersection can now be adjusted using the Edit Wall Layer Intersection edit handles.

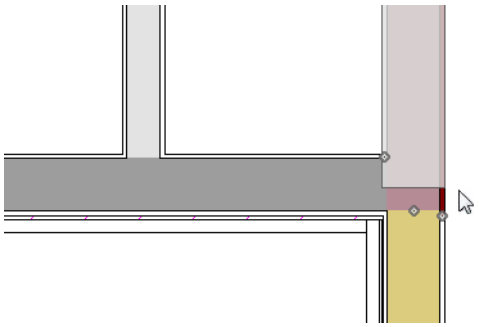
To use the Edit Wall Layer Intersection edit handles

1. Select the Fire-6 wall and click the **Edit Wall Layer Intersection** edit handle.



2. Click and drag the edit handle located in the middle of the Main Layer and drag it downward until it reaches the outside surface of the horizontal wall’s Main Layer.

3. Repeat step 2 with the edit handle located in the middle of the red fire-rated drywall.



4. When you are finished, **Save** your work.

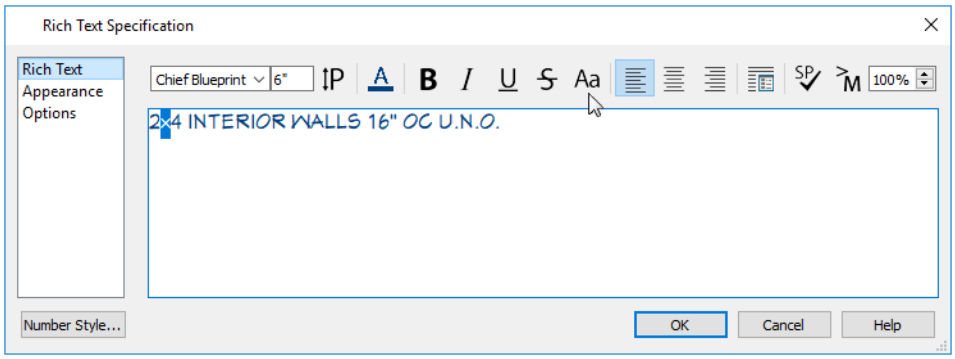
ADDING ANNOTATIONS

Floor plans typically include text with a variety of different pieces of information. With the interior walls in place, additional annotations can be added.

The Working Plan View is active, so "Plan Rich Text Defaults are in use as they were in the *Exterior Walls* tutorial. See *"To set the rich text defaults" on page 24 of the Exterior Walls Tutorial*.

To add rich text annotations

1. Select **CAD> Text> Rich Text**, then click in the view, near the top left corner of the Dining room.
2. In the Rich Text Specification dialog:



- Type: 2x4 exterior walls 16" OC U.N.O.
- Notice that U.N.O. is not flagged as a spelling error like it was in the *Exterior Walls* tutorial. See *To remove a spelling error indicator on page 25*.
- Use your mouse to highlight just the letter x in 2x6, then click the **Uppercase** button to remove that attribute from the selection.
- Click OK.

3. Adjust the newly created Rich Text object's position using its Move edit handle.
4. When you are finished, remember to **Save** your work.

You can continue working on this plan in the *Multiple Floors* tutorial. You can also learn about applying wall and flooring materials in the *Finish Materials* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Rooms. Then, click OK.
3. Notice that Chic Cottage-Rooms is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for drawing interior walls and creating interior rooms.

To pin a document to the top of the Recent Documents List *29*

To set the Interior Wall Defaults *30*

To define rooms using interior walls *30*

To specify a room type *32*

To view room types in 3D *33*

To subdivide room areas *34*

To control the display of room labels *36*

To merge room areas *36*

To specify a different Wall Type *37*

To reverse a wall's layers *38*

To replace a wall with a room divider *39*

To change a wall into a room divider *39*

To set dimension defaults to locate interior walls *40*

To draw an interior dimension line *40*

To dimension an entire room *40*

To delete a dimension line *41*

To delete all dimensions in the current view *41*

To delete all dimensions in all plan views at once *41*

To align collinear walls *42*

To use the Edit Wall Layer Intersection edit handles *42*

To add rich text annotations *43*

To save a plan revision *44*

Assessment Questions

Tutorial 2 - Interior Walls

What are some reasons that is it helpful to specify Room Types?

- Rooms in Chief Architect are given special attributes when they are assigned a Room Type. For example, porches use a concrete floor material and have a ceiling and roof, while decks use floor planking and have no ceiling or roof.

What are two differences between the "Kitchen" and "Garage" Room Types?

- Kitchens have floor finish layers and framed floor platform by default, while Garages have a slab floor with no finish.

Where can you change the information that displays at the bottom of room labels?

- You can change the room size information that displays in a room label in the Layer Display Options dialog. The "Interior Area", "Interior Dimensions", and "Standard Area" layers control what information displays underneath the room name.

How are Room Dividers useful?

- The Room Divider tool can be used to define rooms without creating an actual, physical wall.
- Once separated, the rooms can be assigned separate traits like different ceiling heights or flooring materials.

What is the thickness of a Room Divider?

- By default, Room Dividers have a thickness of 0".

How do Auto Exterior Dimensions and Interior Dimensions locate walls differently?

- The Interior Dimension tool always locates exterior walls on their interior sides, while Auto Exterior Dimensions and other dimension tools locate exterior walls on their exterior sides.

What are two ways to delete dimension lines?

- Dimension lines can be deleted individually using the Delete edit button or key on the keyboard.
- They can also be deleted in groups using the Delete Objects dialog

What type of snapping helps you align two walls so they are collinear?

- Object Snaps, and particularly Intersection Snaps can be used to make walls collinear.

What edit tool allows you to adjust how wall layers meet at an intersection?

- The Edit Wall Layer Intersection edit tool presents an edit handle for each wall layer, letting you adjust how each one builds into an intersection with another wall.

Multiple Floors

Creating new floors in a plan is easy; but whenever possible, it is best to do so after the first floor plan has been finalized.

Learning Objectives

The previous lesson, *Interior Walls*, explained how to create interior rooms and set their structure in Chief Architect. This lesson describes best practices in Chief Architect for adding floors to a design. Concepts introduced include:

Productivity Tips 46

Setting the Defaults 47

Using Plan Views 47

Creating New Floor Levels 47

Navigating and Displaying Floor Levels 49

Creating a Foundation 49

Aligning Walls Between Floors 52

Creating a Wall Legend 55

Creating Revisions 59

File Management

At this point in the design process, both the Chic Cottage-Rooms and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Rooms was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to add floor levels to a project, keep in mind these tips to improve your productivity.

Drawing and Editing

- It is best to add new floors after the walls on Floor 1 are in place.
- Setting Floor and Foundation Defaults as new floors are built saves time and reduces the changes of introducing errors.
- Align walls between floors using the **Align with Floor Above** and **Align with Floor Below** edit buttons.
- The **Copy** and **Paste Hold Position** commands can be used to align walls and other objects between floors as well.

Interface

- There are several ways to navigate multiple floors in a plan: the **Up One Floor** and **Down One Floor** buttons, the **Change Floor/Reference** tool, and the Project Browser.
- Use the **Reference Display** to display walls and other objects located on a floor other than the Current Floor.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***F6*** - Fill Window
- ***F9*** - Reference Display
- ***Arrow*** keys - nudge selected object
- ***Ctrl/⌘ + C*** - Copy
- ***Alt + Shift + V*** - Paste Hold Position
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When adding floors to a plan, there are several defaults of particular importance.

The 2nd Floor Defaults allow you to set the default ceiling height for the floor as well as floor and ceiling structure definitions. See *To add a second floor on page 47*.

Foundation Defaults specify the type of foundation to be built as well as important defaults such as wall height and slab thickness. See *Creating a Foundation on page 49*.

Foundation default settings can be set in both the Foundation Defaults and Build Foundation dialogs.

As with architectural objects, it is a good idea to set schedule defaults before creating a wall schedule. See *To set wall schedule defaults on page 55*

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

As it did for drawing exterior and interior walls, the Working Plan View will work well for adding new floor levels. See *To examine a saved plan view's settings on page 5*.

Creating New Floor Levels

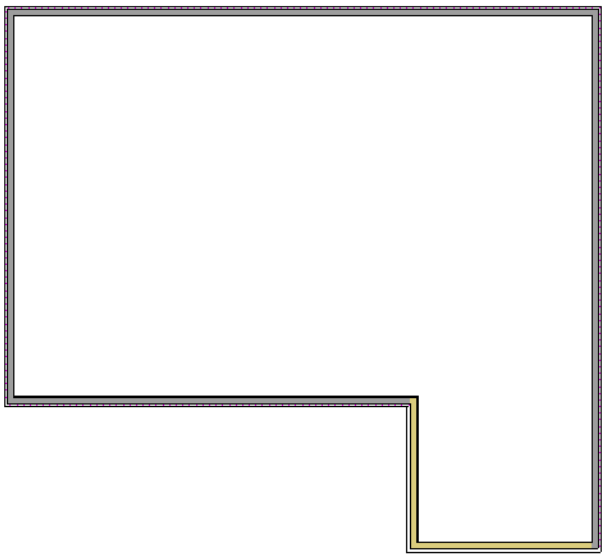
A plan file can have up to 30 floors.

To add a second floor

1. Select **Build> Floor> Build New Floor**  .
2. In the New Floor dialog, select **Derive new 2nd floor plan from the 1st floor plan**.
   - This option produces a second floor shell using the same Wall Types as the exterior walls on Floor 1. Walls created over Pony Walls inherit the upper Wall Type.
   - You could instead create a blank second floor and then draw the second story walls manually; however, it is usually faster to automatically generate the perimeter walls and then edit them as needed.
3. Click **OK** to close the New Floor dialog and open the 2nd Floor Defaults dialog.

- Note that the default **Rough Ceiling** height is 97 1/8" and click OK.
- Later on, this dialog will be used to specify a default floor covering. See *"To set flooring defaults by floor" on page 204 of the Finish Materials Tutorial*.

4. Click **OK** and a floor plan for the second floor is created based on the exterior walls of the first floor plan.



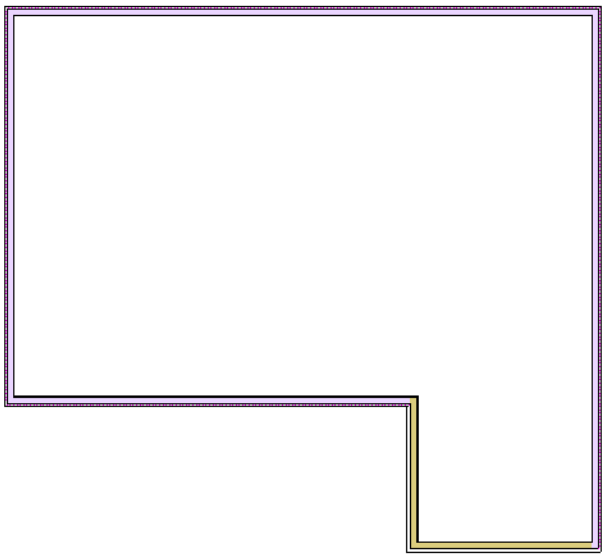
5. You can confirm that the 2nd floor level is now active in the view by looking at the **Change Floor/Reference** 1 toolbar button located between the **Down** and **Up One Floor** buttons in the toolbars.

It's not uncommon for the upper walls of a home to have a different siding material than the walls below.

To customize the second floor Wall Type

1. Select **Build> Wall> Define Wall Type** to open the Wall Type Definitions dialog.
2. At the top left corner of the dialog, select "Siding-6" from the drop-down list and click the **Copy** button.
3. Name the new Wall Type "Shingle-6", then:
   - Specify a **Thickness** for Layer 1 of 3/4".
   - Specify the **Material** for Layer 1 as "Shake - Natural", which you can find in the Select Material dialog by searching or browsing to Core Catalogs at Materials> Roofing> Shakes and Shingles> Wood.
   - To help distinguish this Wall Type, change the **Fill** for Layer 4 to a Solid pale purple color.
   - Click OK to create the new Wall Type and close the dialog.
4. ***Shift*** + select the Siding-6 walls on Floor 2 and click the **Open Object** edit button.

5. On the WALL TYPES panel of the Wall Specification dialog, select "Shingle-6" from the drop-down list and click OK.



6. When you are finished, remember to **Save** your work.

NAVIGATING AND DISPLAYING FLOOR LEVELS

Now that there is more than one floor level in the plan, it's important to be able to display and navigate between them.

To navigate between floors levels

1. Click the **Down One Floor** button to go to Floor 1.
2. Click the **Up One Floor** button to return to Floor 2.
3. Select **Tools> Reference Floors> Change Floor/Reference** or click the toolbar button of the same name located between the Up and Down One Floor buttons to see a list of all of the floors in your plan and choose the one you'd like to go to.

You can also see a list of all floors in the plan and navigate to any of them in the Project Browser. Select **View> Project Browser**, expand the Floor Levels folder, right-click on a floor, and select **Open View** from the contextual menu.

In addition to the current floor, you can display a second floor for reference in the same view window as the active floor. See *To align walls between floors on page 53*, below.

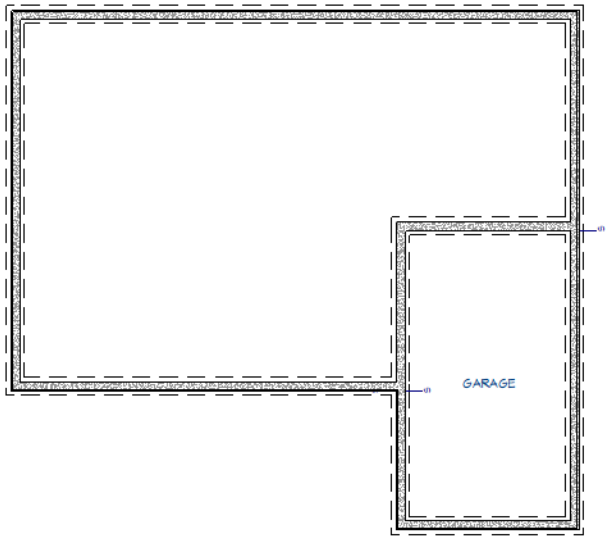
Sometimes, it is helpful to display a different floor in an entirely separate view window. See *To copy and paste walls between floors on page 54*.

CREATING A FOUNDATION

When the rooms on Floor 1 have been defined, a foundation can be created beneath them.

To create a basement foundation

1. Select **Build> Floor> Build Foundation** . In the Build Foundation dialog. On the FOUNDATION panel:
   - Under the Foundation Type heading, select **Walls with Footings**.
   - Under the Stem Walls heading, change the **Minimum Stem Wall Height** to 113 1/8" inches. This will provide room for standard stud length furred walls of 109 1/8" plus a 4" slab floor.
   - Under the Garage Options heading, leave Garage Floor to Stem Wall Top at 12" but change the **Minimum Garage Height** to 37 1/2". This will produce a 12" curb around the garage with a 1 1/2" sill plate and stem walls that extend 24" below the top of the Garage slab.
   - Click **OK** to close the dialog and create a foundation level for the plan.
2. Select **Derive New Foundation Plan From the First Floor Plan** and click **OK** to close the New Floor dialog and create a foundation.



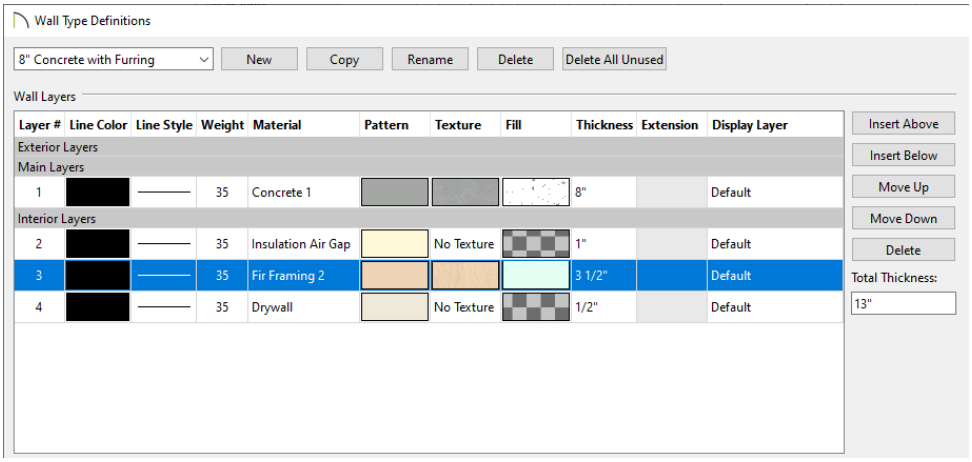
3. Notice that the Garage's foundation is separated from the rest of the foundation plan and that "S" Markers indicate where the stem wall top height changes.
4. Select **3D> Create Perspective View> Perspective Floor Overview** .
5. Click the **Select Objects** button, then click on the floor surface of the Garage area.
6. Click the **Open Object** edit button, and on the STRUCTURE panel of the Room Specification dialog, notice that **Room Supplies Floor for the Room Above** is checked. This indicates that the Garage room on Floor 1 inherits its concrete floor and curbs from this room on Floor 0. Click Cancel to close the dialog.
7. Select **File> Close View** to return to plan view.

Basement walls often have furring to accommodate insulation, electrical, and plumbing and a finish surface like drywall.

To create a furred basement Wall Type

1. Select the front vertical foundation wall located to the left of the Garage area and click the **Open Object** edit button.
2. On the WALL TYPES panel of the Wall Specification dialog:
   - Notice that "8" Concrete Stem Wall" is specified as the Wall Type.
   - Click the **Define** button.

3. In the Wall Type Definitions dialog: notice that "8" Concrete Stem Wall" is the selected Wall Type, then click the **Copy** button.
   - A new Wall Type named "8" Concrete Stem Wall, Copy" is created.
   - Click in the text field where its name is stated and change it to "8" Concrete with Furring".
4. Click the **Insert Below** button to create a new layer, identical to the first.
5. With this new layer selected, click the **Move Down** button to move the new layer from the "Main Layers" section to the "Interior Layers" section.
6. Specify Layer 2 as the "Insulation Air Gap" material with a Thickness of 1" and no Fill.
7. With Layer 2 selected, click the **Insert Below** button two more times to create a total of three Interior Layers, then modify the two new layers as follows:
   - Specify Layer 3 as the "Fir Framing 2" material with a Thickness of 3 1/2" and a pale green Solid Fill color.
   - Specify Layer 4 as "Drywall" from the 4' x 8' folder with a Thickness of 1/2" and no Fill.
8. These three furring layer materials are already present in the current plan file because they are assigned to other Wall Types. Since this is the case, you can find them on the PLAN MATERIALS panel of the Select Material dialog, either by searching or scrolling the list. Selecting from the PLAN MATERIALS panel is an efficient way to make sure your new Wall Type is consistent with other walls in the plan.

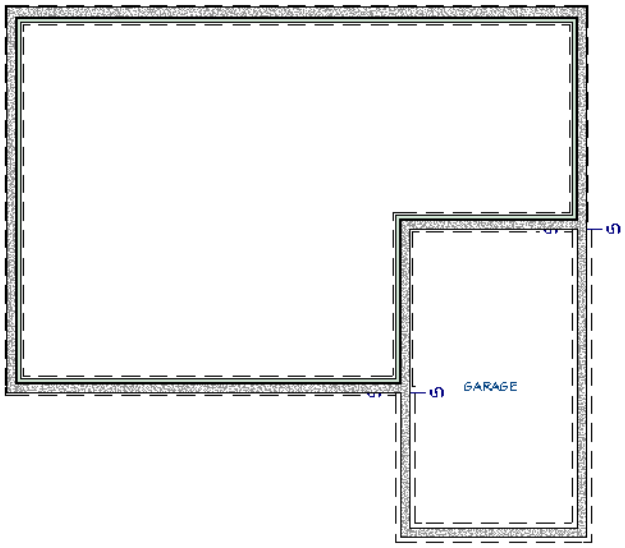


9. Click once on the Layer 3 line item to select it, then:
   - Check the box beside **Framing** under the Material Layer tab below the table. This will allow the layer to produce framing when wall framing is generated later on. See *Wall Framing on page 348*.
   - Make sure the **Stud Construction** is "Wall Framing - Lumber".
   - Make sure the **Stud Width** as 1 1/2".
   - Specify the **Stud Spacing** as 16" On Center.
10. Click OK to close the dialog and create the new Wall Type.

To replace the basement Wall Type

1. Use the **Add Break** edit tool to divide the right vertical wall in two, at the point where it is intersected by the horizontal wall at the back of the garage area.
2. Add another break along the left vertical wall of the Garage, where it is intersected by the front left horizontal wall.
3. Click the **Select Objects** button, then click on one of the foundation wall segments that define the basement area.
4. Hold down the ***Shift*** key, then click each of the walls that define the basement area, adding them to the selection set.
5. Click the **Open Object** edit button to open the Wall Specification dialog.

6. On the WALL TYPES panel, select "8" Concrete with Furring" from the **Wall Type** drop-down list.
7. Move the mouse pointer into the dialog preview pane, then click and drag to rotate the wall. You can also use the mouse third button wheel to zoom in and out.
   - Notice that the entire wall assembly is centered over its footing.
   - Typically, only the concrete layer should be centered over the footing.
8. Go to the FOUNDATION panel, then:
   - Check the box beside **Center Footing on Main Layer**.
   - Notice that the **Footing Offset** setting updates to show a value of -2 1/2". This is equal to half the thickness of interior air gap and furring layers.
   - Notice, too, that the preview now shows the concrete wall layer centered over the footing.
   - Click OK to close the dialog and apply your changes to the selected walls.



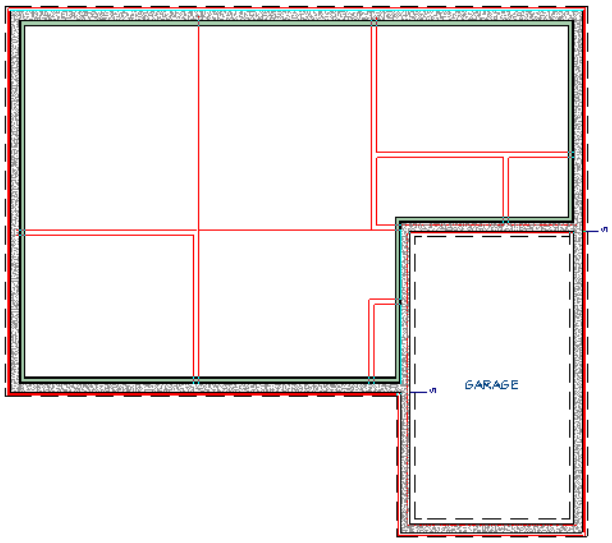
9. Remember to **Save** your work.

ALIGNING WALLS BETWEEN FLOORS

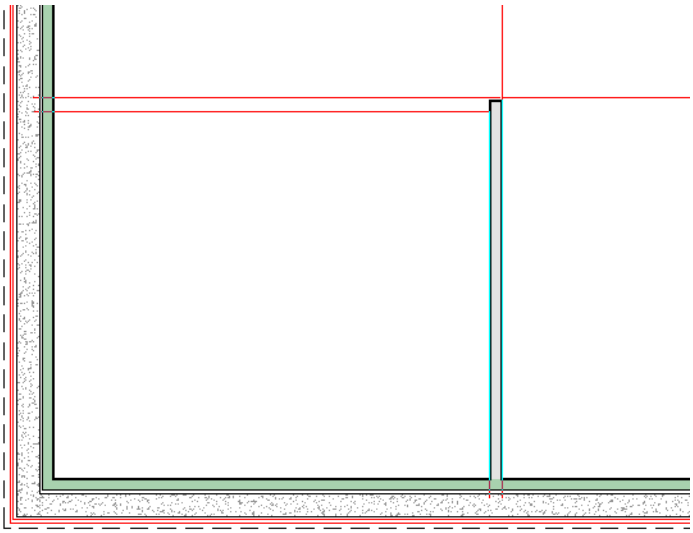
In any plan with multiple floors, some walls may need to be perfectly aligned from one floor to the next. Here, the walls that will form one side of a stairwell will be aligned.

To align walls between floors

1. Select **Tools> Floor/Reference Display> Reference Display** .

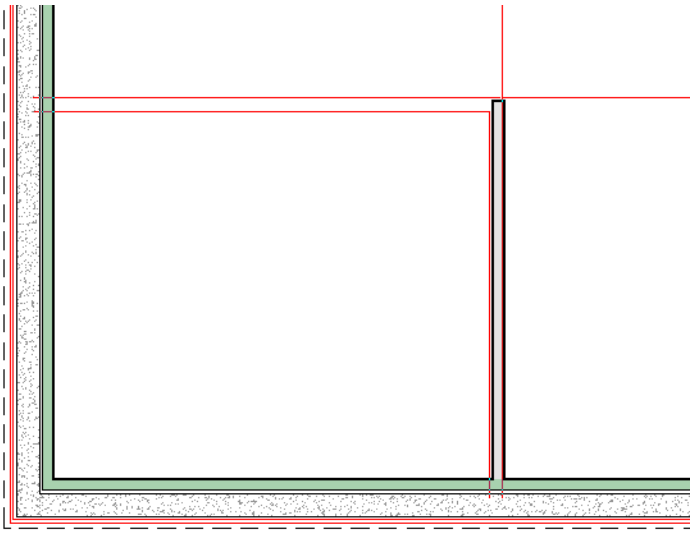


   - The walls on the floor above, Floor 1, are shown in red for reference.
   - You can control which floor shows in the Reference Display as well as its appearance.
2. **Zoom** in on the left side of the plan.
3. Select **Build> Wall> Straight Interior Wall** , then draw a vertical wall over the wall visible in the Reference Display on the left side of the plan.



   - If you are sufficiently zoomed in, the new wall will snap into alignment with the wall shown in the Reference Display.
   - Notice that the edge lines of the new wall are highlighted in light blue: this indicates that they are exactly aligned with the Reference Display lines of the wall above.
4. Click the **Select Objects** button, then select the newly drawn interior wall.

5. Press the ***Right Arrow*** key once to Nudge the wall 1" to the right. Notice:



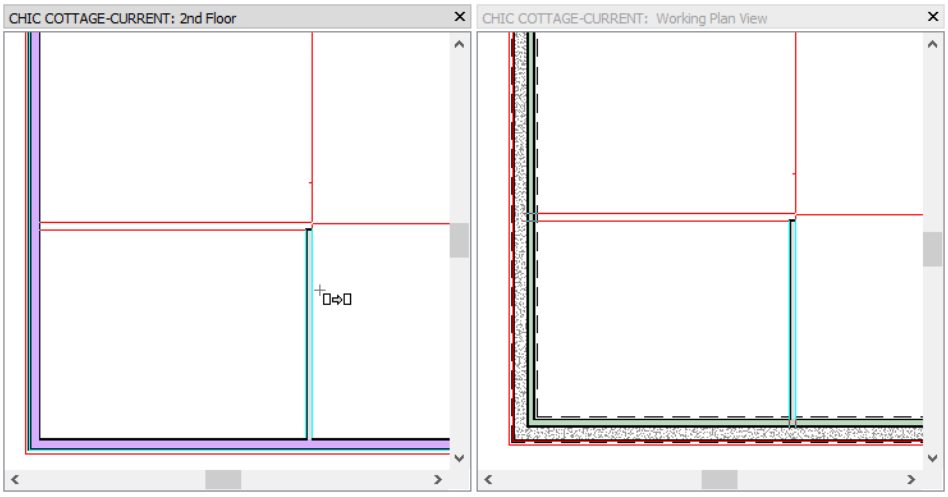
6. The wall's edge lines are no longer highlighted and the red lines representing the wall on the floor above can be seen in the Reference Display.
7. On the edit toolbar, the **Align With Wall Above** edit button is now available.
8. Click the **Align With Wall Above** button. The wall is moved back into alignment with the wall below and the edit button disappears.

Another way to ensure that walls are aligned between floors is to use the Copy and Paste Hold Position tools.

Copy and Paste Hold Position can be used while navigating in a single plan view window, but it is easier to see what they do when two plan views showing different floors are tiled.

To copy and paste walls between floors

1. Select the interior wall, then select **Edit> Copy**.
2. Select **Tools> New Plan View**. A second plan view window is created and is now active.
3. Click the **Up One Floor** button twice to go to Floor 2 in the new window. Notice that the current view's tab states that it shows Floor 2 while the original window's tab still indicates that it shows Floor 0.
4. Select **Window> Tile Vertically** to tile the two plan views side by side. The view of Floor 2 will still be active, as indicated by the darker color of its title bar.
5. Select **Edit> Paste> Paste Hold Position**. A copy of the interior wall selected on Floor 0 is created directly above the original, on Floor 2.



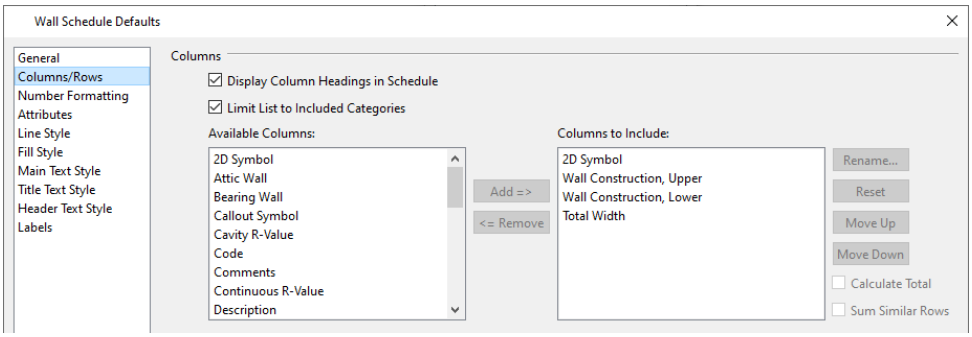
6. Select **File> Close View** to return to the original view showing Floor 0.
7. Select **Tools> Floor/Reference Display> Reference Display** to toggle the Reference Display off again.
8. Don't forget to **Save** your work.

Creating a Wall Legend

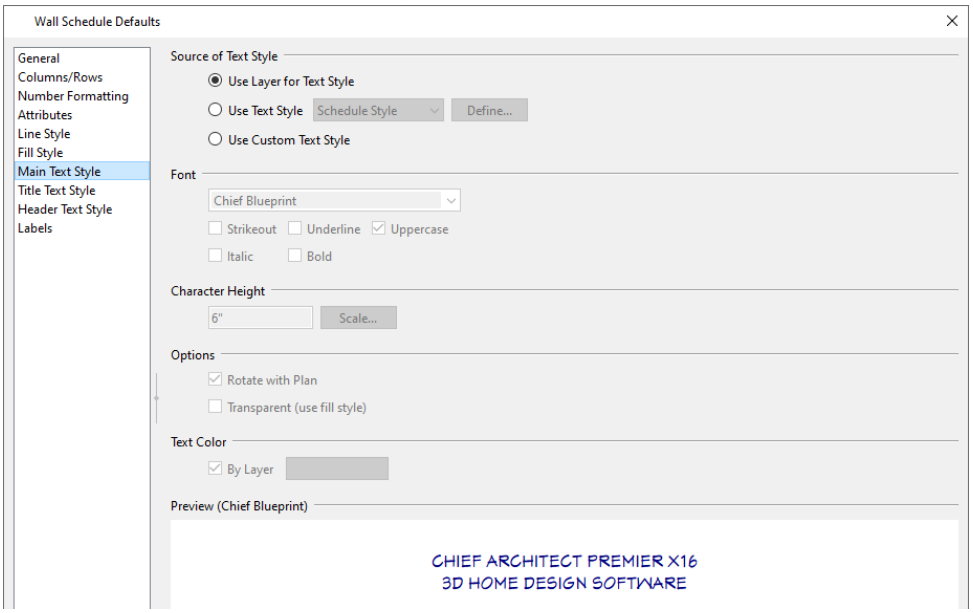
In a plan with a number of special Wall Types, it is helpful to include a legend with information about each. This can be accomplished using a Wall Schedule.

To set wall schedule defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside "Schedules" to expand the category.
   - Select "Wall Schedule" and click the **Edit** button.
2. On the Columns/Rows panel of the Schedule Defaults dialog, customize the **Columns** selections:
   - In the list of **Columns to Include**, select "Wall Type" and click the **Remove** button.
   - In the list of **Available Columns**, select "Total Width" and click the **Add** button.
   - **Add** "Wall Construction, Upper" and "Wall Construction, Lower" as well.
3. Also on the Columns/Rows panel, make sure that **Display Column Headings in Schedule** is checked.



4. On the Main Text Style panel, notice that there are three ways to assign a Text Style to schedules: by layer, by specifying a particular Text Style, or by using Custom settings.



- **Use Layer for Text Style** is selected.
- Although disabled, the Use Text Style option states the name of the saved Text Style that is in use, "Schedule Style".
- The settings and the preview below show which settings are in use.

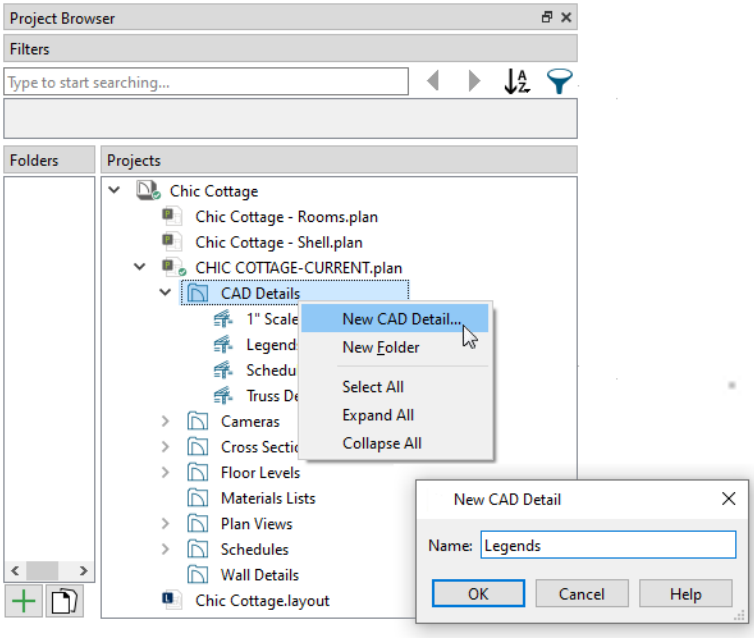
5. Click OK and then Done to close the Default Settings dialog and apply your changes.

CAD Details are a type of view window used to organize detail drawings, schedules, and other 2D CAD information.

To create a wall legend

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View>Project Browser** .
2. Click the arrow to the left of CHIC COTTAGE-CURRENT.plan to display its view categories.
3. Right-click on the CAD Details category and select **New CAD Detail** from the contextual menu.

4. In the New CAD Detail dialog, type a short, descriptive name like "Legends" and click OK.



5. The "Legends" CAD Detail window opens, and is empty.
6. Select **Tools> Schedules> Wall Schedule** and click once in the view to place a Wall Schedule at that location.
7. Select the wall schedule and click the **Open Object** edit button.
8. On the GENERAL panel of the Wall Schedule Specification dialog, change the **Main Title** to "Wall Legend" and click OK.

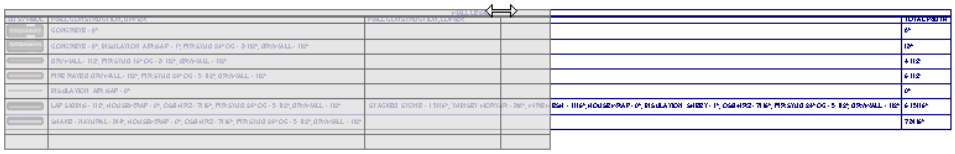
By default, the information in each schedule cell will be presented in a single row. Once a schedule is created, though, its column widths can be modified.

To edit schedule columns

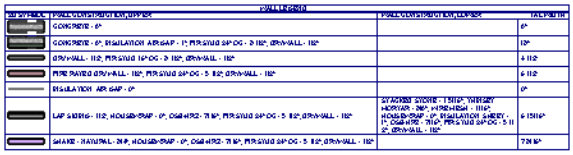
1. Click on the wall schedule to select it and notice its various edit handles. In particular:



2. The small diamond shaped handles located in the Title row, centered on the grid lines that divide the columns allow you to **Resize Columns**.
3. The small square **Move Column** edit handles are located in the Column Heading row, centered in each cell, and allow you to rearrange the columns.
4. Click on the **Resize Column** handle to the right of the "Wall Construction, Upper" column and drag it to the left.



5. Release the mouse button to resize the "Wall Construction, Upper" column.



6. You can resize the "Wall Construction, Lower" column, as well, if you wish.
7. Columns can also be renamed. With the wall schedule still selected, click the **Open Object** edit button.
8. On the GENERAL panel of the Wall Schedule Specification dialog:
   - Select "Wall Construction, Upper" in the **Columns to Include** list.
   - Click the **Rename** button.
   - Rename Schedule Column dialog, delete ", Upper" from the **New Name** and click OK.
   - Click once more to close the dialog and apply your change.

Since Room Dividers do not actually have materials or an assembly, they do not need to be in the wall legend. There are two ways to remove them.

To remove an item from a schedule

1. Select a Room Divider wall and click the **Open Object** edit button.
2. On the SCHEDULE panel of the Wall Specification dialog, uncheck **Include in Schedule** and click OK.
   - Notice that "Room Divider" is still included in the schedule.
   - This approach works best if there are other walls of the same type that you would like to be represented in the schedule.
3. Select the schedule and click the **Open Object** edit button. On the GENERAL panel of the Wall Schedule Specification dialog:
   - Scroll down the list of **Categories to Include**.
   - Click the arrow next to Wall to expand the category.
   - Uncheck the box beside "Room Divider" and click OK.

WALL LEGEND

2D SYMBOL	WALL CONSTRUCTION	WALL CONSTRUCTION, LOWER	TOTAL WIDTH
	CONCRETE - 8"		8"
	CONCRETE - 8", INSULATION AIR GAP - 1", FIR STUD 24" OC - 3 1/2", DRYWALL - 1/2"		13"
	DRYWALL - 1/2", FIR STUD 16" OC - 3 1/2", DRYWALL - 1/2"		4 1/2"
	FIRE RATED DRYWALL - 1/2", FIR STUD 24" OC - 5 1/2", DRYWALL - 1/2"		6 1/2"
	LAP SIDING - 1/2", HOUSEWRAP - 0", OSB-HRZ - 7/16", FIR STUD 24" OC - 5 1/2", DRYWALL - 1/2"	STACKED STONE - 1 5/16", THINSET MORTAR - 3/8", WIRE MESH - 1/16", HOUSEWRAP - 0", INSULATION SHEET - 1", OSB-HRZ - 7/16", FIR STUD 24" OC - 5 1/2", DRYWALL - 1/2"	6 15/16"
	SHAKE - NATURAL - 3/4", HOUSEWRAP - 0", OSB-HRZ - 7/16", FIR STUD 24" OC - 5 1/2", DRYWALL - 1/2"		7 3/16"

4. When you are finished, **Save** your work and select **File> Close View** to close the "Legends" detail.

The order that objects are listed in schedules can be customized. See *"To change schedule numbering" on page 122 of the Decks and Porches Tutorial*.

You can continue working on this plan in the *Interior Stairs* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Floors. Then, click OK.
3. Notice that Chic Cottage-Floors is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for adding a foundation and new floors to a structure.

To add a second floor *47*

To customize the second floor Wall Type *48*

To navigate between floors levels *49*

To create a basement foundation *50*

To create a furred basement Wall Type *50*

To replace the basement Wall Type *51*

To align walls between floors *53*

To copy and paste walls between floors *54*

To set wall schedule defaults *55*

To create a wall legend *56*

To edit schedule columns *57*

To remove an item from a schedule *58*

To save a plan revision *59*

Assessment Questions

Tutorial 3 - Multiple Floors

When building a new floor, why is it beneficial to derive the new floor plan from an existing floor?

- This option produces a second floor shell using the same Wall Types as the exterior walls on the top living floor of the plan. It is usually faster to automatically generate the perimeter walls and then edit them as needed than it is to draw them manually.

What are two ways to switch from one floor to another?

- You can click the Up One Floor and Down One Floor buttons, or the Change Floor/Reference button.
- Floors can also be navigated in the Project Browser side window.

What is the name of the tool that lets you view the location of objects on another floor without going to that floor?

- The Reference Floor Display toggle is found in the Tools> Reference Floors submenu and on the toolbar. The keyboard hotkey is F9.

What are two ways to align walls between floors?

- The Align With Wall Above and Align With Wall Below edit tools will align a selected wall that is slightly out of alignment.
- You can also copy a wall and paste a duplicate at the same location on a different floor using the Paste Hold Position command.

How can you tell which floor level is shown in the current plan view?

- The floor level in the current view is reported in the Change Floor/Reference button, which is located between the Up One Floor and Down One Floor buttons on the toolbar.

What two attributes of a "Garage" Room Type are created when the foundation is generated?

- When a stem wall foundation is generated, stem walls and a curb are created around the Garage slab.
- On Floor 0, "S" Markers indicate where the stem wall top height changes.
- In addition, the Garage room on Floor 1 inherits its concrete floor and curbs from the room below it on Floor 0.

What does an "S" marker along a foundation wall mean?

- "S" Markers indicate where changes to stem wall top heights occur: for example, where basement walls meet garage curbs.

What type of view is recommended for creating schedules?

- CAD Detail views are a great place to organize 2D-only information like schedules.

What are three ways that text style settings can be assigned to an object like a schedule?

- Text style settings can be applied to an object by layer, by assigning a Text Style to the object, or by specifying custom style settings.

How do you adjust the width of a schedule column?

- Click and drag a small diamond shaped Resize Columns edit handle located in the Title row of the schedule, above each vertical column divider line.

Interior Stairs

Stairs and staircase rooms connect multiple floors in a plan.

Learning Objectives

The previous lesson, *Multiple Floors*, explained how to add a foundation and upper floor levels in Chief Architect. This lesson describes best practices in Chief Architect for creating stairs and introduces working in section views. Concepts introduced include:

Productivity Tips 61
Setting the Defaults 62
Using Plan Views 62
Adding Stairs 62
Working in Cross Section Views 66
Creating a Stairwell 68
Confirming Headroom Clearance 69
Creating a Stacked Staircase 71
Adding Plan Notes 77
Creating Revisions 80

File Management

At this point in the design process, both the Chic Cottage-Floors and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Floors was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create stairs and stairwells, keep in mind these tips to improve your productivity.

Drawing and Editing

- Stairs automatically detect floor platform heights and create consistent risers and treads to meet standard building practices.
- Click between two stair sections with the Draw Stairs tool to create a landing.
- Use the Tape Measure tool to quickly measure distances without drawing a permanent dimension line.

Content

- Cross Section/Elevation views can be annotated with text and dimensions and saved for use later on.

Interface

- Tiling 2D and 3D views can help in the positioning of objects like stairs.
- Use the **Reference Display** to display walls and other objects located on a floor other than the Current Floor.
- Multiple line items in a list, as well as multiple objects, can be group-selected using the ***Shift*** and ***Ctrl/⌘*** keys.
- Saved camera views are listed and can be accessed from the Project Browser side window.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Tab*** - Select Next Object edit tool
- ***Shift*** + ***F6*** - Tile Vertically
- ***F9*** - Reference Display
- ***Ctrl/⌘ + C*** - Copy
- ***Alt*** + ***Shift*** + ***V*** - Paste Hold Position
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When drawing stairs, there are several defaults that should be borne in mind.

Before adding stairs, it is best to make sure that your floor and ceiling heights have all been finalized. If changes are made affect the floor heights, the total rise and run of a set of stairs may also be affected.

Before drawing interior stairs, it is a good idea to set the Interior Stair Defaults to meet your needs. See *To set the interior stair defaults on page 62*.

Since stairwell rooms are often defined by railings, it is a good idea to set the Railing Defaults before they are created. See *To set the railing defaults on page 68*.

As with architectural objects, it is recommended that you set Note and Note Schedule Defaults before creating floor plan notes. See *Adding Plan Notes on page 77*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

The Working Plan View will work well for adding stairs to connect the floor levels created in the *Multiple Floors* tutorial. See *To examine a saved plan view's settings on page 5*.

Adding Stairs

Stairs are drawn in an upward direction, from the current floor to the floor above, and locate floor platforms automatically.

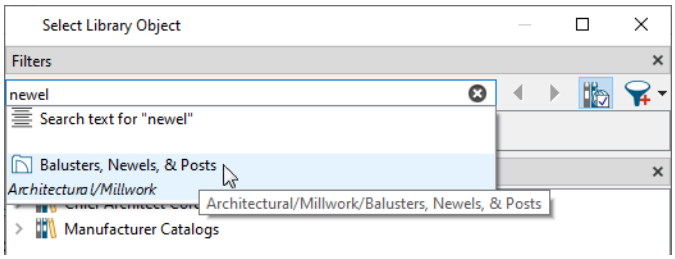
Sometimes, only a few steps are needed to reach between the floors in different rooms.

To set the interior stair defaults

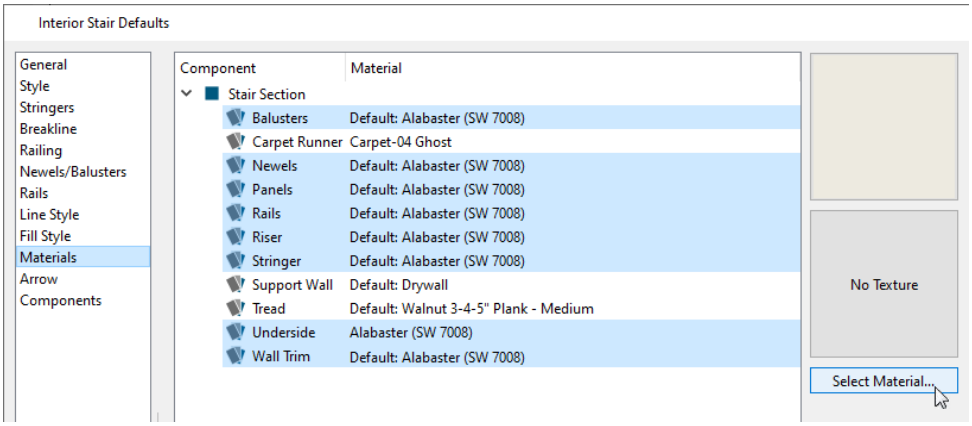
1. Select **Edit> Default Settings** to open the Default Settings dialog. Click the arrow to the left of "Stairs and Ramps" to expand the category, select "Interior Stairs", then click the **Edit** button.
2. On the General panel of the Interior Stair Defaults dialog, specify the Width as 44".
3. On the Newels/Balusters panel, under the **Newels** heading:
   - Specify the **Width** as 4".
   - Uncheck **Rail Passes Over Newel**.

- Specify the **Height** as 44".
- Next to **Type**, click the **Library** button to open the Select Library Object dialog.

4. The Select Library Object dialog is a modal version of the Library Browser. In the Browser, a wide variety of items useful for creating a detailed design can be found. In the Select Library Object dialog, however, the content is filtered to only list the **Type** of object that can be used in the current context. Here, where a style of newel post is being selected, only Millwork is listed in this dialog.
   - To further filter the results, type "newel" in the Search field, then move your mouse pointer over the "Balusters, Newels & Posts" **Folder** line item in the Filters drop-down list.



   - Notice that the folder's location in the Folders tree list is reported below its name as well as in a Tool Tip that appears when the mouse is over the line item, then click once to select it.
   - The tree list in the Folders panel will now expand to show Chief Architect Core Catalogs> Architectural> Millwork> Balusters, Newels & Posts.
   - Open the "Boxed" folder, select "BX-02" and click OK.
5. On the MATERIALS panel:



   - Select the "Balusters" component, then hold down the ***Ctrl/⌘*** key and click on each of the components with the "Alabaster" material assigned to them to add them to the selection.
   - Click the **Select Material** button and select "Color - White" from the PLAN MATERIALS panel of the Select Material dialog. Choosing a color already in use in your plan will help make sure finish materials are consistent.
6. Next, ***Ctrl/⌘*** + select the "Panels" and "Rails" components as described above and assign the "Red Oak - Natural" material to them:
   - On the LIBRARY MATERIALS panel of the Select Material dialog, search for "red oak" and scroll down the list of **Folder** items that match this search term.
   - Beneath each Folder, its location in the Folders tree list is indicated.
   - Select the "Red Oak" **Folder** located in Materials/Wood from the list to use this folder as a Filter.
   - The tree list in the Folders panel will now expand to show the contents of Core Catalogs> Materials> Wood> Red

Oak.

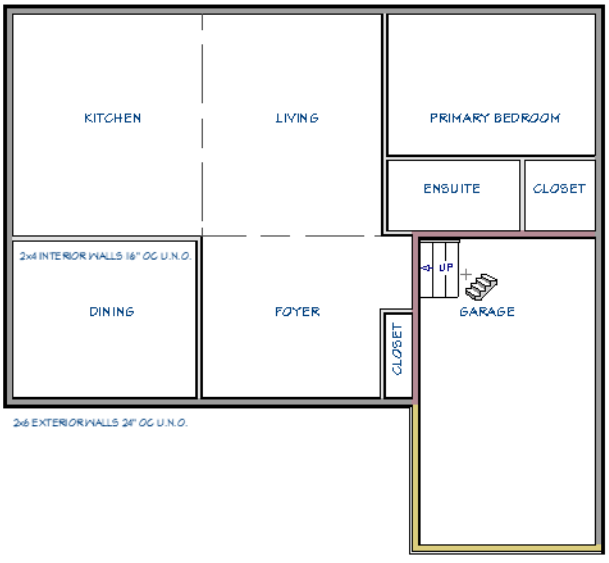
- Select the "Red Oak - Natural" material and click OK.

7. Returning to the MATERIALS panel, select the Tread component and click the **Select Material** button.
   - On the LIBRARY MATERIALS panel of the Select Material dialog, search for "red oak" again and scroll down the list of **Folder** items that match this search term.
   - This time, select the "Red Oak" **Folder** located in Materials/Flooring/Wood Flooring/3-4-5" Plank/Red Oak.
   - If you cannot see a folder's full library location, move your mouse pointer over its name and the location will display in a tool tip.
   - When you click on a folder, the tree list in the Folders panel will expand to show its contents.
   - Select "Red Oak 3-4-5" Plank - Natural" and click OK.
8. Click OK and then Done to close both dialogs.

The floor finish materials for rooms will be set to match the stairs later on. See *"Specifying Flooring Materials" on page 203 of the Finish Materials Tutorial*.

To create stairs between rooms

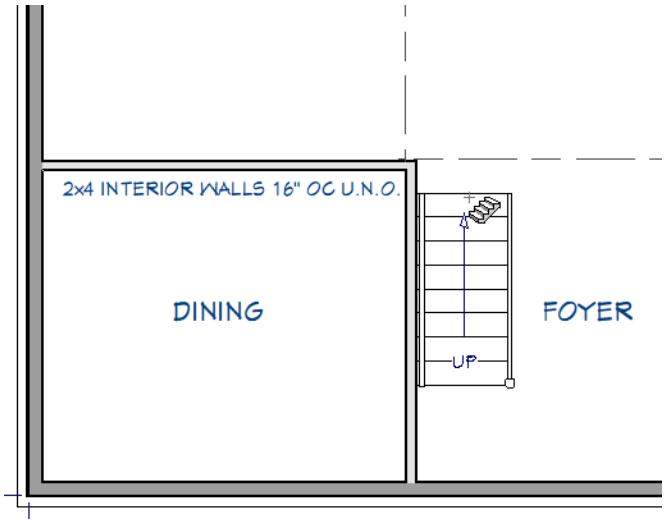
1. Go to Floor 1, then **Zoom** out so the Garage can be seen.
2. Select **Build> Stairs> Straight Stairs**, then move the mouse into the top left corner of the Garage room.
3. Click once to create a short stair section that spans the difference in floor height between the Garage and Foyer rooms.
4. Notice that the stairs have a direction arrow and an "UP" label, indicating that they are drawn in an upward direction.



Stairs can also be drawn to span different floor levels.

To create a staircase between floors

1. **Zoom** in on the Foyer room.
2. Select **Build> Stairs> Draw Stairs**, then click to the right of the wall separating the Foyer from the Dining room and drag upward. Notice:



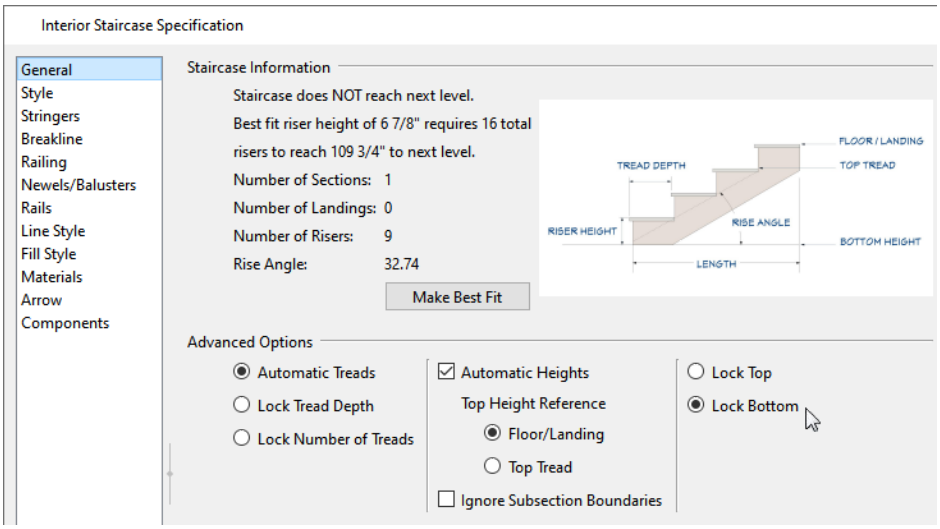
- The stairs have an "UP" label and an arrow indicating their direction.
- The stairs snap to the side of the room automatically.
- When you release the mouse button, a staircase is created.

To position a staircase

1. Select **CAD> Dimension> Manual Dimension** from the menu, then click and drag a dimension line from the bottom end of the stairs to the horizontal exterior wall of the Foyer.
2. By default, the dimension line will locate the outside surface of the wall's Main Layer. Click on the dimension line to select it, then click and drag the diamond-shaped end edit handle back until it snaps to the inside surface of the Main Layer.
3. Click the **Select Objects** button, then click on the staircase to select it and move your mouse pointer over the dimension line.
4. When the mouse pointer changes to a Pointing Hand icon, click once, enter 4' 6" in the inline text field, and press Enter.

To adjust a staircase's rise and run

1. Click on the stairs to select it, then click the **Open Object** edit button. On the GENERAL panel of the Staircase Specification dialog, notice:
   - The **Staircase Information** at the top of the dialog states the current **Number of Risers** and the **Rise Angle** for reference.
   - In this example, this section also indicates that the selected staircase does not reach Floor 2 and recommends a total of 16 risers.
2. To prevent the base of the stairs from moving as changes are made to the settings in this dialog, select **Lock Bottom** under the "Advanced Options" heading.



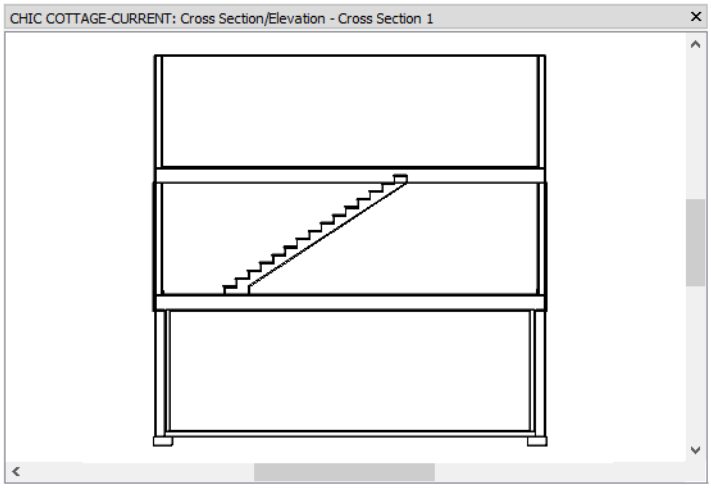
3. Click the **Make Best Fit** button. Notice that staircase now reaches the next floor and that the Number of Risers and Rise Angle are modified.
4. Still on the GENERAL panel:
   - Under "Advanced Options", select **Lock Number of Treads**.
   - Change the **Tread Depth** to 10 1/2". Note that Riser Height stays the same but overall **Length** is adjusted.
   - Click OK.
5. Once the staircase's position and length are correct, click the **Select Objects** button, then select the wall located to the left of the staircase. Extend its top end upward until it reaches the top end of the staircase.
6. When you are finished, remember to **Save** your work.

WORKING IN CROSS SECTION VIEWS

Cross section views are often required in construction documents, and are also helpful to reference as you develop your drawing.

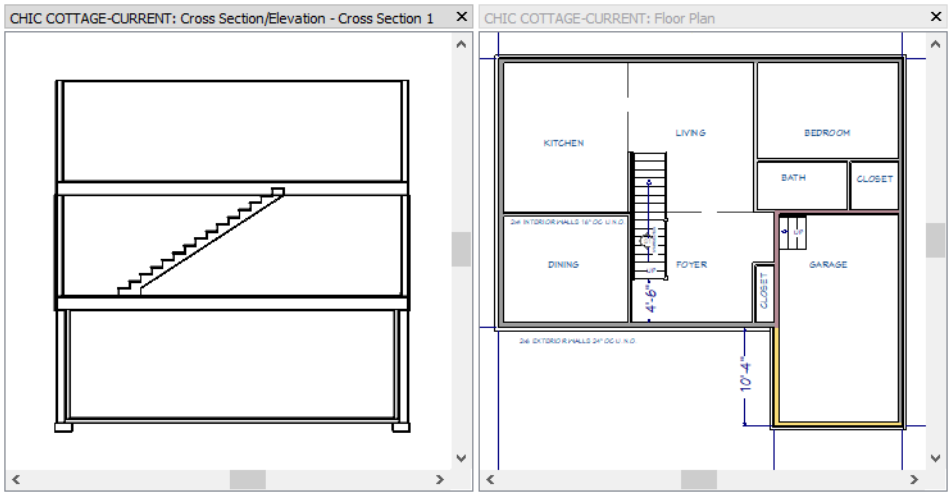
To tile floor plan and section views

1. Select **3D> Create Orthographic View> Back Clipped Cross Section**, then click and drag a horizontal camera from right to left, entirely within the width of the staircase:



- Notice that the stairs are connected to the floor platform on Floor 2.
- Note, too, that the floor platform is unbroken with no passage between floors.

2. Select **Window> Tile Vertically** to tile the Back Clipped Cross Section and plan views side by side.



3. Notice that the cross section's title bar is darker in color than that of the plan view. The darker title bar indicates that the cross section is the currently active view.

Stair sections are often included in construction documents, so this Back Clipped Cross Section view can be saved for use later on. See *"Sending Section and Elevation Views to Layout" on page 492 of the Sending Views to Layout Tutorial*.

To save a camera view

1. Select **Tools> Active View> Save Active View**.
2. Select **Tools> Active View> Edit Active View** to open the Camera Specification dialog.
   - On the CAMERA panel, type a short, descriptive **Name** for the camera, like "Stair Section".
   - On the PLAN DISPLAY panel, notice that the camera is set to display as a callout in plan view, and that its Callout Label is S1.
   - On the LAYER panel, notice that the camera is located on the "Cameras" layer. This layer controls its display in plan view.
   - Click OK to close the dialog and apply your changes.

3. Before continuing, **Save** your work.

Saved camera views are listed in the Project Browser using their camera Name.

Creating a Stairwell

A stairwell is simply an interior room that has been assigned the Room Type “Open Below” so that it has no floor platform. The Stairwell for a given staircase is always found on the floor above the stairs.

In the *Multiple Floors* tutorial, interior walls were aligned between floors to create one side of a Stairwell for the stairs to Floor 2. See *"Aligning Walls Between Floors" on page 52 of the Multiple Floors Tutorial*.

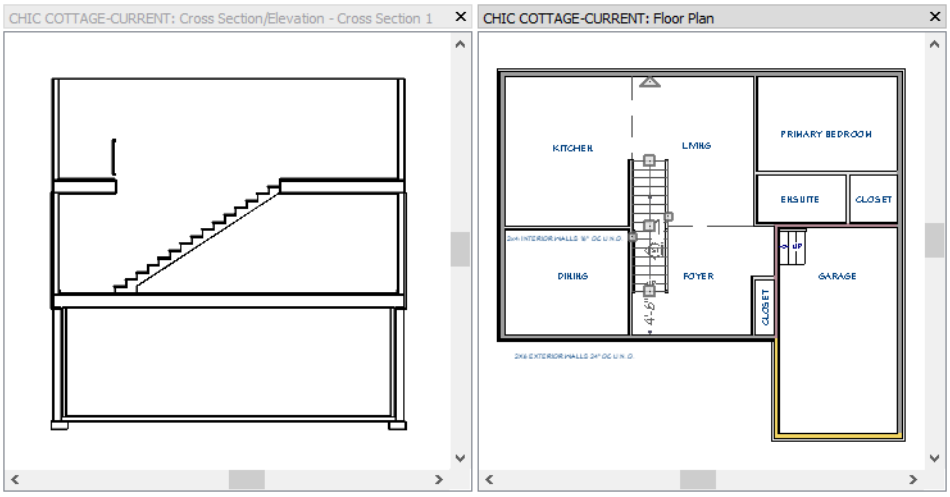
Rooms such as Stairwells can also be defined using Railings.

To set the railing defaults

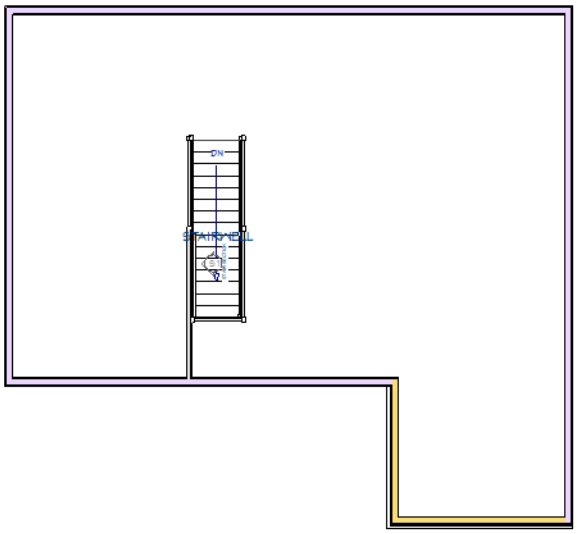
1. Select **Edit> Default Settings** to open the Default Settings dialog. Click the arrow to the left of "Walls" to expand the category, select "Railing", then click the **Edit** button.
2. On the Rail Style panel of the Railing Defaults dialog, select **Rail to Post**.
3. On the Newels/Balusters panel, under the **Newels/Posts** heading:
   - Specify the **Width** as 4".
   - Specify the **Height** as 38".
   - To the right of the **Type** drop-down list, click the **Library** button.
4. In the Select Library Object dialog, search for "BX-02" as **Text**, select the BX-02 newel, and click OK:
5. On the Materials panel:
   - Select the "Balusters" component, then hold down the ***Ctrl/⌘*** key and click on each of the components with the "Alabaster" material assigned to them to add them to the selection.
   - Click the **Select Material** button, and select the "Color - White" material on the Plan Materials panel of the Select Material dialog.
   - Select the "Rail" component, click the **Select Material** button, and select "Red Oak - Natural" from the Plan Materials panel of the Select Material dialog.
6. Click OK and then Done to close both dialogs.

To create an automatic stairwell

1. Click in the plan view window to make it active, click the **Select Objects** button, then click on the staircase to select it.
2. Click the **Auto Stairwell** edit button and notice that in the cross section view, the floor platform above the staircase has been removed.



3. With the plan view still active, select **Window> Tab Windows**. This will return the interface to tabbed view windows with the plan view displaying and both views' tabs located above view window.
4. Go **Up One Floor** to Floor 2 and notice that a new room has been created to the right of the vertical interior wall.



- The existing framed wall forms part of the Auto Stairwell, and Railings are created to enclose the rest of the space.
- The vertical Railing at the top of the stairs has a Doorway opening in it.

5. When you are finished, **Save** your work.

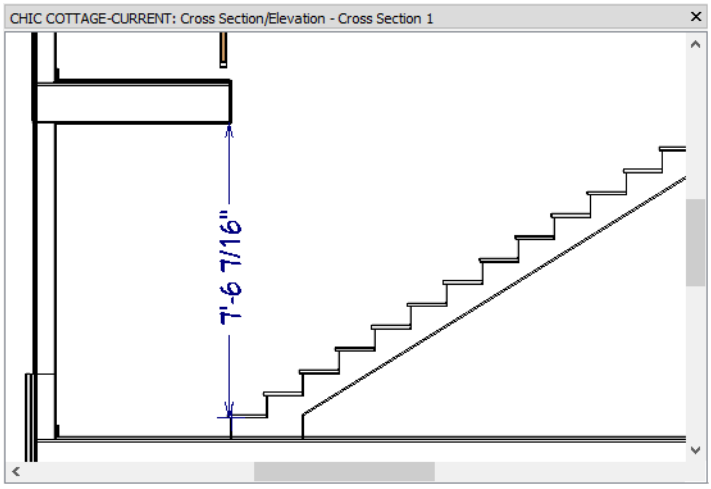
Confirming Headroom Clearance

An important consideration in designing a staircase is adequate headroom, which can be measured in a cross section view such as the one created above. There are several ways to make an existing view window active, including:

- Click on the tab that states the name of the desired view.
- Open the **Window** menu, then select the desired view from the list of open views at the bottom of the menu.
- Right-click on the view in the **Project Browser** and select **Open View** from the contextual menu.

To draw dimension lines in a cross section view

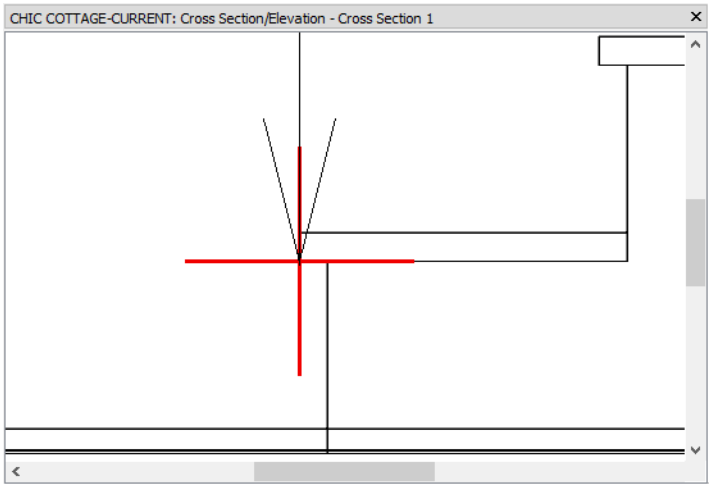
1. **Zoom** in on the bottom end of the stairs on Floor 1, making sure that you can also see the ceiling.
2. Select **CAD> Dimensions> End to End Dimension**, then click and drag a vertical dimension line from the top outer edge of the stair nosing up to the ceiling surface.
3. As you drag, notice that the dimension line preview locates the second tread of the stairs. This is because this tread is located within the Reach distance set in the Dimension Defaults dialog.
4. When the dimension line preview locates the ceiling, release the mouse button.



5. An Information message will explain that the dimension line locates point markers instead of architectural objects in the model. Click OK.

To confirm headroom clearance in a stairwell

1. **Zoom** in on the bottom stair tread and notice:

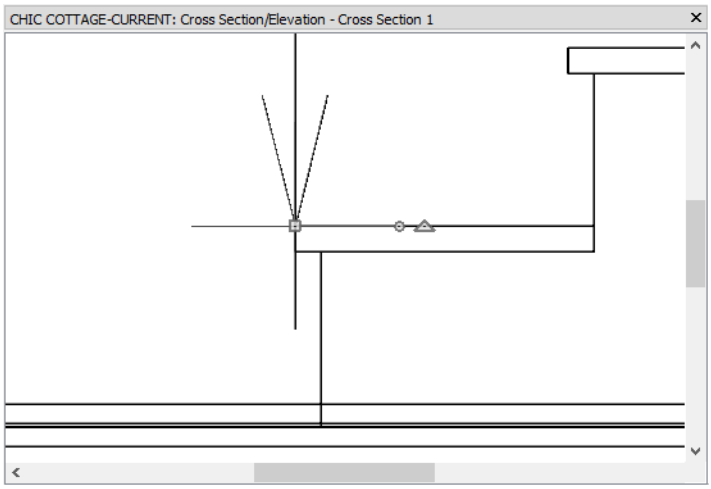


- There is a cross-shaped Point Marker at the end of the dimension line (shown here in red and with thicker than normal lines for clarity).
- The Point Marker is aligned with the bottom of the tread rather than the top.

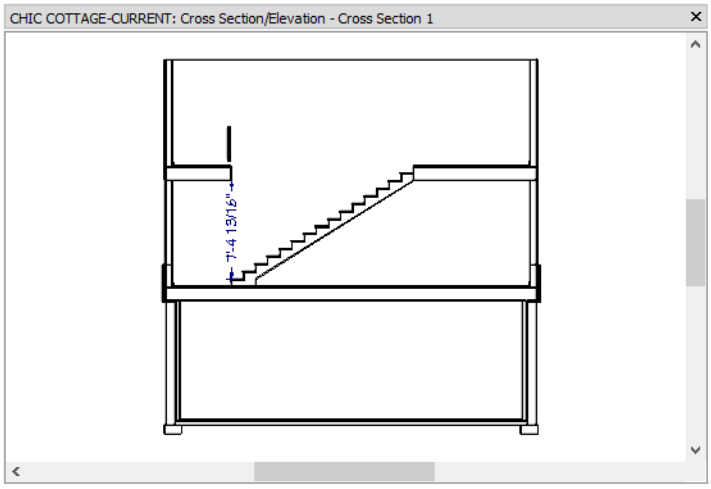
2. Click the **Select Objects** button, then click on the Point Marker to select it.

- If you select the dimension line instead, click the **Select Next Object** edit button or press the ***Spacebar***.
- The selected object's type is indicated on the left side of the Status Bar.

3. Click and drag its square Move edit handle upward. When **Object Snaps** are enabled, it will snap to the top of the tread.



4. Pan upward until the ceiling comes into view. There are two ways to pan in a view:
   - Select **Window> Pan Window**, then click and hold, drag downward, and release the mouse button.
   - Click and hold the middle mouse button, drag downward, and release.
5. When the ceiling can be seen:
   - Notice what the Point Marker at the end of the dimension line is aligned with.
   - If it is aligned with the ceiling framing at the back of the ceiling surface layer, select it and move it downward so that it is aligned with the ceiling surface.
6. Select **Window> Fill Window** to zoom out so the entire cross section can be seen in the view window.



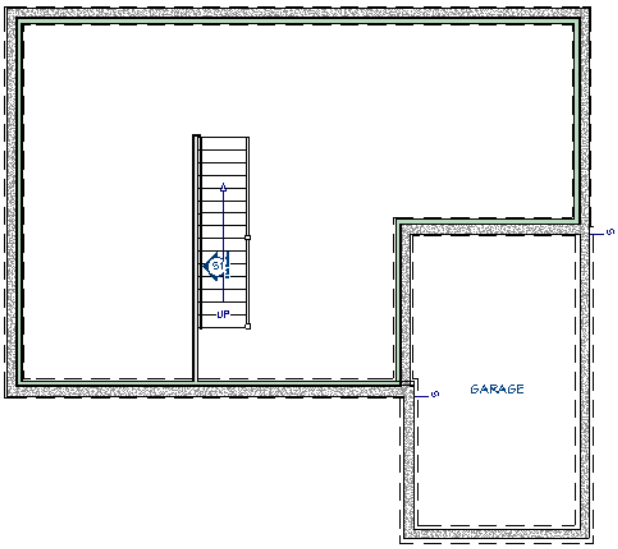
7. Select **File> Close View** to return to plan view, and remember to **Save** your work.

Creating a Stacked Staircase

Staircases are often stacked above one another to save floor space.

To create stacked staircases

1. Click the **Down One Floor** button to return to Floor 1.
2. Click the **Select Objects** button, then click on the staircase to select it.
3. Select **Edit> Copy**.
4. Click the **Down One Floor** button to go to Floor 0.
5. Select **Edit> Paste> Paste Hold Position**. A copy of the staircase selected on Floor 0 is created directly below the original.
6. Click the **Select Objects** button, then select the wall located to the left of the staircase. Extend its top end upward until it reaches the top end of the staircase.



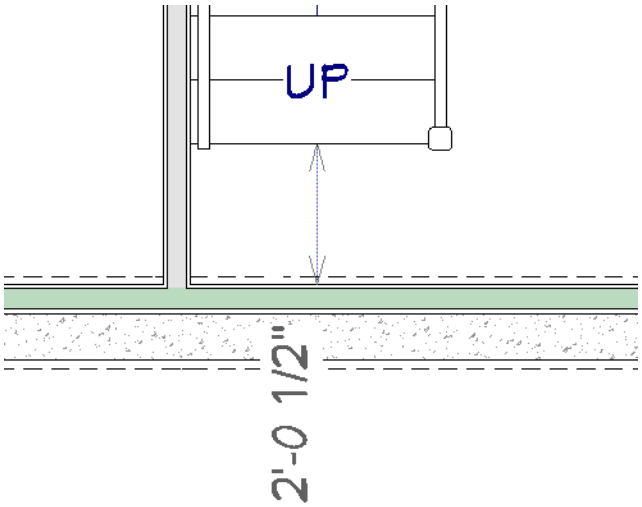
Since the ceiling height on Floor 0 is taller than on Floor 1, the length and height of the basement stairs should be examined.

To examine stair structure

1. With the newly pasted staircase still selected, click the **Open Object** edit button.
2. On the GENERAL panel of the Staircase Specification dialog, note that:
   - The Staircase Information states although the stairs do reach the next level, they are described as steep.
   - The **Riser Height** is 7 5/8", which meets most residential building codes.

> Building codes can vary considerably by location. It is your responsibility to make sure that your design meets the building codes for your project site.

3. This time, the top of the stairs is at the correct location, directly below the stairs above, so select **Lock Top**.
4. Click the **Make Best Fit** button, then click OK.
5. **Zoom** in on the bottom end of the basement stairs.
6. Select **CAD> Dimensions> Tape Measure**, then click and drag a temporary dimension line between the bottom of the stairs and the vertical exterior wall.

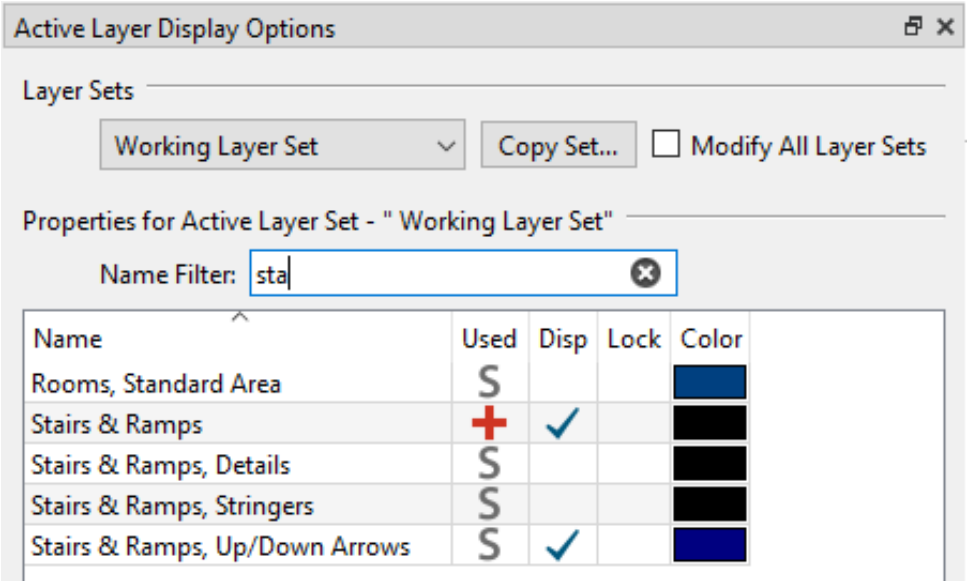


7. This distance is too narrow to serve as a passage, so select **Edit> Undo** from the menu to restore the stairs original rise and run.
8. Select the staircase and click the **Auto Stairwell** edit button.
9. **Save** your work, then go **Up One Floor** to Floor 1, which is where the new stairwell was created.

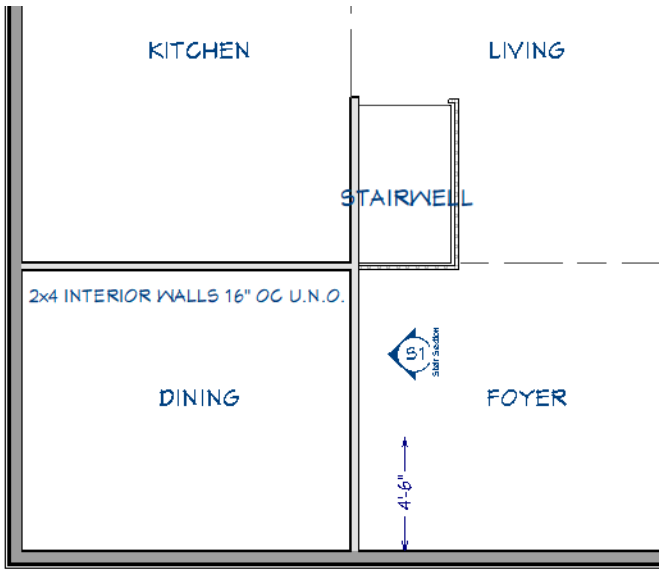
Stairwells are an example of spaces where objects are drawn close together or even over one another. In situations like this, it is helpful to turn the display of some objects off.

To turn off the display of objects

1. Open the Active Layer Display Options side window, which is docked to the right side of the program window by default.
   - Click on its tab to display it in front of the other side windows at that location.
   - If it is not open, select **View> Active Layer Display Options**.
2. In the **Name Filter** field, begin typing the word: stairs. As you type, the layers listed in the table below will filter automatically.



3. Locate the "Stairs & Ramps" layer and click once in the "Disp" column to remove the check mark.

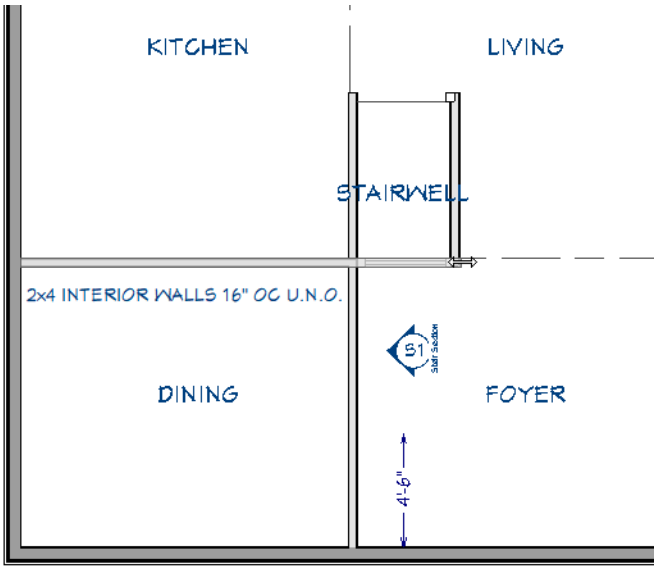


Note: Although the "Stairs & Ramps" layer has been turned off, the dimension line that locates the stairs on Floor 1 can still be seen.

With the display of the staircase turned off, it is now easy to see the railing walls of the Auto Stairwell so that they can be modified. Here, the railings will be replaced by walls using several methods.

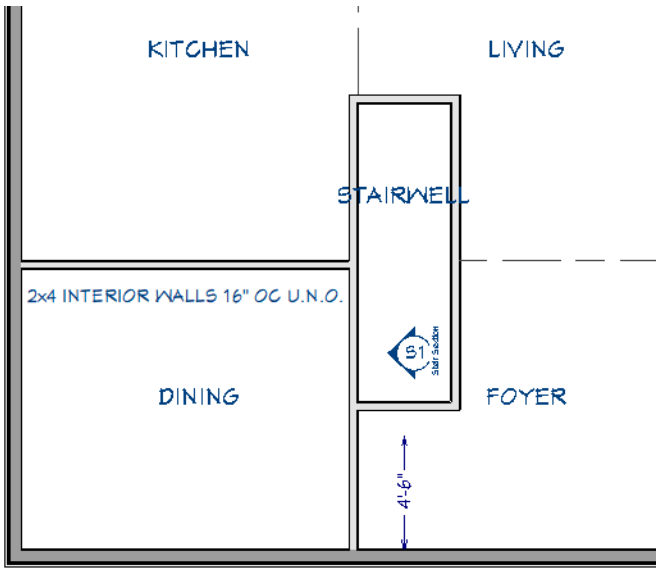
To edit Auto Stairwell railings

1. Click the **Select Objects** button, then click on the vertical Railing separating the Stairwell from the Living room.
2. Click the **Open Object** edit button, and in the Railing Specification dialog:
   - On the GENERAL panel, uncheck **Railing** and **No Locate**.
   - On the WALL TYPES panel, select "Interior-4" from the **Type** drop-down list, then click OK.
3. Select the horizontal wall separating the Dining room from the Kitchen.



- Click and drag its right end edit handle to the right until it snaps to the horizontal wall on the other side of the Stairwell.
- As you drag, the Interior-4 wall replaces the railing.

4. Select the vertical wall separating the Dining room from the Foyer and use its top end edit handle to replace the portion of the invisible Room Divider above it that defines the Stairwell.
5. Select the wall separating the Stairwell from the Kitchen, click the diamond-shaped Same Wall Type edit handle located above the top end of the wall and drag it to the right, replacing the railing and the opening in it.
6. Select the horizontal wall dividing the Dining room from the Kitchen, click the **Add Break** edit button, then click on the selected wall at the top right corner of the Dining room to divide it into two segments.
7. Select the horizontal wall segment separating the Stairwell from the Foyer.
   - Click on the Temporary Dimension that states how far it is from the exterior wall of the Foyer.
   - In the inline text field, type 6’ and press Enter to move the wall.



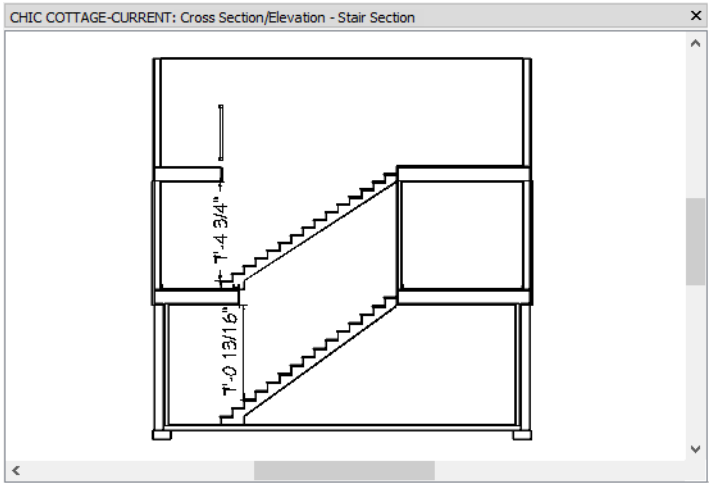
8. Go **Up One Floor** to Floor 2 and extend the length of the full height wall on the left side of the staircase until it reaches the top end of the staircase. See *To create stacked staircases on page 72*.
9. Return to the Active Layer Display Options side window and turn the "Stairs & Ramps" layer back on.
10. When you are finished, **Save** your work.

As with the first run of stairs, it is a good idea to confirm headroom clearance for the basement stairs. See *Confirming Headroom Clearance on page 69*.

To confirm headroom clearance

1. Open the saved "Stair Section" camera created earlier. There are three ways to do this:
   - Select the camera callout in plan view and click the **Open View** edit button.
   - Double-click on the camera callout in plan view.
   - Select **View> Project Browser**, expand CHIC COTTAGE-CURRENT's Cross Sections folder, right-click on the "Stair Section" and select **Open View** from the contextual menu.
2. **Zoom** in on the basement stairs and use an **End to End Dimension** line to measure the headroom of the stairs

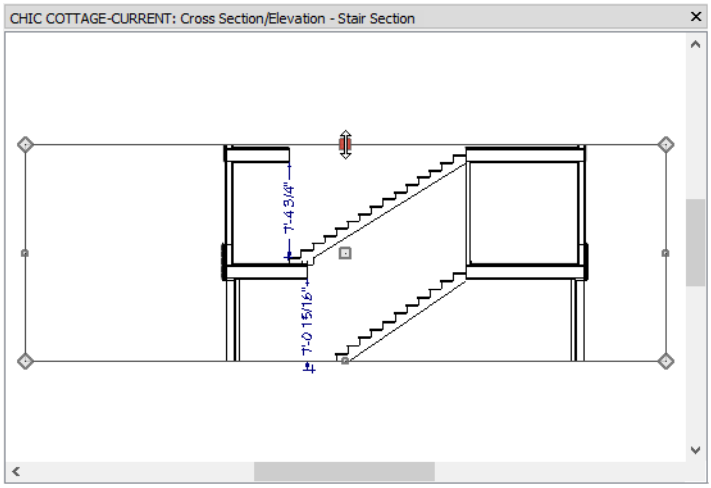
on Floor 0.



Since the focus of this section view is the staircase, the rest of the structure does not need to be shown and can be clipped out.

To add vertical and horizontal clip planes

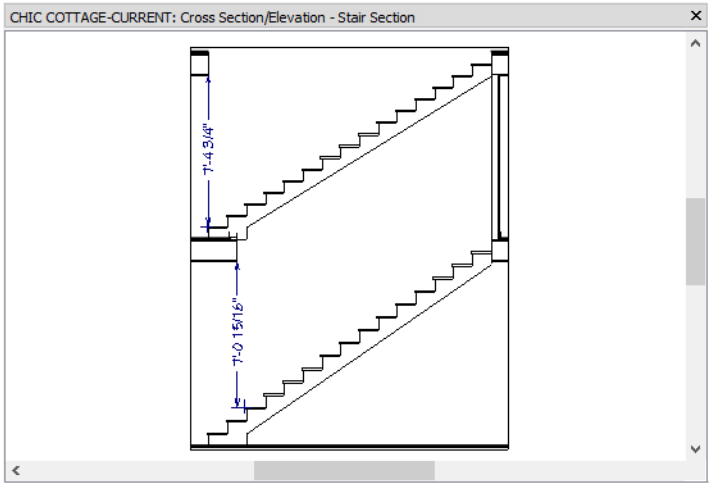
1. With the section view still active, select **Tools> Edit Active View** .
2. On the CAMERA panel of the Cross Section/Elevation Specification dialog:
   - Check the boxes beside **Clip Elevation** and **Clip Sides**.
   - Notice that a Clip Width as well as Bottom and Top Clip Elevations can be specified, but leave them unchanged.
   - Click OK to close the dialog and apply your changes.
3. If it is not already open, select **View> Active Layer Display Options** . In the Active Layer Display Options side window, turn on the display of the "CAD, Clip Lines" layer.
4. **Zoom** out until you can see the rectangular border formed by the clip plane lines.
5. Click on the horizontal Top Clip Elevation line to select it, then move it so it is positioned just above the floor surface of Floor 2:



   - Move your mouse pointer over the red, square Move Line Segment handle that displays at the point where you clicked. The mouse pointer changes to a two headed arrow ↕ .

- Click and drag downwards or upwards as needed and release the mouse button when the line is positioned just above the floor surface of Floor 2.
- To override Grid Snaps, hold down the ***Ctrl/⌘*** key while you drag.
- As with walls and other types of objects, you can also move clip lines using dimensions if you wish. See *To move walls using dimensions on page 20*.

6. Edit the Bottom Clip Elevation line and both Side Clip lines so that only the stairwell from Floor 0 to Floor 2 is included in the view.



7. When you are finished, **Save** your work and select **File> Close View** to close the section view and return to plan view.

Adding Plan Notes

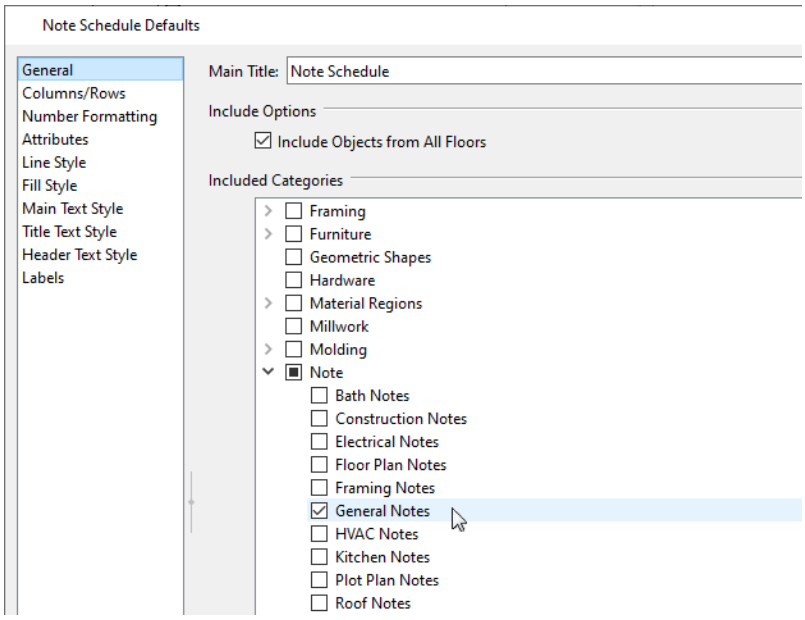
In previous tutorials, annotations were created using Rich Text. Another way to add written information to a plan view is to add Note callouts and a Note Schedule.

Note Schedules can be set up for a variety of different purposes: for example, structural key notes.

To set note schedule defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside "Schedules" to expand the category.
   - Select "Note Schedule" and click the **Edit** button.

2. On the GENERAL panel of the Note Schedule Defaults dialog, which opens next:



   - Leave **Include Objects from All Floors** checked.
   - Notice the **Categories to Include**. A wide variety of objects can be listed in schedules.
   - Click the arrow to the left of "Note" to expand the category.
     - Click on the check mark to the left of "Note" to remove it and clear all check marks of all the Note Types.
     - Check the box beside **General** so that only this Type is listed in Note Schedules by default.
3. On the COLUMNS/ROWS panel:
   - Under the Columns heading, leave **Display Column Headings in Schedule** unchecked.
   - Make sure that only "2D Symbol" and "Text" are listed under **Columns to Include**.
   - Under the Rows heading, leave **Group Similar Objects** checked.
   - Under the Object Preview Options heading, make sure that **Scale Images** and **Use Plan View Scale** are checked.
4. On the MAIN TEXT STYLE panel, notice that like Wall Schedules, Note Schedules are set to **Use Layer for Text Style**. See *"To set wall schedule defaults" on page 55 of the Multiple Floors Tutorial*.
5. On the LABELS panel, select a **Callout Shape**. Here, **Capsule** is used.
6. Click OK and then Done to close both dialogs and apply your changes.

Note schedules can be placed in the same CAD Detail as the Wall Legend. See *"To create a wall legend" on page 56 of the Multiple Floors Tutorial*.

Another way to access and manage CAD Details is using the CAD Detail Management dialog.

To add a note schedule

1. Select **CAD> CAD Detail Management** .
2. In the CAD Detail Management dialog, select the "Legends" detail and click the **Rename** button.
3. In the Rename CAD Detail dialog, rename the detail to "Legends and Notes".
4. With the "Legends and Notes" detail selected, click the **Open** button.
5. Select **Tools> Schedules> Note Schedule** and click once to the right of the Wall Legend to place a Note Schedule at that location.

6. Select the schedule and click the **Open Object** edit button.
7. On the GENERAL panel of the Note Schedule Specification dialog, change the **Main Title** to "Floor Plan Notes" and click OK.
8. Click on the new Note Schedule to select it, then align it with the Wall Legend's top edge:
   - Hold down the ***Shift*** key and click on the Wall Legend to select them both as a group.
   - Click the **Align/Distribute Objects** edit button.
   - In the Align/Distribute Objects dialog, under the "Move Objects Vertically to" heading, select **Top Edges** and click OK.

Because there are no Notes present in the plan yet, the schedule only shows a title bar. As Notes are created, though, line items will be added to the schedule automatically.

To set the note defaults

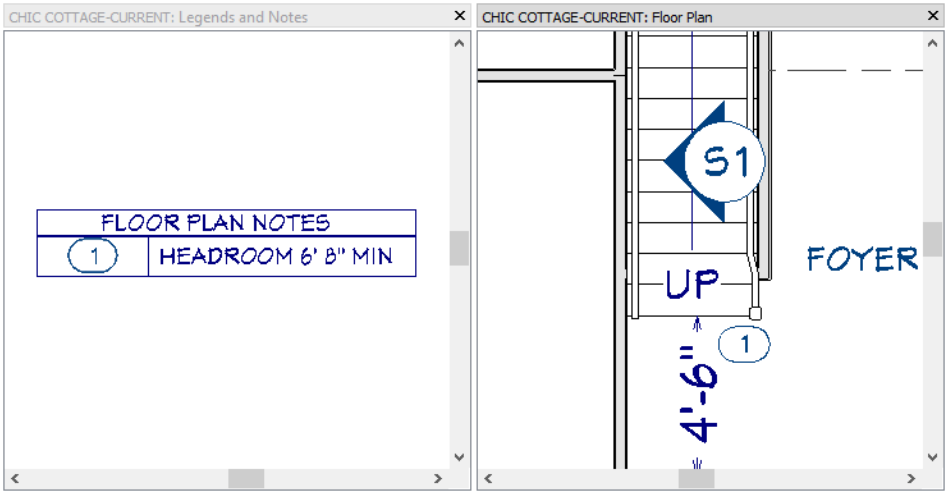
1. Select **Edit>Default Settings** to open the Default Settings dialog.
   - Click the arrow beside "Text, Callouts and Markers" to expand the category.
   - Select "Note" and click the **Edit** button.
2. In the Saved Note Defaults dialog, which opens next, click the **Edit** button.
   - Notice that there are a number of different Saved Note Defaults set up for particular drawing scales and tasks.
   - "Plan Note Defaults" is selected in the list because it is the Saved Default that is currently active.
   - Recall that the "Working Plan View" uses "Plan Rich Text Defaults", as well.
   - With the "Plan Note Defaults" selected, click the **Edit** button.
3. On the NOTE panel of the Note Defaults dialog, which opens next:
   - Unless there is a word or phrase that you want to include in every line of your Note Schedule, make sure that the Text field is empty.
   - The **Type** drop-down list corresponds to the list of Objects to Include in the Note Schedule Defaults dialog. Make sure that "General Notes" is selected.
   - Notice that **Generate Shape from Schedule** is checked.
4. Click OK, then OK, and then Done to close all dialogs.

Notes are typically placed in plan views, but can be created in any view that supports text objects.

To add plan notes

1. Select **Window> Tile Vertically** to tile the plan view and "Legends and Notes" CAD Detail view side by side.
2. Click in the plan view to make it the active window, then go **Down One Floor** to Floor 1.
3. Select **CAD> Text> Note**, then click near the bottom of the stairs.
4. On the NOTE panel of the Note Specification dialog:
   - In the **Text** field, type: headroom 6' 8" min.
   - Make sure that "General" is the selected **Type**.
   - Click OK.

5. Notice:



   - In plan view, the new Note is represented using a Capsule callout shape with the number 1.
   - In the Schedule Detail, the new Note is listed as the first line item along with its Text.
6. Use the **Copy** and **Paste Hold Position** commands to make a copy of the Note callout on Floor 0. See *To create stacked staircases on page 72*.
7. Notice that:
   - Because the Floor Plan Notes schedule Includes Objects from All Floors, the Note on Floor 0 derives its label from the schedule.
   - Because the schedule is set to Group Similar Objects, only one instance of 1 is listed in the schedule.
8. When you are finished, **Save** your work.

You can continue working on this plan in the *Doors and Windows* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Stairs. Then, click OK.
3. Notice that Chic Cottage-Stairs is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for creating interior stairs and stairwell rooms.

To set the interior stair defaults 62

To create stairs between rooms 64
To create a staircase between floors 64
To position a staircase 65
To adjust a staircase's rise and run 65
To tile floor plan and section views 66
To save a camera view 67
To set the railing defaults 68
To create an automatic stairwell 68
To draw dimension lines in a cross section view 70
To confirm headroom clearance in a stairwell 70
To create stacked staircases 72
To examine stair structure 72
To turn off the display of objects 73
To edit Auto Stairwell railings 74
To confirm headroom clearance 75
To add vertical and horizontal clip planes 76
To set note schedule defaults 77
To add a note schedule 78
To set the note defaults 79
To add plan notes 79
To save a plan revision 80

Assessment Questions

Tutorial 4 - Interior Stairs

If you draw interior stairs on Floor 1, what floor level do those stairs try to snap to?

- Stairs are drawn in an upward direction, from the current floor to the floor above, and locate floor platforms automatically. So stairs drawn on Floor 1 build upward, seeking Floor 2.

What Room Type is a Stairwell?

- A stairwell is an interior room that has been assigned the Room Type "Open Below" so that it has no floor platform. The Stairwell for a given staircase is always found on the floor above the stairs.

What tool can you use to create a Stairwell automatically?

- Select the staircase that requires a Stairwell and click the Auto Stairwell edit button.

In what kind of view can you check the headroom of a staircase?

- Structural considerations like headroom clearance can be measured in a Backclipped Cross Section view or regular Cross Section/Elevation view.

What edit tools are used to create a stacked staircase?

- Copy an existing staircase, go Down One Floor or Up One Floor, and use Paste Hold Position to make a copy of the original exactly below or above the original.

Why is it sometimes helpful to turn off layers as you work?

- In spaces where objects are drawn close together or over the top of one another, it is helpful to turn the display of some objects off. You can do this by turning off those objects' layers.

What annotation tools can be used to create a floor plan note list?

- Notes and Note Schedules can be used to create a dynamic list of plan notes.

What are two ways to access and managed the CAD Details saved in a plan?

- The Project Browser side window and CAD Detail Management dialog both provide access and management options for CAD Details.

Doors and Windows

Windows and doors are placed directly into walls and can be customized to reflect a wide variety of architectural styles.

Learning Objectives

The previous lesson, *Interior Stairs*, explained how to create interior staircases in Chief Architect. This lesson describes best practices in Chief Architect for placing and customizing doors and windows. Concepts introduced include:

File Management *83*

Productivity Tips *83*

Setting the Defaults *83*

Using Plan Views *84*

Placing Doors *84*

Editing Doors *87*

Using Library Content *88*

Placing and Editing Windows *90*

Positioning Doors and Windows *92*

Replicating Doors and Windows *96*

Creating Grouped Window Units *98*

Creating Schedules *98*

Adding Annotations *100*

Creating Revisions *103*

File Management

At this point in the design process, both the Chic Cottage-Stairs and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Stairs was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to add doors and windows to a plan, keep in mind these tips to improve your productivity.

Drawing and Editing

- The **Hinged Door** and **Sliding Door** tools will create either an exterior or interior door, depending on where it is placed.
- The **Center Object** edit tool allows you to center doors, windows, and other objects relative to a room or another object.
- The **Transform/Replicate Object** edit tool lets you replicate objects like windows at regular intervals.

Content

- A selection of name brand door and window catalogs are available for download from the 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.
- Set up the door and window defaults in your template plans so they are ready for use when you begin a new plan.

Interface

- The Select Library Object dialog is a modal version of the Library Browser that lets you assign accents like hardware and moldings to objects like doors and windows.
- The Select Material dialog is similar to the Select Library Object dialog and lets you assign materials to objects.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + C*** - Concentric Resize
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When placing doors and windows, there are several defaults that should be borne in mind.

Each Door Tool has either one or two defaults dialogs. Before placing doors, all of them should be set up to meet your needs. See *To set the Door Defaults on page 84*.

Hinged and Sliding Doors are commonly used as both interior and exterior doors. As such, they have two sets of defaults: Interior and Exterior.

Doors and many of their components - including hardware and casing - are represented using symbols from the library. See *Using Library Content on page 88*.

Window Defaults determine the initial window size, type, and more. See *To set window defaults on page 90*.

The wall framing associated with doors and windows should also be specified prior to building framing. See *Wall Framing on page 348*.

As with architectural objects, it is a good idea to set Door and Window Schedule Defaults. See *Creating Schedules on page 98*.

The Leader Line tool creates Rich Text objects with lines with arrows attached. You should set Rich Text Defaults before annotations are created. See *"To set the rich text defaults" on page 24 of the Exterior Walls Tutorial*.

In order to position doors and windows in a manner that meets your needs, Dimension Defaults should be set. As doors and windows are added, Auto Exterior Dimensions automatically refresh so that they locate these objects as they are added. See *To set Dimension Defaults on page 94*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

The Working Plan View will work well for adding doors and windows. See *To examine a saved plan view's settings on page 5*.

Placing Doors

The six Door Tools can be used to place a variety of different doors in interior and exterior walls.

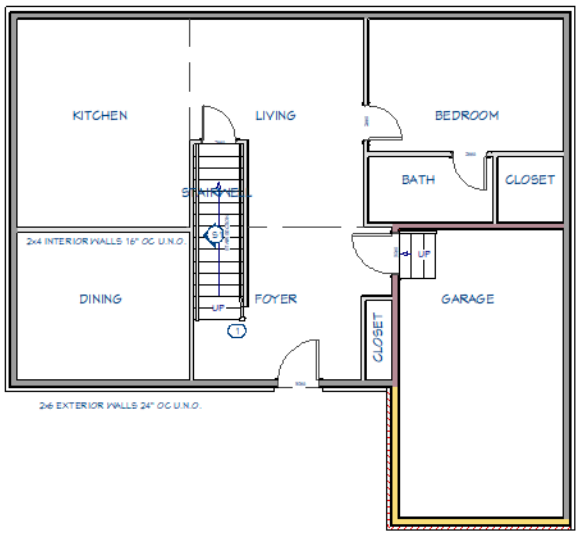
Each Door Tool has at least one defaults dialog. Here, the Interior Door Defaults dialog is examined; however, you should make sure all Door Defaults meet your needs.

To set the Door Defaults

1. Select **Edit> Default Settings**  , click the arrow next to "Door" in the tree list to expand the category.
   - Notice that there is a defaults dialog for each of the Door Tools.
   - Select "Interior Door" from the tree list and click the **Edit** button.
2. In the Interior Door Defaults dialog:
3. On the General panel, notice that the **Door Style** is "Door P04" and that it is shown in the object preview on the right. "Door P04" is a panel door available in the library. For more information, see *To choose a door style from the library on page 89*.
4. On the Casing panel, note that when no **Casing Profile** is specified, a basic stock profile is used. For information about changing the casing, see *To specify a door's casing on page 90*.
5. On the Rough Opening and Framing panels, you can specify how you want framing around interior doors to be generated.
6. Additional options such as hardware and millwork can also be specified, as well. See *Using Library Content on page 88*.
7. Click OK to return to the Default Settings dialog. For this tutorial, the existing defaults will be used, but you can examine each of the Door Defaults dialogs if you wish. Click Done to close the Default Settings dialog.

To add hinged doors

1. Select **Build> Door> Hinged Door**, then move the mouse pointer over the exterior wall of the Foyer room.
2. When the mouse pointer is over the exterior wall:
   - Click the mouse button and hold it down.
   - Move the mouse along the wall to change the hinge side of the door to be placed.
   - Move the mouse from one side of the wall to the other to change which way it opens.
   - As you move the mouse, the door preview outline will update.
3. When the door preview's hinges are on the right side and it is opening inward, release the mouse button to create an exterior hinged door.
4. Select the new door, click the **Open Object** edit button, and note that:
   - The dialog's title is Exterior Door Specification.
   - The door style features glazing with four lites and a panel below.
   - Move your mouse pointer into the object preview pane, then click and drag to rotate the preview. Notice that the door has an Exterior and Interior side.
   - Click Cancel.
5. Place a **Hinged Door** in the wall separating the Bedroom from the Bath.
6. Select this new door and click the **Open Object** edit button. Notice:
   - The Interior Door Specification dialog opens this time.
   - The preview shows an interior panel door rather than an exterior door with glazing.
   - Click Cancel.
7. Place three additional hinged doors as shown here:



To add a sliding door

1. **Zoom** in on the back exterior wall of the Kitchen.
2. Select **Build> Door> Sliding Door** and move the mouse pointer over the wall.
3. When the mouse pointer is over the wall:

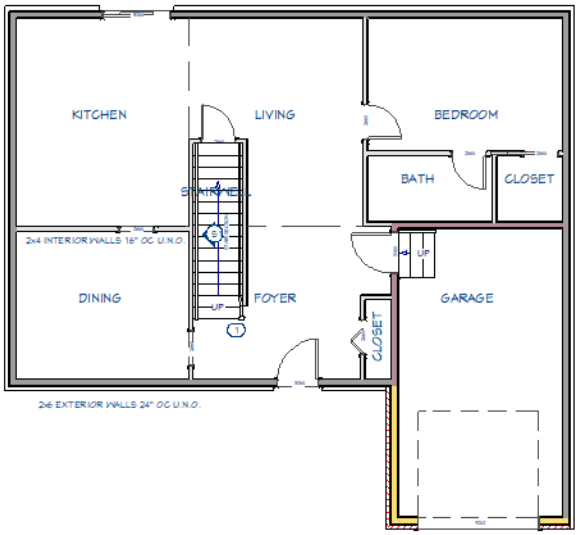
- Click the mouse button and hold it down.
- Move the mouse from left to right to change which side of the door is movable.
- As you move the mouse, the door preview outline will update.

4. When the door preview's moveable side is on the right and is on the interior of the opening, release the mouse button to create an exterior sliding door.
5. Select the new door and click the **Open Object** edit button. Note that this dialog's title is Exterior Door Specification, then click Cancel.

A variety of other door types can be placed, as well.

To add other types of doors

1. Select **Window> Fill Window**.
2. Select **Build> Door> Doorway** and click on the wall separating the Foyer from the Dining room. Place another doorway between the Kitchen and Dining room.
3. Select **Build> Door> Bifold Door**, then move the mouse pointer over the wall separating the Foyer from the Closet.
4. When the mouse pointer is over the wall:
   - Click the mouse button and hold it down.
   - Move the mouse up and down along the wall to change the hinge side of the door that will be placed.
   - Move the mouse button side to side, perpendicular to the wall, to change the direction that the door opens.
   - As you move the mouse, the door preview outline will update.
5. When the door preview's hinges fold toward the Foyer, release the mouse button to create a single bi-fold door.
6. Select **Build> Door> Pocket Door**, then move the mouse pointer over the wall separating the Bedroom from its Closet.
7. When the mouse pointer is over the right side of the wall, near the vertical exterior wall:
   - Click the mouse button and hold it down.
   - Move the mouse to the left to change the side of the door that slides into the wall.
   - As you move the mouse, the door preview outline will update.
8. When the door preview opens toward the Bath, release the mouse button to create a pocket door.
9. Select **Build> Door> Garage Door**, then click on the front wall of the Garage to place a garage door at that location. Garage doors do not have hinge sides and always open in the same direction.



10. When you are finished, remember to **Save** your work.

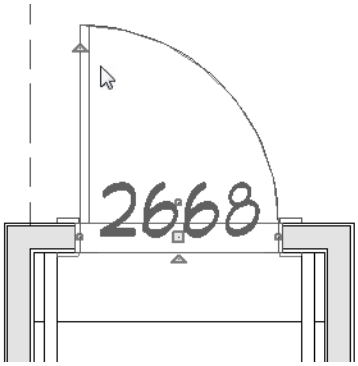
Editing Doors

Once a door has been placed, it can be selected and edited.

A door's hinge and swing side can be set when it is created, but it can also be changed at any time.

To change the door swing

1. **Zoom** in on the door located at the top end of the staircase.
2. Click the **Change Opening/Hinge Side** edit button and notice that the side of the door that the hinges are on changes.
3. Click the **Change Swing Side** edit button and notice that the door now opens into the Stairwell rather than into the Living room.
4. With the door still selected, notice the triangular edit handle located near the far end of the door swing arch.



5. Click and drag this handle and notice:
   - The mouse pointer icon changes to a curved Rotate icon.
   - Drag along the arch to control how far open the door appears.

- Drag a line parallel to the wall to change the door's hinge side.
- Drag a line perpendicular to the wall to change the door's swing side.

6. When the door's hinges are on the left and it opens out into the Living room, release the mouse button.

A door's edit handles can also be used to change its size. It can also be resized using dimensions as well as in the Door Specification dialog.

To change a door's size

1. Click the **Select Objects** button, then click on the Bifold closet door in the Foyer to select it.
2. Click and drag the resize edit handles at each end to make the door wider. To resize the door concentrically, hold down the ***C*** key while dragging an end edit handle.
3. With the door still selected, click the **Open Object** edit button.
4. On the GENERAL panel of the Interior Door Specification dialog, specify the **Width** as 60" and click OK.

To change a glass door's lites

1. Select the Sliding door in the Kitchen and click the **Open Object** edit button.
2. On the LITES panel of the Exterior Door Specification dialog, set the **Lites Across** to 3 and **Lites Vertical** to 5, then click OK.
3. Don't forget to **Save** your work.

USING LIBRARY CONTENT

In the *Interior Stairs* tutorial, materials from the Library Browser were applied to different components of an interior staircase.

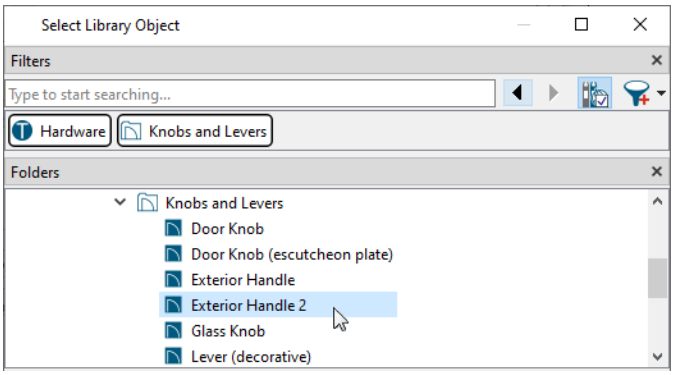
Doors provide another excellent example of how the content in the Library Browser can be used to customize and enhance your designs. There are a variety of different objects that can be assigned to a door, including hardware, a door style, and casing.

The Select Library Object dialog is a modal version of the Library Browser that allows you to assign library items to a selected object. It only lists items in the library that can be used for the task at hand, making it easy to browse for relevant objects.

To specify door hardware

1. Select the exterior door in the Foyer and click the **Open Object** edit button.
2. On the HARDWARE panel of the Exterior Door Specification dialog, select "Library" from the **Exterior Handle** drop-down list, or click the **Library** button to its right.

3. In the Select Library Object dialog:



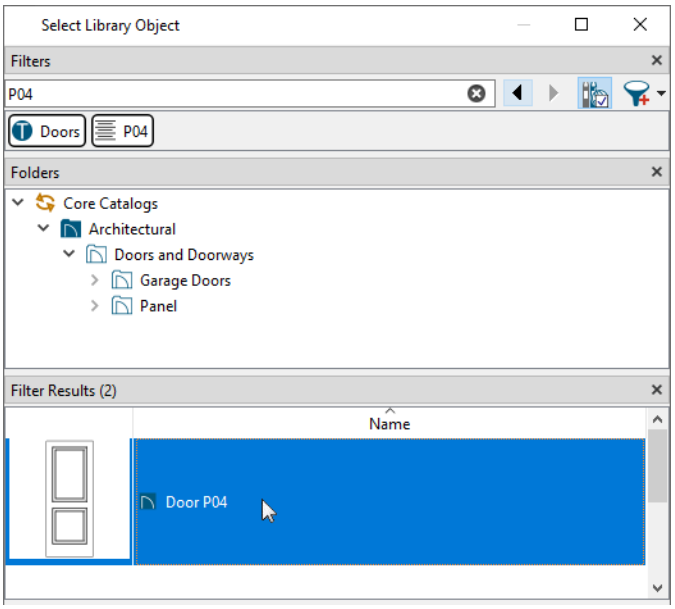
   - The content is filtered by **Type** so that it only lists Hardware.
   - To further filter the results, type "knob" in the Search field, then move your mouse pointer over the "Knobs and Levers" **Folder** line item in the Filters drop-down list.
   - The tree list in the Folders panel will now expand to show Core Catalogs> Architectural> Hardware> Door Hardware> Knobs and Levers.
   - Select the "Exterior Handle 2" and click OK.
4. Click the **Library** button beside **Interior Lock** and choose a lock using a similar process:
   - The content is again filtered by **Type** so that it only lists Hardware.
   - Filter the results further: type "lock" in the Search field and click on the "Hardware Options: Lock" **Symbol Options** line item in the Filters drop-down list.
   - The tree list in the Folders panel will now only list hardware items that are locks.
   - In the Folders panel, browse to Core Catalogs> Architectural> Hardware> Door Hardware> Knobs and Levers.
   - Select the "Dead Bolt (interior)" and click OK.
5. Repeat step 4 to select the "Dead Bolt (exterior)" symbol as the **Exterior Lock**, then click OK to close the dialog and apply your changes.

The Library also has a selection of door styles that can be applied to individual doors: for example, the P04 door style which is the default for interior hinged doors.

To choose a door style from the library

1. Click on the hinged door between the Foyer and the Garage to select it.
   - If the stairs or wall becomes selected instead, click the **Select Next Object** edit button until the door becomes the selected object.
2. When the door is selected, click the **Open Object** edit button.
3. On the GENERAL panel of the Exterior Door Specification dialog:
   - Notice that this Hinged Door is using the same exterior door as the front door.
   - Click the **Library** button to the right of the **Style** drop-down list.

4. In the Select Library Object dialog:



- The content is filtered by **Type** so that it only lists Doors.
- Click on the "Entry Doors" **Folder** filter to remove it.
- Type P04 in the Search field and press the ***Enter*** key to perform a **Text** search.
- Select Door P04 in the Filter Results panel and click OK to return to the specification dialog.

For best results, door and window casing should be set in the Defaults dialogs prior to placing any doors or windows. Exterior doors often have different casing on their two sides, which isn't necessary for the door to the Garage, however.

To specify a door's casing

1. With the specification dialog for the door between the Foyer and Garage still open go to the CASING panel:
2. Change the Exterior Casing **Width** and **Depth** to match the Interior Casing.
3. You can also click the **Library** button beside **Exterior Casing Profile** and type "casing" in the Search field.
   - Notice that in the drop-down list, there are a number of Manufacturer catalogs that include casing.
   - Select the "Casings" **Folder** located at Core Catalogs> Architectural> Moldings> Casing to find a selection of door and window casing profiles. Select one and click OK.
4. Click the **Clear** button to restore the default stock profile.
5. When you are finished, remember to **Save** your work.

PLACING AND EDITING WINDOWS

Like doors, windows are designed to be placed into walls and are highly editable.

To set window defaults

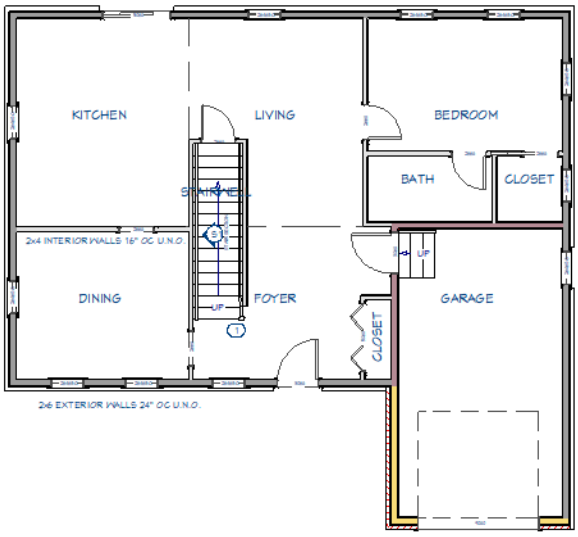
1. Select **Edit> Default Settings**, select "Window" from the tree list, and click the **Edit** button.
2. On the GENERAL panel of the Window Defaults dialog:
   - Specify the **Window Type** as "Single Casement".
   - Specify the **Width** as 30".

- Specify the **Height** as 54".

3. On the LITES panel, specify the **Lites Across** as 3 and **Lites Vertical** as 4.
4. On the FRAMING panel, notice that the defaults for the Header and Trimmers can be set. See *"Wall Framing" on page 348 of the Wall Framing Tutorial*.
5. On the ROUGH OPENING panel, notice that the **Additional Height** and **Width** values are 1".
6. Click OK and then Done to close both dialogs and apply your changes.
7. **Save** your changes.

To place a window

1. Select **Build> Window> Window** .
2. Click on the exterior wall of the Foyer, to the left of the door, to place a window at that location.
3. Continue clicking to place a total of 11 windows:



To edit a window

1. Select the window in the Foyer and click the **Open Object** edit button.
2. On the GENERAL panel of the Window Specification dialog:
   - Select "Fixed Glass" from the **Window Type** drop-down list.
   - Specify the **Width** as 12" and the **Height** as 77".
   - Confirm that the **Floor to Top** value is 80".
3. On the LITES panel, specify the **Lites Across** as 1 and **Lites Vertical** as 5, then click OK.
4. Select the window in the kitchen and click the **Open Object** edit button.
5. On the GENERAL panel of the Window Specification dialog:
   - Specify the **Height** as 36".
   - Note that the **Floor to Bottom** height increases to 44".
6. On the LITES panel, specify the **Lites Vertical** as 3, then click OK.
7. Select the window in the Garage and open its specification dialog. On the GENERAL panel:

- Change the **Window Type** to "Fixed Glass".
- Change the **Height** to 48".
- Select "Absolute" as the **Elevation Reference**, then specify the **Elevation at Top** as 80" so its height matches that of the other windows and doors.

8. On the LITES panel, change the number of **Lites Vertical** to 3, then click OK.
9. When you are finished, remember to **Save** your work.

POSITIONING DOORS AND WINDOWS

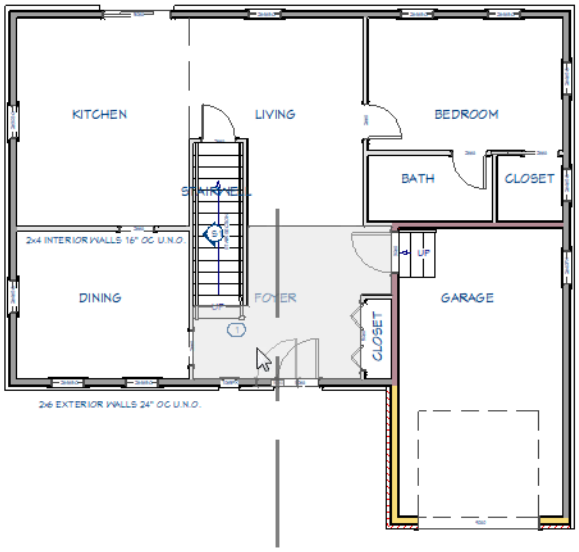
There are a number of ways to move doors and windows: using their edit handles, various edit tools, as well as dimensions.

When positioning doors and windows, often the most important consideration is that it be centered along a wall or relative to an object.

> Note: So that the centering axis can be clearly seen, the "Dimensions, Automatic" layer is turned off in the following images.

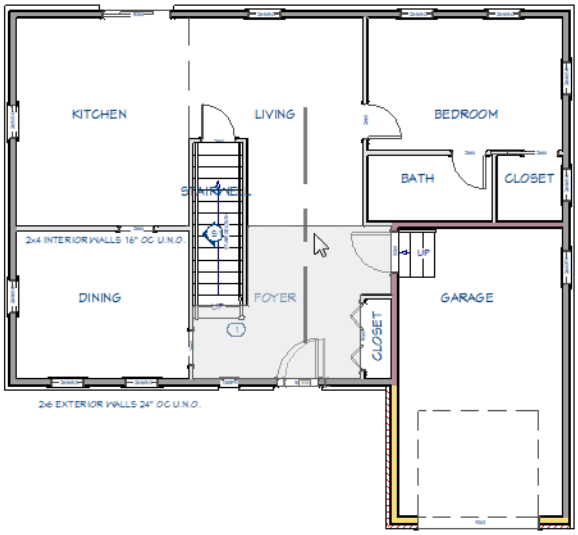
To center a wall opening

1. Select the front exterior door in the Foyer and click the **Center Object** edit button.
2. Move the mouse pointer into the Foyer, near the wall that the window is located in.

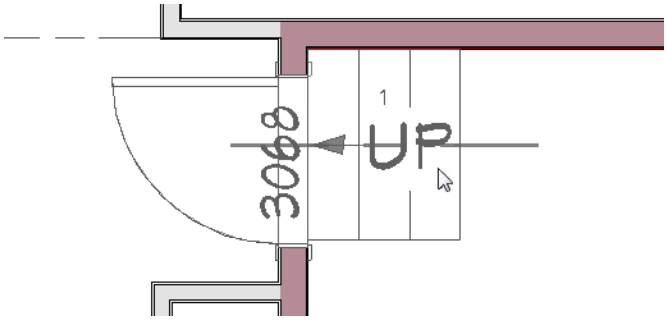


3. Notice that the Foyer room becomes highlighted and a dashed vertical centering axis displays at the midpoint of the exterior wall.

4. Now move the mouse pointer up to the invisible Room Divider separating the Foyer from the Living area.



5. When a dashed vertical centering axis displays at the midpoint of the Room Divider, click once. The door becomes aligned with the center of the Room Divider.
6. **Zoom** in on the Foyer, then select the door between the Foyer and Garage and click the **Center Object** edit button.



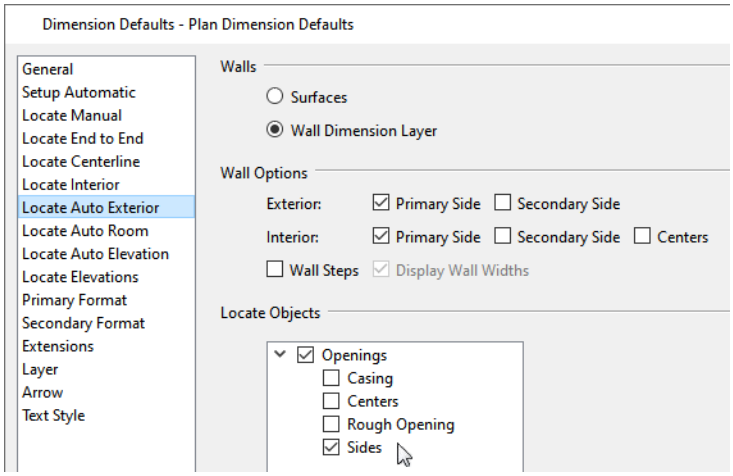
7. Move the mouse pointer over the Garage stairs, and when a horizontal centering axis displays down the middle of the stairs, click once.
8. Use the **Center Object** edit button to center:
   - The Kitchen window
   - The Living room window
   - The window on the left side of the Dining room
   - The window on the right side of the Bedroom
   - The window in the Bedroom Closet
   - The Garage door
   - The Foyer Closet door.

When you are finished, remember to **Save** your work.

It is a good idea to take a few moments to make sure that your various Dimension Defaults are set up so that they meet your needs and are consistent.

To set Dimension Defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog:
   - Click the arrow next to "Dimension" in the tree list to expand the category.
   - Select "Dimensions" and click the **Edit** button.
2. In the Saved Dimension Defaults dialog, which opens next:
   - Notice that dimension lines have multiple Saved Defaults, which you can use to save considerable time when you annotate your drawings.
   - "Plan Dimension Defaults" is selected in the list because it is the currently active Saved Dimension Default.
   - Click the **Edit** button to open the Dimension Defaults dialog.
3. On the SETUP AUTOMATIC panel of the Dimension Defaults dialog, under the "Exterior" heading, make sure that **Auto Refresh** is checked.
4. On the LOCATE AUTO EXTERIOR panel:

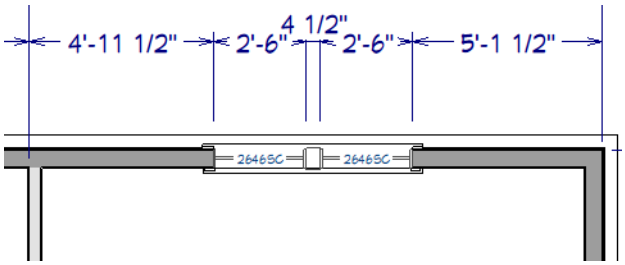


   - Notice that there are several options for locating wall Openings.
   - Make sure that **Sides** is selected to locate the sides of doors and windows.
5. On the LOCATE MANUAL panel of the Dimension Defaults dialog:
   - Note that there are numerous options for controlling many objects in addition to walls and wall openings.
   - Under the Openings heading, make sure that **Sides** is selected.
6. On the LAYER panel, notice that when the "Plan Dimension Defaults" are active, manually drawn dimensions are placed on the "Dimensions, Plan" layer by default.
7. Click OK and then Done to close the all dialogs and apply your changes.

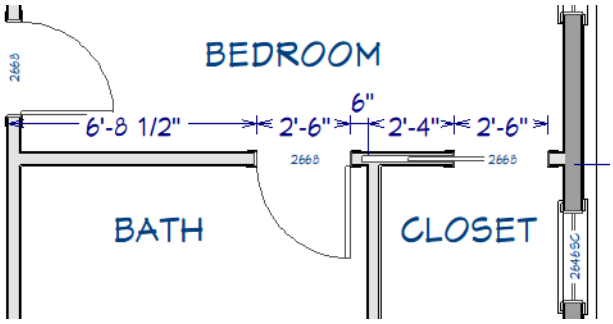
To position doors and windows using dimensions

1. **Zoom** in on the Bedroom.
2. Click the **Select Objects** button, then adjust the space between the two windows in the back wall:
   - Click on the left window to select it.
   - Move your mouse pointer over the dimension line that states its distance from the right window.
   - In the inline text field, type 4 1/2" and press the ***Enter*** key on the keyboard. This space will accommodate two trimmers plus the windows' rough openings.

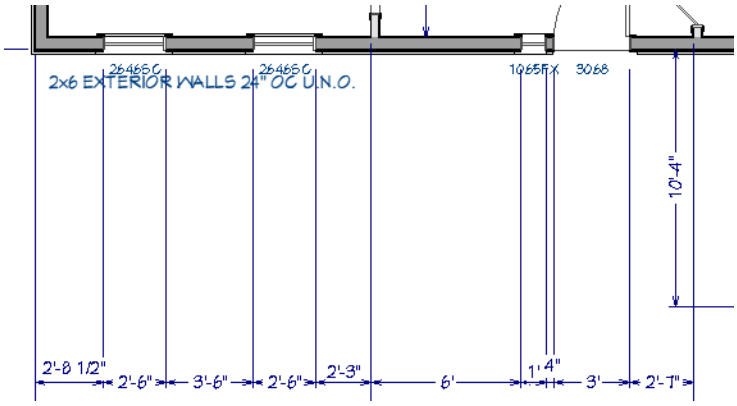
3. Center the two windows in the Bedroom:
   - With the left window still selected, hold down the ***Shift*** key and click on the right window to select the two as a group.
   - Use the **Center Objects** edit button to center both windows in the Bedroom as described in *To center a wall opening on page 92*, above.
4. Notice that:



   - Although the windows are centered in the room, the Auto Exterior Dimensions on either side of them report different distances.
   - This is because the dimensions locate the framing of walls that have different thicknesses.
   - If you draw an Interior Dimension line along the back wall of the Bedroom, the dimensions on either side of the windows will be the same.
5. Select **CAD> Dimensions> Manual Dimension**, then click and drag to draw a dimension line along the wall separating the Bedroom from the Bath.
6. Select the door to the Bath and adjust its position:
   - Move your mouse pointer over the dimension line that states its distance from the closet wall.
   - In the inline text field, type 6" and press the ***Enter*** key on the keyboard.



7. Repeat steps 2-4 to space the two windows in the front wall of the Dining room 3’ 6" apart, then center them in the room, then use the **Center Objects** edit button to center both windows in the Dining room as described in *To center a wall opening on page 92*, above.
8. Position the window in the Foyer 4 1/2" from the front door.
9. Although the front door has been centered in the foyer, its position can be adjusted slightly to produce cleaner dimensions:
   - With the side window still selected, hold down the ***Shift*** key and select the door as well.
   - Click on the dimension that reports their distance from the Dining room wall.
   - In the inline text field, type 5’ or 60" and press the ***Enter*** key on the keyboard.



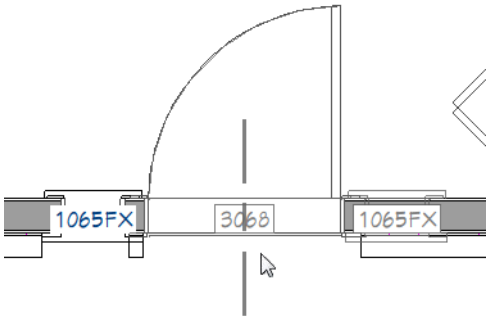
10. When you are finished, remember to **Save** your work.

Replicating Doors and Windows

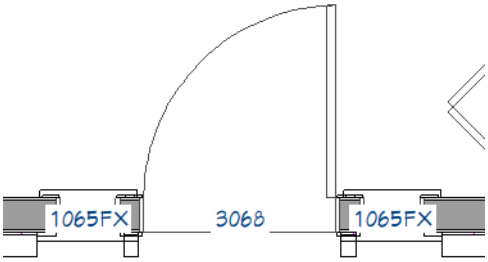
Like most objects, doors and windows can be copied and pasted. Here, copies of windows at regular intervals are created.

To create a reflected copy of a window

1. Select the narrow window to the left of the front door in the Foyer.
2. Click the **Copy/Paste** edit button, then click the **Reflect About Object** edit button.

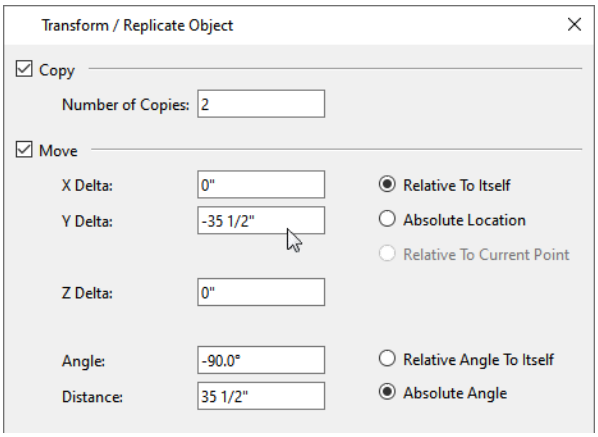


3. Move your mouse pointer over the front door. When you see a dashed vertical reflection axis, click once. A copy of the window is created on the other side of the door.

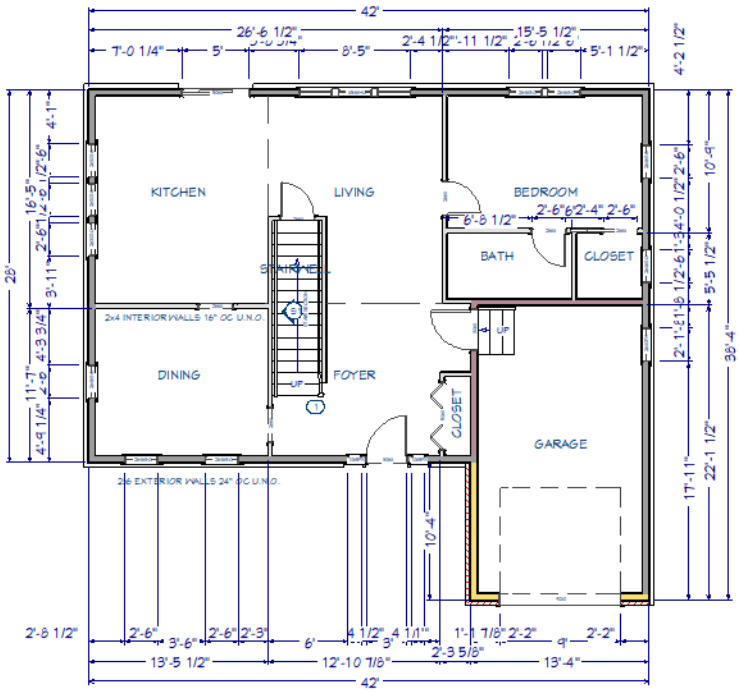


To copy windows at regular intervals

1. Select the window in the Kitchen and click the **Transform/Replicate Object** edit button.
2. In the Transform/Replicate Object dialog:



   - Check the box beside **Copy** and change the **Number of Copies** to 2.
   - Check the box beside **Move**, then specify the **Y Delta** value as -35 1/2". This value is equal to the width of each window, 30", plus a 5 1/2" gap to accommodate a king stud, two stringers, and the windows' rough openings.
   - When you click OK, two copies of the window are created at 35 1/2" intervals along the same wall as the original.
3. With the two newly created windows selected, press the ***Shift*** key and click on the original window to add it to the selection. Then, use the **Center Objects** edit tool to center the three windows in the Kitchen room, as described in "*To center a wall opening on page 92*", above.
4. Repeat these steps to create a grouping of three windows centered in the Living room. This time, specify the **X Delta** as -35 1/2".



5. When you have finished, **Save** your work.

Creating Grouped Window Units

Multiple adjacent windows as well as doors can be blocked into a single mulled unit. Here a mulled casement unit with central fixed glass component will be created.

To create a mulled unit

1. Click the **Select Objects** button, then click on the middle window in the Living room.
2. Click the **Open Object** edit button, and on the GENERAL panel of the Window Specification dialog, select "Fixed Glass" from the Window Type drop-down list, then click OK.
3. Select the window to its left and click the **Open Object** edit button. On the GENERAL panel of the Window Specification dialog, under Component Options, select **Right Hinge** instead of Left Hinge, then click OK.
4. With the window still selected, hold down the ***Shift*** key and click on the other two Living room windows to select all three as a group.
5. Click the **Make Mulled Unit** edit button.
6. **Save** your work.

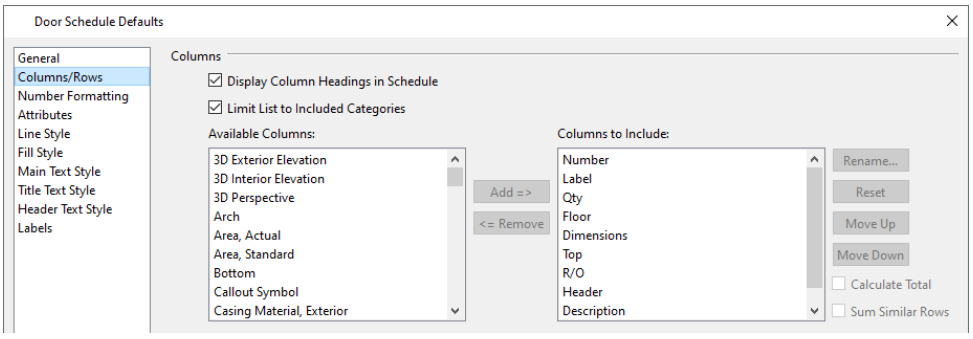
Creating Schedules

Plan sets often include schedules for doors, windows, and more. Chief Architect's schedules are dynamic reports of the objects in the plan and will update automatically if any are modified.

Although a typical plan is unlikely to have more than one or two door and window schedules, it is still a good idea to set up the schedule defaults the way you want them in your template plans.

To set schedule defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside "Schedules" to expand the category.
   - Select "Door Schedule" and click the **Edit** button.
2. On the COLUMNS/ROWS panel of the Door Schedule Defaults dialog, which opens next, make sure that **Display Column Headings in Schedule** is checked.
3. Still on the COLUMNS/ROWS panel, customize the **Columns to Include** list:



   - Select "Dimensions" in the list of **Available Columns** and click the **Add** button.
   - "Dimensions" is added to the **Columns to Include** list, and is selected. Click the **Move Down** button until "Dimensions" is located between "Floor" and "Size".
   - With "Dimensions" still selected, **Add** the "Top" column, as well.

- Because "Dimensions" was selected in the list of Columns to Include, "Top" is placed directly beneath it.
- Select "Size" from the list of **Columns to Include** and click the **Remove** button.
- **Remove** the "3D Exterior Elevation", "Code", and "Manufacturer" columns, as well.

4. On the MAIN TEXT STYLE panel:
   - Notice that like Wall Schedules, Door Schedules are set to **Use Layer for Text Style**.
   - Click OK to close the dialog and apply your changes.
5. Returning to the Default Settings dialog, select "Window Schedule" and click the **Edit** button.
6. On the GENERAL panel of the Window Schedule Defaults dialog:
   - Add "Dimensions" and "Top" to the list of Columns to Include, as described above.
   - Remove the "3D Exterior Elevation", "Size", "Egress", "Code", and "Manufacturer" columns from the list of **Columns to Include**.
7. On the MAIN TEXT STYLE panel, notice that Window Schedules are also set to **Use Layer for Text Style**.
8. Click OK and then Done to close the Default Settings dialog and apply your changes.

To prevent your plan views from becoming unnecessarily cluttered, schedules should be created in CAD Detail windows.

To add door and window schedules

1. Click on the Project Browser tab to make it the active side window. If it is not open, select **View>Project Browser** .
2. Click the arrow to the left of CHIC COTTAGE-CURRENT.plan to display its view categories, then click the arrow to the left of the CAD Details category to expand it as well.
3. Right-click on the "Schedules Detail" detail and select **Open View** from the contextual menu.
4. The "Schedules Detail" CAD Detail window opens and is empty.
5. Select **Tools> Schedules> Door Schedule** and click once to place a Door Schedule at that location.
6. Select **Tools> Schedules> Window Schedule** and click below the Door Schedule to place a Window Schedule at that location.
7. Click on the new Window Schedule to select it, then align it with the Door Schedule's left edge:
   - Hold down the ***Shift*** key and click on the Door Schedule to select them both as a group.
   - Click the **Align/Distribute Objects** edit button.
   - In the Align/Distribute Objects dialog, under the "Move Objects Horizontally to" heading, select **Left Edges** and click OK.
8. When you are finished, **Save** your work.

The widths of these schedules' individual columns can also be edited so that they align.

DOOR SCHEDULE

NUMBER	LABEL	QTY	FLOOR	DIMENSIONS	TOP	R/O	DESCRIPTION	HEADER	COMMENTS
D01	2668	2	1	30"X80"X1 3/8" L IN	80"	32"X82 1/2"	HINGED-DOOR P04	2X6X95" (2)	
D02	2668	1	1	30"X80"X1 3/8" R	80"	62"X82 1/2"	POCKET-DOOR P04	2X6X65" (2)	
D03	2668	1	1	30"X80"X1 3/8" R IN	80"	32"X82 1/2"	HINGED-DOOR P04	2X6X95" (2)	
D04	3068	1	1	36"X80"X1 3/4" R EX	80"	38"X83"	EXT. HINGED-DOOR E21	2X6X41" (2)	
D05	3068	1	1	36"X80"X1 3/4" R EX	80"	38"X83"	EXT. HINGED-DOOR P04	2X6X41" (2)	
D06	5068	1	1	(2) 30"X80"X1 3/4" R EX	80"	62"X83"	EXT. SLIDER-GLASS PANEL	2X8X65" (2)	
D07	5068	1	1	(4) 15"X80"X1 3/8" L/R	80"	62"X82 1/2"	4 DR. BIFOLD-LOUVERED	2X6X65" (2)	
D08	9080	1	1	108"X96"X1 3/4"	96"	110"X99"	GARAGE-GARAGE DOOR GHD05	2X12X116" (2)	

WINDOW SCHEDULE

NUMBER	LABEL	QTY	FLOOR	DIMENSIONS	TOP	R/O	DESCRIPTION	HEADER	COMMENTS
W01	1065FX	2	1	12"X77"FX	80"	13"X78"	FIXED GLASS	2X6X16" (2)	
W02	2630SC	3	1	30"X36"SC	80"	31"X37"	SINGLE CASEMENT-HR	2X6X34" (2)	
W03	2640FX	1	1	30"X48"FX	105 1/2"	31"X49"	FIXED GLASS	2X6X34" (2)	
W04	2646SC	8	1	30"X54"SC	80"	31"X55"	SINGLE CASEMENT-HR	2X6X34" (2)	
W05	5446MU	1	1	64"X54"	80"	65"X55"	MULLED UNIT-HR	2X6X68" (2)	

By default, door and window schedules are ordered according to the information in the Labels column. You can, however, change their order using either of two methods.

To turn off schedule callouts

1. Select **Window> Tile Vertically** and in the plan view, notice that doors and windows now have callout labels with schedule numbers.
2. With the Window Schedule still selected, click the **Open Object** edit button.
   - On the LABEL panel of the Window Schedule Specification dialog, select the **Use Label** radio button.
   - On the COLUMNS/ROWS panel of the Window Schedule Specification dialog, remove the "Number" column from the list of **Columns to Include**, then click OK.
3. In plan view, notice that windows now display their original labels instead of callout shapes with schedule numbers.
4. Turn off the display of the Door Schedule callout labels and remove the "Number" column from that schedule, as well.
5. When you are finished, **Save** your work.

ADDING ANNOTATIONS

Floor plans typically include text with a variety of different pieces of information. With doors and windows in place, they can be annotated.

The Working Plan View is active as it was in the previous four tutorials, so "Plan Rich Text and Callout Defaults" are still in use.

To set leader line preferences

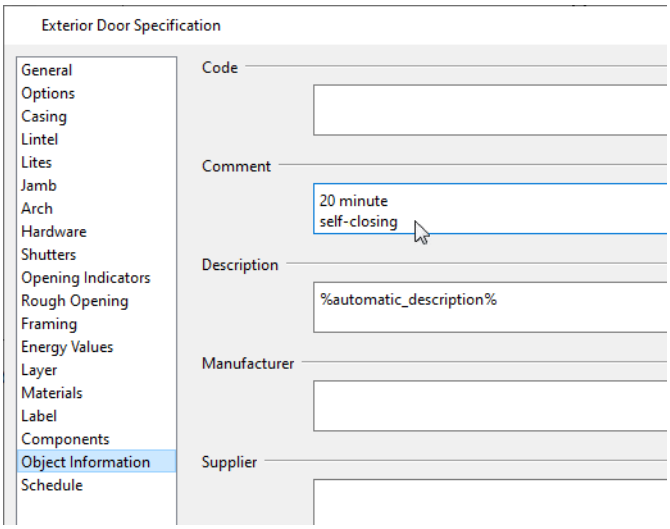
1. Select **Edit> Preferences** in Windows or **Chief Architect> Preferences** in macOS.
2. On the TEXT panel of the Preferences dialog:
   - The **Number of Segments** for Leader Lines can be set here.
   - Uncheck **Create Rich Text** to create simple Text objects when the Leader Line tool is used, if you prefer.
3. In this example, these settings will not be changed, so click Cancel.

Typing text is a simple task, but with a few extra steps this text can also appear in the Comments column of the Door Schedule.

To add Comments to an object

1. In plan view, **Zoom** in on the Garage area, then click the **Select Objects** button.
2. Select the hinged door separating the Garage from the Foyer and click the **Open Object** edit button.
3. On the OBJECT INFORMATION panel of the Door Specification dialog, type the following into the **Comment** field: 20 minute

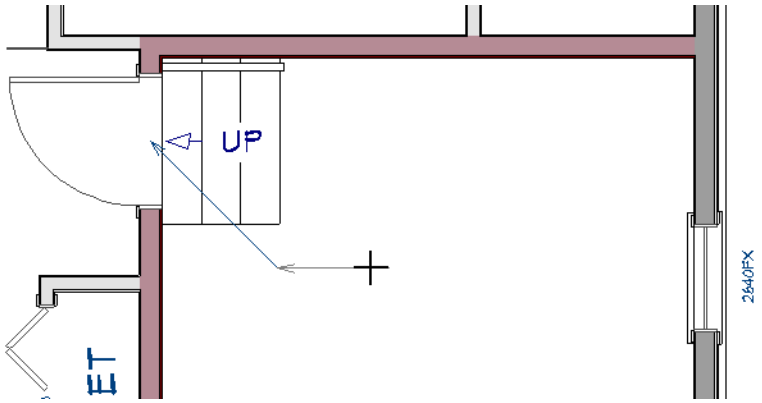
4. Press the ***Enter*** key to wrap to a second line, then type: self-closing



5. Click OK to close the dialog and apply your change.

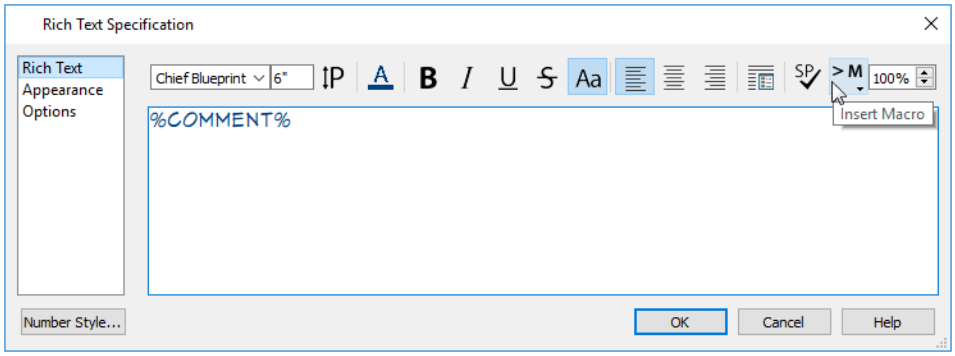
To add leader line annotations

1. Begin by moving the Garage room label down, towards the center of the Garage room.
2. Select **CAD> Text> Leader Line**, then:

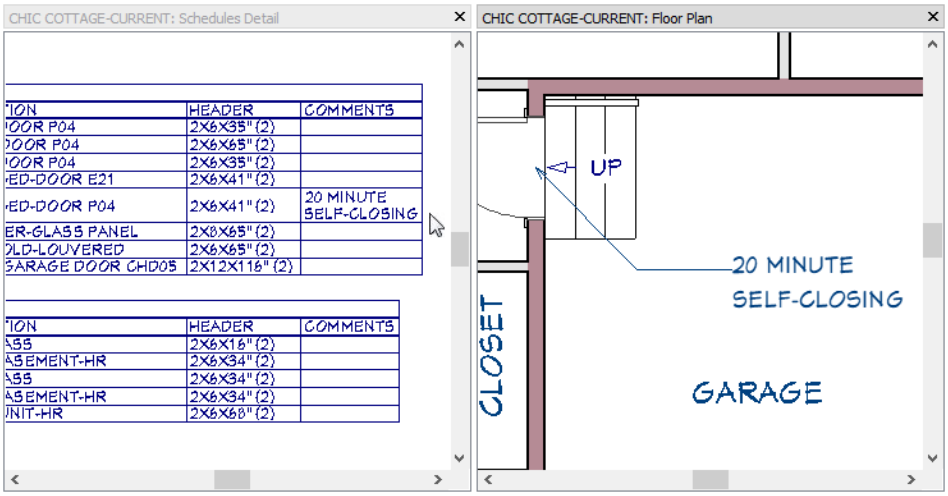


- In the Garage, click and drag a line from the door to the Foyer down and to the right. When your mouse pointer is below the Garage stairs, release the mouse button.
- Click and drag a second line straight to the right from the end of the first line.
- When you release the mouse button, the Rich Text Specification dialog opens.

3. On the RICH TEXT panel of the Rich Text Specification dialog:



   - Click the **Insert Macro** button.
   - Select "Comment" from the **Referenced Object** submenu.
   - Click OK.
4. The Comment entered in the Door Specification can now be seen in both plan view and the Door Schedule.



Additional Note callouts can be created that refer to the Floor Plan Notes schedule.

To add plan notes

1. Select **CAD> Text> Note**, then click once near the sliding door in the Kitchen.
2. On the NOTE panel of the Note Specification dialog:
   - In the **Text** field, type: tempered glass.
   - Make sure **General** is the selected **Type**.
   - Click OK.
3. Notice that the new Note is automatically assigned the number 2, as 1 was created in the *Interior Stairs* tutorial.
4. Click on the Note shape to select it, then:
   - Click the **Copy/Paste** edit button
   - Click once in front of the side lite to the right of the front door to create a copy at that location.
5. The pasted Note has the same schedule number as the original because they have the same text.

6. If you want, you can open the Schedules Detail to confirm that the Floor Plan Notes schedule has updated to include the new Notes.
7. When you are finished, **Save** your work.

You can continue working on this plan in the *Decks and Porches* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Windows. Then, click OK.
3. Notice that Chic Cottage-Windows is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for adding doors and windows to a design.

To set the Door Defaults *84*

To add hinged doors *85*

To add a sliding door *85*

To add other types of doors *86*

To change the door swing *87*

To change a door’s size *88*

To change a glass door’s lites *88*

To specify door hardware *88*

To choose a door style from the library *89*

To specify a door’s casing *90*

To set window defaults *90*

To place a window *91*

To edit a window *91*

To center a wall opening *92*

To set Dimension Defaults *94*

To position doors and windows using dimensions *94*

To create a reflected copy of a window *96*

To copy windows at regular intervals *97*

To create a mulled unit *98*

To set schedule defaults *98*

To add door and window schedules *99*

To turn off schedule callouts *100*

To set leader line preferences *100*

To add Comments to an object *100*

To add leader line annotations *101*

To add plan notes *102*

To save a plan revision *103*

Assessment Questions

Tutorial 5 - Doors and Windows

What are the different ways to specify or change the hinge side of a door? The swing side?

- You can change the hinge and swing side of a door as it is being placed by moving the mouse while holding the mouse button.
- Once a door is created, hinge and swing side can be modified using the edit handles as well as the Change Opening/Hinge Side and Change Swing Side edit tools.

What are three examples of door and window attributes that are found in the Library?

- Hardware, door style, and materials can all be selected in the Library.

What are the different ways to change the width of a door or window?

- Door and window width can be changed using the edit handles and in the object's specification dialog.

What tool can be used to create multiple windows at once?

- The Transform/Replicate Object edit tool lets you replicate objects like windows at regular intervals.

What edit tools are useful for creating identical windows on either side of a door or window?

- The Copy/Paste and Reflect About Object edit tools allow you to create identical windows on either side of a door.

Where do you specify how Auto Exterior Dimensions locate doors and windows?

- You can specify how Auto Exterior Dimensions locate doors, windows, and interior walls in the Auto Exterior Dimension Defaults dialog.

Where do you control the appearance of callout labels?

- You can specify whether objects like windows and doors use schedule callout labels, as well as their appearance, on the Labels panel of the Schedule Specification dialog.

What is an example of an object attribute that can be reported in both a schedule and a text object with an arrow attached to that object?

- The Comments that can be specified on the Object Information panel of many specification dialogs can be listed in the Comments column of a schedule as well as inserted into a text object using the %comment% Referenced Object macro.

What tool lets you create a Rich Text object attached to a text line with arrow?

- The Leader Line tool lets you create a Rich Text object along with a segmented line with arrow.

What button can you click in the Rich Text Specification dialog to insert dynamic information about an object into the text?

- The Insert Macro button lets you insert dynamic text macros into text objects.

Decks and Porches

Deck and Porch rooms are Room Types with a number of special characteristics.

Learning Objectives

The previous lesson, *Doors and Windows*, explained how to place, replicate, and position various types of doors and windows in Chief Architect. This lesson describes best practices in Chief Architect for creating Deck and Porch rooms. Concepts introduced include:

File Management *105*

Productivity Tips *106*

Setting the Defaults *107*

Using Plan Views *107*

Railings for Decks and Porches *107*

Creating Porch Rooms *109*

Creating Deck Rooms *110*

Dimensioning Exterior Rooms *111*

Creating Porch and Deck Supports *115*

Drawing Deck Stairs *118*

Creating Concrete Stairs *120*

Adding Annotations *121*

Creating Revisions *124*

Organizing Documents in the Project Browser *124*

File Management

At this point in the design process, both the Chic Cottage-Windows and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Windows was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

At this point in the design process, there are five archive Plans representing different stages of the design plus your working drawing. To make it easier to access CHIC COTTAGE-CURRENT, you can Pin it to the top of the Recent Documents List in both the Dashboard and File menu.

To pin a document to the top of the Recent Documents List

1. Click on the Dashboard view window tab to make it the active view. If it is not open, select **View> Dashboard** .
2. Hover over the CHIC COTTAGE-CURRENT.plan - Chic Cottage line item and notice the pin icon to the right of its name.
3. Click on the Pin icon to pin this document to the top of the list. If you open any of your archives for reference or begin a new Project, CHIC-COTTAGE-CURRENT will remain at the top of the list with any other documents you choose to pin.
4. You can clear both the Pinned Documents and Recent Documents List on the FILE MANAGEMENT panel of the Preferences dialog.

PRODUCTIVITY TIPS

As you learn how to create Deck and Porch rooms, keep in mind these tips to improve your productivity.

Drawing and Editing

- When Deck Railings define a room, the room is specified as a Deck automatically.
- Deck posts and beams generate automatically on the floor below the Deck room.
- Stairs that are not placed inside a room will draw in a downward direction and seek the terrain.
- The **Center Object** edit tool can be used to center a selected object relative to another object.

Content

- Create template plans that have the Deck and Porch Room Type Defaults set the way you want them, ready for use when you begin a new plan.
- A selection of name brand deck planking catalogs are available for download in the "Materials and Surfaces" category of the 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.

Interface

- Object Snaps can be helpful when positioning one object relative to another.
- Temporary Dimensions display when an object like a wall is selected and can be used to move that object.
- Multiple line items in a list, as well as multiple objects, can be group-selected using the ***Shift*** and ***Ctrl/⌘*** keys.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***F6*** - Fill Window
- ***Ctrl/⌘ + W*** - Close View
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When creating Deck and Porch rooms, there are several defaults that should be borne in mind.

Before drawing the railings that define Deck rooms, the Deck Railing Defaults should be set. See *To set the Deck Railing Defaults on page 107*.

Similarly, the defaults for Half Walls, which will be used here to define a Porch, can be set in advance. See *To set the Half Wall Defaults on page 108*.

Structural characteristics of Deck and Porch rooms should be set before Deck and Porch rooms are created. See *To set Deck Room Defaults on page 110* and *To set Porch Room Defaults on page 109*.

Before drawing stairs on the exterior of the structure, it is a good idea to set the Exterior Stair Defaults. See *To set the Exterior Stair Defaults on page 118*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

The Working Plan View will work well for drawing deck and porch rooms. See *To examine a saved plan view's settings on page 5*.

Railings for Decks and Porches

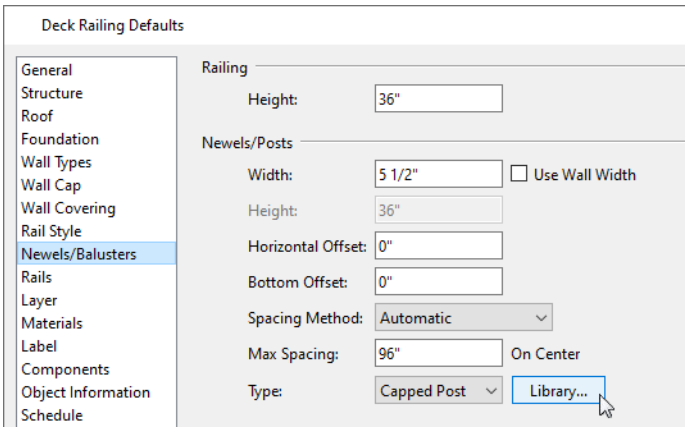
In Chief Architect, railings are a special type of wall that do not build to the ceiling height of the rooms they define. Railings are typically used to define Deck rooms as well as Porches. There are three types of railing in Chief Architect: Deck Railings, regular Railings, and solid Half Walls.

Deck Railings use a single layer Wall Type so there is no siding material on the sides of deck platforms.

To set the Deck Railing Defaults

1. Select **Edit> Default Settings**  . In the Default Settings dialog, click the arrow next to "Walls" in the tree list to expand the category.
2. Select "Deck Railing Defaults" and click the **Edit** button to open the Deck Railing Defaults dialog.
3. On the General panel, notice that **No Locate** is checked. When this box is checked, Deck Railings will be ignored by Auto Exterior Dimensions by default.
4. On the Wall Types panel, note that the default **Wall Type** is "Deck Railing/Fence" and click the **Define** button.
5. In the Wall Type Definitions dialog:
   - Notice that the "Deck Railing/Fence" Wall Type is composed of a single 3 1/2" layer of framing.
   - In the **Wall Layers** table, click in the **Thickness** field, then type 5 1/2".
   - Click OK to return to the Deck Railing Defaults dialog.
6. On the Rail Style panel, under the Newels/Posts heading, select **Post to Beam**.

7. On the NEWELS/BALUSTERS panel, under the Newels/Posts heading:



   - Specify the **Newels/Posts Width** as 5 1/2".
   - Select a **Newels/Posts Type** from the **Library**. Here, the Exterior "Capped Post" is used.
8. Still on the NEWELS/BALUSTERS panel, under the Balusters heading:
   - Set the **Width** to be 1 1/4".
   - Increase the **Spacing** to 5" On Center.
   - Select "Square" from the **Type** drop-down list.
9. On the MATERIALS panel:
   - Select the "Baluster" component, then hold down the ***Ctrl/⌘*** key and click on the "Beam", "Rail", and the Capped Post's "Main" components to add them to the selection.
   - Click the **Select Material** button and select "Color - White" from the PLAN MATERIALS panel of the Select Material dialog.
10. Click OK to close the dialog and apply your changes.

Unlike Deck Railings, regular Railings are intended to define rooms with enclosed floor platforms. In the *Interior Stairs* tutorial, interior railings with newels and balusters are generated by the Auto Stairwell edit tool.

To set the Railing Defaults

1. With the Default Settings dialog still open, select "Railing Defaults" and click the **Edit** button to open the Railing Defaults dialog.
2. On the GENERAL panel, notice that **No Locate** is checked, just as it is for Deck Railings.
3. On the WALL TYPES panel, note that the default **Wall Type** is "Interior Railing" and click the **Define** button.
4. In the Wall Type Definitions dialog, notice that the "Interior Railing" Wall Type is composed of three layers: a 3 1/2" framing layer surrounded by two layers of 1/2" drywall.
5. Click **Cancel** to return to the Default Settings dialog.

Like other types of Railings, Half Walls can also be drawn to define exterior rooms like Porches.

To set the Half Wall Defaults

1. With the Default Settings dialog still open, select "Half Wall Defaults" and click the **Edit** button to open the Half Wall Defaults dialog.
2. On the GENERAL panel, both **Railing** and **No Locate** are checked.
   - Leave **Railing** checked.
   - Uncheck **No Locate**.

3. On the WALL TYPES panel, select "Siding-6" from the **Wall Type** drop-down list.
4. Check the box beside **Pony Wall**, then:
   - Select "Stone-6" from the **Lower Wall Type** drop-down list.
   - Notice that the **Elevation of Lower Wall Top** is 20", which is the value set in the Pony Wall Defaults dialog.
5. On the NEWELS/BALUSTERS panel:
   - When a wall is both a Railing, as Half Walls are, and a Pony Wall, the Height setting only affects the height of the Upper Wall.
   - Specify the **Height** as 16".
6. Click **OK** to close the Half Wall Defaults dialog, then click **Done** to close the Default Settings dialog.
7. Remember to **Save** your work.

CREATING PORCH ROOMS

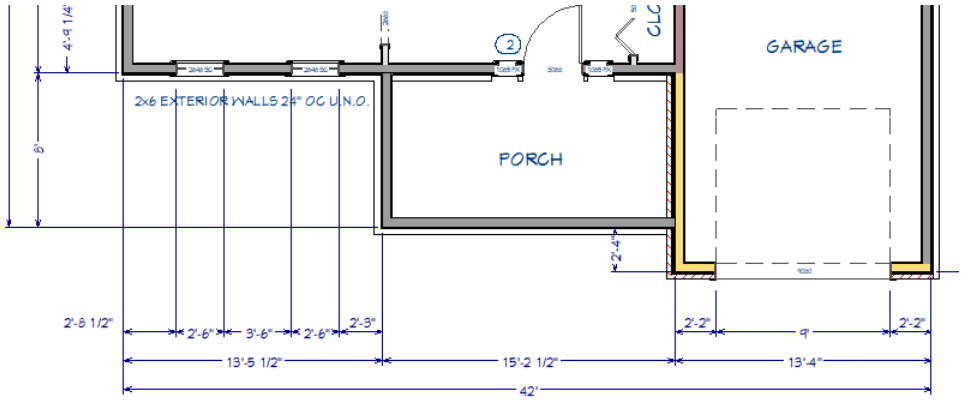
Porches are another special room type with characteristics of both interior and exterior rooms.

To set Porch Room Defaults

1. Select **Edit> Default Settings**, and in the Default Settings dialog:
   - Click the arrow beside "Floors and Rooms" to expand the category.
   - Select "Room Types" and click the **Edit** button.
2. In the Room Types dialog, scroll down the list, select "Porch", and click the **Edit** button.
3. On the STRUCTURE panel of the Porch Room Type Defaults dialog,
   - Notice that unlike Decks, Porch rooms have **Roof** and **Ceiling Over This Room** checked.
   - Click the **Floor Structure Edit** button and note that the floor is constructed of 4" of concrete.
4. Click **Cancel** to close all three dialogs.

To create a porch

1. On Floor 1, **Zoom** out so the front exterior wall can be seen.
2. Select **Build> Wall> Straight Half Wall**, then click and drag to draw two half walls enclosing the area outside the front door.
3. Notice that the Auto Exterior Dimensions update to locate the new railings but no longer locate the entry door or side windows. This will be addressed in a moment.
4. Select the front Porch wall, then use either of the Auto Exterior Dimensions that locate it to position it 8’ from the wall with the entry door.
5. Select the left vertical wall and drag its Move edit handle to align it with the interior wall separating the Dining room and Foyer.
6. Click the **Select Objects** button, then click in the newly created room to select it.
7. Click the **Open Object** edit button, and on the GENERAL panel of the Room Specification dialog, select "Porch" from the **Room Type** drop-down list and click OK.



8. **Save** your work.

Creating Deck Rooms

Decks are exterior rooms that are defined by the deck railings and exterior walls that enclose them. When an exterior room is drawn using the Deck Railing tool, the room is automatically assigned the exterior room type of Deck.

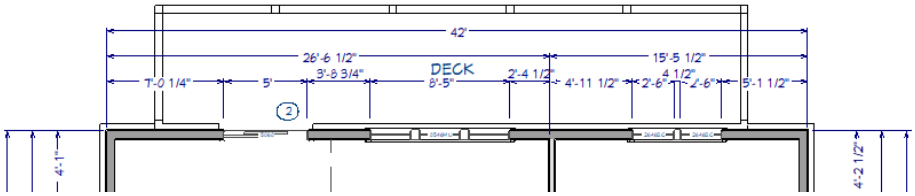
To set Deck Room Defaults

1. Select **Edit> Default Settings**, and in the Default Settings dialog:
   - Click the arrow beside "Floors and Rooms" to expand the category.
   - Select "Room Types" and click the **Edit** button.
2. In the Room Types dialog, scroll down the list, select "Deck", and click the **Edit** button.
3. On the STRUCTURE panel of the Deck Room Type Defaults dialog:
   - Notice that the **Default** check box to the right of the **Floor Finish Edit** button is unchecked and that its total thickness is 0".
   - Click the **Planks/Joists Edit** button.
4. In the Floor Structure Definition dialog:
   - Select Layer 1 and notice that below, it is specified as Framing with 5 1/2" wide Deck Planking.
   - In the table, click in the **Thickness** cell for Layer 1 and change it to 1", then click OK.
5. On the DECK panel of the Deck Room Defaults dialog, change the **Plank Gap Width** to 1/4".
6. On the DECK SUPPORT panel:
   - Notice that the **Deck Post Footings** have a **Height Above Terrain** setting with a value of 6".
   - Specify the **Deck Post Footings Thickness** as 30". This value is the footings total height, measured from top to bottom.
7. Click OK and then Done to close all dialogs.

To draw a deck

1. **Zoom** out so the back exterior wall can be seen.
2. Select **Build> Railing and Deck> Straight Deck Railing**, then click and drag to draw three Deck Railings at the back of the structure.
   - Notice that when a room is created using **Deck Railing**, the room is automatically specified as a Deck and given a room label.
   - Notice, too, that the Auto Exterior Dimensions do not update when the Deck is created because of the Deck

Railings' No Locate setting.



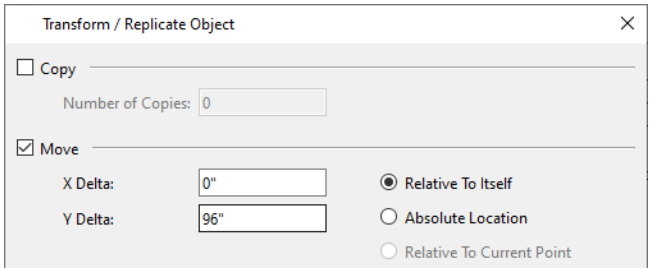
3. Click in the Deck room to select it, then click the **Open Object** edit button to open the Room Specification dialog:
   - On the GENERAL panel, under the Living Area heading, notice that Decks are **Excluded** from the Living Area calculation by default but that you can change this here if you wish.
   - On the STRUCTURE panel, note that by default, **Roof Over This Room** and **Ceiling Over This Room** are unchecked, then click Cancel.

DIMENSIONING EXTERIOR ROOMS

Auto Exterior Dimensions do not locate wall openings inside exterior rooms like Decks and Porches. If need be, however, you can turn off the Auto Refresh option and easily edit them to meet your needs.

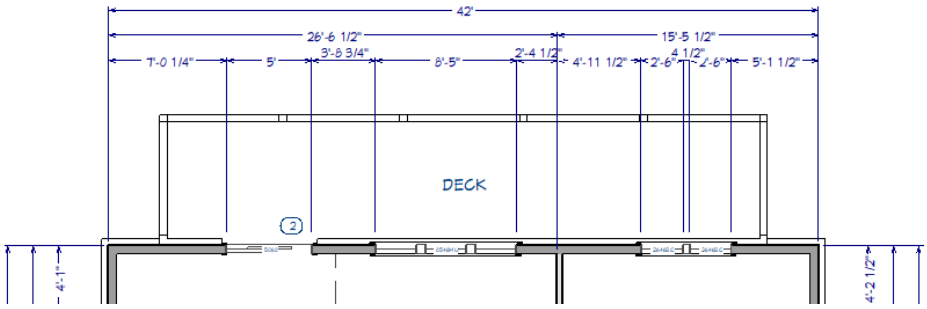
To move dimension lines

1. Begin by selecting **Edit> Undo** to remove the most recently drawn Deck Railing and turn Auto Refresh Exterior Dimensions back on.
2. Group-select the three horizontal Auto Exterior Dimensions that run through the Deck room:
   - Click the **Select Objects** button, then draw a small rectangular marquee that includes sections of all three dimension lines.
   - You can also click on one dimension line, hold down the ***Shift*** key on the keyboard, then click on the other two to select all three.
   - You can see how many objects are selected on the left side of the Status Bar at the bottom of the program window.
3. Click the **Transform/Replicate Objects** edit button.
4. A Question message box will confirm whether you want to turn off the Auto Refresh option for Auto Exterior Dimensions in the saved "Plan Dimension Defaults". Click **Yes**.
5. In the Transform/Replicate Object dialog, which opens next:



   - The box beside **Move** should be checked. If there is not, click to add a check mark.
   - In the **Y Delta** field, type 96" or 8'.
   - Make sure that **Relative to Itself** is checked and click OK.
6. The three dimension lines will all move 8' upward onscreen, out of the area of the Deck room.

7. Redraw the third Deck Railing to enclose the Deck room again.



Although automatically generated, these edited dimension lines are no longer treated as such by the program and will be retained if you were to turn on Auto Refresh Exterior Dimensions again.

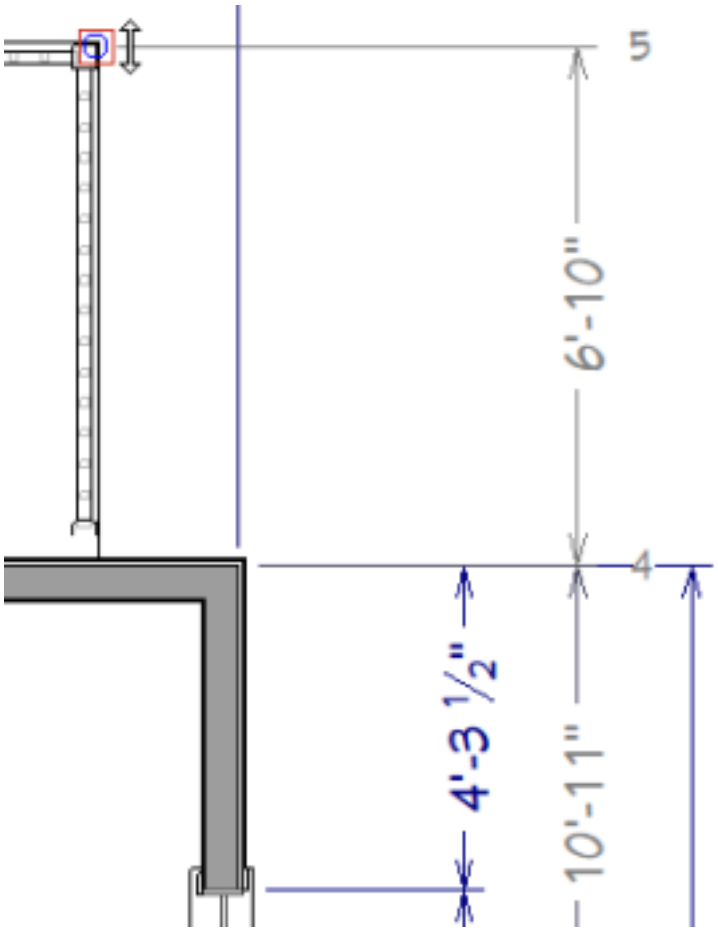
Auto Exterior Dimension lines can also be edited to locate the Deck Railings as well as features inside the Porch.

To add and remove extension lines

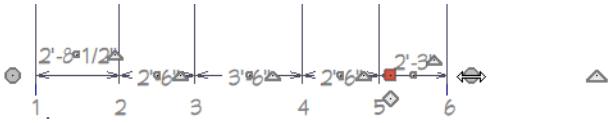
On the right side of the structure, click on the middle vertical Auto Exterior Dimension that locates walls to select it.

- The dimension line's square Move edit handle has a red fill color and displays at the point where you clicked.
- The diamond-shaped Add Extension Line edit handle displays near the Move handle.
- When you move your mouse pointer over the Add Extension Line handle, it displays a two-headed arrow.

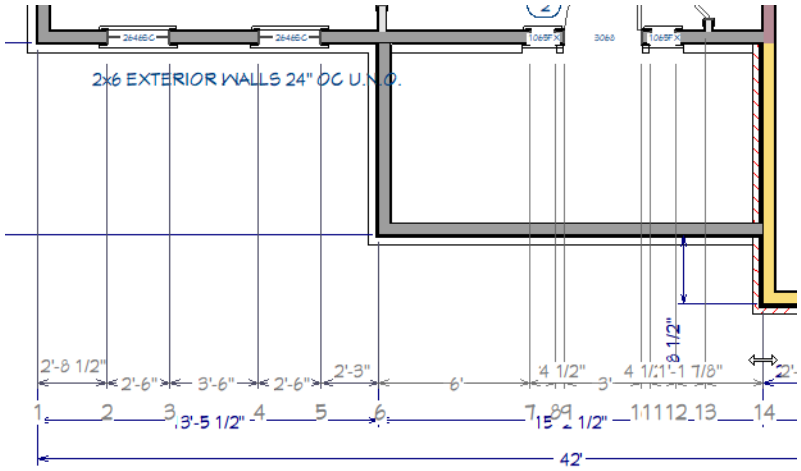
2. Click and drag the Add Extension Line edit handle towards the horizontal Deck Railing's exterior side.



   - When an Extension Line preview snaps to the exterior side of the Deck Railing, release the mouse button.
3. Repeat steps 1-3 on the left side of the structure.
4. Select the horizontal Auto Exterior Dimension that locates walls at the back of the structure and repeat steps 1-3 to add extension lines that locate the exterior sides of the two vertical Deck Railings.
5. Zoom, scroll, or pan so the front of the structure and the front Auto Exterior Dimensions can be seen.
6. Select the vertical Auto Exterior Dimension on front left side of the structure.

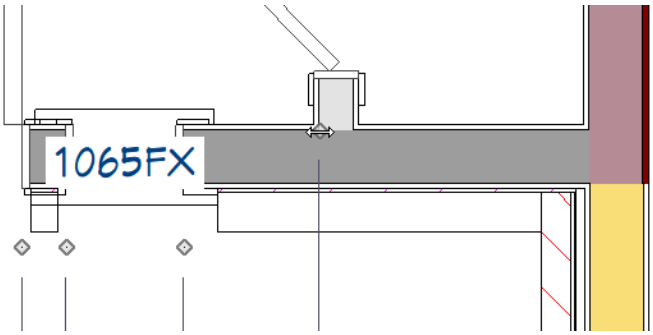


   - The dimension line has a circular Add Segments edit handle just beyond each end.
   - When you move your mouse pointer over the Add Segments handle, it displays a two-headed arrow.
7. Click the Add Segments handle on the right end and drag to the right until it reaches the left wall of the Garage and the dimension line that locates the Garage Door.



- As your mouse pointer reaches the door and side lites, new extension lines will locate the sides of these openings as well as the Closet wall.
- When an Extension Line preview snaps to the exterior side of the Garage wall, release the mouse button.

8. With the dimension line still selected, remove the extension line locating the Closet wall:



- Click the diamond-shaped Extension Line End handle located at the Closet wall.
- Drag it downward, away from the structure and any objects that it might locate instead.
- When you release the mouse, the extension line will be removed.

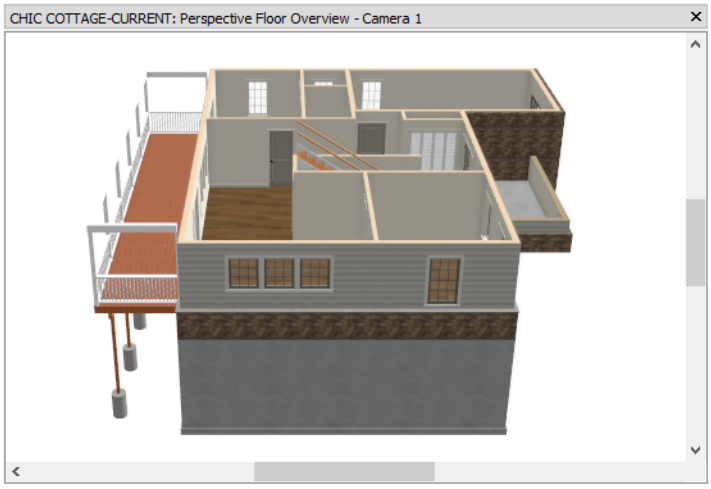
9. Select the horizontal dimension line that locates walls on the front of the structure and repeat steps 1-3 to add an extension line to the closet wall.

Auto Exterior Dimensions were already used to locate the Porch Half Walls. Now that dimensions locate the Deck Railings, they can be used to position them as well.

To resize the Deck room

1. Select the left vertical Deck Railing, then click on the dimension that reports its distance from the left exterior wall. In the inline text field, type 36’ and press Enter.
2. Select the right vertical Deck Railing and position it 36" from the right exterior wall.
3. Select the horizontal Deck Railing, then click on either dimension that reports its distance from the exterior wall of the house. Type 8’ in the inline text field and press Enter.
4. Select **3D> Create Perspective View> Floor Overview** to see the results.
   - Notice that the Porch has a concrete slab floor.
   - Click and drag using the **Mouse-Orbit Camera** tool until the Deck room can be seen.
   - Notice that the program automatically generates planking, joists, beams, and posts with footings.

- Note, too, that the post footings are located at the same height as the foundation walls. This is because there is no terrain present in the model.



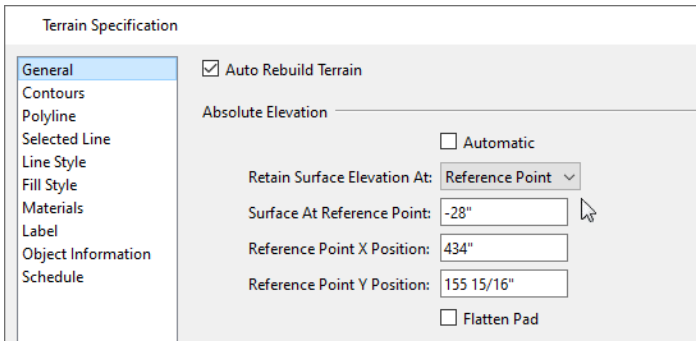
5. Select **File> Close View** to return to plan view and remember to **Save** your work.

Creating Porch and Deck Supports

Because porch stem walls and deck post footings are measured relative to grade, now is a good time to add terrain to the plan. The terrain should always be drawn on either Floor 0 or 1.

To create a Terrain Perimeter

1. On Floor 1, select **Terrain> Create Terrain Perimeter** .
2. Select **Window> Fill Window** so that the entire Terrain Perimeter can be seen.
3. To make the edges of the terrain easier to see while editing it, temporarily switch to the "Terrain Plan View".
   - Click the **Saved Plan View Control** Working Plan View in the top toolbar and select "Terrain Plan View" from the drop-down list.
   - You can also open the "Terrain Plan View" in a separate view window via the Project Browser. See *Using Plan Views on page 5*.
   - Notice that the dimensions and various interior details no longer display. The vertical sides of the Terrain Perimeter are now easier to distinguish.
4. Select **Terrain> Terrain Specification** and on the General panel of the Terrain Specification dialog:



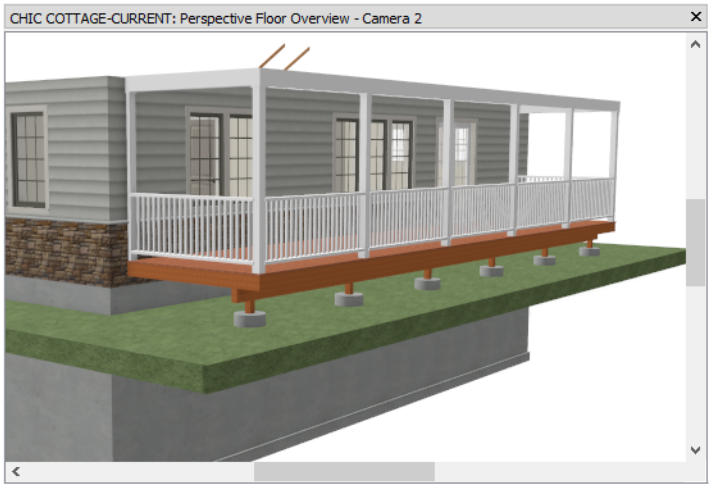
   - Under the Absolute Elevation heading, uncheck **Automatic**.
   - Make sure that "Reference Point" is selected in the **Retain Surface Elevation At** drop-down list.

- Specify the **Surface at Reference Point** as -28", then click OK.
- This will place the terrain 28" below the first floor's subfloor and about 1" below the slab floor in the Garage.

5. Click the **Select Objects** button, then click on the Terrain Perimeter to select it.
   - Notice the level line marker that displays at the front right corner of the Garage.
   - This is the Terrain Elevation Reference Point, which only displays when the Terrain Perimeter is selected.
   - It has a small Move edit handle that you can use to reposition it. See *Drawing Elevation Data on page 406*.
6. Use Temporary Dimensions to make the Terrain Perimeter polyline smaller for now:
   - Select the top horizontal edge, then click on the Temporary Dimension that reports its distance from the bottom edge.
   - Click in the inline text field and type 60', then press the ***Enter*** key.
7. Use the **Center Object** edit tool to center the terrain on the right side of the house:



   - With the Terrain Perimeter still selected, click the **Center Object** edit button.
   - Move the mouse pointer over the right side of the house, along or just outside the right vertical exterior wall.
   - When you see a horizontal centering axis across the center of the wall, click once to center the terrain relative to the length of that wall.
   - Here, the outline of the Exterior Room is highlighted, indicating that the terrain will be centered along its right edge.
8. Create a **Perspective Floor Overview** and **Orbit** the camera so the back Deck can be seen. Notice that the post footings now only extend down to the level of the terrain.



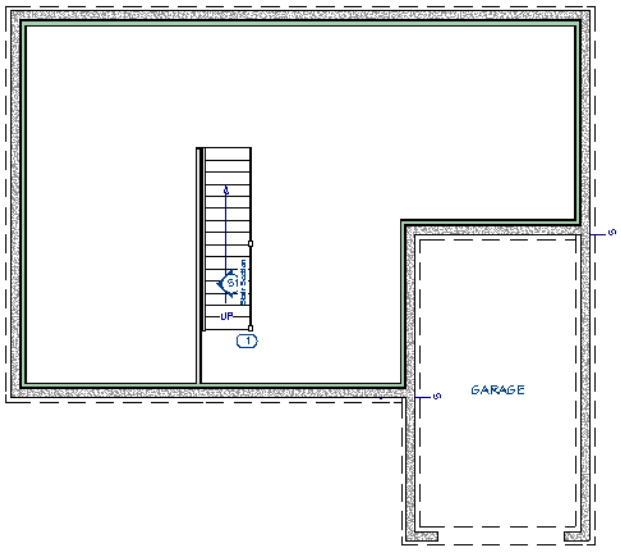
9. Select **File> Close View** to return to plan view.

The footings for deck posts are generated automatically and are set to display by default in most 3D views but not in plan view.

To turn on the display of objects

1. Go **Down One Floor** to Floor 0 and notice that deck framing and post footings display.
2. Use the **Saved Plan View Control** Terrain Plan View to return to the "Working Plan View" and notice that these objects no longer display.
3. If it is not already open, select **View> Active Layer Display Options**. In the Active Layer Display Options side window:
   - Type the word "deck" in the **Name Filter** field. As you type, the names of the layers listed in the table will be filtered in response.
   - Locate the "Footings, Deck Post" layer and click once in the "Disp" column to add a check mark.

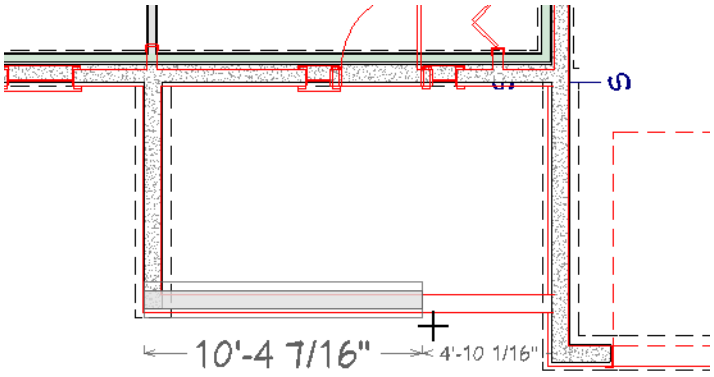




Porches have slab floors and do not typically receive foundations; however, this porch is raised off the terrain and will need stem walls to support it.

To draw porch stem walls

1. Select **Tools> Floor/Reference Display> Reference Display** .
2. Select **Build> Wall> Straight Foundation Wall** , then click and drag over the walls of the Porch visible in the Reference Display.



3. Select each new foundation wall and click the **Align with Wall Above** edit button to bring the two walls into alignment with the Porch walls above.
4. Click the **Select Objects** button, then click in the room defined by the porch stem walls to select it.
5. Click the **Open Object** edit button, and on the STRUCTURE panel of the Room Specification dialog:
   - Specify the **Stem Wall Height** as 37 1/2".
   - Uncheck **Floor Under this Room**.
   - Click OK to close the dialog and apply your changes.
6. When you are finished, select **Tools> Floor/>Reference Display> Reference Display** to turn off the Reference Floor, and **Save** your work.

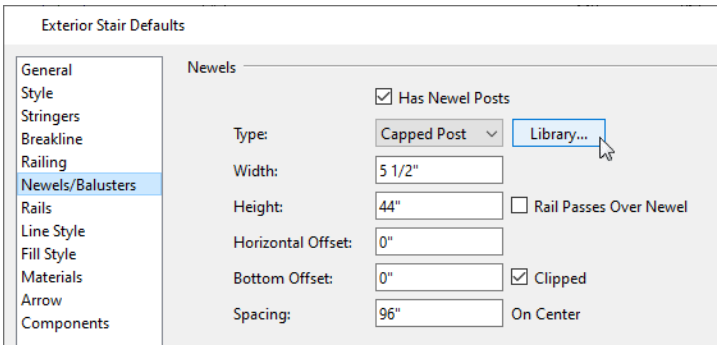
DRAWING DECK STAIRS

A set of stairs can now be drawn to connect the deck to the terrain.

To set the Exterior Stair Defaults

1. Select **Edit> Default Settings** . In the Default Settings dialog, click the arrow next to "Stairs and Ramps" in the tree list to expand the category.
2. Select "Exterior Stairs" and click the **Edit** button to open the Exterior Stair Defaults dialog.

3. On the NEWELS/BALUSTERS panel:

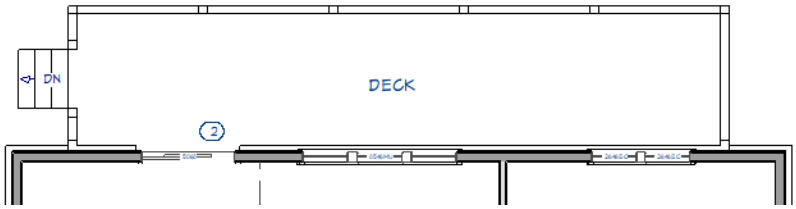


   - Select the same **Newel Type** from the **Library** as used by the Deck Railing: "Capped Post".
   - Specify the **Newel Width** as 5 1/2".
   - Uncheck **Rail Passes Over Newel**.
   - Specify the **Newel Height** as 44".
4. On the MATERIALS panel:
   - Assign "Color - White" to the Baluster, Rails, and Capped Post Main components.
   - Assign "Redwood" to the Tread component.
   - Assign "CA-B Pressure Treated Lumber" to the Stringer component.
5. Click OK and then Done to close both dialogs and apply your changes.

To make exterior stairs easier to see, the display of the "Dimensions, Plan" layer is turned off in the images that follow.

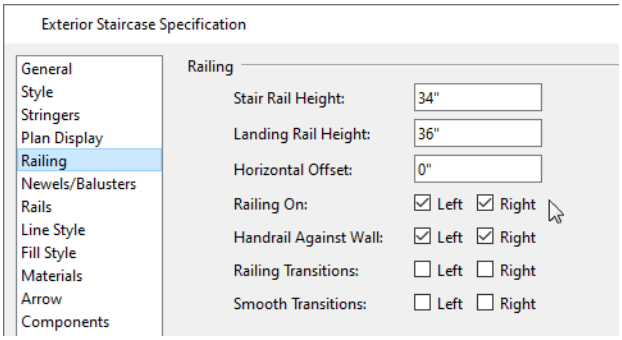
To draw deck stairs to the terrain

1. Go **Up One Floor** to Floor 1, then **Zoom** in on the left side of the Deck room.
2. Select **Build> Stairs> Straight Stairs**, then move the mouse just outside the vertical deck railing on the left side of the Deck room.
3. When Object Snaps are enabled, a **Midpoint** △ snap indicator will display when the pointer is over the Deck Railing's center point.
4. Click once to create a short stair section that spans the difference in height between the Deck and the terrain. Notice:

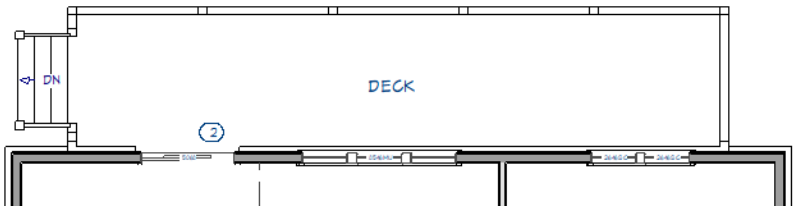


   - Unlike interior stairs, which build up to the floor above and have an "UP" label, exterior stairs have a "DN" label.
   - A **Doorway** opening is automatically added to the deck railing at the top of a staircase.

5. Select the stair section and click the **Open Object** edit button.
   - On the GENERAL panel of the Staircase Specification dialog, specify the **Width** as 5’.
   - On the RAILING panel, check the boxes beside **Railing On Left** and **Right**, then click OK.



6. Notice:



   - The stair section resizes about its center line and remains centered along the railing.
   - The doorway in the Deck Railing resizes automatically, as well.
7. **Save** your work.

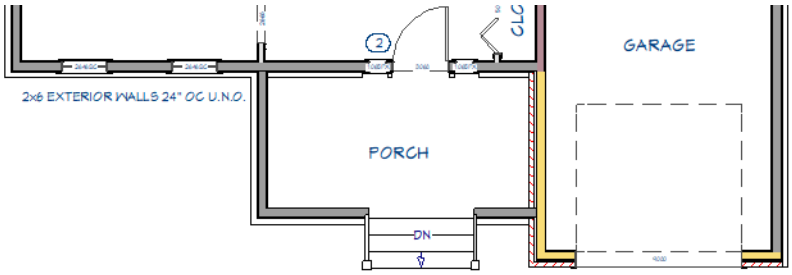
CREATING CONCRETE STAIRS

Stairs can be edited to represent various construction methods.

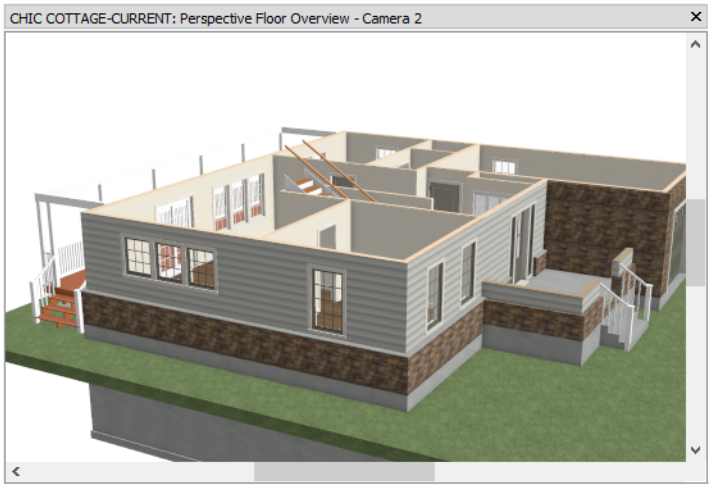
To create concrete porch stairs

1. In the plan view, select **Build> Stairs> Straight Stairs**.
2. Click just outside the front horizontal wall of the Porch room to place a stair section at that location.
3. Select the new stair section and center it relative to the front door:
   - Click the **Center Object** edit button.
   - Move the mouse pointer over the front door.
   - When you see a vertical centering axis across the center of the door, click once to center the stairs relative to the door.
4. With the stairs still selected, click the **Open Object** edit button to open the Exterior Staircase Specification dialog.
5. On the GENERAL panel, specify the **Width** as 6’.
6. On the STYLE panel:
   - Specify the **Tread Overhang** as 0".
   - Uncheck **Open Underneath** and **Open Risers**.
7. On the RAILING panel, check the boxes beside **Railing On Left** and **Right**.

8. On the MATERIALS panel, assign a "Concrete" material to the Riser, Stringer, Support Wall, Tread, Underside, and Wall Trim components, then click OK.



9. You can see the results in a **Perspective Floor Overview** .



10. When you are finished, close the camera view and **Save** your work.

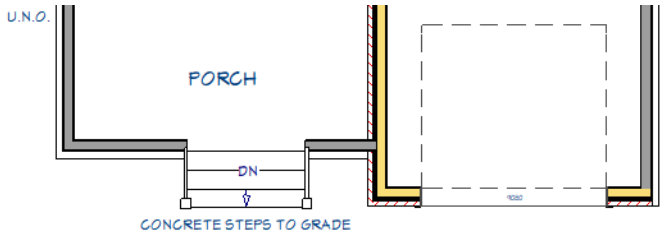
ADDING ANNOTATIONS

Floor plans typically include text with a variety of different pieces of information. Some basic annotations for the exterior deck and porch stairs can be added now.

The Working Plan View is active as it was in the previous four tutorials, so "Plan Rich Text" and "Plan Note Defaults" are still in use. See *"To set the rich text defaults" on page 24 of the Exterior Walls Tutorial* and *"To set the note defaults" on page 79 of the Interior Stairs Tutorial*.

To add rich text annotations

1. Select **CAD> Text> Rich Text**, then click in the view, below the Porch stairs.
2. In the Rich Text Specification dialog, type "concrete steps to grade" in the text field and click OK.

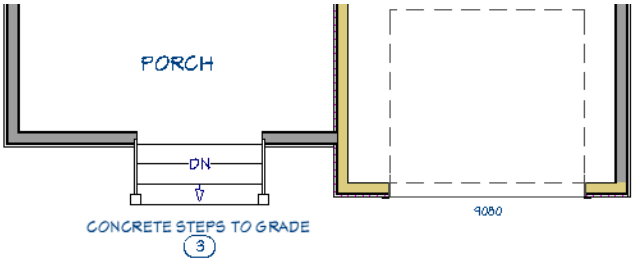


3. Create a Rich Text object that says "framed steps to grade" and position it at the bottom of the Deck stairs.

Additional Note callouts can be created that refer to the Floor Plan Notes schedule.

To add plan notes

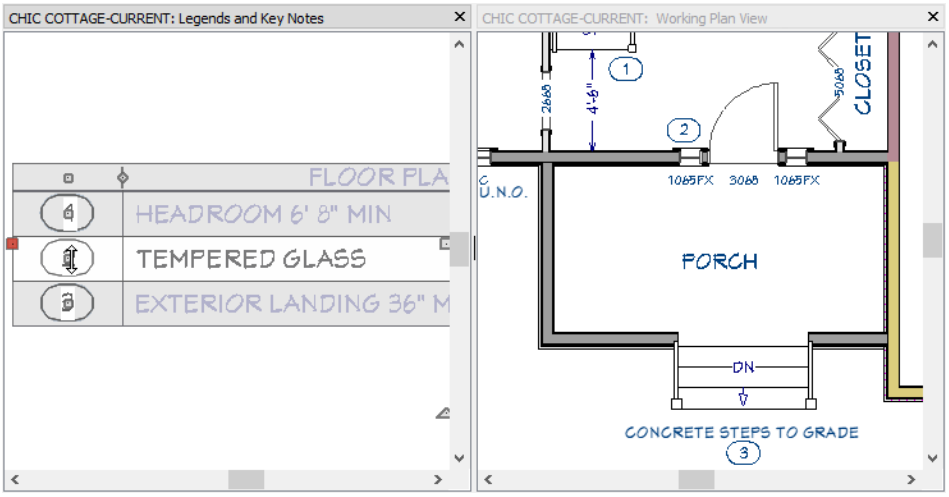
1. Select **CAD> Text> Note**, then click once along the back rail of the Deck room.
2. On the NOTE panel of the Note Specification dialog:
   - In the **Text** field, type: exterior landing 36" minimum in direction of travel
   - Click OK.
3. Notice that the new Note is automatically assigned the number 3. Note 1 was added in the *Interior Stairs* tutorial, while 2 was added in the *Doors and Windows* tutorial.
4. Click on the Note shape to select it, then:
   - Click the **Copy/Paste** edit button
   - Click once near the bottom of the front Porch stairs to create a copy at that location.



Notes are assigned their schedule numbers in the order that they were created. The first Note created in this project, 1, was in the *Interior Stairs* tutorial; 2 was created in the *Doors and Windows* tutorial, and the Notes created here were automatically assigned the number 3. Once created, though, schedule order can be changed in either of two ways.

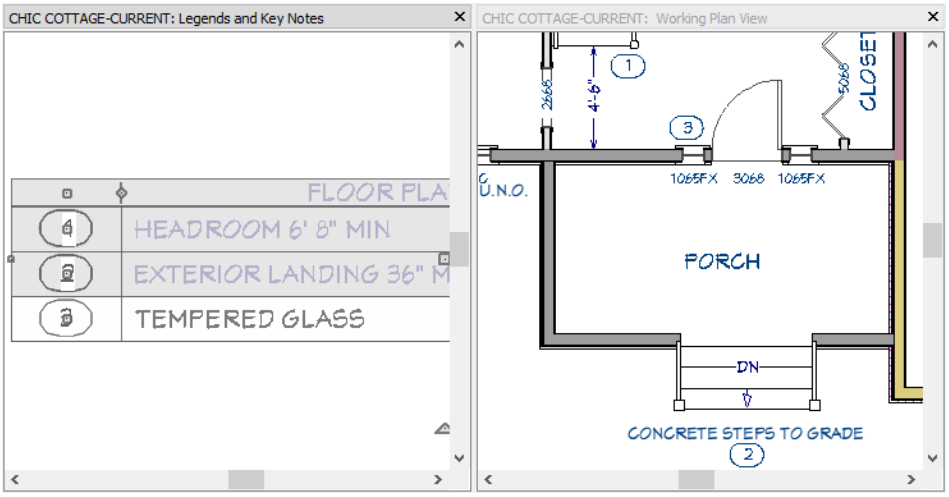
To change schedule numbering

1. Select **CAD> CAD Detail Management**.
2. In the CAD Detail Management dialog, select "Legends and Key Notes" Detail and click the **Open** button.
3. Select **Window> Tile Vertically** to tile the plan view and CAD Detail view side by side.
4. In plan view, zoom in on the Foyer and Porch so the 1, 2, and 3 Notes can be seen.
5. In the "Legends and Key Notes" detail, select the Floor Plan Notes schedule, notice the square **Move Row** edit handles that display in the center of each cell in the first column.



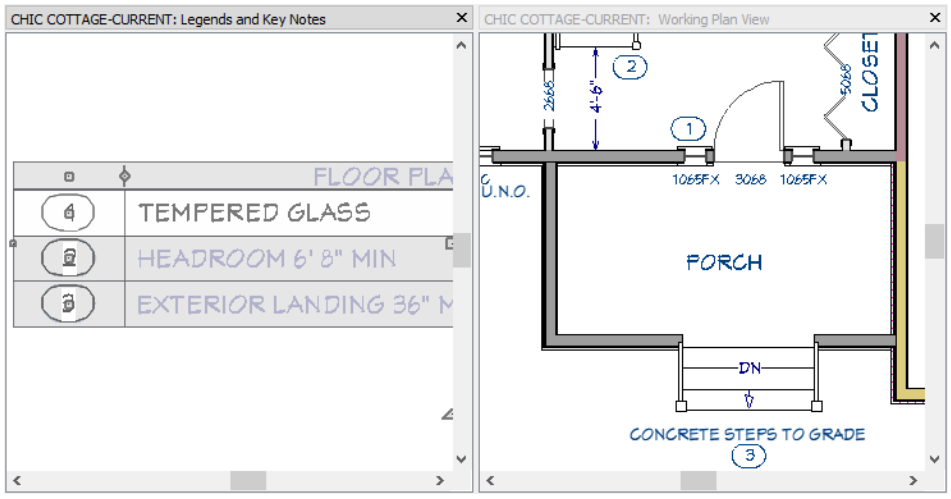
- Click on the handle located over the 2 cell and drag downward.
- When the information in the second row can also be seen in the third row, release the mouse button.
- The numbers stay in numerical order, but the Notes in the schedule change position.

6. In plan view, notice that the Note under the entry window is now 3 while the note at the bottom of the Porch stairs is now 2.



7. Click in plan view to make it the active window, then click on Note 2 to select it.
8. On its edit toolbar, notice two buttons:
   - Click the **Move Up in Schedule** edit button to move the selected object one row up in the schedule.
   - Click the **Move Down in Schedule** edit button to move the selected object one row down in the schedule.

9. Here, the **Move Up in Schedule** button is clicked twice to move the Tempered Glass note to the first row.



10. When you are finished, close the Legends and Notes CAD Detail window and **Save** your work.

You can continue working on this plan in the *Chic Cottage Roof* tutorial. Before doing so, though, it is a good idea to become familiar with the information in the *Roof Tutorials on page 127*.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Porches. Then, click OK.
3. Notice that Chic Cottage-Porches is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Organizing Documents in the Project Browser

There are now six archive Plans at this point in the design process. To help keep them organized, you create custom folders in the Project Browser.

To organize Plans using custom folders

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View>Project Browser**.
2. Right-click on the Chic Cottage Project and select **New Folder** from the contextual menu.
3. A new folder is created immediately below the Project level line item and an inline text editor is active.
4. Type a descriptive name for the folder and press the Enter key. Here, "Floor Plan Tutorials" is used.

5. Click on the "Chic Cottage-Decks.plan" to select it, then:
   - Hold down the ***Shift*** key and click on "Chic Cottage-Windows.plan".
   - The two documents as well as the four documents listed between them are selected as a group.
6. Click and drag the selection to the "Floor Plan Tutorials" folder. When the folder becomes highlighted, release the mouse button.'

REVIEW

This lesson describes the best practices for creating porch and deck rooms.

To pin a document to the top of the Recent Documents List *106*
To set the Deck Railing Defaults *107*
To set the Railing Defaults *108*
To set the Half Wall Defaults *108*
To set Porch Room Defaults *109*
To create a porch *109*
To set Deck Room Defaults *110*
To draw a deck *110*
To move dimension lines *111*
To add and remove extension lines *112*
To resize the Deck room *114*
To create a Terrain Perimeter *115*
To turn on the display of objects *117*
To draw porch stem walls *118*
To set the Exterior Stair Defaults *118*
To draw deck stairs to the terrain *119*
To create concrete porch stairs *120*
To add rich text annotations *122*
To add plan notes *122*
To change schedule numbering *122*
To save a plan revision *124*

Assessment Questions

Tutorial 6 - Decks and Porches

What are two ways that Deck Railing walls are different from other types of railings?

- Deck Railings use a single layer Wall Type so there is no siding material on the sides of deck platforms.
- When a room is enclosed by Deck Railings, it is assigned the "Deck" room type automatically.

What are two structural differences between Deck and Porch rooms?

- Deck rooms have a framed floor platform and no roof or ceiling, while Porches have a slab floor, a ceiling, and a roof.

What are the names of the two dimension line edit handles that let you add extension lines to new objects?

- The Add Extension Line edit handle is diamond-shaped and displays near the Move handle. It can be used to add an extension anywhere along the length of the dimension line.
- There is a circular Add Segments edit handle just beyond each end of a dimension line that lets you lengthen the dimension line.

How do you remove an extension line from a dimension line?

- Click the diamond-shaped Extension Line End handle, drag it away from the marked object and any other objects it might locate instead, and release the mouse button.

How do you specify whether a room is included in the total Living Area?

- You can specify whether a selected room is included in the Living Area calculation on the General panel of its Room Specification dialog.
- You can also set whether each Room Type is included or not in the Room Type Defaults dialog.

Where can the deck plank gap and width be set?

- Deck plank gap and width can be set on the Deck panel of the Deck Room Defaults dialog.
- These settings can be modified for a selected Deck room on same panel of the Room Specification dialog.

What tool is used to create deck and porch stairs?

- The Straight Stairs tool can be used to create deck and porch stairs. Stairs can be customized to create a variety of different styles.

What are two ways to change the numbering of Notes and the associated line items in a key note list?

- One way is to select a line item in a key note list or other schedule and click and drag its small square Move Row edit handle upward or downward.
- The other way is to select the Note or other object in the drawing itself and click the Move Up in Schedule or Move Down in Schedule edit button.

Roof Tutorials

Chapter 2

The Roof Tutorials describe best practices for creating basic roof styles in Chief Architect and then adding a roof to Chic Cottage.

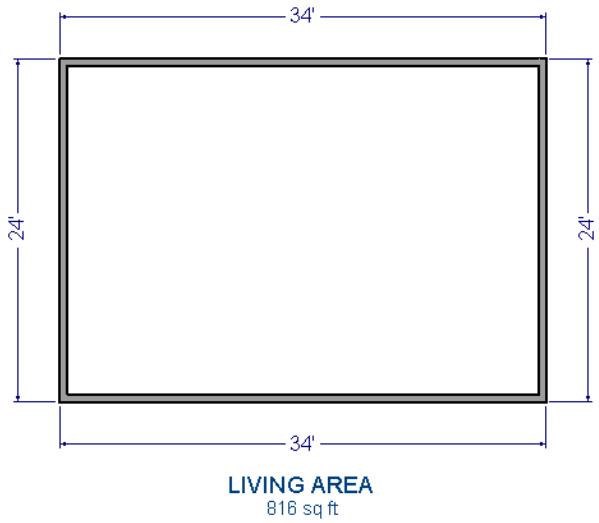
In this tutorial you will learn about:

Getting Started with Automatic Roof Styles

This tutorial uses a simple, rectangular structure to explain how to create common roof styles using roof style directives assigned to the exterior walls.

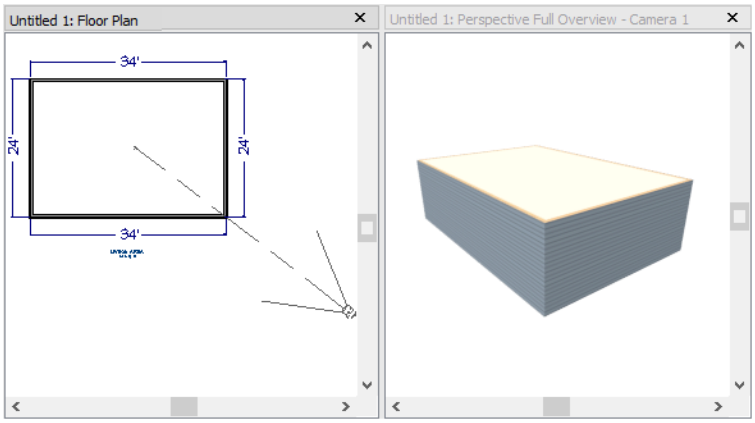
To begin a new plan

1. If any plans are open, select **File> Close All** from the menu.
2. Select **File> New Plan** to open a new plan.
3. Select **Build> Wall> Straight Exterior Wall** and draw a rectangular floor plan, measuring about 34 feet by 24 feet (approximately 10.4 m by 7.3 m), in a clockwise direction.



4. Select **3D> Create Perspective View> Perspective Full Overview** to create a 3D overview of the house.

5. Select **Window> Tile Vertically** to see both views at the same time.



Roof Style Directives in Walls

By default, the program will generate a roof plane bearing on each exterior wall that does not have a room-defining wall directly above it, and will use the pitch specified in the Build Roof dialog. The result is a hip style roof; however, if you need a different condition over a particular wall to produce another roof style, you can define it in that wall's specification dialog.

Individual walls can be selected and edited in both 2D and 3D views. When multiple walls are to be edited, however, it is usually quicker and easier to work in plan view: in part, because you can hold down the ***Shift*** key and group-select walls.

To set a wall's roof directives

1. Click the **Select Objects** button, then click on a wall to select it.
   - To select multiple walls, hold down the ***Shift*** key on the keyboard and click on additional walls to add them to the selection set.
2. Click the **Open Object** button to open the Wall Specification dialog.
3. On the Roof panel:
   - The **Roof Options** control how the roof builds over the selected wall.
   - The **Pitch Options** control how steep the roof that bears on the selected wall is.
   - The **Overhang** setting lets you specify how far the roof above extends past the wall's exterior.
   - The **Auto Roof Return** settings let you specify and customize automatic roof returns.
   - **Lower Wall Type if Split by Butting Roof** lets you create a lower Wall Type that follows the underside of an adjacent roof plane, if one is present.

The Roof Styles described in this tutorial use only the **Roof** and **Pitch Options**.

To reset all roof directives

1. Select **Edit> Reset to Defaults**.
2. In the Reset to Defaults dialog, set the Reset Scope to **All Floors**, check **Roof Directives in Walls**, and click **OK**.

Attic Walls

When a roof is generated, attic walls may also be generated. An Attic wall fills the space between the walls that define a room and the roof above. The triangular-shaped wall of a gable, for example, is created using an Attic wall.

If you do not want to see attic walls in plan view, you can turn off their display.

To turn off the display of attic walls

1. In plan view, select **Tools> Layer Settings> Display Options** (or press the ~ key) to open the Layer Display Options dialog.
2. Find "Walls, Attic" in the Name column, remove the check from the Display column for this item, and click OK.

DELETING ROOFS

Whether a roof was drawn manually or automatically generated, deleting roof planes is easy:

- Select an individual roof plane and **Delete** it.
- Select **Build> Roof> Delete Roof Planes** to delete all roof planes in the plan.
- Select **Edit> Delete Objects** and in the Delete Objects dialog, select either **All Rooms On This Floor** or **All Floors**; place a check beside **Roof Planes**; and click OK to delete all roof planes either on the current floor or in the plan.

If a warning message states that roofs cannot be deleted while **Auto Rebuild Roof** is on, click the **Yes** button to turn off **Auto Rebuild Roof** and delete the roof.

AUTO REBUILD ROOFS

Auto Rebuild Roofs is a convenient feature in Chief Architect that automatically rebuilds the roof in a plan whenever the exterior walls or floor/ceiling heights are changed. Auto Rebuild Roofs is turned off by default, and this tutorial is presented with this feature disabled; however the information presented here also applies when it is enabled.

To turn on/off Auto Rebuild Roofs

1. Select **Build> Roof> Build Roof** from the menu.
2. On the ROOF panel of the Build Roof dialog, check or uncheck **Auto Rebuild Roofs** and click OK.

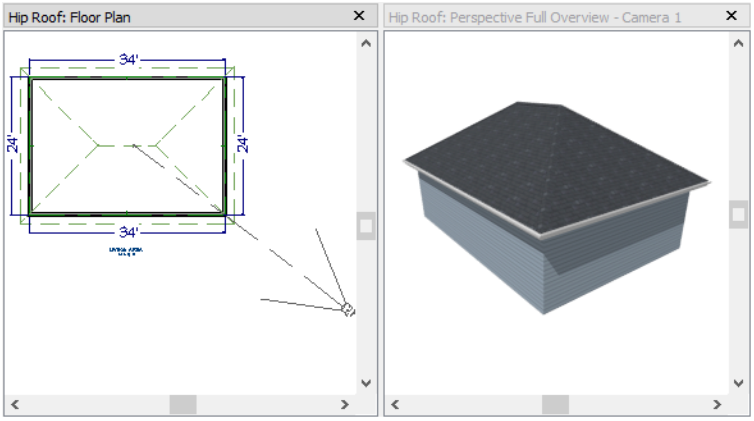
Hip Roofs

When roofs are automatically generated, a roof plane is built over every exterior wall in the plan that does not have another wall drawn above it. The result is referred to as a hip roof.

To create a hip roof

1. Begin with the basic rectangular structure described in *Getting Started with Automatic Roof Styles on page 127*.
2. Select **Build> Roof> Build Roof** from the menu to open the Build Roof dialog.

3. Check **Build Roof Planes** and click OK to generate a hip roof.

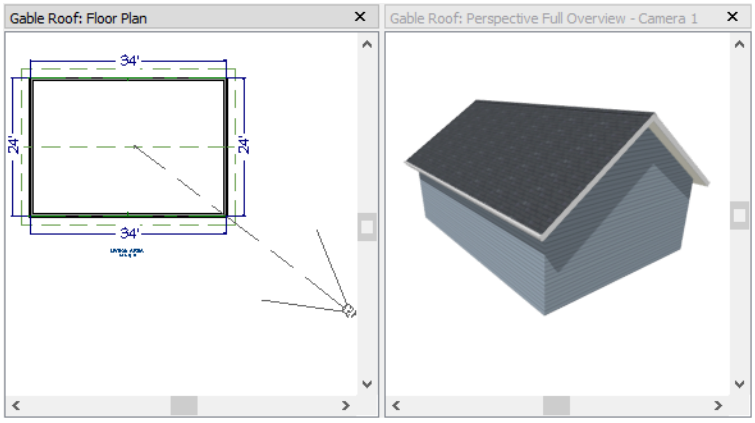


Gable Roofs

If you would like a gable over a particular wall rather than a roof plane bearing on it, you can specify it as a **Full Gable Wall** in the Wall Specification dialog. To create basic gable roof, two walls should be specified as **Full Gable Wall**.

To create a gable roof

1. Begin with the basic rectangular structure described in *Getting Started with Automatic Roof Styles on page 127*.
2. Click the **Select Objects** tool, select the vertical wall on the left, hold down the ***Shift*** key, and select the vertical wall on the right. The two walls should be group-selected.
3. Open the Wall Specification dialog and on the ROOF panel, select **Full Gable Wall** and click OK. See *To set a wall's roof directives on page 128*.
   - Alternatively, you can click the **Change to Gable Wall(s)** edit button.
   - To remove the Full Gable Wall attribute from a selected wall, click the **Change to Hip Wall(s)** edit button.
4. Select **Build> Roof> Build Roof** to open the Build Roof dialog, check **Build Roof Planes**, and click OK.

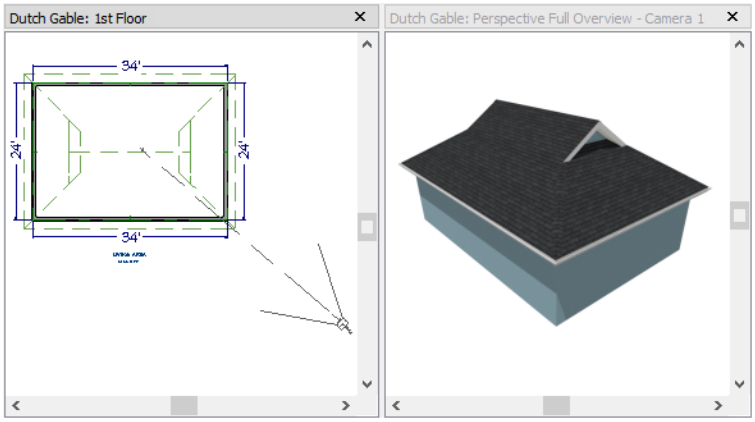


Dutch Gable Roofs

A Dutch gable, sometimes called a Dutch hip, is a combination of hip and gable roof styles in which a gable is located at the end of the ridge, at the top of a hip roof plane.

To create a Dutch gable roof

1. Begin with the basic rectangular structure described in *To begin a new plan on page 127*.
2. Click the **Select Objects** tool, select the vertical wall on the left, hold down the ***Shift*** key, and select the vertical wall on the right. The two walls should be group-selected.
3. Open the Wall Specification dialog and on the ROOF panel, change the following settings:
   - Select **Dutch Gable Wall**.
   - Specify the **Starts at Height** as 180".
4. Click OK to close the Wall Specification dialog. See *To set a wall's roof directives on page 128*.
5. Select **Build> Roof> Build Roof** to open the Build Roof dialog, check **Build Roof Planes**, and click OK.

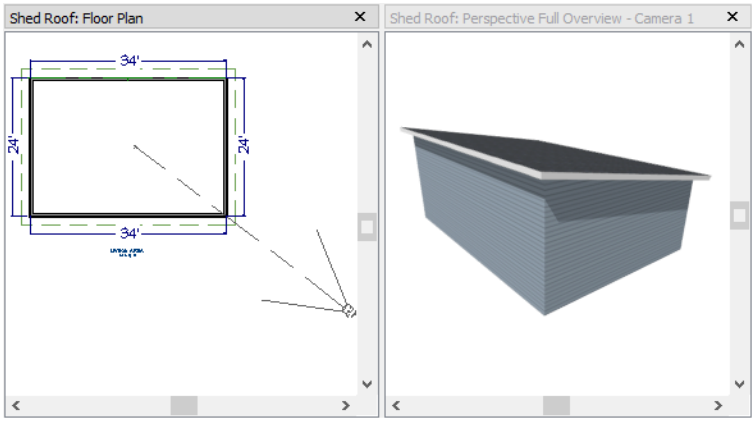


Shed Roofs

To create a single, sloping roof plane, or shed roof, two walls must be specified as **Full Gable Walls**, and one must be a **High Shed/Gable Wall**.

To create a shed roof

1. Begin with the basic rectangular structure described in *Getting Started with Automatic Roof Styles on page 127*.
2. As in the *Gable Roofs on page 130* example, specify the left and right vertical walls as **Full Gable Walls**.
3. Select the wall where you want the high end of the shed roof and open its Wall Specification dialog. On the ROOF panel, check **High Shed/Gable Wall** and click OK. See *To set a wall's roof directives on page 128*.
   - In this example, the lower wall on screen is set as the High Shed/Gable Wall.
4. Select **Build> Roof> Build Roof** to open the Build Roof dialog, specify a **Pitch** of 2 in 12, check **Build Roof Planes**, and click OK.

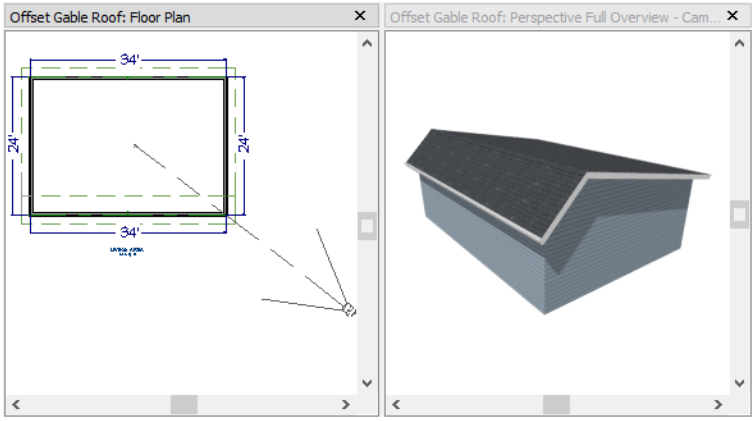


Offset Gable Roofs

An offset gable is a type of gable roof with different pitches on each of the two roof planes and a ridge that is offset from the building's center line. Assign a different pitch to the two roof planes in the Wall Specification dialog for the wall supporting each one.

To create an offset gable roof

1. Begin with the basic rectangular structure described in *To begin a new plan on page 127*.
2. As in the *Gable Roofs on page 130* example, specify the left and right vertical walls as **Full Gable Walls**.
3. Select the lower horizontal wall and open its Wall Specification dialog. On the ROOF panel, leave the **Roof Options** unchecked and change the **Pitch** to 12 in 12. See *To set a wall's roof directives on page 128*.
4. Select **Build> Roof> Build Roof** to open the Build Roof dialog, check **Build Roof Planes**, specify the **Pitch** as 2 in 12, and click OK.

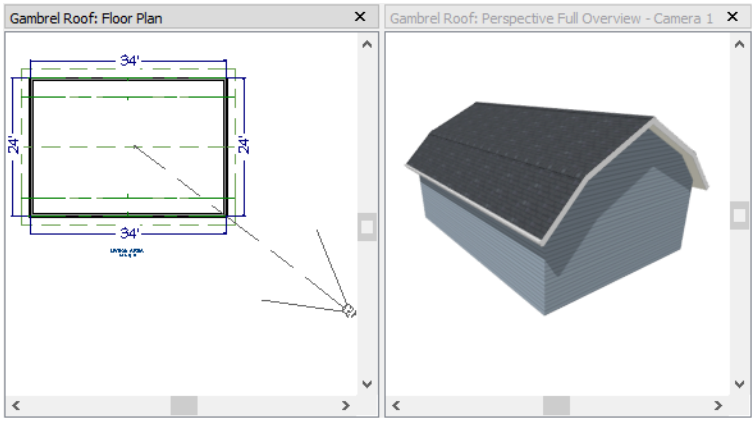


Gambrel Roofs

A gambrel or barn style roof has two pitches on each side of the ridge. The first (lower) pitch on either side is steeper than the pitch near the ridge.

To create a gambrel roof

1. Begin with the basic rectangular structure described in *Getting Started with Automatic Roof Styles on page 127*.
2. As in the *Gable Roofs on page 130* example, specify the left and right vertical walls as **Full Gable Walls**.
3. Click the **Select Objects** tool, select the horizontal wall on the top, hold down the ***Shift*** key, and select the horizontal wall on the bottom. The two walls should be group-selected.
4. Open the Wall Specification dialog and on the ROOF panel, change the following settings:
   - Make sure that the **Pitch** field has the Active Defaults icon.
   - Check the box beside **Upper Pitch**.
   - Specify the **Upper Pitch** as 6 in 12 and the **Start Height** as 156".
   - To learn more, see *Finding the Start of an Upper Pitch on page 135*.
5. Click OK to close the Wall Specification dialog. See *To set a wall's roof directives on page 128*.
6. Open the Build Roof dialog, check **Build Roof Planes**, specify the **Pitch** as 12 in 12, and click OK.



Experiment with alternate pitches and overhangs. Also, try varying the height at which the second pitch begins so that you can see the effect it has on the gambrel roof design.

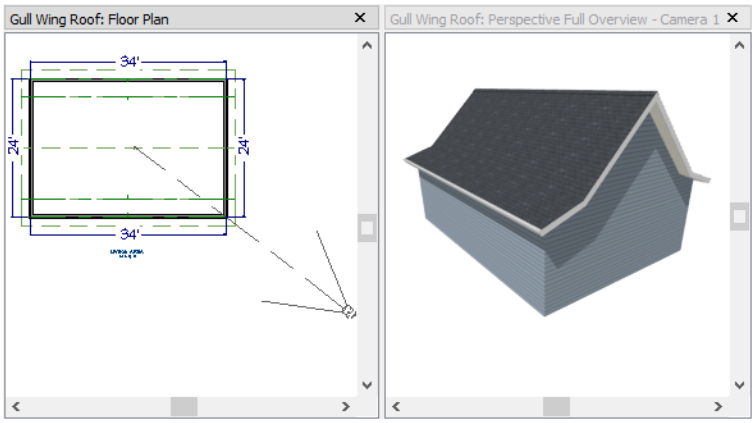
Gull Wing Roofs

A gull wing roof has two pitches on either side of the ridge, as a gambrel does; but the first pitch of a gull wing is shallower than the steeper upper pitch.

To create a gull wing roof

1. Begin with the basic rectangular structure described in *Getting Started with Automatic Roof Styles on page 127*.
2. As in the *Gable Roofs on page 130* example, specify the left and right vertical walls as **Full Gable Walls**.
3. Click the **Select Objects** tool, select one of the horizontal walls, hold down the ***Shift*** key, and select the other horizontal wall. The two walls should be group-selected.
4. Open the Wall Specification dialog and on the ROOF panel, change the following settings:
   - Make sure that the **Pitch** field has the Active Defaults icon.
   - Place a check in the box beside **Upper** Pitch.
   - Keep the **Upper Pitch** as 12 in 12 and change the **Start Height** to 125".
   - To learn more, see *Finding the Start of an Upper Pitch on page 135*.

5. Click OK to close the dialog. See *To set a wall's roof directives on page 128*.
6. Click the **Build Roof** tool, specify a **Pitch** of 3 in 12, check **Build Roof Planes**, and click OK in the Build Roof dialog.



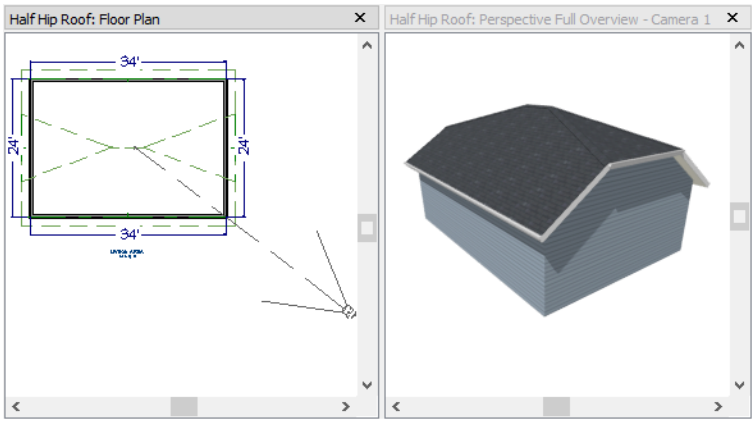
Experiment with the height at which the second pitch begins so that you can see the effect it has on the gull wing roof design.

Half Hip Roofs

A half hip roof has two gable ends. At the top of each gable is a small hip that extends to the ridge.

To create a half hip roof

1. Begin with the basic rectangular structure described in *Getting Started with Automatic Roof Styles on page 127*.
2. As in the *Gable Roofs on page 130* example, specify the left and right vertical walls as **Full Gable Walls**. In addition, change the following **Pitch Option** settings:
   - Check the box beside **Upper Pitch**.
   - Specify the **Upper Pitch** as 3 in 12 and set the **Start Height** at 170".
3. Click the **Build Roof** tool, check **Build Roof Planes**, and click OK in the Build Roof dialog.

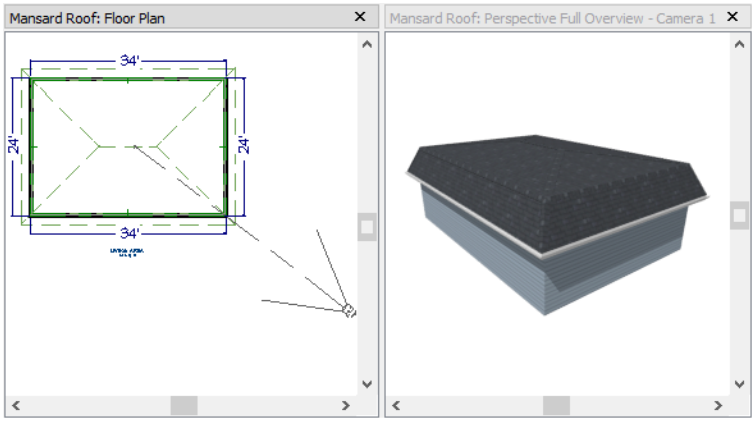


Mansard Roofs

A mansard roof is a hip roof with two pitches on the roof sections above each exterior walls: an extremely steep lower pitch and a gently sloping upper pitch.

To create a mansard roof

1. Begin with the basic rectangular structure described in *Getting Started with Automatic Roof Styles on page 127*.
2. Click the **Select Objects** tool, select one of the exterior walls, hold down the ***Shift*** key, and click on the remaining walls to select them as a group.
3. Open the Wall Specification dialog and on the ROOF panel, and change the following settings:
   - Check the box beside **Upper Pitch**.
   - Specify the **Upper Pitch** as 1.5 in 12 and the **Start Height** as 132".
   - To learn more, see *Finding the Start of an Upper Pitch on page 135*.
4. Click OK to close the dialog. See *To set a wall's roof directives on page 128*.
5. Click the **Build Roof** tool, specify a **Pitch** of 24 in 12, check **Build Roof Planes**, and click OK in the Build Roof dialog.

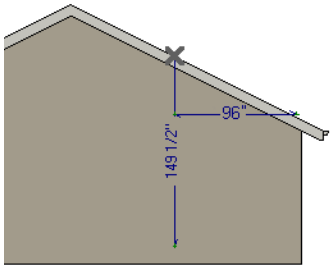


Finding the Start of an Upper Pitch

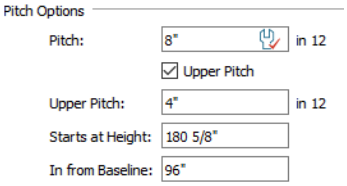
When creating a roof style with lower and upper pitches, you can determine the exact Starts at Height or In From Baseline values that you need in an elevation view.

To find the start of an upper pitch

1. Generate the roof using only the first, lower pitch. Be sure to define all the roof information for each wall (gable, hip, first pitch, etc.).
2. Create a cross section view that includes the roof plane that will have the second pitch.
3. Select **CAD> Points> Place Point**, click to place a temporary point near the location where you want the second pitch to start, then using the **Point-to-Point Dimension** tool either:
   - Drag a dimension line from the floor on Floor 1 (which has a height of 0 by default) to the temporary point.
   - Drag a dimension line from the baseline to the vertical plane of the temporary point.



4. Enter either of these values in the Wall Specification dialog. You can press the ***Tab*** key to update the other value. Click OK to close the dialog.



5. Open the Build Roof dialog, check **Build Roof Planes** and click OK to rebuild the roof.

Chic Cottage Roof

With a basic understanding of how automatically generated roofs work, a roof can be created in the Chic Cottage plan.

Learning Objectives

The previous lesson, *Decks and Porches*, explained how to create Deck and Porch rooms in Chief Architect. This lesson describes techniques that can be used to create a custom roof for Chic Cottage. Concepts introduced include:

File Management *137*
Productivity Tips *137*
Setting the Defaults *137*
Using Plan Views *138*
Working in Camera Views *140*
Adding a Roof to Chic Cottage *140*
Controlling Roof Height *145*
Creating a Curved Roof *148*
Adding Roof Details *152*
Moving the Display of Roof Planes *154*
Adding Annotations *155*
Creating Revisions *157*

File Management

At this point in the design process, both the Chic Cottage-Porches and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Porches was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create the roof in Chic Cottage, keep in mind these tips to improve your productivity.

Drawing and Editing

- Many roof designs are best created by generating a roof automatically and then manually editing individual roof planes.
- The **Join Roof Planes** edit tool lets you join the edges of two roof planes along a line or arc to form a geometrically correct valley, hip, or ridge.

Content

- A selection of name brand roofing catalogs are available for download from the 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.

Interface

- Tiling 2D and 3D views can make it easier to manually edit a roof design.
- Auto Rebuild Roofs and tiled views are often helpful during roof design - in large plans, both can cause slowness on some systems.
- When a roof design is complete, be sure to turn off Auto Rebuild to avoid unwanted changes.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + R*** - Build Roof
- ***F6*** - Fill Window
- ***F9*** - Reference Display
- ***3*** - Add Break edit tool
- ***2*** - Join Roof Planes edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When creating a roof, there are a number of defaults that should be borne in mind.

Settings in the Floor Defaults dialogs that affect the overall height of a structure will also affect roof height. These include the default Ceiling Heights and Floor and Ceiling Platform Thicknesses. See *To set the 1st Floor Defaults on page 14* and *"To set the default floor structures" on page 12 of the Exterior Walls Tutorial*.

The structure of individual rooms can be customized, and will also affect how roofs build. In addition, a room can be set to have a roof above it, or not. See *To add a shed roof over the deck on page 145*.

The settings in the Roof Defaults control the structure and appearance of the roof itself. See *To set the roof defaults on page 141*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

As noted in the *Exterior Walls* tutorial, Saved Plan Views have a number of important settings associated with them, including active Layer Set and Saved Defaults. In previous tutorials, the "Working Plan View" is active, the Active Layer Display Options side window is used to turn the display of various objects off and on, and all annotations are created using saved "Plan Rich Text Defaults" and "Plan Scale Callout Defaults" settings. See *"To examine a saved plan view's settings" on page 5 of the Exterior Walls Tutorial*.

When you know that a particular task will require you to make changes to multiple layers and to create annotations using different saved defaults, you can save time by opening a Saved Plan View created for that task. You can switch between Saved Plan Views in the Project Browser or using the **Saved Plan View Control** drop-down in the toolbars.

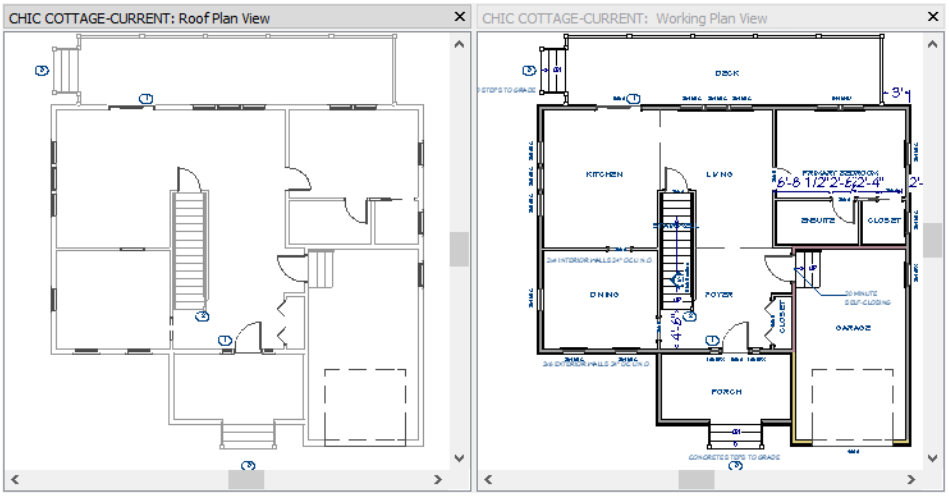
To open and examine a saved plan view

1. The Project Browser side window is docked to the right side of the program window by default.
   - Click on its tab to display it in front of the other side windows at that location.
   - If it is not open, select **View> Project Browser**  .
2. Under the CHIC COTTAGE - CURRENT line item are a set of folders. The "Plan Views" folder should be expanded already, but if it is not click the arrow to its left.
3. Right-click on "Roof Plan View" in the Project Browser and select **Edit View** from the contextual menu.
4. In the Saved Plan View Specification dialog, notice the various settings that control what displays in this view:
   - The settings on the General panel control a variety of behaviors and display options.
   - The settings on the Selected Defaults panel control which saved defaults and layer settings are active in the view. Notice that the "Roof Plan View" uses the "Roof Plan Layer Set".
   - The settings on the Reference Display panel control the appearance of the Reference Floor in the view, as well as whether it displays.
5. Click OK to close the dialog.
6. Right-click on "Roof Plan View" and select **Open View** from the contextual menu. Notice:
   - There are now two view window tabs above the active view window.
   - The "Roof Plan View" is now the active view.
   - In the Project Browser, both "Working Plan View" and "Roof Plan View" now have an icon indicating that they are Open.

There are several ways to switch between open view windows, but clicking on the tab associated with a view window is usually the easiest.

To compare plan views

1. Select **Window> Tile Vertically** to tile the two windows side by side and compare their appearance.



2. Notice:
   - Room labels, door and window labels, camera symbols, and multiple wall layers display in the "Working Plan View" but not in the "Roof Plan View".
   - The dimensions and text created in previous tutorials are turned off in the "Roof Plan View".
   - The lines representing walls are lighter in color in the "Roof Plan View".
3. If it is not already open, select **View> Active Layer Display Options** to open the Active Layer Display Options side window.
4. Notice that "Roof Plan Layer Set" is selected at the top of the side window, indicating that it is in use in the current view.
5. Use the scroll bar to browse through the list of layers and notice:
   - Many of the layers are turned off.
   - The "Text" and "Text, Callouts" layers are turned off, while the "Text, Roofs" layer is turned on.
   - The "Walls, Normal" layer has a grey color assigned to it.
6. Click on the "Working Plan View" tab to make it the active view window.
7. In the Active Layer Display Options side window, notice:
   - The "Working Layer Set" is now selected at the top of the side window.
   - Most of the layers are now turned on.
   - The "Text" and "Text, Callouts" layers are turned on.
   - The "Walls, Normal" layer color is black.
8. In the plan view, notice:
   - The room labels, door and window labels, and multiple wall layers display.
   - The text and callout annotations created in previous tutorials are now turned on.
   - The lines representing walls are now black.

Although the display settings in the "Working Plan View" are useful for plan views, those in the "Roof Plan View" are typical of roof plan drawings and will make working on roofs easier.

To close a plan view

1. There are several ways to close a plan view:
   - Right-click on its name in the Project Browser and select **Close View** from the contextual menu.
   - Click the **Close Tab** button on its view window tab.
   - Select **File> Close View** while the view in question is active.
2. Close the "Working Plan View" using the method of your choice.

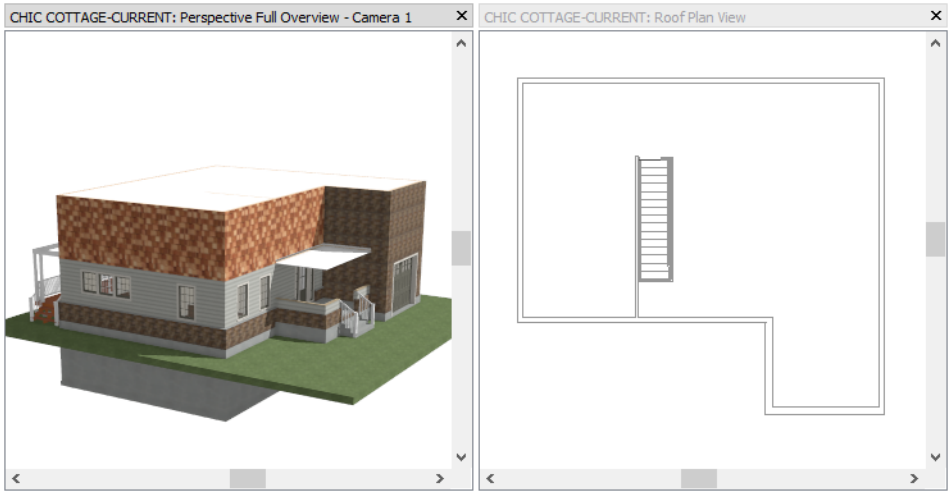
The "Roof Plan View" should now be the only open view window.

Working in Camera Views

Roofs can often be best worked on and understood when 2D and 3D views are tiled.

To tile floor plan and camera views

1. Go **Up One Floor** to Floor 2.
2. Select **3D> Create Perspective View> Perspective Full Overview** to create a 3D overview of the house.
3. Select **Window> Tile Vertically** to tile the overview and plan views side by side.
4. Click and drag with the **Mouse-Orbit Camera** tool active to orbit the camera around the model until the side of the Porch can be seen.
5. Notice that the overview's title bar is darker in color than that of the plan view. The darker title bar indicates that the overview is the currently active view.



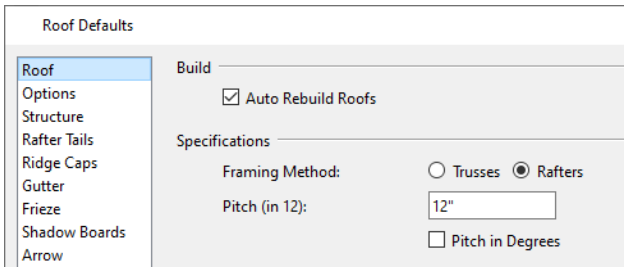
6. Click on the plan view's title bar or anywhere within the view window to make it the currently active view instead.

Adding a Roof to Chic Cottage

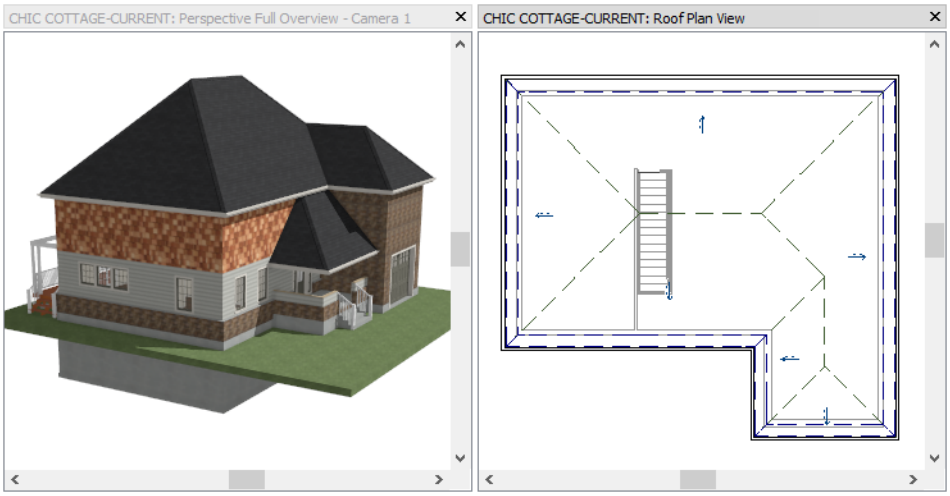
By default, Chief Architect builds a roof plane bearing on each exterior wall, producing a hip roof style. See *Hip Roofs on page 129*.

To set the roof defaults

1. Select **Edit> Default Settings**, select "Roof" in the tree list and click the **Edit** button.
2. On the ROOF panel of the Roof Defaults dialog:



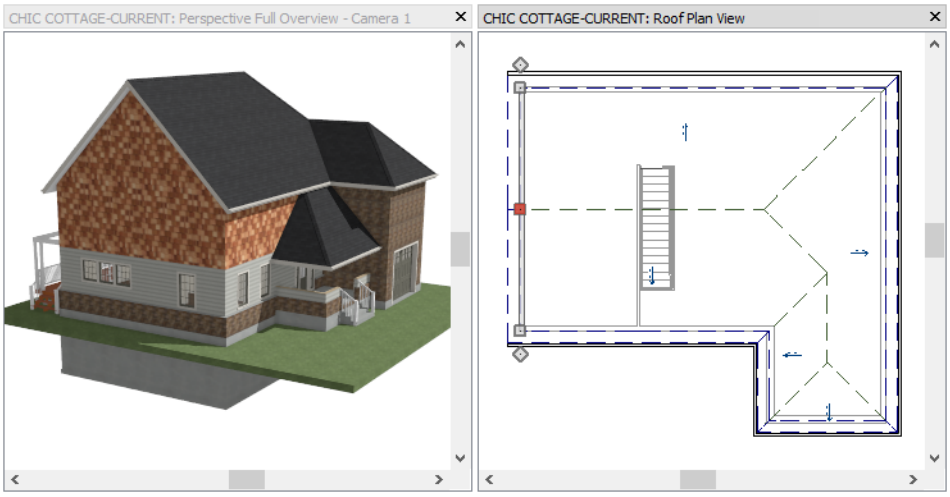
   - Check **Auto Rebuild Roofs**.
   - Make sure **Rafters** are the selected **Framing Method**.
   - Specify the **Pitch** as 12" in 12".
3. On the STRUCTURE panel, specify the roof surface material, rafter depth, and other details of how the roof planes are to be constructed. The initial settings will be used for now and will be modified later. See *"Setting the Defaults" on page 364 of the Roof and Ceiling Framing Tutorial*.
4. Click OK and then Done to close both dialogs and apply your change.



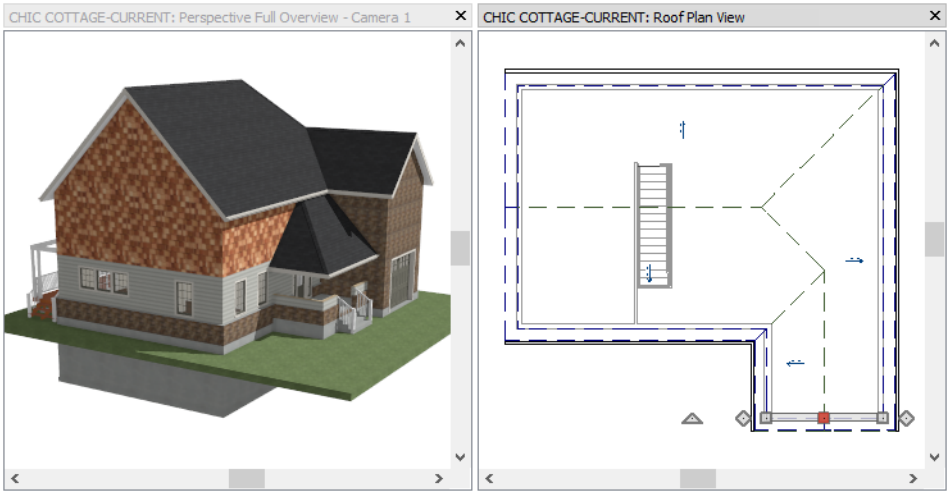
With Auto Rebuild Roof checked, a roof builds automatically and will rebuild any time a change is made to the model that affects the roof.

To add gable walls

1. In plan view, click the **Select Objects** button, then click on the vertical wall on the left side of the plan to select it.
2. There are two ways to specify this wall as a gable wall:
   - Check **Full Gable Wall** on the ROOF panel of its Wall Specification dialog.
   - Click the **Change to Gable Wall(s)** edit button.



3. Specify the front wall of the Garage as a Full Gable Wall, as well.

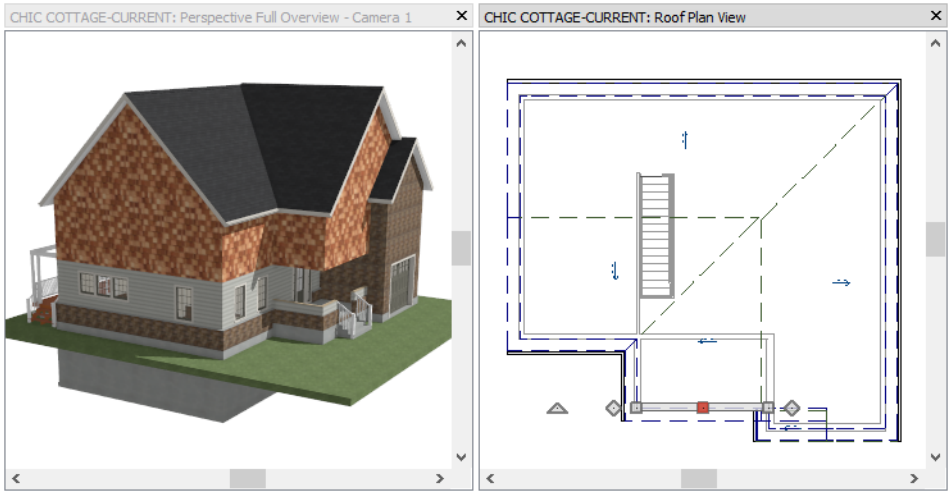


The Porch roof is built over the first floor, so it is lower than the rest of the roof. By adding a room above it, that roof can be raised and a nested gable created.

To create a nested gable

1. Select **Tools> Floor/Reference Display> Reference Display**, then **Zoom** in on the Porch area in the front of the structure.
2. Select **Build> Wall> Straight Exterior Wall**, then draw a wall over the red lines representing the vertical porch Half Wall on Floor 1.
3. The new wall's yellow fill indicates that it is a Stone-6 wall type, created earlier. See *"To create a new Wall Type" on page 9 of the Exterior Walls Tutorial*.
4. Open the wall's specification dialog and change its wall type to Shingle-6. See *"To customize the second floor Wall Type" on page 48 of the Multiple Floors Tutorial*.
5. No additional stone walls will be needed so with the new wall selected, click the **Set as Default** edit button. A message will report that the Exterior Wall tool has been updated.
6. Select the **Straight Exterior Wall** tool and draw a wall over the red lines representing the horizontal porch Half Wall on Floor 1. Notice that this wall is purple, indicating that it is a Shingle-6 wall.

7. Confirm that the new walls are aligned with the Half Walls below. See *"To align walls between floors" on page 53 of the Multiple Floors Tutorial*.
8. Select the horizontal wall and specify it as **Full Gable Wall**.

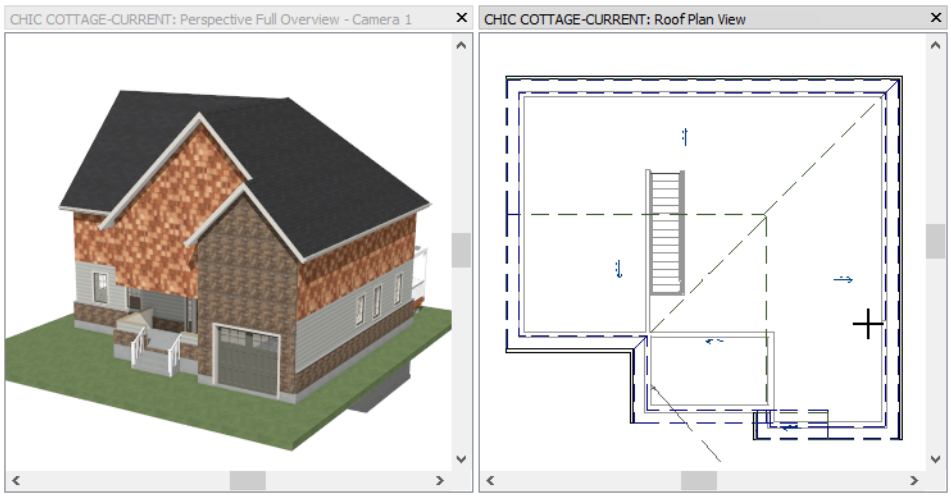


9. When you are finished, select **Tools> Floor/Reference Display> Reference Display** or press the ***F9*** key to turn the Reference Display off again.

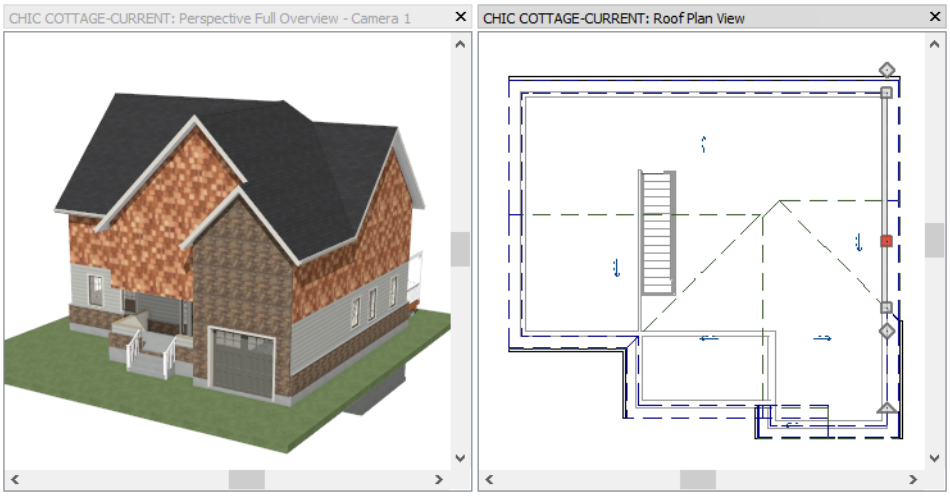
The vertical wall on the right also needs a gable above it: but only over the portion that is located behind the garage bump-out.

To create a reverse gable

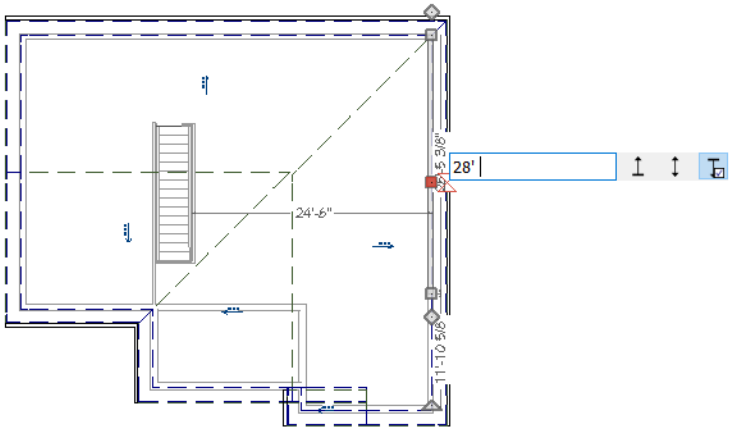
1. Click in the overview to make it the active window, then use the **Mouse-Orbit Camera** tool to orbit the camera around the model until the right side of the structure can be seen.
2. Return to the plan view window, click on the right vertical wall to select it, then click the **Add Break** edit button.
3. Click once on the right vertical wall, anywhere along the back part of the Garage room to break the wall into two segments at that location.



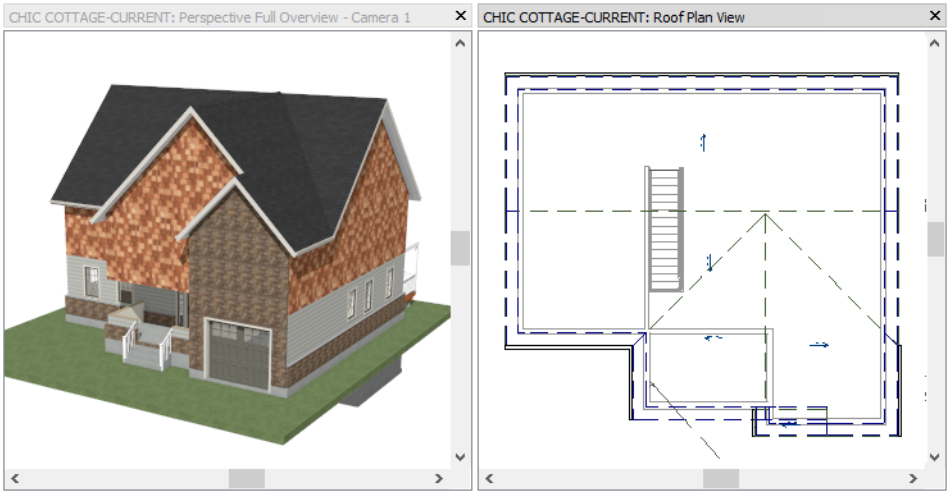
4. Click the **Select Objects** button, then click on the back portion of the vertical wall and specify it as a **Full Gable Wall**.



5. With the wall still selected:
   - Click on the temporary dimension line that reports its length.
   - In the inline text field, type 28’ to match the length of the opposite exterior wall and press Enter.



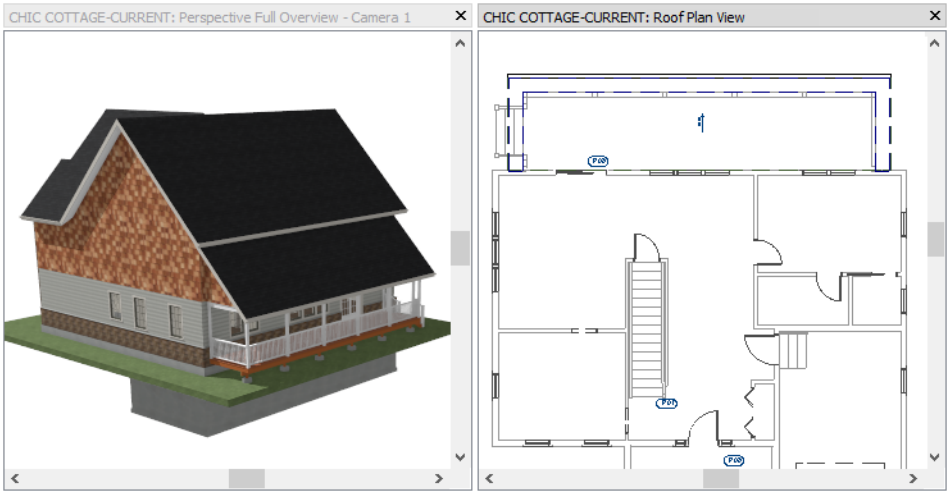
6. The gable on the right is now identical to the gable on the left and a single ridge line generates across the structure.



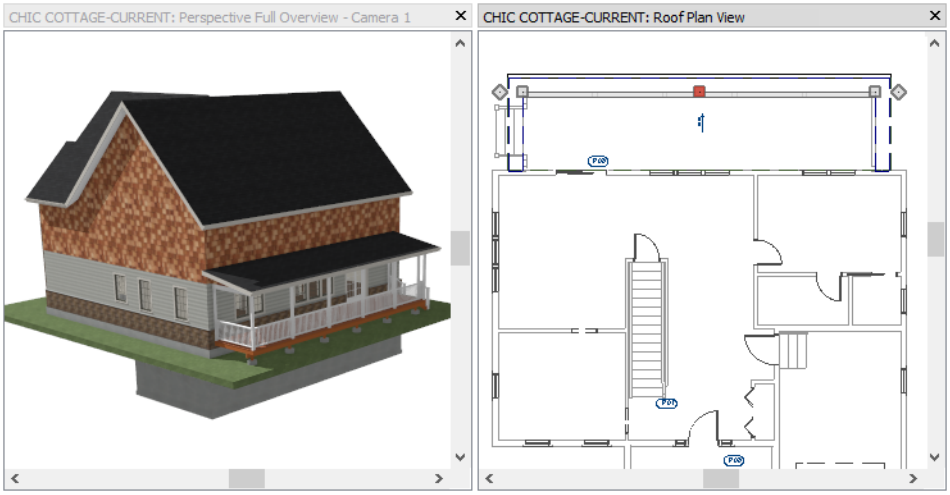
By default, Deck rooms do not have a ceiling or a roof. Once created, though, Decks can be customized.

To add a shed roof over the deck

1. Click in the overview to make it the active window, then use the **Mouse-Orbit Camera** tool to orbit the camera around the model until the Deck room can be seen.
2. Return to the plan view window and go **Down One Floor** to Floor 1.
3. Click the **Select Objects** button, then click in the Deck room to select it.
4. Click the **Open Object** edit button, and on the STRUCTURE panel of the Room Specification dialog, check the boxes beside **Roof Over This Room** and **Flat Ceiling Over This Room** and click OK.
5. Specify the two vertical side railings of the Deck as **Full Gable Walls**.



6. Select the horizontal deck railing and click the **Open Object** edit button.
7. On the ROOF panel of the Railing Specification dialog, specify the **Pitch** as 2" in 12".



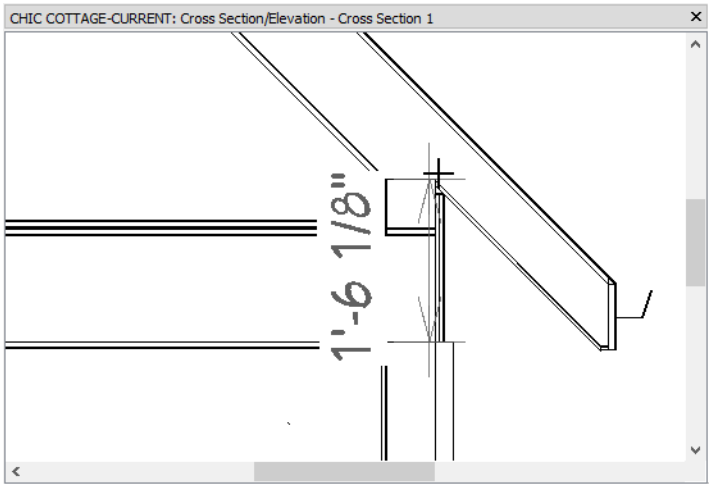
8. When you are finished, remember to **Save** your work.

CONTROLLING ROOF HEIGHT

There are a number of ways to control and customize roof heights. By default, they are based on the ceiling heights of the rooms below.

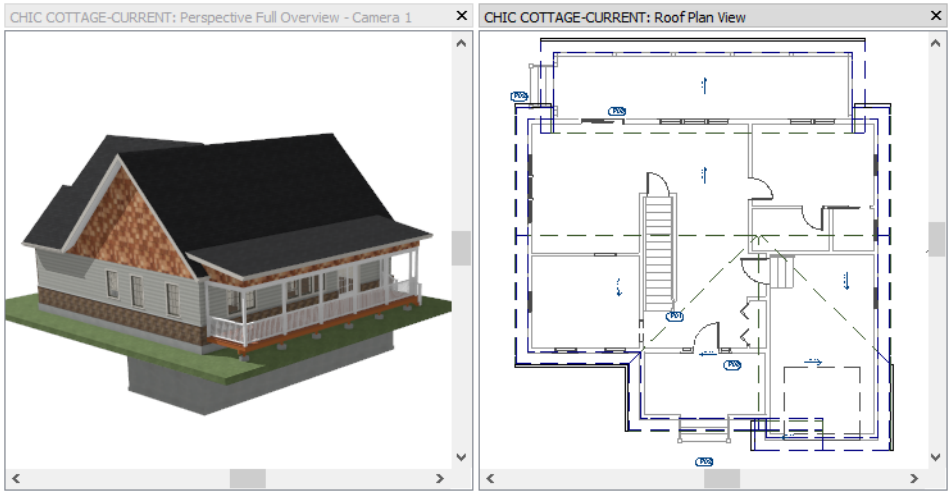
To create a story and a half

1. Select **Build> Roof> Build Roof** .
2. On the ROOF panel of the Build Roof dialog, under the "Roof Height" heading:
   - Specify the **Raise/Lower All Roof Planes** value as 18 1/8".
   - Check the box beside **Ignore Top (2nd) Floor**.
   - Click OK.
3. Notice how the roof builds now:
   - The roof builds over the ceilings on Floor 1 instead of Floor 2.
   - The roof directives of the walls on Floor 1 are used instead of those on Floor 2.
4. Select **3D> Create Orthographic View> Back Clipped Cross Section** , then:
   - Click and drag horizontally to create a camera inside the Kitchen room.
   - Limit the length of the camera line to one or two plan feet and make sure that you draw the camera either straight left to right or straight right to left on-screen.
   - For more information, see *To create a Back Clipped Cross Section on page 17*.
5. **Zoom** in on the right side of the section view, where the front wall meets the roof.
6. Select **CAD> Dimension> Tape Measure** , then click and drag to draw a temporary dimension line that measures the distance from the top of the wall to the bottom of the roof plane that bears on it.



7. Notice that the distance matches the **Raise/Lower All Roof Planes** value set in the Build Roof dialog, then select **File> Close View** to return to the plan view window.
8. On Floor 1, specify the front walls of the Garage and the Porch as a **Full Gable Walls**. See *To add gable walls on page 141*.
9. Specify the two side walls of the main structure as **Full Gable Walls**, as described above. See *To create a reverse*

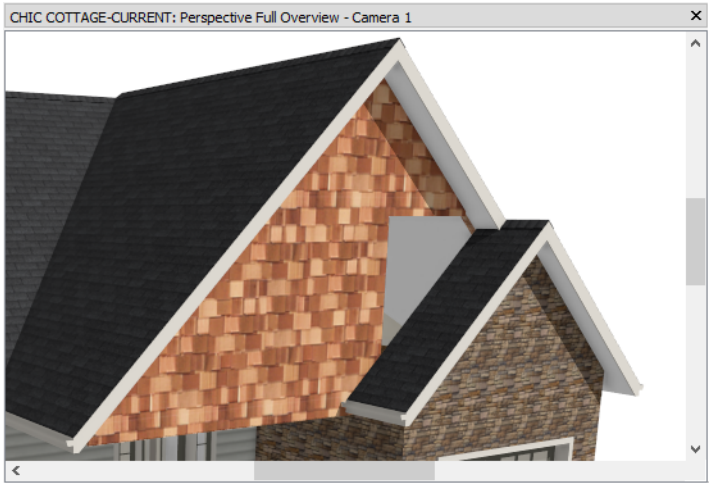
gable on page 143.



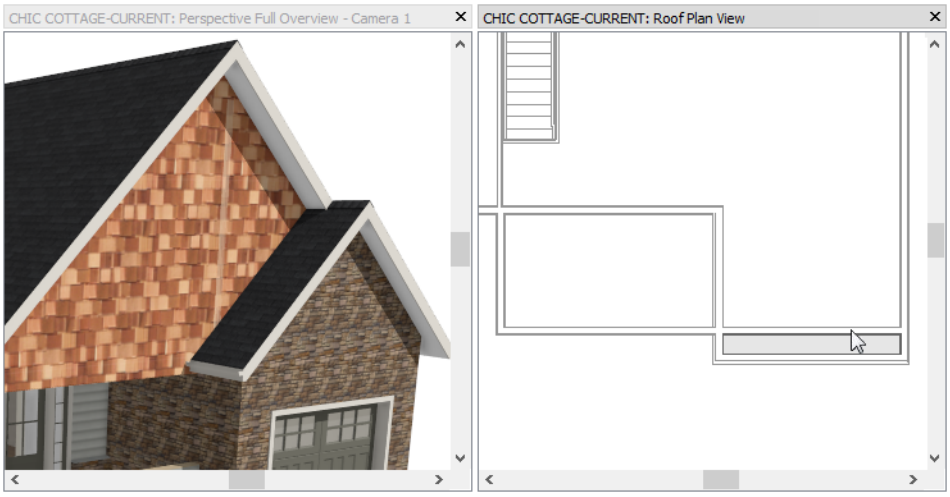
Lowering the roof also reduces the top heights of many of the walls. In the front of the structure, the gable over the garage door now has a gap behind it.

To edit the nested gable wall

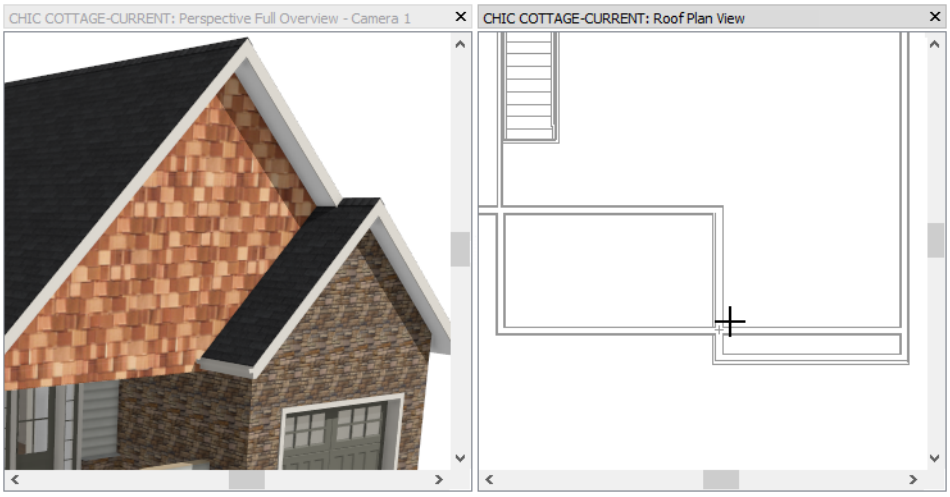
1. Click in the overview to make it the active window, then use the **Mouse-Orbit Camera** tool to orbit the camera around the model until the front of the structure can be seen.
2. **Zoom** in on the gable over the Porch and Garage rooms and notice the gap in the wall.



3. Return to the plan view window, go **Up One Floor** to Floor 2, and zoom in on the area over the Porch and Garage rooms.
4. Click the **Select Objects** button, then click on the horizontal wall located over the front of the Porch room to select it.
5. Click and drag its right end edit handle to the right until it reaches the vertical exterior wall on the right side of the structure. The gap seen in the camera view will be closed.
6. Click in the small rectangular "Living" room that is created over the front of the Garage, then click the **Open Object** edit button.



7. On the GENERAL panel of the Room Specification dialog, select "Attic" from the **Room Type** drop-down list, then click OK.
8. Select the vertical wall on the left side of the Attic room and click the **Add Break** edit button. Next:



   - Click once at the intersection of the vertical wall on the left side of the Attic room and the back horizontal wall.
   - This will prevent the vertical wall from building through the horizontal Shingle-6 wall.
9. Remember to **Save** your work.

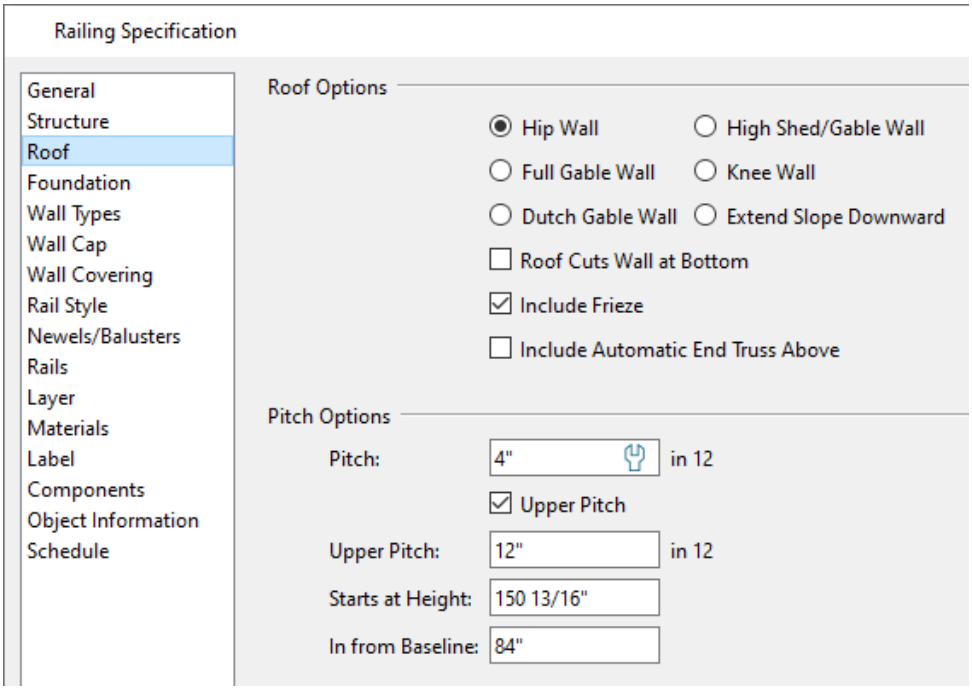
CREATING A CURVED ROOF

Custom roof configurations can be created by generating a roof automatically and then editing individual roof planes.

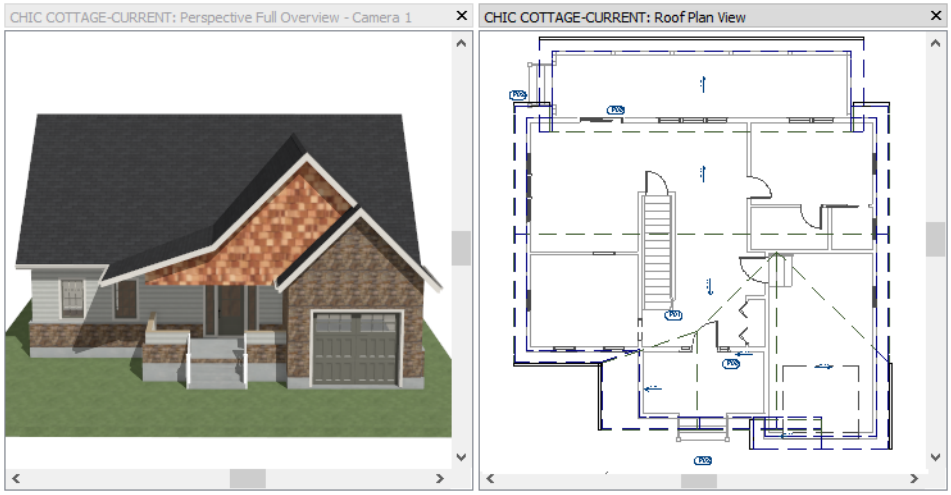
To add a gull wing

1. With the plan view window active, go **Down One Floor** to Floor 1.
2. Click the **Select Objects** button, then click on the vertical Half Wall on the left side of the Porch room to select it.

3. Click the **Open Object** edit button, and on the ROOF panel of the Railing Specification dialog:



- Specify the **Pitch** as 4" in 12".
- Check the box beside **Upper Pitch**.
- Specify the Upper Pitch as 12" in 12".
- Specify the **In From Baseline** value as 7'or 84", and click OK.

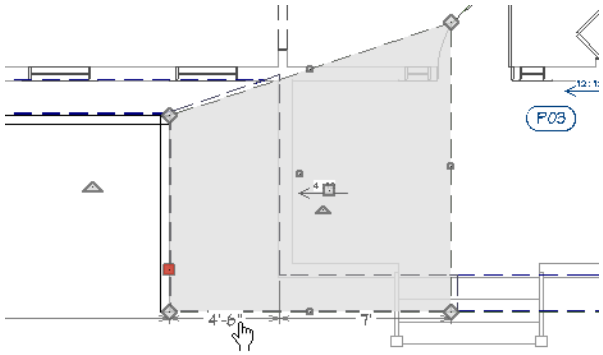


4. Notice that because of the reduced pitch, the lower Porch roof has a deeper eave so that it can have the same fascia height as the adjacent roof eave.

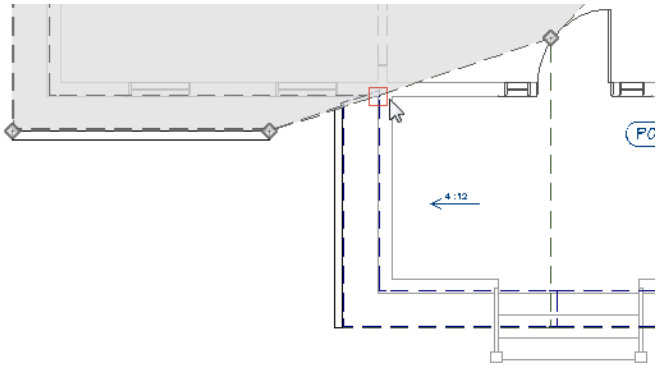
Once created, roof planes can be individually selected and edited. In order to edit a roof plane, Auto Rebuild Roofs must be turned off.

To edit roof overhangs

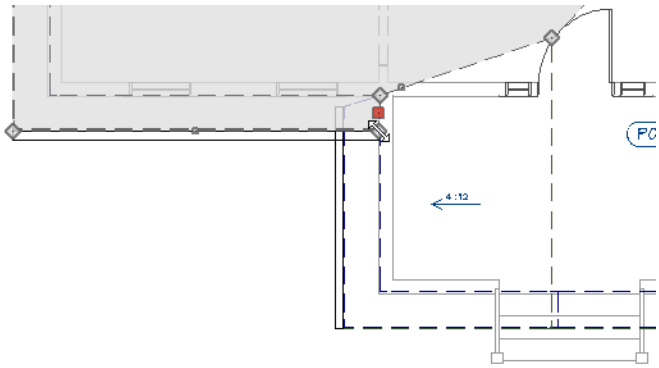
1. In the plan view window, **Zoom** in on the Porch, Foyer, and Dining rooms.
2. Click the **Select Objects** button, then click on the edge of the roof plane located over the left porch Half Wall to select it.
   - To produce a Temporary Dimension that reports the eave depth, click on the lower portion of the eave edge, across from the exterior corner of the Porch.
3. Click on the Temporary Dimension that reports how far the eave edge is from the framing layer of the Half Wall.



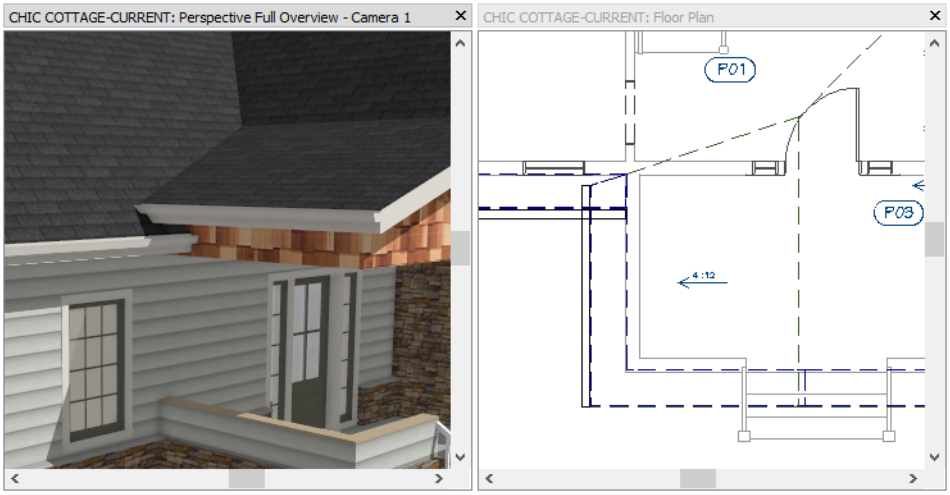
4. A Question message box will ask if you want to turn off Auto Rebuild Roofs. Click Yes to close the message box and continue editing the selected roof plane.
5. Type 18" in the inline text field and press the ***Enter*** key.
6. Next, select the main roof plane located over the Foyer and Dining rooms.
7. Click the **Add Break** edit button, then move your mouse pointer over the point where the roof plane's angled valley edge crosses the exterior of the Porch's side wall.



8. When the square **Endpoint** Snap Indicator displays, click once to break the angled edge into two segments and add a corner edit handle at that point.
9. Click on the corner edit handle located between the horizontal eave edge and the angled valley edge and drag to the right until it meets the surface of the Porch side wall.



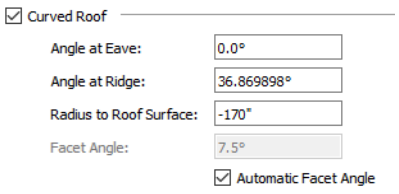
10. To see the results in 3D, **Orbit** the camera so that the valley behind the Porch can be seen.



The horizontal eave of the main roof now extends under the higher eave of the Porch roof.

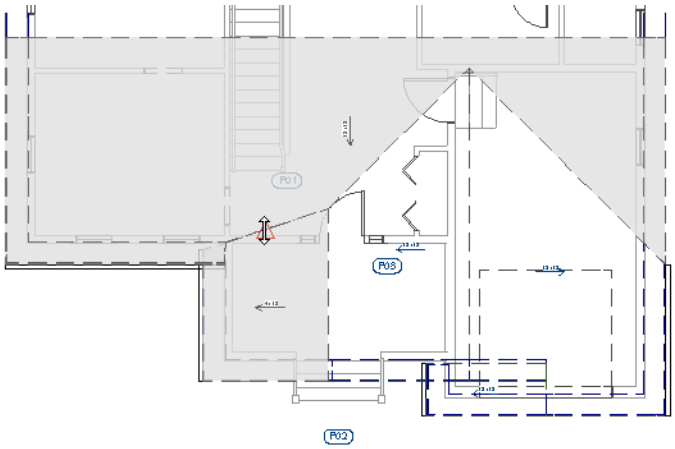
To create a curved roof plane

1. Click the **Select Objects** button, then click on the edge of the roof plane located over the left porch Half Wall to select it.
2. Click the **Open Object** edit button, and on the ROOF panel of the Roof Plane Specification dialog:
   - Select the **Lock** radio button next to **Ridge Top Height**.
   - Check the box beside **Curved Roof**.
   - Specify the **Angle at Eave** as 0°, then press the ***Tab*** key to update the other settings.
   - Notice that the **Angle at Ridge** and **Radius to Roof Surface** both update.

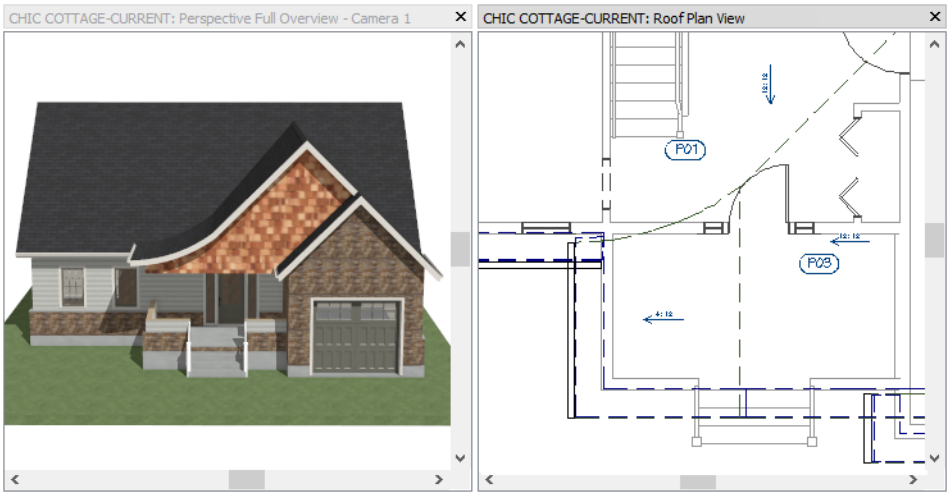


   - Click OK.
3. Click on the edge of the Porch roof plane that extends over the Foyer room to make it the Selected Edge.
4. Click the **Join Roof Planes** edit button, then move your mouse pointer into the Foyer room.

5. When the larger roof plane becomes highlighted, click once.



6. The two roof planes now meet along a curved valley.



7. When you are finished, **Save** your work.

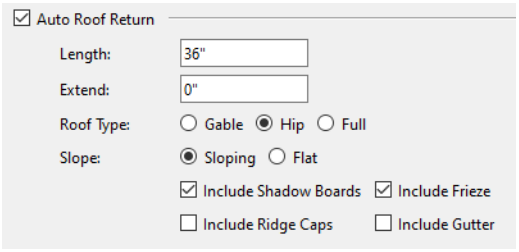
Adding Roof Details

Chief Architect offers a variety of tools for adding architectural detail to a roof design.

Auto Roof Returns can be specified for any wall, and will generate on Full Gable Walls.

To add roof returns

1. Select the wall on Floor 2 above the Garage door and click the **Open Object** edit button.
2. On the ROOF panel of the Wall Specification dialog:

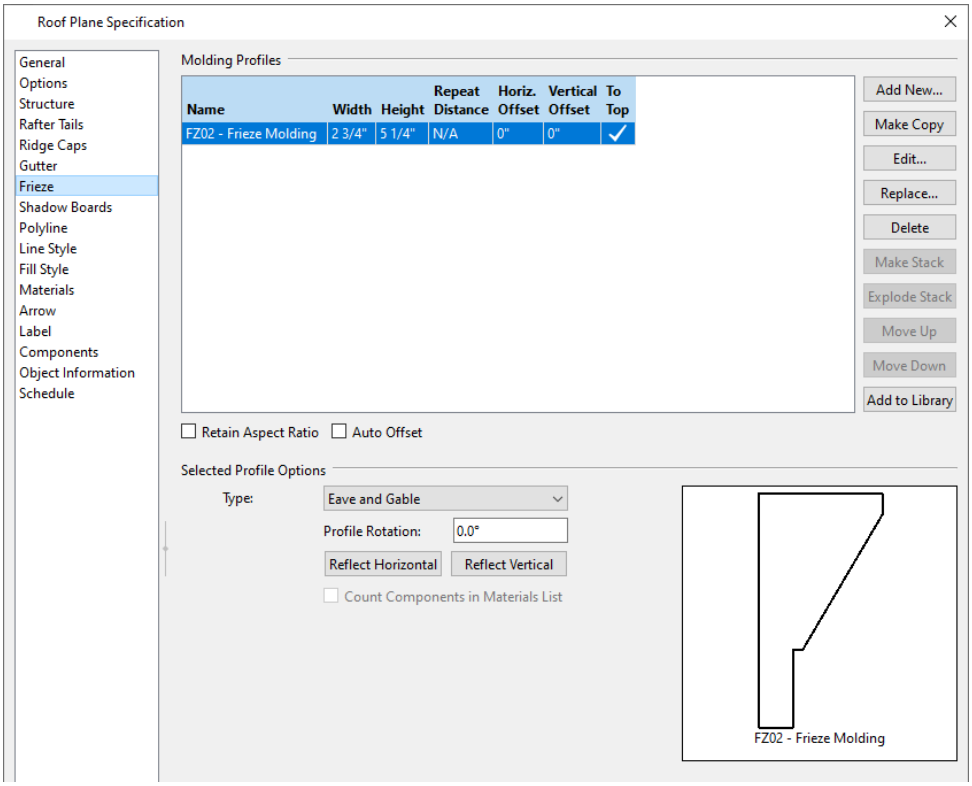


   - Check the box beside **Auto Roof Return**.
   - Specify the **Roof Type** as **Hip**.
   - Check the box beside **Include Frieze**.
   - Click OK.

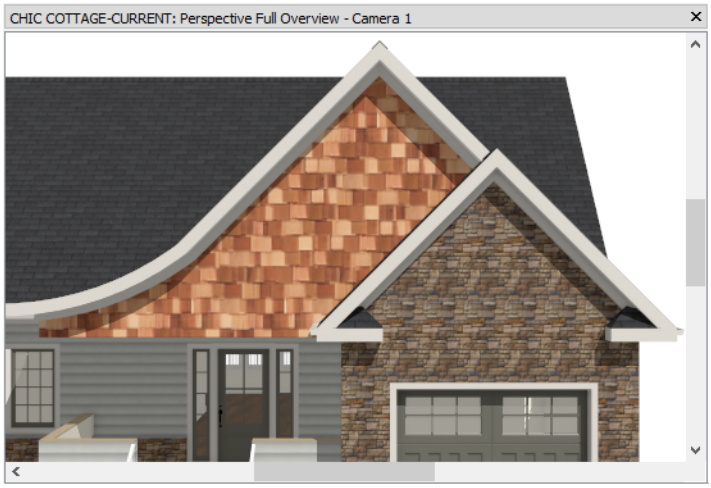
Frieze molding can be specified in the Roof Defaults and Build Roof dialogs. Since the Porch roof has been manually edited, though, rebuilding the roof is not the best option.

To add frieze moldings

1. Select **Build> Roof> Edit All Roof Planes**.
2. On the GENERAL panel of the Roof Plane Specification dialog:
   - Notice that most of the values are reported as "No Change".
   - This is because this dialog is shared by all roof planes in the plan: as though they had been group-selected.
3. On the FRIEZE panel, click the **Add New** button.
4. In the Select Library Object dialog:
   - The content is filtered by **Type** so that it only lists Moldings and Profiles.
   - Type the word 'Frieze' in the Search field and press the ***Enter*** key to perform a **Text** search.
   - Right-click on an item in the search results and select **Show in Browser** from the contextual menu to see its location in the tree list.
   - Select the "FZ02" profile and click OK



5. Confirm that the frieze molding **Type** is set to "Eave and Gable", then click OK to add frieze molding under the eaves of the roof.
6. Frieze molding can be seen in the 3D overview if you Zoom in on the overhang area of any wall.



7. When you are finished, close the camera view and remember to **Save** your work.

Moving the Display of Roof Planes

Although the roof in this plan was generated on Floor 1 owing to the Ignore Top Floor setting, most roof plans show the walls on the top living floor of the structure. The display of roof planes can easily be moved from floor to floor as needed without affecting the height of the roof structure.

To move the display of roof planes

1. Select **3D> Create Perspective View> Perspective Full Overview** .
2. Select **Window> Tile Vertically** , then make the plan view the active window.
3. Go **Down One Floor** to Floor 1 and **Zoom** out until the entire structure can be seen.
4. Select **Build> Roof> Roof Plane** , then:
   - Hold down the Shift key, then click and drag a rectangular selection marquee around the entire structure.
   - Notice that the Status Bar states that seven objects are selected.
5. Click the **Display On Floor Above** edit button and notice that the roof planes disappear in plan view but are unchanged in the overview.
6. Go **Up One Floor** and note that the roof planes are now found on Floor 2.
7. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** . Next, right click on the "Roof Plan View" and select **Edit View** from the contextual menu.
8. On the GENERAL panel of the Saved Plan View Specification dialog, select "2nd Floor" as the **Floor** that is used whenever this view is opened, and click OK.
9. Close the 3D Overview window and **Save** your work.

ADDING ANNOTATIONS

With the roof in place, some basic roof annotations can be added.

In previous tutorials, the "Working Plan View" was active, annotations were added using "Plan Defaults" for annotations like Rich Text and Dimensions, and were placed on specific layers like "Text" and "Dimensions, Manual". Those layers were turned off, however, when the "Roof Plan View" was opened. See *To compare plan views on page 139*.

In addition to creating an uncluttered space for drawing roofs, another benefit of switching to the "Roof Plan View" is that annotations added while it is active will be placed on their own layer. This means that roof annotations will display in the roof plan but not in other views.

As described in previous tutorials, one way to access the defaults for annotations is by selecting Edit> Default Settings. Another way to access them is through the Saved Plan View Specification dialog.

To set dimension defaults

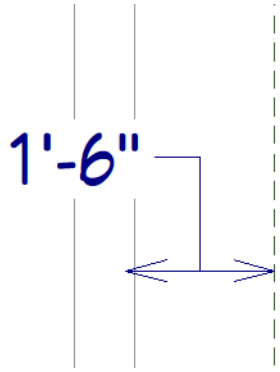
1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** .
2. Expand the "Plan Views" folder if necessary, then right-click on "Roof Plan View" and select **Edit View** from the contextual menu.
3. On the SELECTED DEFAULTS panel of the Saved Plan View Specification dialog, notice:
   - The Default Set that the view is **Currently Using** is the "Roof Default Set".
   - Most of the Selected Defaults have names that begin with "Roof".
   - To the right of each of the defaults are a set of buttons allowing you to manage them.
4. Click the **Edit** button to the right of **Dimensions** to open the Dimension Defaults dialog. Notice:
5. "Roof Dimension Defaults" is stated in the dialog box’s title bar.
6. On the LAYER panel, the "Dimensions, Roofs" layer is set as the layer on which manually drawn dimensions are placed by default.

7. On the LOCATE MANUAL panel:
   - Under the Walls heading, make sure that **Wall Dimension Layer** is selected.
   - Make sure under CAD Objects, **Lines/Sides** is checked.
8. Click OK to close both dialogs.

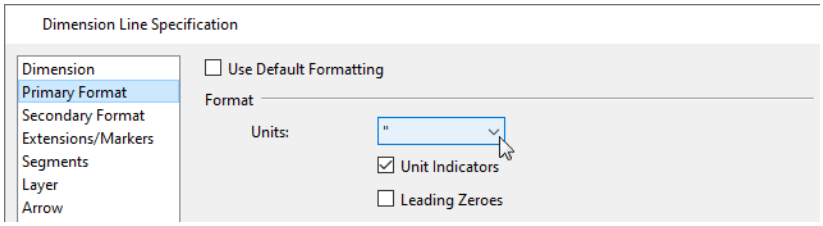
A dimension line can be added to indicate the depth of the roof overhang, often abbreviated as O.H. in plans.

To create a dimension line with additional text

1. Select **CAD> Dimensions> Manual Dimension**, then click and drag a horizontal line from the right vertical eave to the exterior wall to its left.
2. Zoom in on the dimension line and confirm that it is locating the roof plane edge and the wall's framing layer.

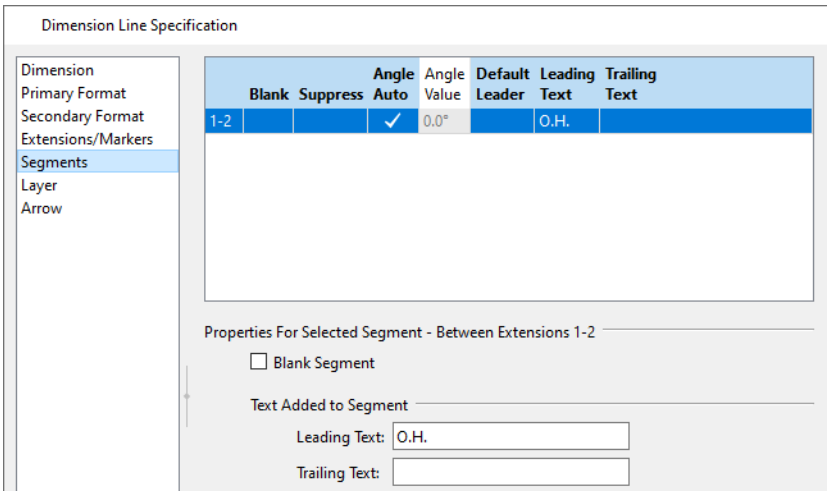


3. Click on the dimension line to select it, then click the **Open Object** edit button.
4. On the PRIMARY FORMAT panel of the Dimension Line Specification dialog:

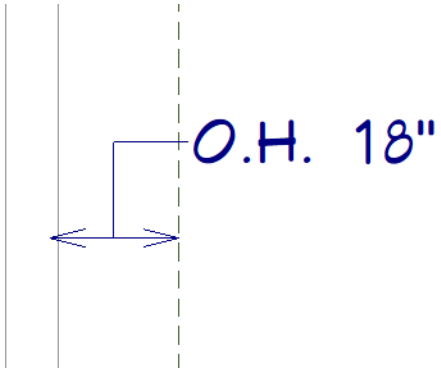


   - Uncheck **Use Default Formatting**.
   - Select the inch symbol (") from the **Units** drop-down list.

5. On the SEGMENTS panel:



   - In the **Leading Text** field, type: O.H.
   - Click OK to close the dialog and apply your changes.
6. A Leader Line for dimension text is helpful when a segment's text is longer than the segment itself. Move this dimension's Leader Line from the left to the right:



   - Click on the dimension line to selected it.
   - Click the small, square Move Dimension Label edit handle located over the text and drag it to the right.
   - When the preview of the text is in a position that you like, release the mouse button.
7. When you are finished, **Save** your work.

Additional roof annotations that include CAD objects are also added in the *Dormers* tutorial. See *"Adding Annotations" on page 172 of the Dormers Tutorial*.

The *Dormers* tutorial describes several ways that dormers can be added to the Chic Cottage roof. Or, you can continue working on this plan in the *Custom Ceilings* tutorial.

CREATING REVISIONS

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy** .
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Roof. Then, click OK.
3. Notice that Chic Cottage-Roof is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

REVIEW

This lesson describes the best practices for creating automatically generated and manually edited roofs.

To open and examine a saved plan view *138*

To compare plan views *139*

To close a plan view *140*

To tile floor plan and camera views *140*

To set the roof defaults *141*

To add gable walls *141*

To create a nested gable *142*

To create a reverse gable *143*

To add a shed roof over the deck *145*

To create a story and a half *146*

To edit the nested gable wall *147*

To add a gull wing *148*

To edit roof overhangs *150*

To create a curved roof plane *151*

To add roof returns *153*

To add frieze moldings *153*

To move the display of roof planes *155*

To set dimension defaults *155*

To create a dimension line with additional text *156*

To save a plan revision *158*

Assessment Questions

Tutorial 8 - Chic Cottage Roof

Name one or more reasons why switching to the Roof Plan View is helpful for working on roofs?

- Information that is not relevant to roofs, such as room labels and general text, is not visible or in the way.
- Walls are unfilled and wall lines are lighter in color, making roof planes stand out more clearly.
- Text is placed on the "Text, Roofs" layer in this view.

What edit tool is used to set the roof directives for the side walls of a shed roof?

- The Change to Gable Wall(s) edit button lets you specify a selected wall as a Full Gable Wall, which is the setting the two sides of a shed roof should have.

What edit tool allows you to add a new corner to a roof plane?

- The Add Break edit tool lets you add new corners to roof planes and other CAD-based object.

What edit tool allows you to join two roof planes along a valley, hip, or ridge?

- The Join Roof Planes edit tool lets you join two roof planes so that they meet along a geometrically correct valley, hip, or ridge line.

By default, what determines the initial height of a roof over a structure?

- By default, roof height is based on the ceiling heights of the rooms below.

In what dialog are automatic roof returns specified?

- Automatic roof returns are specified on the Roof panel of the Wall Specification dialog. They are only created when the wall is specified as a Full Gable Wall.

What layer are dimensions created on in the Roof Plan View?

- In the Roof Plan View, dimensions are placed on the "Dimensions, Roof" layer.

How do you specify a non-default number format for a dimension line?

- On the Primary Format panel of the Dimension Line Specification dialog, uncheck "Use Default Formatting" and then specify the Unit and other formatting options.

Dormers

Dormers can be created in three different ways: they can be placed using the Auto Dormer tools; generated when the rest of the roof is built; and their individual components can be drawn manually.

Learning Objectives

This lesson describes best practices in Chief Architect for creating dormers. Concepts introduced include:

File Management

In this tutorial, an alternative to the roof created in the *Chic Cottage Roof on page 136* tutorial will be produced. Since it is a design option, it will be saved in its own file rather than the main working file.

To create a plan option document

1. Open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.
2. Select **File>Make a Copy**  .

3. In the New Plan dialog, type a short description contents of the document, such as "Chic Cottage-Dormer Option". Then, click OK.
4. Close CHIC COTTAGE-CURRENT. There are several ways:
   - Click the **Close** button at the top right corner of the view window.
   - Select **File> Close View** from the menu.
   - Right-click on it in the Project Browser and select **Close All Views** from the contextual menu.
5. Open the Chic Cottage-Dormer Option.plan by double-clicking on it in the Project Browser or by right-clicking on it and selecting **Open** from the contextual menu.

Productivity Tips

As you learn how to create the roof in Chic Cottage, keep in mind these tips to improve your productivity.

Drawing and Editing

- The **Join Roof Planes** edit tool lets you join the edges of two roof planes along a line or arc to form a geometrically correct valley, hip, or ridge.
- Like other objects, Auto Dormers can be positioned using dimensions, temporary dimensions, and the **Center Object** edit tool.

Interface

- Tiling 2D and 3D views can make it easier to manually edit a roof design.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Ctrl/⌘ + R*** - Build Roof
- ***3*** - Add Break edit tool
- ***2*** - Join Roof Planes edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When creating dormers, there are several defaults that should be borne in mind.

When manually drawing dormers, settings in the Roof Defaults dialog as well as a number of other structural defaults is important. See *"Setting the Defaults" on page 137 of the Chic Cottage Roof Tutorial*.

Before placing Auto Dormers, the Dormer Defaults should be also set. See *To set the Dormer Defaults on page 161*.

Dormer windows derive most of their settings from the Window Defaults, so if multiple dormers will be created, consider modifying these as well. See *To set the Window Defaults on page 161*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

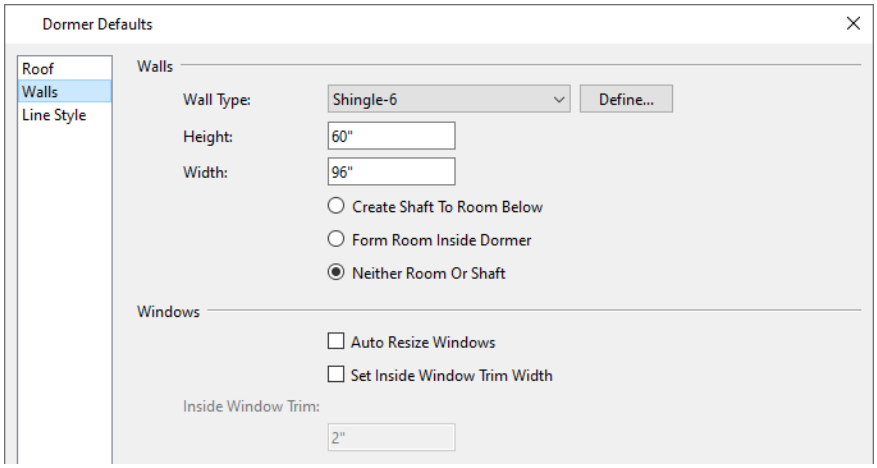
The Roof Plan View will work well for adding dormers to the roof. See *Chic Cottage Roof on page 136*.

Placing an Auto Floating Dormer

An Auto Floating Dormer is a non-structural dormer that rests on top of the roof.

To set the Dormer Defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog, then click on "Dormer" in the tree list and click the **Edit** button.
2. On the ROOF panel of the Dormer Defaults dialog, under the Framing heading, check the box beside **Frieze**.
3. On the WALLS panel:



- Select "Shingle-6" from the **Wall Type** drop-down list.
- Specify the **Width** as 96".
- Click OK.

The windows in Auto Dormers derive most of their initial settings from the Window Defaults dialog. Since the other windows in this plan have already been placed, adjusting some of the default settings for use in dormers will save time and help to avoid errors.

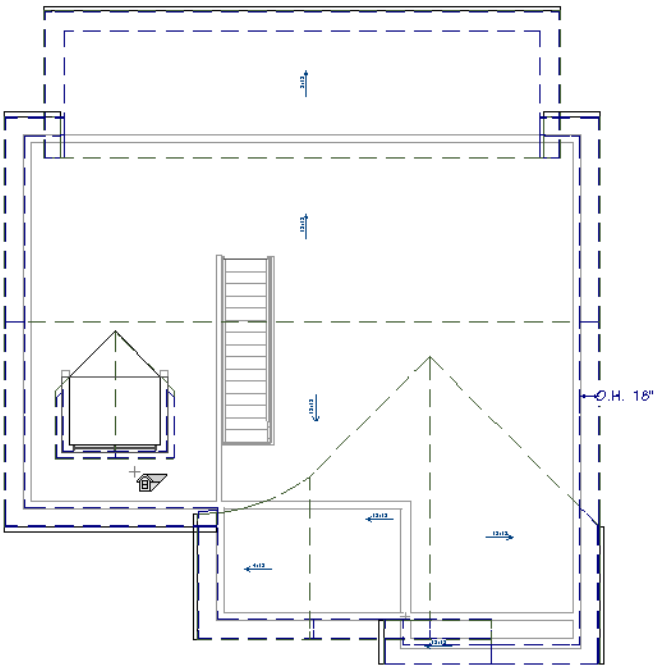
To set the Window Defaults

1. In the Default Settings dialog, click on "Window", then click the **Edit** button.
2. On the GENERAL panel of the Window Defaults dialog:
   - Do not change the Window Type. This setting is dynamic and will affect existing windows.
   - Specify the **Width** as 72" and the **Height** as 48".
   - Specify the **Floor to Top** height as 93 1/2".
3. On the LITES panel, specify the **Lites Vertical** as 3 and click OK.
4. Click Done to close the Default Settings dialog.

To place an Auto Floating Dormer

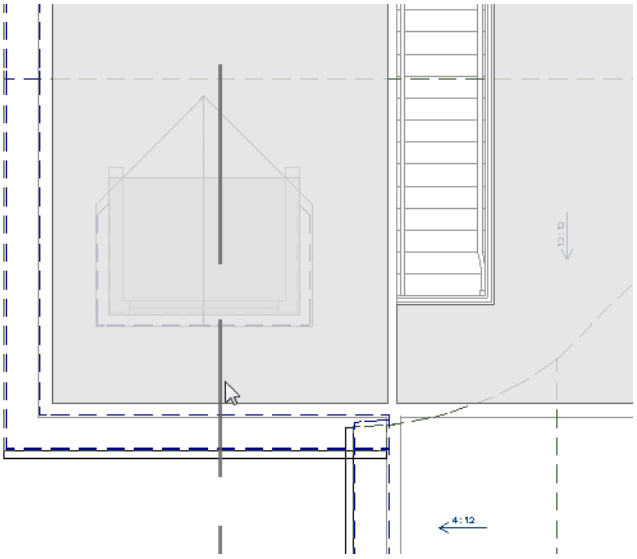
1. On Floor 2 of Chic Cottage, **Zoom** in on the left side of the structure.
2. Select **Build> Roof> Auto Floating Dormer**.

3. Click once in the space to the left of the staircase to place a dormer at that location.



To position an Auto Floating Dormer

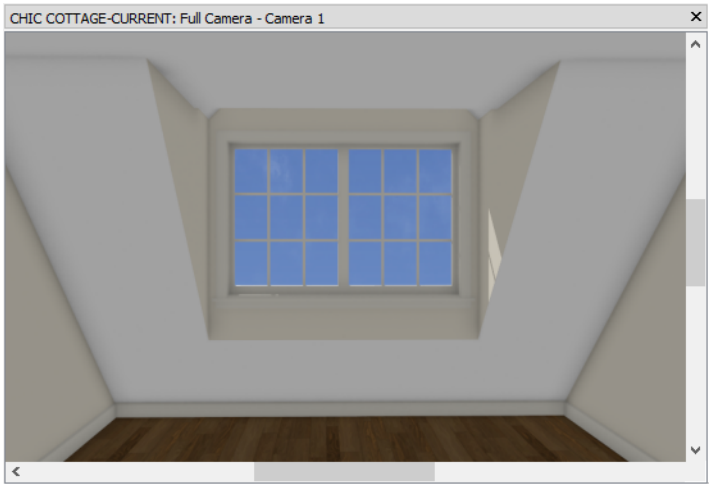
1. Click the **Select Objects** button, then click on the front or side wall of the dormer to select it.
2. If the window becomes selected instead, click the **Select Next Object** edit button.
3. With the dormer selected, click the **Center Object** edit button, then:
   - Move the mouse pointer into the room area just in front of the dormer.
   - When the room is highlighted and a dashed vertical centering axis line displays, click once.



4. With the dormer still selected, click on the Temporary Dimension line that reports how far its front wall is from the exterior wall in front of it.
5. In the inline text field, type 2’ and press the ***Enter*** key.

To edit an Auto Floating Dormer window

1. Click the **Select Objects** button, then click on the dormer window to select it.
2. Click the **Open Object** edit button, and on the GENERAL panel of the Window Specification dialog:
   - Select "Double Casement" from the **Window Type** drop-down list.
   - Confirm that the **Width** is 72" and the **Height**, 48".
   - Specify the **Floor to Top** as 56", then click OK.
   - Under Component Options, make sure the Left side is set to **Left Hinges** and the Right side, set to **Right Hinge**.
3. Create a **Full Camera** view of the interior of the dormer to see the results.



   - Notice that none of the dormer walls extend down to the floor.
4. When you are finished, close the camera view and **Save** your work.

PLACING A STRUCTURAL AUTO DORMER

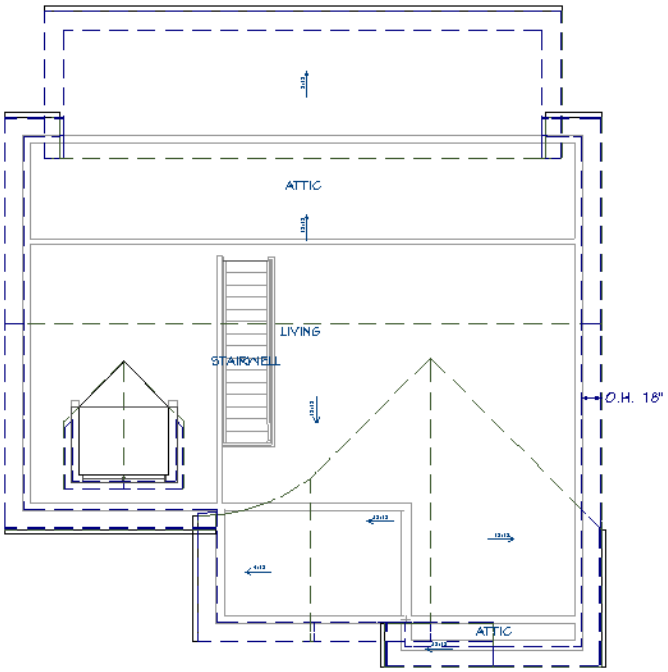
Auto Dormers use the same defaults that Auto Floating Dormers use, but because they are structural dormers, they have more requirements than Auto Floating Dormers.

The unused space next to and sometimes in front of a structural Auto Dormer should be specified as an Attic room and separated from the living area by a Knee Wall.

To create a knee wall and Attic room

1. If it is not already open, select **View> Active Layer Display Options**. In the Active Layer Display Options side window:
   - Type the word "ceiling" in the **Name Filter** field. As you type, the names of the layers listed in the table will be filtered in response.
   - Locate the "Ceiling Break Lines" layer and click once in the "Disp" column to add a check mark.
   - Ceiling Break Lines indicate where the full height flat ceiling meets the sloped bottom of a roof plane.
2. Select **Build> Wall> Straight Interior Wall**, then draw a horizontal wall across the back of the structure, near the Ceiling Break Line.
3. Once the Knee Wall is drawn, the "Ceiling Break Lines" layer can be turned off again.

4. Select the new wall and click the **Open Object** edit button.
   - On the ROOF panel of the Wall Specification dialog, check the box beside **Knee Wall** and click OK.
5. With the wall still selected, click on the Temporary Dimension that reports how far it is from the back horizontal exterior wall. In the inline text field, type 8’ and press the ***Enter*** key.
6. Click the **Select Objects** button, then click in the narrow room defined by the Knee Wall 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 and click OK.
7. When prompted to turn on the "Rooms, Labels" layer, click No, since room names are not typically included in roof plans. Room labels are shown here for illustrative purposes only.

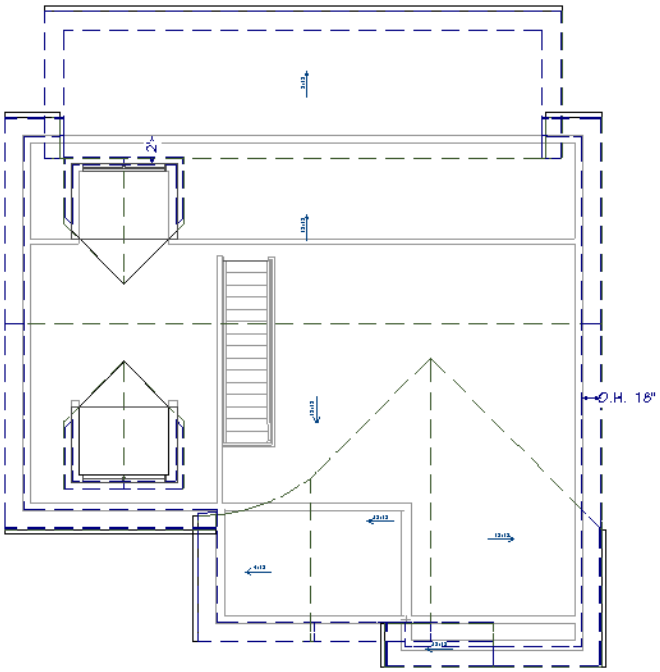


With a Knee Wall and Attic room created, a structural Auto Dormer can be added.

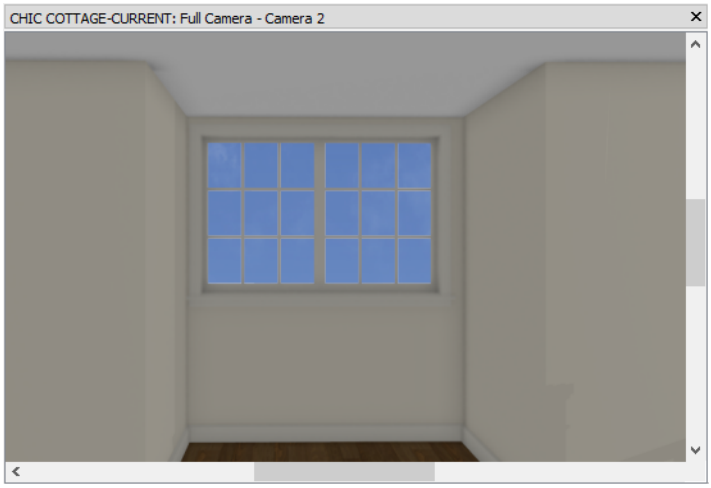
To place an Auto Dormer

1. Select **Build> Roof> Auto Dormer**, then click once in the Attic room, between the Knee Wall and exterior wall.
2. Click the **Select Objects** button, then click on the front or side wall of the dormer to select it.
3. If the window becomes selected instead, click the **Select Next Object** edit button.
4. Click the **Center Object** edit button, then:
   - Move the mouse pointer over the center of the Auto Floating Dormer.
   - When a dashed vertical centering axis line displays, click once.
5. With the dormer still selected, click on the edit handle over its front wall. Notice that the Temporary Dimension line that locates its front wall reports how far it is from the edge of the Deck roof instead of the back exterior wall.
6. Select **CAD> Manual Dimension> End to End Dimension**, then click and drag a dimension line from the outside of the back exterior wall to the front of the dormer wall.

7. In the inline text field, type 2’ and press the ***Enter*** key.



8. Modify the new dormer’s window, as described above. See *To edit an Auto Floating Dormer window on page 163*.
   - Select "Double Casement" from the **Window Type** drop-down list.
   - Specify the window’s **Width** as 72" and its **Height** as 48".
   - Specify the **Floor to Top** height as 93 1/2".
   - Under Component Options, make sure the Left side is set to **Left Hinge** and the Right side, set to **Right Hinge**.
9. Create a Full Camera view of the interior of this dormer to see the results.



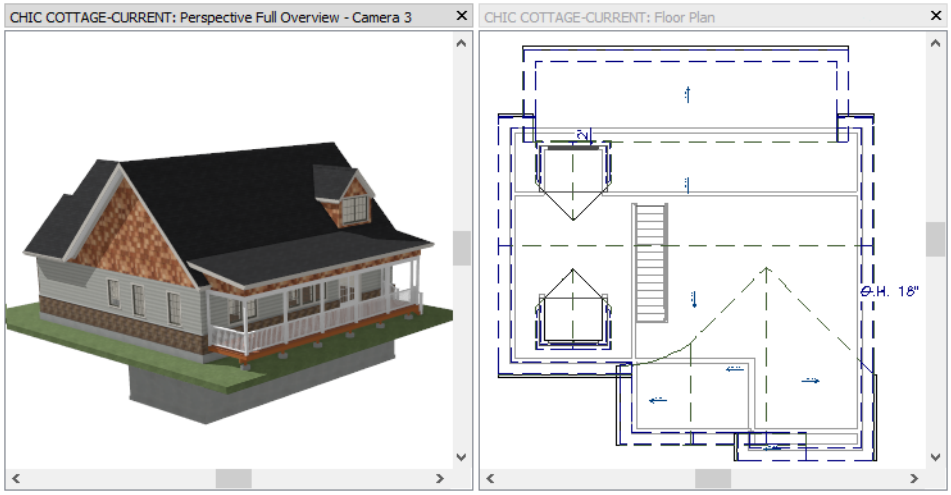
   - Notice that unlike the Auto Floating Dormer, all three of this dormer’s walls bear on the floor.
10. Close the camera view and remember to **Save** your work.

Drawing a Structural Dormer

A dormer can also be produced when the roof is built by creating the necessary structural conditions inside the house. For details about this approach, see Knowledge Base article KB-00449 at www.chiefarchitect.com/support/database.html.

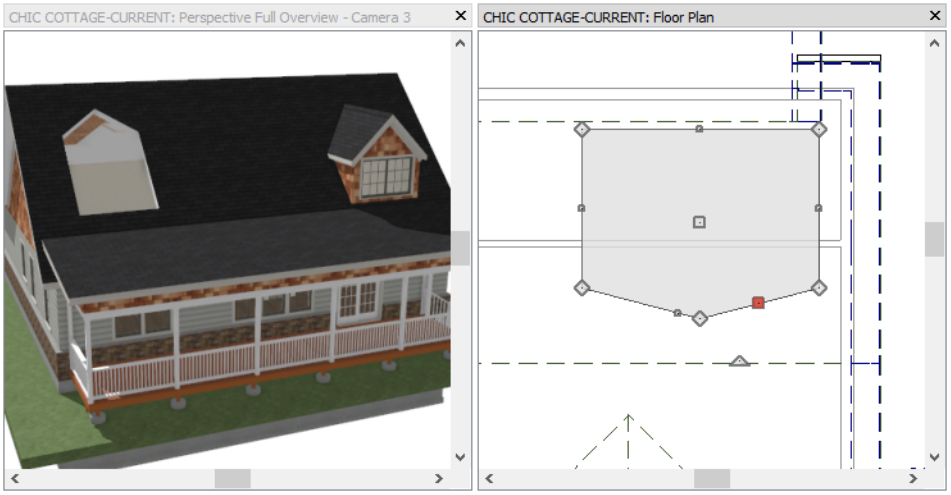
Drawing a Dormer Manually

Automatic Dormers are actually a collection of different architectural objects blocked together. These component objects can be created individually to produce a manually-drawn dormer. Begin by creating a Perspective Full Overview and then tiling it and the plan view side by side. See *"Working in Camera Views" on page 140 of the Chic Cottage Roof Tutorial*.



To create a roof hole

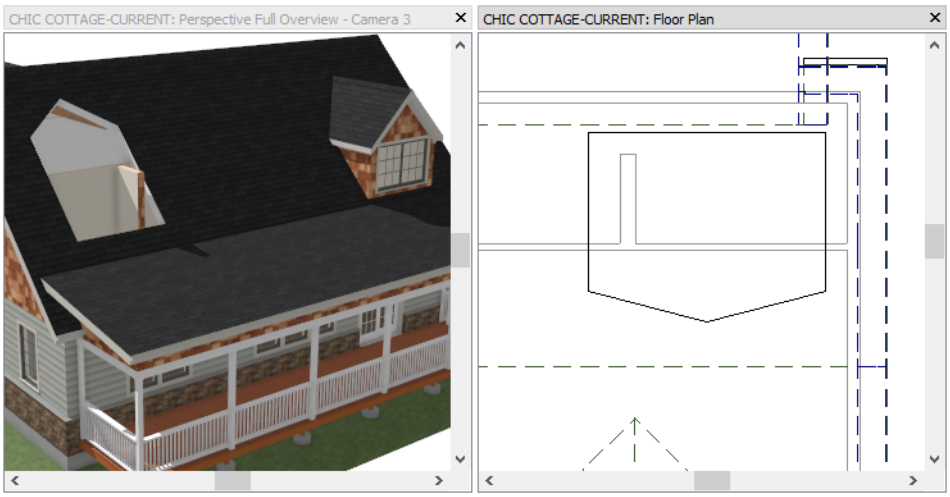
1. **Zoom** in on the right back corner of the structure in plan view, then select **Build> Roof> Roof Hole** and click and drag to draw a rectangular shape over the Attic and knee wall.
   - Make sure the rectangle is larger than the Auto Dormer to its left but does not extend past the edges of the roof plane that contains it.
2. Select the roof hole and add an extra edge to its shape:



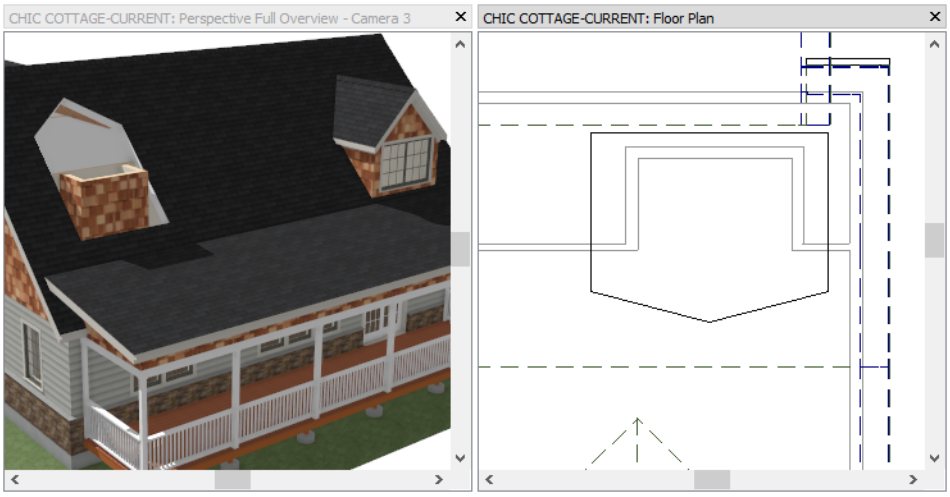
- Click the **Add Break** edit tool.
- Move your mouse pointer over the horizontal edge that is closest to the front of the structure and click once.
- Click and drag the new Reshape edit handle that displays at the point where you clicked and drag it towards the front of the building.
- Make sure that you do not drag the handle past the roof plane's horizontal ridge edge.

To draw the dormer walls

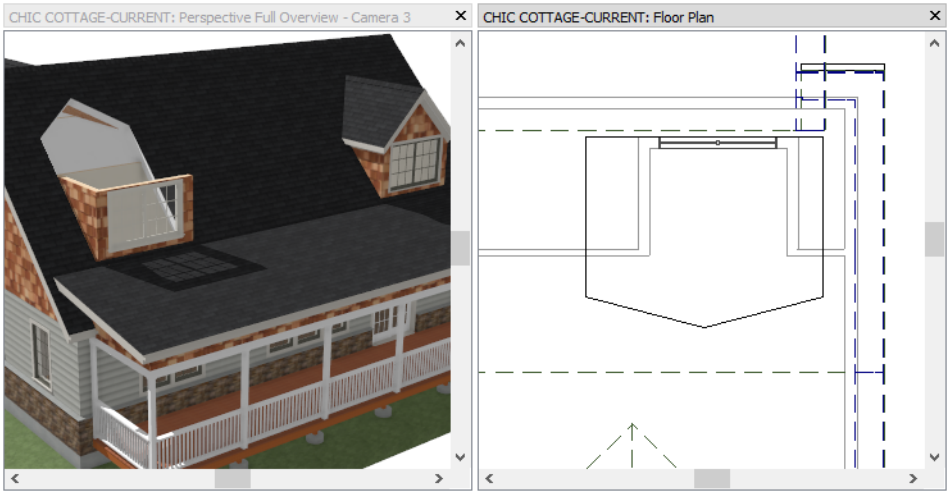
1. Select **Build> Wall> Exterior Wall** and draw a wall segment located inside the roof hole polyline.



   - Begin at the horizontal knee wall and draw upwards into the Attic room.
   - Notice that the new wall segment extends up through the roof hole.
2. Draw two more exterior walls to create a small room on the Attic side of the knee wall, inside the area of the roof hole.
3. Assign the "Shingle-6" **Wall Type** to the three new exterior walls. See *"To customize the second floor Wall Type" on page 48 of the Multiple Floors Tutorial*.
4. Click on the horizontal knee wall to select it, then:
   - Click the **Add Break** edit button.
   - Click the **Sticky Mode** edit button, which allows you to keep the Break tool active for multiple uses.
   - Click once at each intersection where knee wall meets the two vertical dormer walls drawn in step 2, above.
5. Click the **Select Objects** button, then click on the wall segment located between the two wall breaks and click the **Delete** button.



6. Click on the right vertical dormer wall to select it, then:
   - Click on the Temporary Dimension that reports how far it is from the vertical exterior wall on the right.
   - In the inline text field, type 3’ and press the ***Enter*** key.
7. Click on the left vertical dormer wall to select it, then:
   - Click on the Temporary Dimension that reports how far it is from the right vertical side wall.
   - In the inline text field, type 8’ and press the ***Enter*** key.
8. Click on the horizontal dormer wall to select it, then:
   - Click on the Temporary Dimension that reports how far it is from the back exterior wall.
   - In the inline text field, type 2’ and press the ***Enter*** key.
   - Do not be concerned if any of the walls are no longer located within the area of the roof hole: the hole will be edited to fit the dormer perfectly in a moment.
9. Select **Build> Window> Window** , then:
   - Move the mouse pointer over the horizontal dormer wall.
   - When the **Midpoint** △ Snap Indicator displays, click once.
10. Select the window, open its specification dialog, and change its **Window Type** to "Double Casement".



Roof planes are often generated automatically; but they can also be drawn manually.

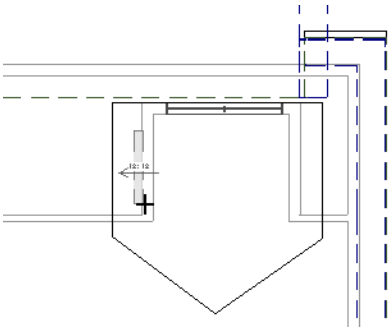
The dormer roof planes need slightly different default settings than the main roof. Roof Default settings can be set in either the Roof Defaults or Build Roof dialog. See *"Setting the Defaults" on page 137 of the Chic Cottage Roof Tutorial*.

To set the roof plane defaults

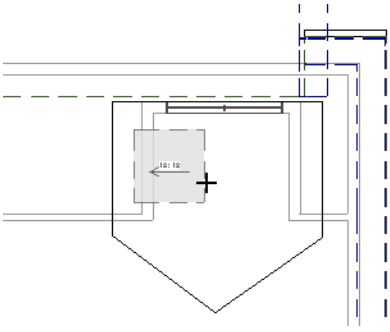
1. Select **Edit> Default Settings** to open the Default Settings dialog. Select "Roof" and click the **Edit** button.
2. On the ROOF panel of the Roof Defaults dialog, which opens next:
   - Specify the **Raise/Lower from Ceiling Height** value as 0".
   - Uncheck **Ignore Top Floor**.
   - Specify both the **Eave** and **Gable Roof Overhangs** as 6".
3. On the GUTTER panel, click the **Delete** button to remove the gutter profile from the table.
4. Click OK and then Done to close both dialogs and apply your changes.

To draw the dormer roof planes

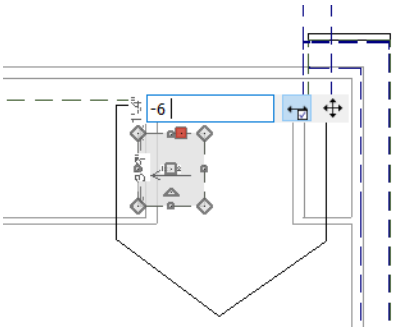
1. Select **Build> Roof> Roof Plane**, then move your mouse pointer over the left vertical dormer wall.
2. Click and drag along the length of the wall to create the roof plane's Baseline.
   - By default, the Baseline will snap to the outside of the wall's Main Layer.
   - As you draw the Baseline, a rectangular preview outline indicates the location of the eave area.



3. Move your mouse pointer to the right, so it is located between the two vertical "Shingle-6" walls to specify the direction of the roof plane's pitch and location of its ridge.

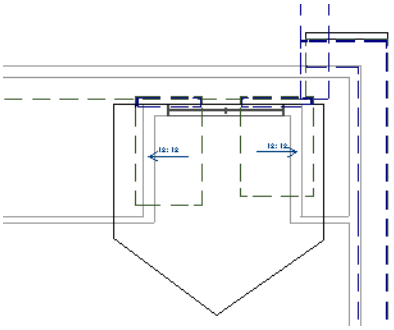


4. Click once to create the roof plane.
5. Select the top horizontal edge of the new roof plane and click on the Temporary Dimension that reports how far it is from the horizontal "Shingle-6" wall.

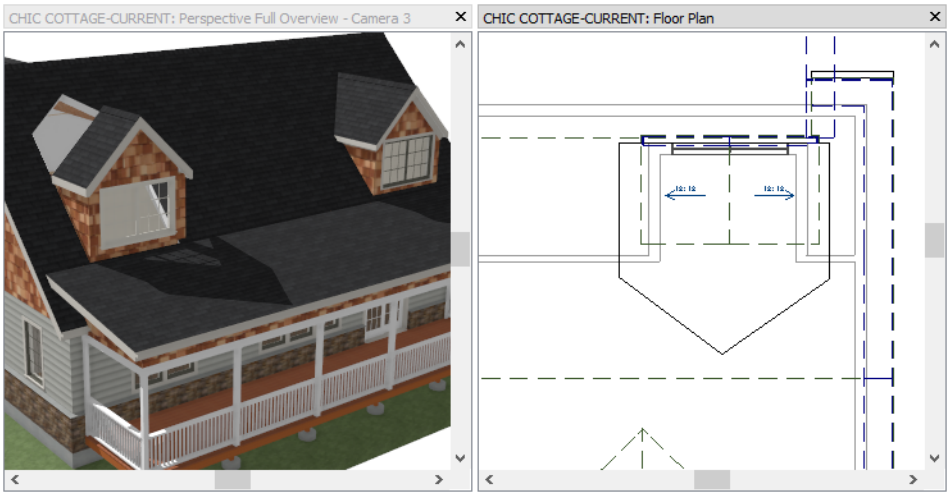


- In the inline text field, type -6" and press the ***Enter*** key.
- Notice that typing a negative number moves the selected edge to the opposite side of the wall.

6. Repeat steps 2 through 5 to create a roof plane with a Baseline over the right vertical "Shingle-6" wall.



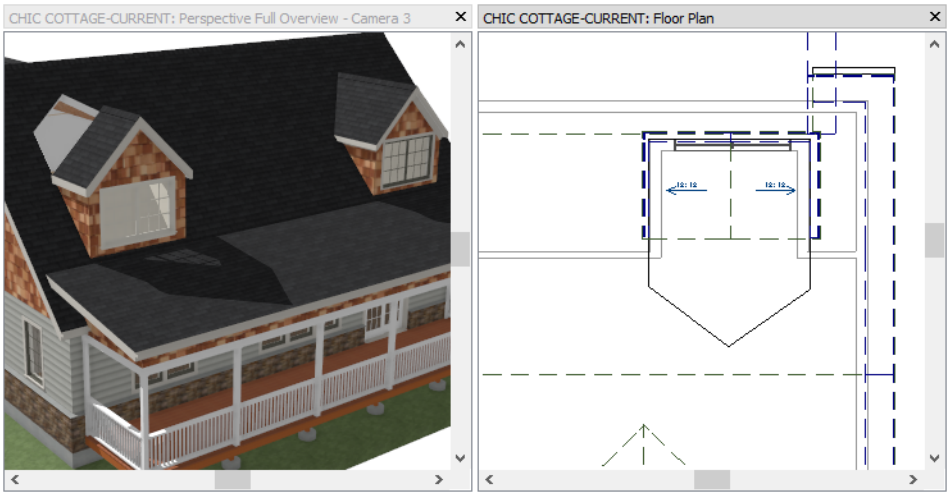
7. Join the two roof planes to create the dormer roof ridge:



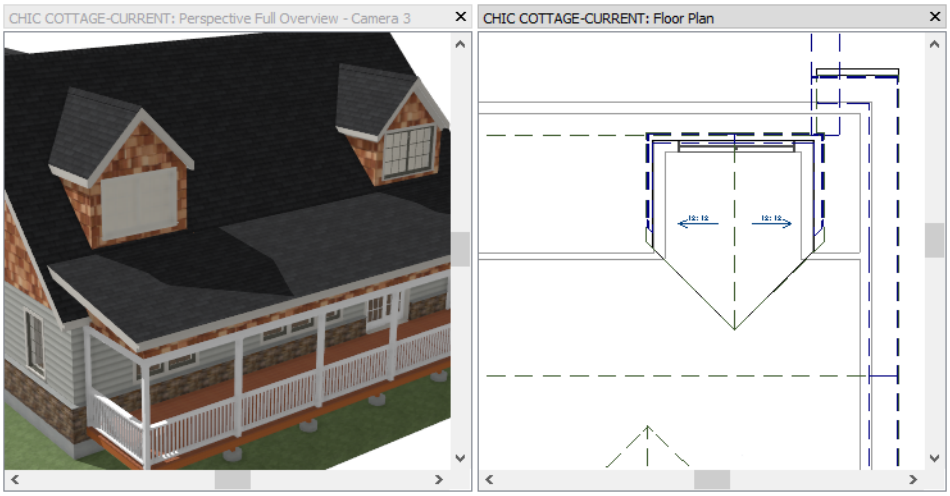
- Select the left roof plane and click on its right vertical edge to make it the Selected Edge.
- Click the **Join Roof Planes** edit button.
- Move your mouse pointer over the right roof plane.
- When it becomes highlighted, click once. The two roof planes meet along the geometrically correct ridge line.

To edit the dormer roof hole

1. Still in plan view, select the vertical edge on the left side of the roof hole, then:
   - Notice the Resize edit handle that displays where you clicked to select the edge.
   - Use the Resize handle to drag the roof hole edge until it snaps to the outside of the left dormer wall.
2. Repeat step 1 to snap the right edge of the roof hole to the right dormer wall.
3. Repeat step 1 to snap the horizontal edge of the roof hole to the horizontal dormer wall with the window.



4. Join the left roof plane with the larger roof to create a valley:
   - Select the left roof plane and click on its bottom horizontal edge to make it the Selected Edge.
   - Click the **Join Roof Planes** edit button.
   - Move your mouse pointer over the angled edge on the left side of the roof hole.
   - When it becomes highlighted, click once. The two roof planes meet along the geometrically correct valley line.
5. Repeat step 8 to join the right roof plane with the larger roof.



6. When you are finished, close the camera view and **Save** your work.

ADDING ANNOTATIONS

With dormers added, the roof plan for this design option will require additional annotations.

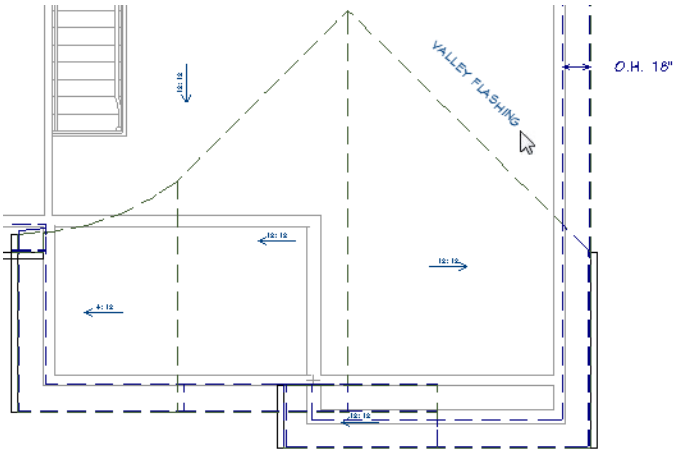
The Roof Plan View is active as it was in the previous tutorial, so "Roof Rich Text Defaults" and other saved defaults set up specifically for the "Roof Plan View" are in use.

To set the rich text defaults

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** .
2. Right-click on "Roof Plan View" and select **Edit View** from the contextual menu.
3. On the SELECTED DEFAULTS panel of the Saved Plan View Specification dialog, click the **Edit** button to the right of **Rich Text** to open the Rich Text Defaults dialog.
4. In the Rich Text Defaults dialog, notice that "Roof Rich Text Defaults" is stated in the dialog box's title bar.
5. On the RICH TEXT panel:
   - Click the **Uppercase** Aa button.
   - Notice that the character size is set at 6".
   - Click the **Print Size** button to open the Print Size Calculator dialog. At a printed scale of 1/4" = 1', a capital A will be 1/8" tall when printed. Click Cancel.
6. On the APPEARANCE panel, note that Rich Text is placed on the "Text, Roofs" layer by default when this Saved Default is active.
7. Click OK to close both dialogs and apply your changes.

To add rich text annotations

1. Select **CAD> Text> Rich Text** , then click in the view, near the right side of the roof.
2. In the Rich Text Specification dialog:
   - Notice that **Uppercase** is active.
   - In the text field, type: valley flashing.
   - Click OK to close the dialog and create a Rich Text object.
3. Click on the newly created text object to select it, then click and drag its triangular Rotate edit handle to adjust its angle to match that of the angled roof valley.



CAD shapes are sometimes used along with text to annotation features of a plan. The most important CAD default to set in advance is the Current CAD Layer.

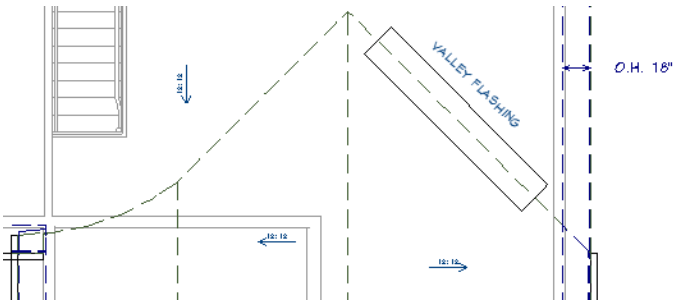
To set the CAD defaults

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** . Next, right-click on "Roof Plan View", and select **Edit View** from the contextual menu.
2. On the SELECTED DEFAULTS panel of the Saved Plan View Specification dialog, notice that the **Current CAD Layer** is "CAD, Roof", then click OK.

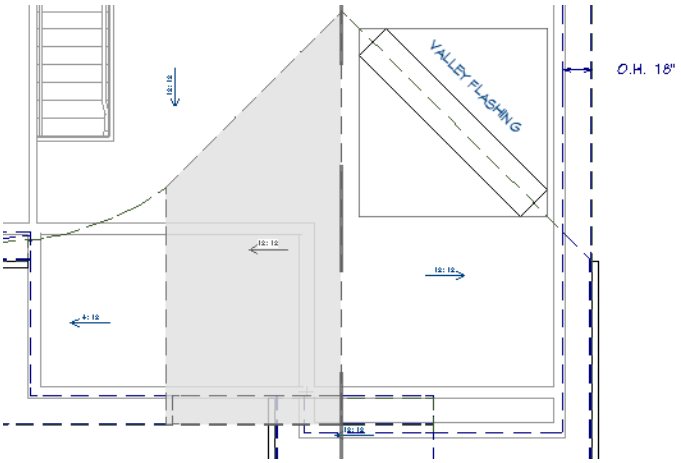
The Copy/Paste and Reflect About Object edit tools can be used to efficiently replicate annotation objects, just as they can architectural objects like windows. See *"Replicating Doors and Windows" on page 96 of the Doors and Windows Tutorial*.

To add CAD annotations

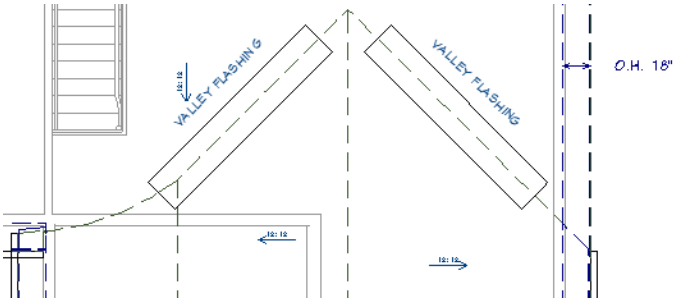
1. Select **CAD> Boxes> Rectangular Polyline** , click and drag across and down to create a rectangular shape, and release the mouse button.
2. Click on either of the polyline's vertical edges to select it, then resize it using dimensions:
   - Click on the dimension that reports how far the selected edge is from the opposite edge.
   - In the inline text field, type 24 and press the ***Enter*** key.
3. With the edge still selected, make the polyline parallel with the nearby roof valley:
   - Double-click the **Make Parallel/Perpendicular** edit button.
   - In the Make Parallel/Perpendicular dialog, select **Rotate entire polyline** and click OK.
   - Move the mouse pointer over the angled roof valley on the right. When a dashed alignment axis line displays parallel to the roof valley, click once.
4. Center the polyline over the valley:
   - With the polyline still selected, click the **Center Object** edit button.
   - Move the mouse pointer over the roof valley. When a dashed centering axis line displays parallel to the roof valley, click once.
5. Use the polyline's resize edit handles to extend the polyline along the as much of the length of the roof valley as you would like.



6. Make a copy of the flashing and text for the opposite roof valley:



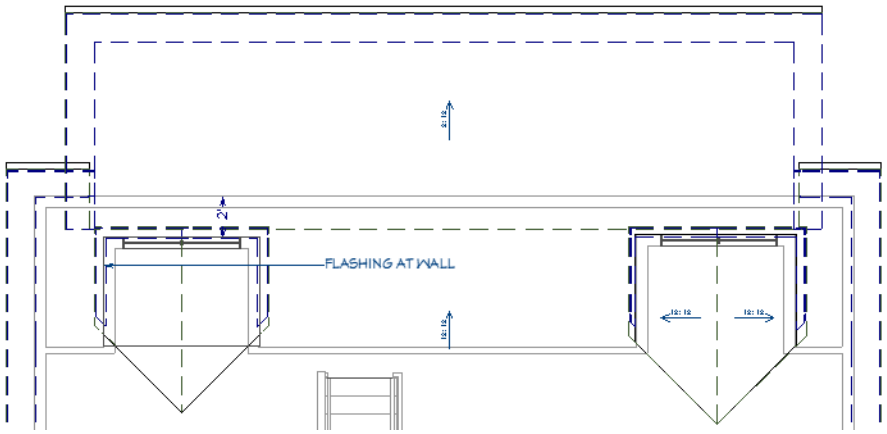
- With the polyline still selected, hold down the ***Shift*** key and click on the text to add it to the selection set.
- Click the **Copy/Paste** edit button, and then click the **Reflect About Object** edit button.
- Move the mouse pointer over the vertical roof ridge line. When a dashed centering axis line displays parallel to the roof ridge, click once.



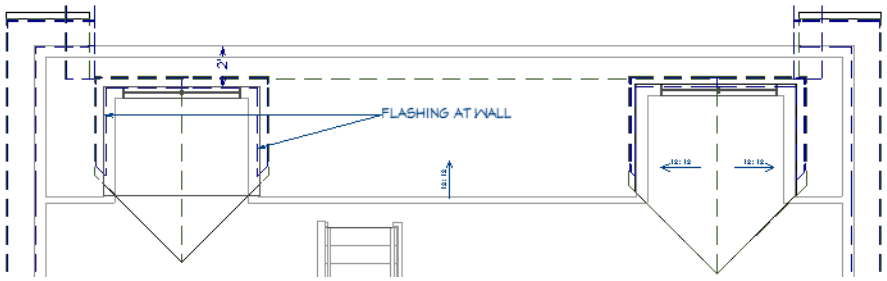
To add leader line annotations

1. Select **CAD> Text> Leader Line**, then:
   - Click and drag a horizontal line from the left wall of the back left dormer towards the right. When your mouse pointer is between the two back dormers, release the mouse button.
   - Click once more without dragging.
   - When you release the mouse button, the Rich Text Specification dialog opens.

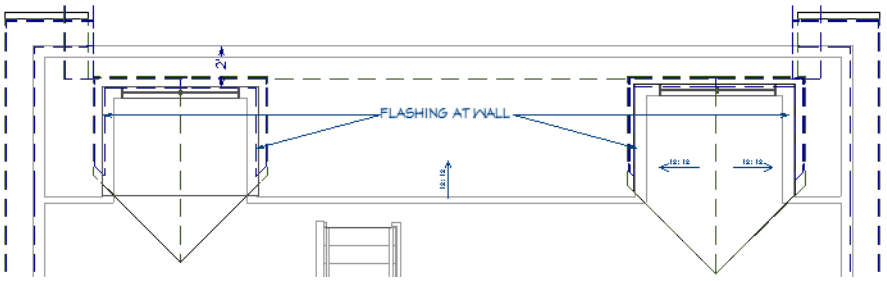
2. On the RICH TEXT panel of the Rich Text Specification dialog, type "flashing at wall" and click OK.



3. Click on the text to select it, then center between the two dormers:
   - Click the **Center Object** edit button.
   - Move your mouse pointer into the center of the attic room area that surrounds the back dormers.
   - When the attic room area becomes highlighted and a vertical dashed centering axis line displays, click once.
4. Click on the Leader Line to select it, then make a copy of it:
   - Click the **Copy/Paste** edit button.
   - Click the **Paste Hold Position** edit button.
   - A second Leader Line is created at the same location as the original, and is selected.
5. Click the edit handle on the arrow end of the selected Leader Line and drag down and to the right until it snaps to the right wall of the dormer.



6. With the new, angled Leader Line still selected:



   - Hold down the ***Shift*** key and click on the horizontal Leader Line to select the two as a group.
   - Click the **Copy/Paste** edit button.
   - Click the **Reflect About Object** edit button.

- Move your mouse pointer into the text.
- When the Rich Text object becomes highlighted and a vertical dashed centering axis line displays, click once.

7. Remember to **Save** your work.
8. Because this is a design option rather than the main working drawing, there is no need to create a revision. Select **File> Close All Views**.

REVIEW

This lesson describes the best practices for creating automatically generated and manually drawn dormers.

Assessment Questions

Tutorial 9 - Dormers

What is the difference between an Auto Floating Dormer and an Auto Dormer?

- An Auto Floating Dormer is a non-structural dormer that rests on top of the roof, while an Auto Dormer's walls build down to the floor platform of the room below.

What setting should be applied to an interior wall that separates a living area from an Attic room?

- A wall separating an Attic room from another room type should be specified as a Knee Wall on the Roof panel of the Wall Specification dialog.

In what dialogs can you set the defaults for manually drawn roof planes?

- The defaults for manually drawn roofs, as well as automatically generated roofs, are set in the Roof Defaults dialog.
- Roof defaults can also be set in the Build Roof dialog, which is nearly identical to the Roof Defaults dialog.

What drawing tool can be used to create a hole in a roof plane?

- The Roof Hole tool can be used to draw a hole within the area of a single roof plane.

What edit tool can be used to make the roof planes over a dormer meet the edges of a roof hole?

- The Join Roof Planes tool can be used to join roof plane edges with the edges of a roof hole just as it can with the edges of another roof plane.

What option in the Rich Text Defaults dialog helps you set the size of text when it is printed?

- The Print Size button on the Rich Text panel of the Rich Text Defaults lets you specify text size based on the desired size when printed at a specific scale.

What two edit tools can be used to create copies of annotations on both sides of a feature in a plan?

- The Copy/Paste and Reflect About Object edit tools can be used to create identical copies of annotations on both sides of an object center or object edge.

Interior Design Tutorials

Chapter 3

The Interior Design Tutorials describe best practices for adding elements of interior design to a drawing in Chief Architect:

In this tutorial you will learn about:

Custom Ceilings

By default, Chief Architect automatically produces a flat ceiling in most types of rooms. There are various options for modifying this automatic ceiling, however.

Learning Objectives

The previous lesson, *Chic Cottage Roof*, explained how to generate and customize an automatic roof in Chief Architect. This lesson describes best practices in Chief Architect for creating a variety of custom ceiling conditions. Concepts introduced include:

File Management *177*

Productivity Tips *177*

Setting the Defaults *178*

Using Plan Views *179*

Creating a Lowered Ceiling *180*

Creating a Cathedral Ceiling *183*

Drawing a Tray or Coffered Ceiling *184*

Adding Annotations *188*

Creating Revisions *189*

File Management

At this point in the design process, both the Chic Cottage-Roof and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Roof was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create different types of custom ceilings, keep in mind these tips to improve your productivity.

Drawing and Editing

- The **Soffit** tool can be used to model a wide variety of straight-sided objects and is particularly useful for objects that attach to walls.
- The **Copy/Paste** and **Reflect About Object** edit tools can be used to make reflected copies of Soffits and other objects.

Content

- Create template plans that have your custom ceiling finish definitions set as defaults, and ready for use when you begin a new plan.

Interface

- **Back Clipped Cross Section** views are useful for viewing details of a model's internal structure.
- Tiling views can help confirm that changes made in 2D have the desired effect in 3D.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When creating ceilings, there are several defaults that should be borne in mind.

Before creating custom ceilings, it's a good idea to make sure that all aspects of the structure that influence ceiling height are set. See *"Setting the Defaults" on page 11 of the Exterior Walls Tutorial* and *"Setting the Defaults" on page 47 of the Multiple Floors Tutorial*.

It's also a good idea to set the defaults for ceiling finishes.

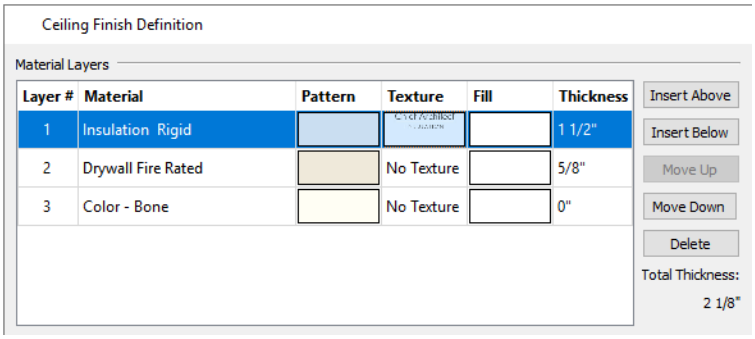
To set the plan-wide default ceiling finish

1. Select **Edit> Default Settings** to open the Default Settings dialog. Click the arrow to the left of "Floors and Rooms" to expand the category, select "Floor/Ceiling Platform", then click the **Edit** button.
2. In the Floor/Ceiling Platform dialog, click the **Ceiling Finish Edit** button.
3. In the Ceiling Finish Definition dialog, note that the ceiling finish is composed of two layers: drywall and a paint color.
4. Click OK to close both dialogs and return to the Default Settings dialog.
5. Ceiling finish definitions can also be customized for room types.

To set the default ceiling finish for room types

1. In the Default Settings dialog, under the "Floors and Rooms" category, select "Room Types" and click the **Edit** button.
2. In the Room Types dialog, notice:
   - A variety of Room Types have their own defaults.
   - A selected Room Type can be edited, copied, renamed, and deleted.

3. Select "Garage" from the list and click the **Edit** button.
4. On the STRUCTURE panel of the Garage Room Defaults dialog, click the **Ceiling Finish Edit** button.
5. In the Ceiling Finish Definition dialog:
   - Make sure that the Thickness of Layer 1 is 5/8".
   - Click on Layer 1's Name, Pattern, or Texture.
6. On the LIBRARY MATERIAL panel of the Select Material dialog:
   - The content is filtered by **Type** so that it only lists Materials.
   - The location of the currently selected material is shown in the Folders panel.
   - Further down the tree list in the Wallboard Folder, select the "Drywall Fire Rated" material and click OK
7. Returning to the Ceiling Finish Definition dialog and with Layer 1 still selected, add a layer of insulation above it:



   - Click the **Insert Above** button.
   - Specify the new layer's **Thickness** as 1 1/2".
   - Click on the new layer's Name, Pattern, or Texture.
   - Specify the new layer's material as "Insulation Rigid".
8. Click OK three times to return to the Default Settings dialog, then click Done.

A customized ceiling finish can also be used to create a lowered ceiling for an entire floor. See *To set ceiling defaults for a floor level on page 181*.

Soffits are a useful tool for creating different types of tray and coffered ceilings. See *To set the Soffit Defaults on page 184*.

USING PLAN VIEWS

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

In the *Chic Cottage Roof* and *Dormers* tutorials, the Roof Plan View is active, the Roofs Layer Set is active, and annotations are created using saved "Roof Rich Text Defaults" settings. These settings are not helpful for customizing ceilings, however, so you can save time by opening a Saved Plan View better suited for the task at hand.

In the *Chic Cottage Roof* tutorial, the Roof Plan View and Working Plan View were open at the same time and the two views' appearance and settings were compared. Then, the Working Plan View was closed and work was done in the Roof Plan View. See *"Using Plan Views" on page 138 of the Chic Cottage Roof Tutorial*.

A more efficient way to switch between Saved Plan Views is using the **Saved Plan View Control** drop-down in the toolbars.

To switch to a different saved plan view

1. Click the **Saved Plan View Control** drop-down, which is located in the top toolbar by default.
2. Select "Working Plan View" from the drop-down list.
3. The current view window remains open, and now uses the Working Plan View.

Ceilings can now be customized and annotated without affecting the appearance of the roof plan.

Creating a Lowered Ceiling

You can define a lowered or dropped ceiling without affecting the top heights of the walls by modifying the Ceiling Finish Definition.

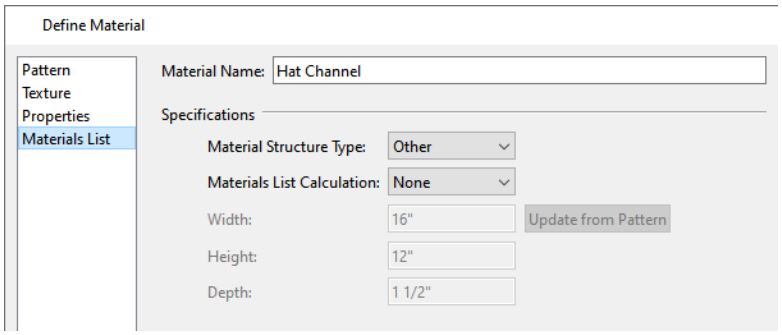
In the Floor 0 Defaults dialog, space in the ceiling can be allotted for soundproofing drywall hat channels for the entire basement level.

To create a custom hat channel framing type

1. Select **Edit Default Settings** to open the Default Settings dialog. Click the arrow the left of "Framing" to expand the category, select "Framing Types", and click the **Edit** button.
2. In the Framing Type Management dialog, select "U Channel" and click the **Copy** button.
3. In the New Default dialog, type a short, descriptive name, then click OK. Here, "Hat Channel" is used.
4. In the Hat Channel Framing Type Defaults dialog, which opens next, confirm that the Composition is **Steel** and the Shape, **Steel U** and click OK.
5. Returning to the Default Settings dialog, select "Framing Member Defaults Management" and click the **Edit** button.
6. In the Framing Member Defaults Management dialog, create a new Hat Channel Framing Member:
   - Select any of the available Framing members and click the **Copy** button.
   - In the New Default dialog, type the name "Hat Channel" and click OK.
   - On the GENERAL panel of the Hat Channel Framing Member Defaults dialog, select "Hat Channel" from the **Type** drop-down list and click OK.
7. Click OK and then Done to close all dialogs.

To create a custom hat channel material

1. Select **3D> Materials> Plan Materials**, and in the Plan Materials dialog, click the **New** button.
2. On the PATTERN panel of the Define Material dialog, click the **Material Color** box and select a grey color to represent this material in 3D views.
3. On the MATERIALS LIST panel:

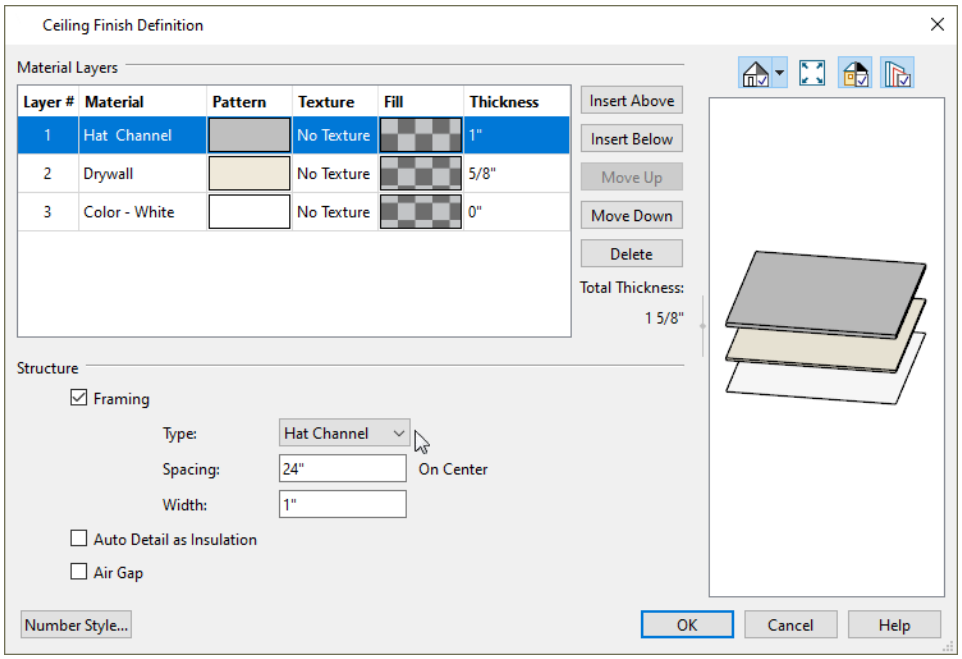


- Type a short, descriptive **Material Name** such as "Hat Channel".
- Specify the **Materials List Calculation** type as "None".
- Click OK.

4. In the Plan Materials dialog:
   - Select the new "Hat Channel" material in the list on the left.
   - Click the **Add to Library** button.
   - Click OK to close the dialog and add the new material to the User Catalog in the library for use in this and other plans.

To set ceiling defaults for a floor level

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow to the left of "Floors and Rooms" to expand the category.
   - Expand the "Floor Levels" subcategory.
   - Select "Floor 0" and click the **Edit** button.
2. On the STRUCTURE panel of the Floor 0 Defaults dialog, click the **Ceiling Finish Edit** button.
3. In the Ceiling Finish Definition dialog:
   - Click in the **Thickness** field for Layer 1 to make it the selected layer.
   - Click the **Insert Above** button to add a layer above it.
   - With the new layer selected, set its Thickness to be 1", then click on its Name, Pattern, or Texture in the table.
4. In the Select Material dialog, select your new "Hat Channel" material, created above. It can be selected on either the LIBRARY MATERIALS or PLAN MATERIALS panel.
   - On the LIBRARY MATERIALS panel, it will be found in the User Catalog.
   - On the PLAN MATERIALS panel, all materials in the current plan are listed alphabetically.
   - Click OK.
5. Returning to the Ceiling Finish Definition dialog, the new Hat Channel material will be selected:



- Under the "Structure" heading, check the box beside **Framing**.
- Select "Hat Channel" from the **Construction** drop-down list to distinguish the hat channels from regular furring when framing is generated later on.
- Specify the new Layer 1's **Width** as 1".
- Specify the **Spacing** as 24" On Center.

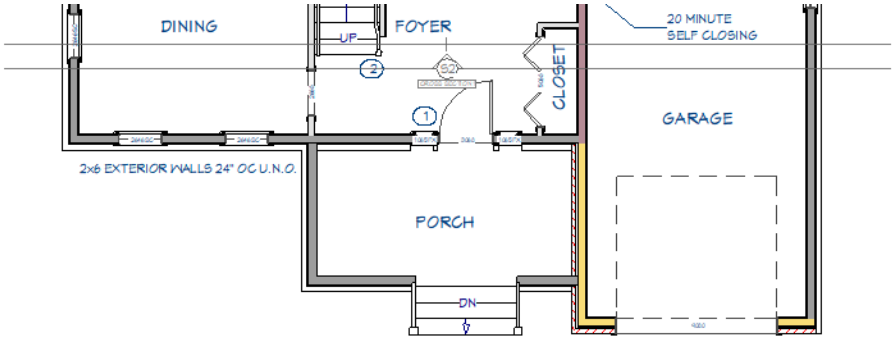
6. Click OK and then Done to close all dialogs.

See *"To generate floor and ceiling framing" on page 335 of the Floor Framing Tutorial*.

The differences in ceiling finishes can be seen in a Backclipped Cross Section view.

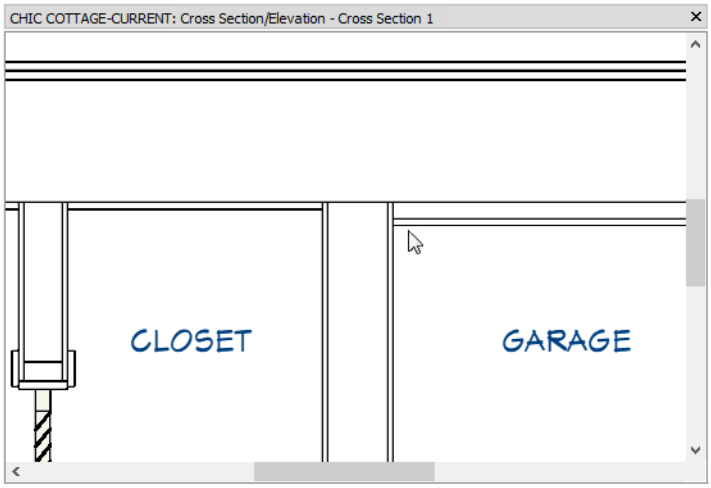
To view ceiling finishes in 3D

1. If you have not already, go **Down One Floor** to Floor 1.
2. Select **3D> Create Orthographic View> Back Clipped Cross Section**, then:



- Click and drag vertically to create a camera inside the Foyer room.
- Limit the length of the camera's line of sight to one or two plan feet and make sure that you draw the camera either straight up or straight down on-screen.

3. **Zoom** in on the left side of the Garage ceiling. Notice:



- The Closet room on the left has a single layer of drywall on the ceiling.
- The Garage on the right has two ceiling layers: drywall and insulation.

The ceiling finish can also be removed from an individual room.

To remove a ceiling finish

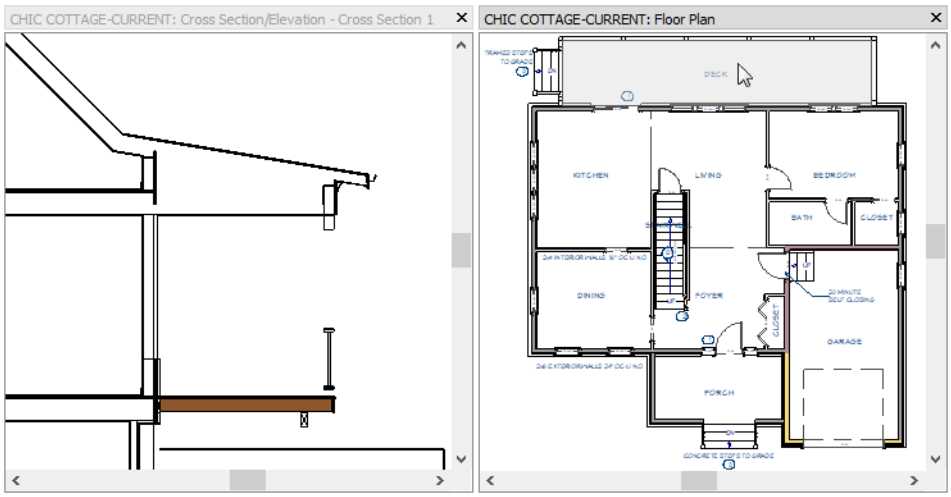
1. Go **Down One Floor** to Floor 0.
2. Click the **Select Objects** button, then click in an empty space in the room below the Porch to select it.
3. Click the **Open Object** edit button to open the Room Specification dialog.
4. On the STRUCTURE panel, click the **Ceiling Finish Edit** button.
5. In the Ceiling Finish Definition dialog, select each of the layers and click the **Delete** button.
6. Click OK to close both dialogs.
7. When you are finished, be sure to **Save** your work.

CREATING A CATHEDRAL CEILING

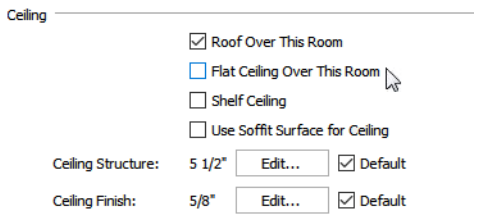
A cathedral ceiling has the same pitch as the roof and can be easily created using the underside of the roof above the room.

To create a cathedral ceiling

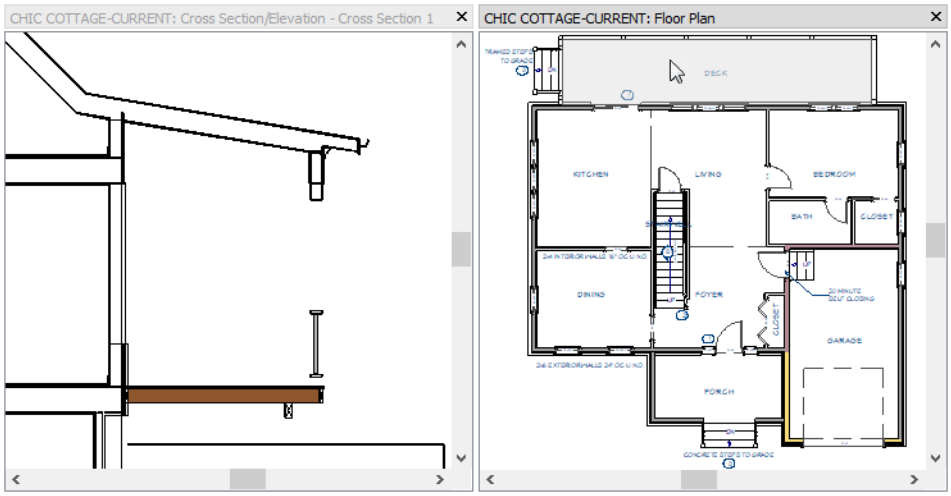
1. Go to Floor 1, and create a **Back Clipped Cross Section** inside the Deck. Be sure to draw the camera arrow horizontally, either left to right or right to left.
2. Select **Window> Tile Vertically** to tile the two views side by side and Zoom in on the Deck room.
3. Return to the plan view window, click the **Select Objects** button, and select the Deck room.



4. Click the **Open Object** edit button. On the STRUCTURE panel of the Room Specification dialog, uncheck **Flat Ceiling Over This Room** and click OK.



5. Notice that the Deck's ceiling is now the underside of its shed roof.



By default, cathedral ceilings use the ceiling material set in the Room Specification dialog. If you require a different material on a given roof plane, uncheck **Use Room Ceiling Finish** in the Roof Plane Specification dialog.

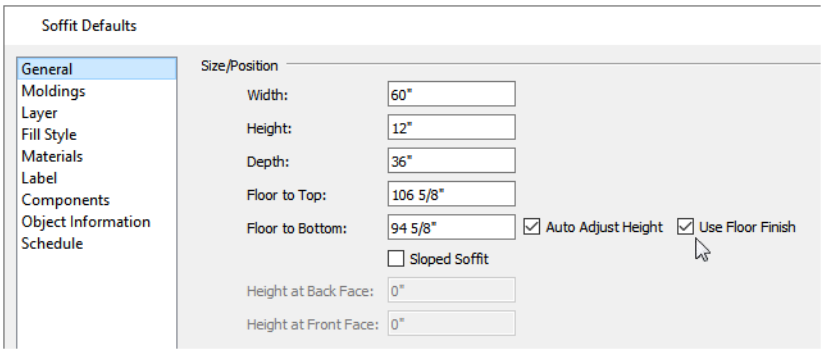
Drawing a Tray or Coffered Ceiling

A tray ceiling is an area within a ceiling that is raised and has either vertical or sloping sides, and you can easily create one using the Tray Ceiling Polyline tool or the Make Tray Ceiling in Room edit tool.

One of the requirements of Tray Ceiling Polylines is that they be located in a room with an uninterrupted, flat ceiling. The basement of Chic Cottage does have a flat ceiling; however, it is interrupted by a hole in the ceiling to accommodate the stairs. To create a tray ceiling here, Soffits will be placed around the perimeter of the room.

To set the Soffit Defaults

1. Select **Edit> Default Settings**, click the arrow next to "Cabinets" to expand the category, select "Soffit" in the list, and click the **Edit** button.
2. On the General panel of the Soffit Defaults dialog:

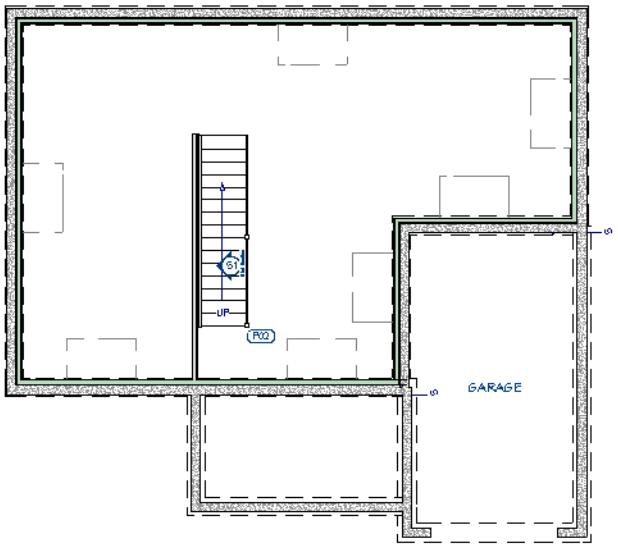


- Specify the **Width** as 60", the **Height** as 12", and the **Depth** as 36".
- Specify the **Floor to Top** as 106 5/8", which is the Finished Ceiling Height of the basement room.
- Make sure that **Use Floor Finish** is checked, since the Finished Ceiling Height is measured from floor finish as opposed to the slab.

3. Click OK and then Done to close both dialogs and apply your changes.

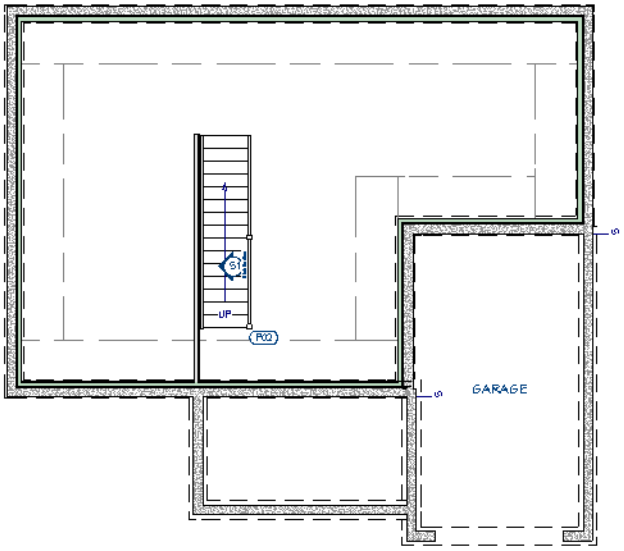
To create a tray ceiling using Soffits

1. Go to Floor 0, then select **Build> Cabinet> Soffit** .
2. Click along each of the exterior walls of the basement room to place a soffit at that location.

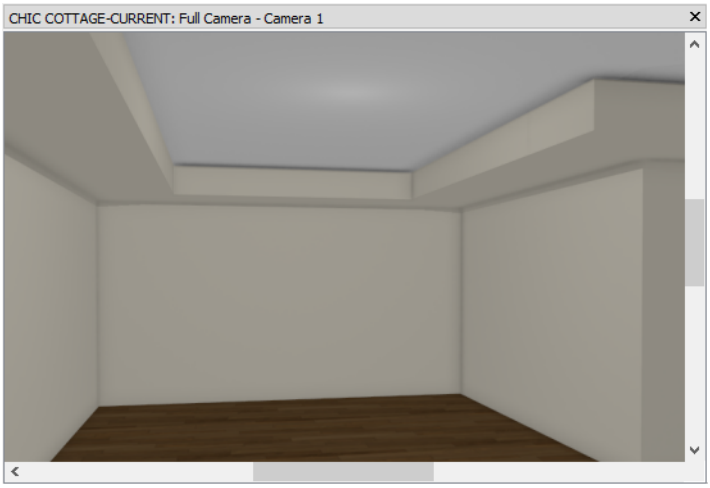


- Soffits, like other cabinet objects, will snap to the side of a nearby wall.
- Soffits should not extend through intersecting walls, so place two soffits along the wall separating the basement from the Porch area: one on each side of the staircase wall.

3. Select one of the soffits and use its edit handles to extend it across the length of the room.
4. Repeat this step with each of the soffits until they completely encircle the ceiling.



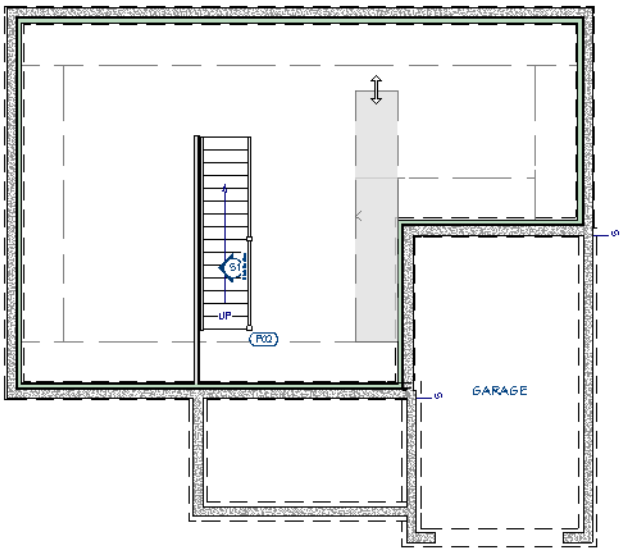
5. Create a **Camera** view in the basement room to see the results.



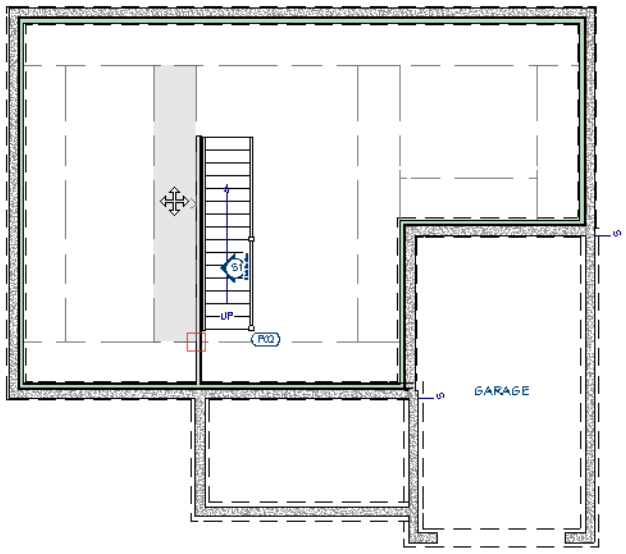
A coffered ceiling can be created by simply replicating additional Soffits across the middle of the room.

To create a coffered ceiling using Soffits

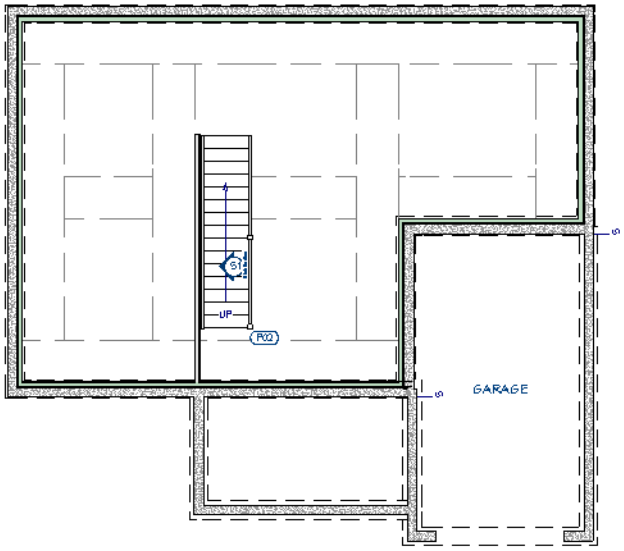
1. Select **Window> Swap Views** to return to plan view.
2. Click the **Select Objects** button, then select the soffit located against the vertical wall separating the basement from the Garage area.
3. Click the Resize edit handle located on the soffit's top edge and extend it upward until it meets the horizontal soffit against the back wall of the basement.



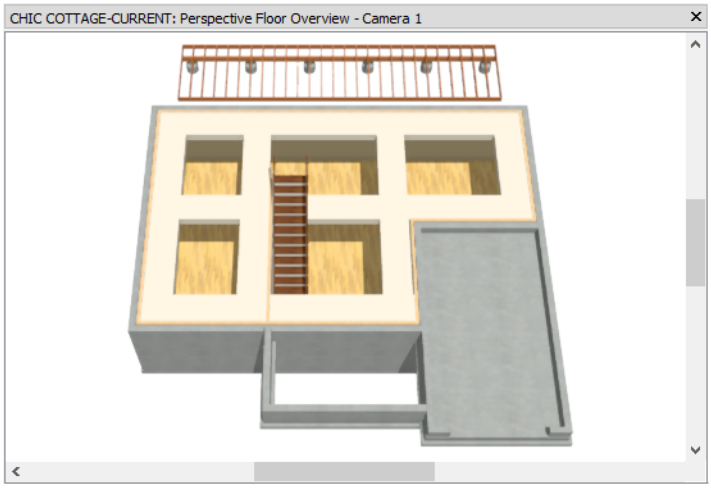
4. Select the soffit located against the vertical wall on the left side of them basement, then:



   - Click the **Copy/Paste** edit button.
   - Click the soffit's Move edit handle located at its center and drag to the right.
   - When the object preview outline snaps to the wall next to the staircase, click once.
5. Select the soffit located against the horizontal wall separating the basement from the Garage area, then
   - Click the **Copy/Paste** edit button
   - Click the **Reflect About Object** edit button.
   - Move the mouse pointer over top edge of the vertical soffit immediately to its left.
   - When a vertical reflection axis displays, click once.
   - Use the Resize handle on the left side of the new soffit to snap it to the side of the staircase.
6. Select the newly created soffit and repeat step 6 to create one more copy on the left side of the basement, between the two horizontal soffits.
   - You can reflect the soffit about either the staircase or the soffit to its left.
   - In either case, both the left and right sides will need to be moved using the Resize edit handles.



7. The results can be seen in a **Perspective Floor Overview** view.



8. When you are finished, close the camera view and **Save** your work.

There are other ways to produce tray and coffered ceilings, as well. Visit www.chiefarchitect.com/support/database.html for more information.

Adding Annotations

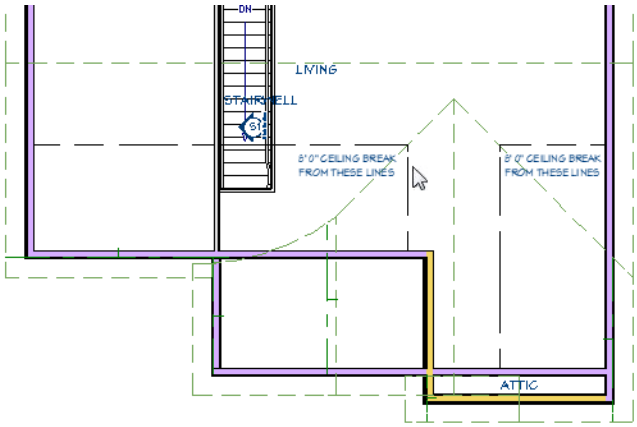
Some information about the customized ceilings in this plan should have annotations.

The Working Plan View is active, so "Plan Rich Text Defaults are in use as they were in previous tutorials. See *"To set the rich text defaults" on page 24 of the Exterior Walls Tutorial*.

To add rich text ceiling annotations

1. Select **CAD> Text> Rich Text**, then click near the center of the horizontal soffit near the back wall of the basement.
2. On the Rich Text panel of the Rich Text Specification dialog, type: 36" x 12" soffits.
3. On the Appearance panel, note that the text is placed on the "Text" layer, then click OK.

4. Go **Up One Floor** to Floor 1, and in the back Deck room, create a **Rich Text** object that says: 2:12 cathedral ceiling.
5. Go **Up One Floor** to Floor 2 and:
   - Notice that the roof annotations created in the *Chic Cottage Roof* tutorial do not display.
   - Click the **Saved Plan View Control** drop-down and select "Roof Plan View" from the drop-down list.
   - Notice the changes that occur in the view, then switch back to the "Working Plan View".
6. Turn on the display of the "Ceiling Break Lines" layer using the Active Layer Display Options side window. See *To create a knee wall and Attic room on page 163*.
7. Along the dashed horizontal Ceiling Break Lines, create two **Rich Text** objects that say: 8’ 0" ceiling break from these lines.



8. When you are finished, **Save** your work.

You can continue working on this plan in the *Finish Materials* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Ceilings. Then, click OK.
3. Notice that Chic Cottage-Ceilings is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for creating various types of custom ceilings, including lowered ceilings and custom ceiling finishes, tray ceilings, and coffered ceilings. It also discusses the important default settings associated with ceilings.

To set the plan-wide default ceiling finish *178*

To set the default ceiling finish for room types *178*
To switch to a different saved plan view *180*
To create a custom hat channel framing type *180*
To create a custom hat channel material *180*
To set ceiling defaults for a floor level *181*
To view ceiling finishes in 3D *182*
To remove a ceiling finish *183*
To create a cathedral ceiling *183*
To set the Soffit Defaults *184*
To create a tray ceiling using Soffits *185*
To create a coffered ceiling using Soffits *186*
To add rich text ceiling annotations *188*
To save a plan revision *189*

Assessment Questions

Tutorial 10 - Custom Ceilings

In what dialog should a lowered ceiling be defined?

- A lowered ceiling can be specified in the Ceiling Finish Definition dialog.

How does a lowered ceiling affect the structure of a room?

- You can define a lowered or dropped ceiling without affecting the top heights of the walls by modifying the Ceiling Finish Definition.

What supplies the surface of a cathedral ceiling?

- A cathedral ceiling is created using the underside of the roof above the room.

Name two tools that can be used to create a tray or coffered ceiling.

- A standard tray or coffered ceiling can be easily created using the Tray Ceiling Polyline tool in many cases.
- In situations where this tool cannot be used, Soffits can be placed around the perimeter of a room.

What two edit tools can be used to create identical objects on either side of a room?

- The Copy/Paste and Reflect About Object edit tools can be used to create identical objects on either side of a room.

Finish Materials

The finish materials applied to walls and floors are an important aspect of a plan’s interior.

Learning Objectives

The previous lesson, *Custom Ceilings*, explained how to create a variety of different ceiling conditions in Chief Architect. This lesson describes best practices in Chief Architect for applying finish materials to walls and floors. Concepts introduced include:

File Management 191
Productivity Tips 191
Setting the Defaults 192
Using Plan Views 192
Organizing Library Materials 192
Applying Wall Finish Materials 193
Wall Coverings 197
Using Wall Material Regions 199
Specifying Flooring Materials 203
Using Floor Material Regions 206
Creating Schedules 208
Adding Annotations 209
Creating Revisions 209

File Management

At this point in the design process, both the Chic Cottage-Ceilings and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Ceilings was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create finish materials to walls and floors, keep in mind these tips to improve your productivity.

Drawing and Editing

- The **Material Painter**  is a powerful and flexible way to assign materials to objects in 3D views.

Content

- A selection of name brand paint, flooring, and other materials are available for download in the "Materials and Surfaces" category of the 3D Library. Select **Library> Get Additional Content**  to launch your default web browser to that page.
- Create template plans with your preferred wall and floor finish materials set as defaults when you begin a new plan.

- Group paint colors, floor finishes, and other materials that you often use together in custom library folders in the User Catalog.

Interface

- **Perspective Floor Overviews** are a useful way to view the relationships between room spaces.
- The **Wall Elevation** tool lets you create an elevation of a wall that is confined to a single room in the plan.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Tab*** - Select Next Object
- ***Spacebar*** - Select Objects
- ***3*** - Break edit tool
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When specifying finish materials, there are several defaults that can be useful.

Floor finish materials can be specified for different room types in the Floor/Ceiling Platform and Room Type Defaults dialogs. See *Specifying Flooring Materials on page 203*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

The Working Plan View, which was used in the *Custom Ceilings* tutorial and should be active now, will work well for customizing finish materials. See *"To switch to a different saved plan view" on page 180 of the Custom Ceilings Tutorial*.

Organizing Library Materials

The Library Browser provides access to thousands of finish materials to add style to your designs. Materials catalogs are organized by material type as well as Manufacturer.

With so many options available, it can help to organize materials to meet your creative needs so that finding the right look for each project is a streamlined process.

To create custom library folders

1. The Library Browser side window is docked to the right side of the program window.
   - Click on its tab to bring it to the front of the other side windows docked at that location.
   - If you do not see the Library Browser, select **View>Library Browser** .
2. The Library Browser is composed of multiple panels. The Folders panel contains a browsable tree list of the main categories, the catalogs they contain, and all folders and subfolders.

- Click the arrow next to the User Catalog line item in the Folders panel to expand the category and view its contents.
- The Hat Channel material created in the Custom Ceilings tutorial will be listed here, along with any other content you may have added.

3. Right-click on the User Catalog line item and select **New> Folder** from the contextual menu.
4. Type a short, descriptive name for this new folder. Here, "Beach Palette" is used.
5. You can create additional palette folders as well if you like.

With a custom folder created, you can now start adding materials to it.

To copy items to a custom folder

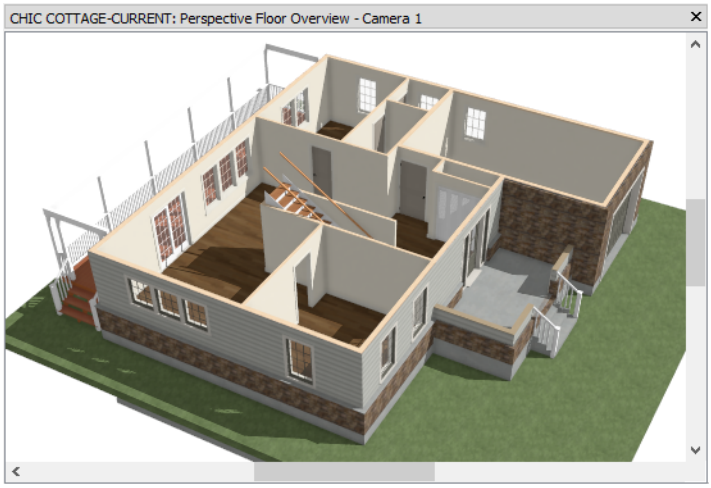
1. Still in the Folders panel, navigate to Chief Architect Core Catalogs> Materials. This catalog contains a wide variety of materials, from structural and landscaping to finishes.
2. Next, browse to Colors> Generic Colors.
3. Click on the Blue folder and notice that the Filter Results panel reports that 20 items are found in this folder.
4. There are two ways to view the Filter Results. Toggle buttons at the bottom of the Library Browser let you switch between them:
   - **List Mode** presents items in a vertical list. Names are often easier to read but fewer item thumbnails can be seen at once.
   - **Tile Mode** presents items in a grid. More item thumbnails can be seen, but names may be truncated.
5. Right-click on "Color - Dew" and select **Copy to User Catalog** from the contextual menu. A copy of the material is created in the User Catalog and is visible and selected in the Folders panel.
6. Repeat steps 3-5 to add a variety of colors to the User Catalog. These are materials are used here:
   - From the Blue folder: "Color - Dew" and "Color - Fresh"
   - From the Green folder: "Color - Robin's Egg"
   - From the Yellow folder: "Color - Butter" and "Color - Maya Gold"
7. Move these materials in the User Catalog into the "Beach Palette" folder:
   - Click on "Color - Butter"to select it.
   - Hold down the ***Shift*** key and click on "Color - Robin's Egg".]
   - The two materials as well as the three listed between them are selected as a group.
   - Click and drag the selection over the "Beach Palette" folder. When the folder becomes highlighted, release the mouse button to move the selection into the folder.

Applying Wall Finish Materials

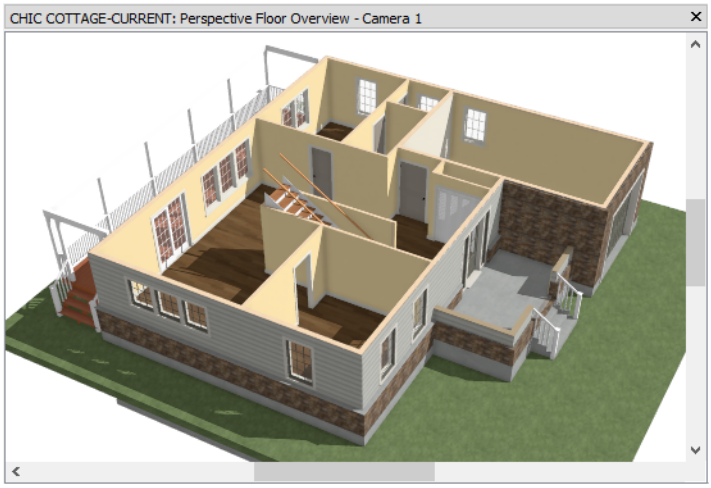
A Floor Overview is a good place to customize wall materials because the relationships between walls can be easily seen, and the Material Painter tool can be used to apply new materials to surfaces in the view. It has five Modes that allow you to control the scope of each paint operation.

To specify the wall finish for all rooms

1. Go to Floor 1, then select **3D> Create Perspective View> Perspective Floor Overview** .
2. Use the **Mouse-Orbit Camera** tool to orbit the camera upward so that the interior rooms can be seen. See *"To create a camera view" on page 16 of the Exterior Walls Tutorial*.



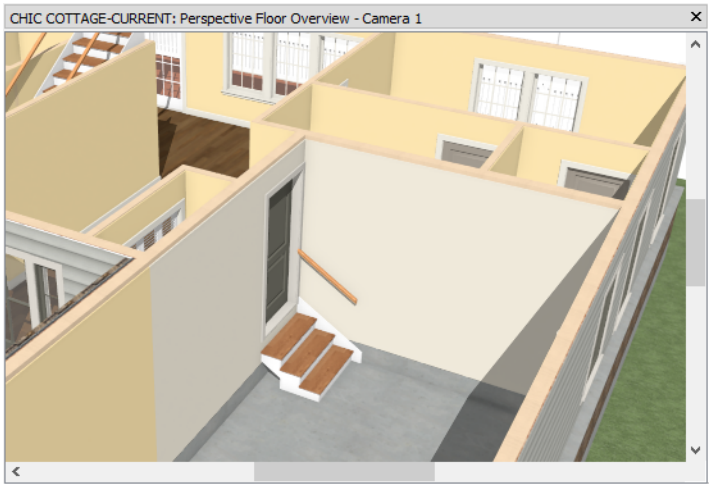
3. Select **3D> Material Painter> Material Painter Plan Mode** .
4. Select **3D> Material Painter> Material Painter** .
5. On the LIBRARY MATERIALS panel of the Select Material dialog:
   - The content is filtered by **Type** so that it only lists Materials.
   - To further filter the results, type "beach palette" in the Search field, then move your mouse pointer over the "Beach Palette" **Folder** line item in the Filters drop-down list.
   - The Folders panel expands to show the contents of the User Catalog.
   - Open the Beach Palette folder, select the material named "Color - Butter", then click OK.
6. Move your mouse pointer into the camera view and notice that it now displays a paint roller icon. Click once on any interior wall surface and notice that nearly all walls become painted.



7. While the **Perspective Floor Overview** is active, go **Up One Floor** to Floor 2.
8. Select **3D> Material> Adjust Material Definition** , then click on an interior wall surface and note that the material on that surface is "Color - Butter". Click Cancel.
9. Go **Down** to Floor 0 and repeat step 8 to confirm that the interior wall surfaces have been painted "Color - Butter" there, as well. When you are finished, return to Floor 1.

To use the Material Eyedropper

1. **Zoom** in on the Garage and **Orbit** around so the wall between it and the Foyer can be seen.

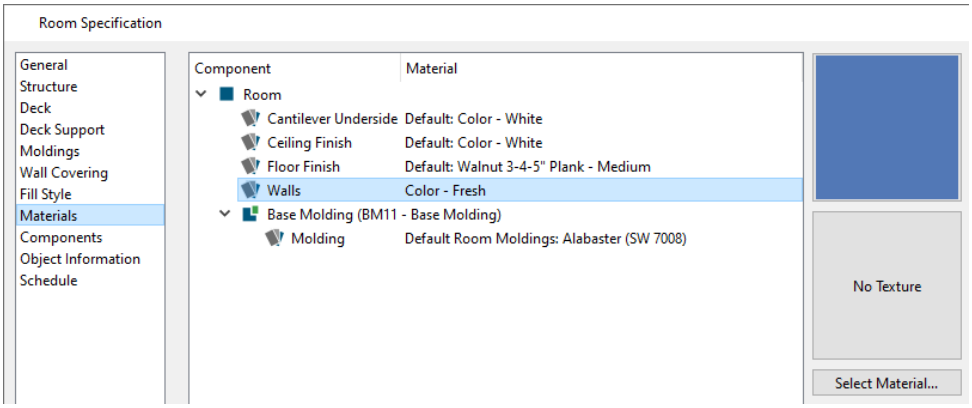


   - Notice that two of the walls were not painted.
   - This is because these two walls have a fire rated Drywall material instead of standard Drywall used by the other walls.
2. Select **3D> Material Painter> Material Eyedropper**, then:
   - Notice that your mouse pointer now displays an eyedropper icon.
   - Click on a wall surface that has "Color - Butter" applied to it and notice that the mouse pointer icon changes to an eyedropper.
3. Click once on either fire wall. Because the **Material Painter Plan Mode** is still active, both walls will be painted.

With the primary wall color for the plan applied, you can now apply custom colors to specific rooms. This can be done in the Room Specification dialog or using the Material Painter.

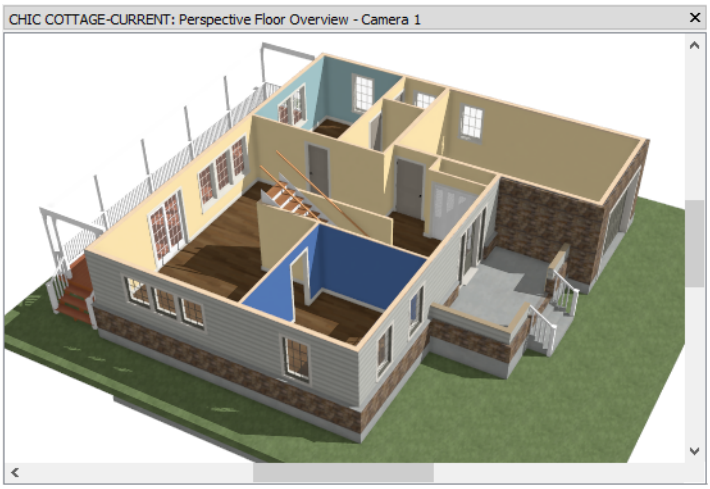
To specify the wall finish for a room

1. **Zoom** out and **Orbit** the camera until all interior rooms can be seen again.
2. Click the **Select Objects** button, then click on the floor of the Dining room to select it.
3. Click the **Open Object** edit button to open the Room Specification dialog. On the MATERIALS panel:



- Click on the "Walls" component in the tree list to select it and note that "Color - Butter" is currently specified as its material.
- Click the **Select Material** button to open the Select Material dialog and select "Color - Fresh" from the Beach Palette folder in the User Catalog.
- Click OK to close the Room Specification dialog and apply your change.

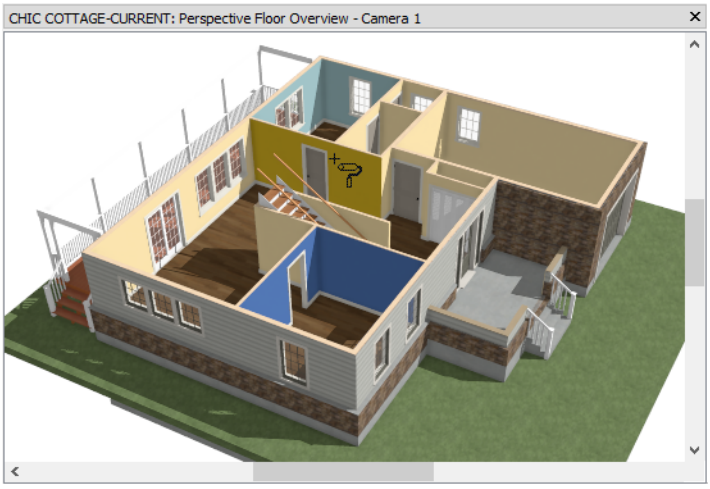
4. Select **3D> Material Painter> Material Painter Room Mode** .
5. Select **3D> Material Painter> Material Painter** and apply the "Color - Dew" material to the Bedroom walls.



An accent wall can be created by specifying a different material for one wall. Just as with rooms, this can be done in the Wall Specification dialog or using the Material Painter.

To specify a custom finish for a single wall

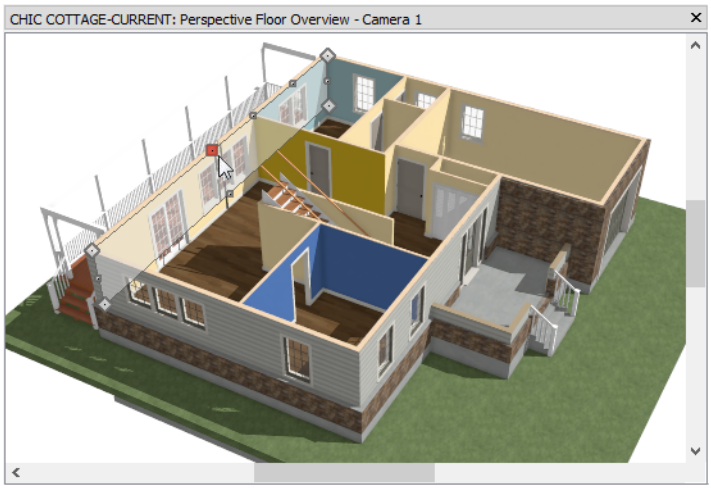
1. Select **3D> Material Painter> Material Painter Object Mode** .
2. Instead of activating the Material Painter tool using the menu or toolbar button, select a material directly from the Library Browser:
   - If it is not already open, select **View> Library Browser** .
   - In the Folders panel, browse to User Catalog> Beach Palette and select "Color - Maya Gold".
3. When you move the pointer into the camera view, it displays the paint roller icon.
4. Click on the wall separating the Dining room from the Bedroom to paint it.



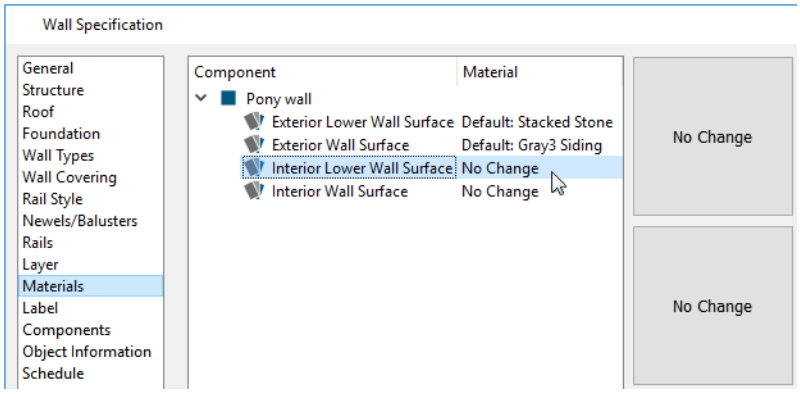
In order to edit a wall in 3D, it first must be selected.

To select a wall in 3D

1. Click the **Select Objects** button, then click in the Living room, on the exterior wall separating the Living room from the Deck.
2. Notice that the Living room becomes selected by default.
3. Click the **Select Next Object** edit button or press the ***Tab*** key to select the wall instead.



4. Click the **Open Object** edit button to open the Wall Specification dialog.
5. On the MATERIALS panel:



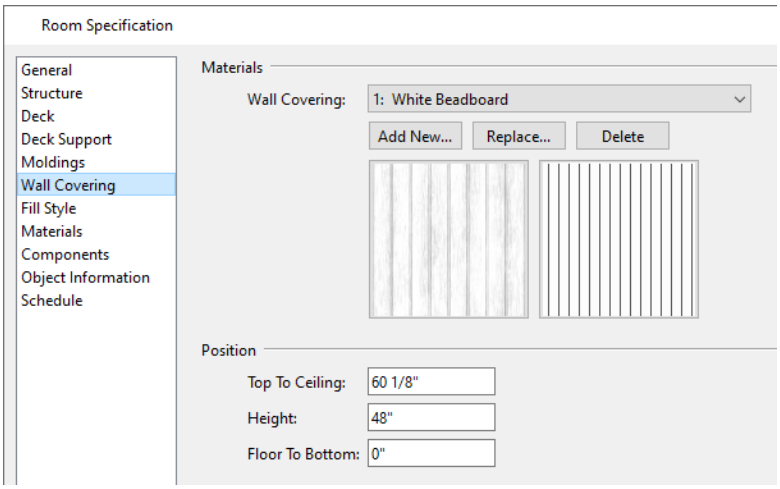
   - Because this wall is a Pony Wall, it has four wall surface components: two exterior and two interior.
   - Notice that the Interior Wall Surface components are described as "No Change".
   - This is because the wall spans three rooms, and one has a different wall finish material than the others.
   - Click Cancel.
6. Remember to **Save** your work.

WALL COVERINGS

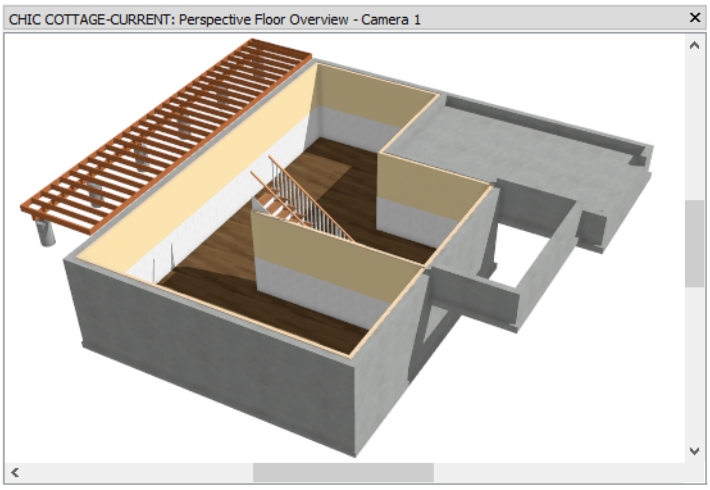
Wall coverings can be used in addition to a wall's surface material to create accents like wallpaper borders or wainscoting.

To apply a wall covering

1. Go **Down One Floor** to Floor 0.
2. Select the basement room and click the **Open Object** edit button to open the Room Specification dialog.
3. On the WALL COVERING panel:



- Click the **Add New** button to open the Select Material dialog.
- Search for "beadboard" and select the "Beadboard" **Folder** line item in the Filters drop-down list, located at Core Catalogs> Materials> Siding and Paneling.
- Select the "White Beadboard" material and click OK.
- Change the **Height** to 48" and the **Floor to Bottom** value to 0".
- Click OK.



- Here, the "Cabinets, Soffits" layer is turned off so the white beadboard wall covering is not hidden behind coffered ceiling in the camera view.

4. When you are finished, close the camera view and **Save** your work.

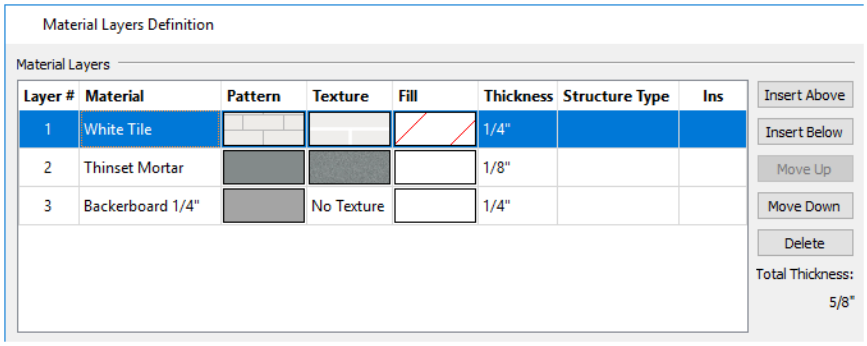
> Additional wall covering materials are available for download.

Using Wall Material Regions

Unlike a Wall Covering, Wall Material Regions do more than just apply a material to the surface of a wall: they actually replace the wall surface layer with a different material. They also have depth and can extend out past the surface of the wall.

To set the Wall Material Region defaults

1. Select **Edit> Default Settings**, and in the Default Settings dialog:
   - Click the arrow next to "Material Region" to expand the category.
   - Select "Wall Material Region" and click the **Edit** button.
   - On the STRUCTURE panel of the Wall Material Region Defaults dialog:
   - Notice that **Cut Finish Layers of Parent Object** is checked.
   - This means that by default, a wall material region will cut into and replace the finish layers of the wall it is placed onto.
   - Click the **Edit** button.
2. In the Material Layers Definition dialog, notice that the default region is composed of layers of backerboard, thinset mortar, and tile, then click OK.



3. Click OK and then Done to close the remaining dialogs.

This tile surround will be positioned 18" above the floor to accommodate a bathtub that will be placed later on. See *"To place bathroom fixtures" on page 284 of the Appliances and Fixtures Tutorial*.

To create a Wall Elevation view

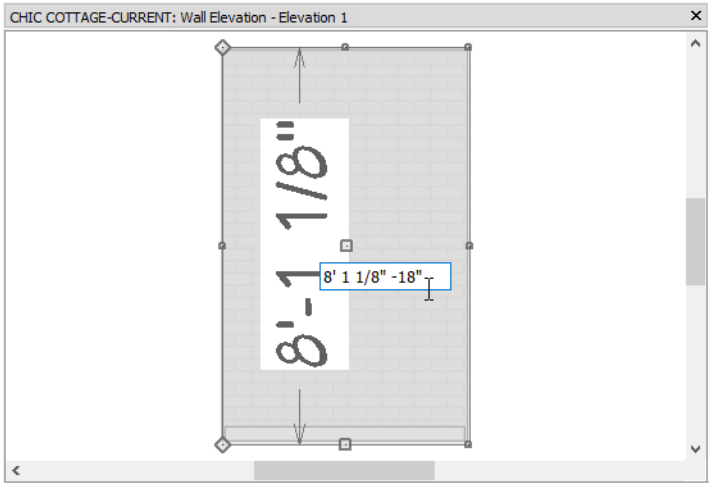
1. Select **3D> Create Orthographic View> Wall Elevation**.
2. Click and drag a camera arrow located inside the Bath room, pointed straight at the vertical wall on the left side of the room.
3. The resulting camera view shows only the portion of the left vertical wall that defines the Bath. Any objects located between the camera and the wall in the current room will display in a Wall Elevation, as well.

To resize a Wall Material Region with accuracy, make sure that Temporary Dimensions are toggled on. Select **View> Temporary Dimensions** and confirm that there is a check mark in lower right corner of the tool icon.

To create a tile shower surround

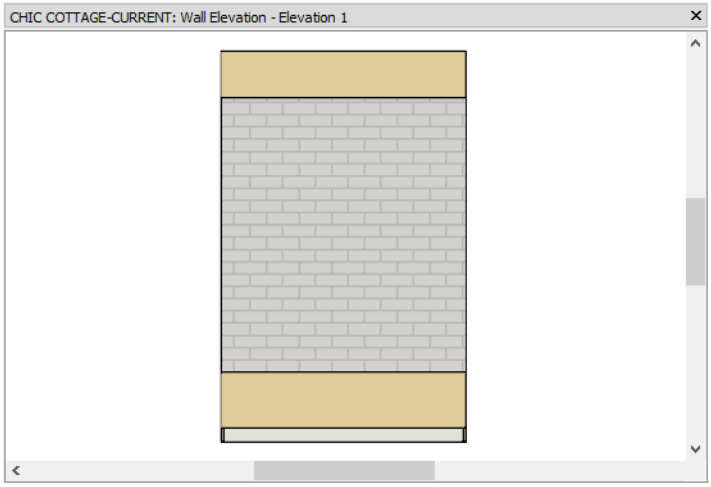
1. Select **Build Wall> Wall Material Region**, then click once on the wall surface. A Wall Material Region that covers the entire wall is created and is initially selected.

2. Move the bottom edge of the region upward:



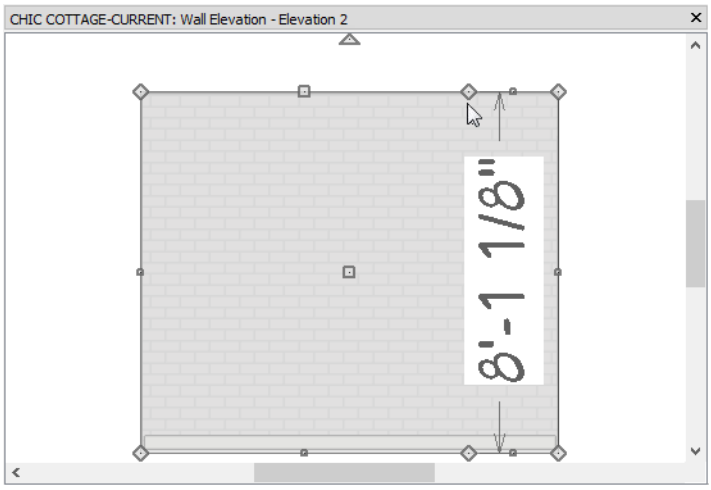
- Click on the edit handle at the center of the bottom edge of the region to select it.
- Move the mouse pointer over the temporary dimension that reports the region's height.
- When the mouse pointer changes to a pointing hand icon, click on the dimension line.
- Click in the inline text field, to the right of the existing value, then type -18 after that value and press the ***Enter*** key.
- The bottom edge moves upward 18", reducing the total height of the Region by that amount.

3. Click on the top edge of the Region to select it, then repeat step 3 to lower the top edge by 12".



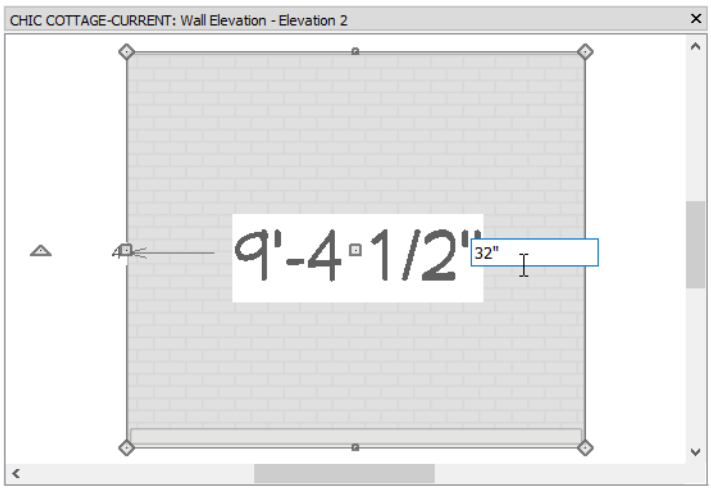
4. Select **File> Close View** to close the current Wall Elevation view.
5. Create a new **Wall Elevation** view in the Bath room, this time pointed at the bottom horizontal wall

6. Click to create a **Wall Material Region** that covers this wall as described above.

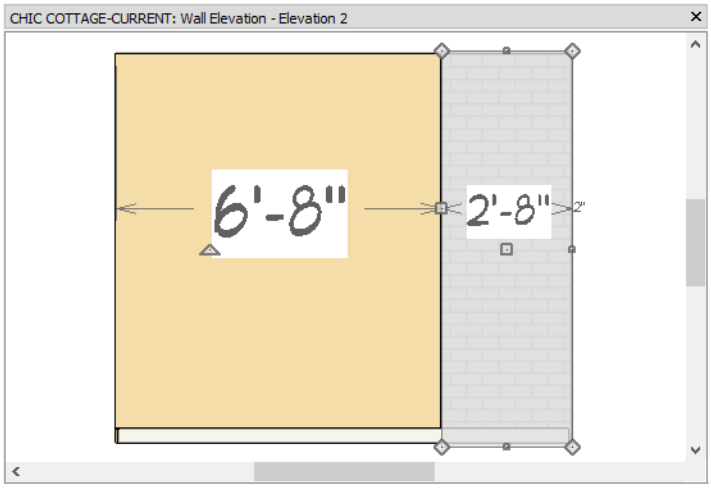


- Notice that the top and bottom edges of this Region are composed of two segments separated by diamond-shaped Reshape edit handles.
- This is because the Bath is defined by two separate walls along this side rather than a single wall.

7. With the Region selected, click the **Simplify Polyline** edit button. The top and bottom edges become single segments instead of two.
8. Select the left vertical edge of the Region and:



- Click on the dimension that reports how far it is from the right edge.
- Type 32" and press the ***Enter*** key.

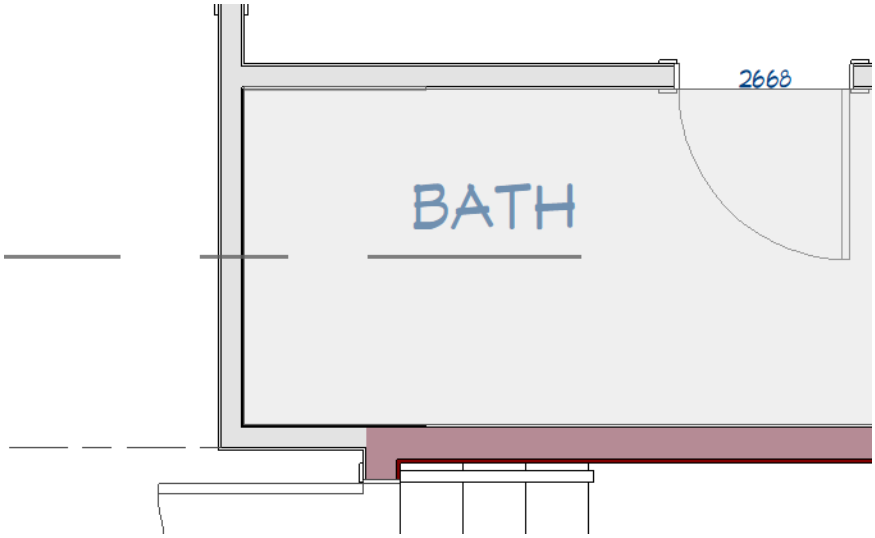


9. Raise the bottom edge of the polyline 18" above the floor and lower the top edge 12" below the ceiling, as described above.
10. Select **File> Close View** to close the current Wall Elevation view.

To complete the tile shower surround, make a copy of the Wall Material Region on the opposite wall.

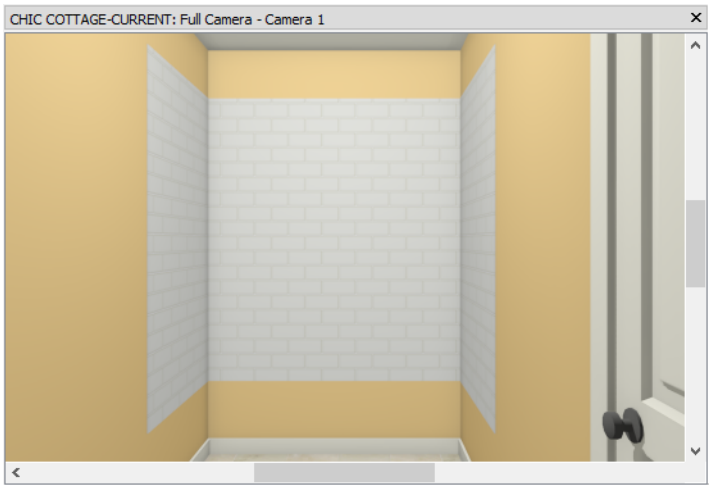
To copy a Wall Material Region

1. **Zoom** in on the lower left corner of the Bath room and notice that a rectangular shape extends out past the horizontal wall's drywall. This is the second Wall Material Region created above.
2. Click the **Select Objects** button, then click on the Wall Material Region to select it.
   - To confirm that a Material Region is the selected object, look at the left side of the Status Bar at the bottom of the program window.
   - If the Wall is selected instead, click the **Select Next Object** edit button.
3. Zoom out so the top horizontal wall of the Bath can be seen.
4. With the Wall Material Region still selected, click the **Copy/Paste** edit button.
5. Click the **Reflect About Object** edit button, then:



- Move the mouse pointer up into the Bath room.
- When the room becomes highlighted and a horizontal dashed reflection axis line displays, click once.
- A copy of the Wall Material Region is created on the opposite wall and is selected.

6. You can see the results in a Full Camera view inside the Bath.



7. When you are finished, remember to **Save** your work.

Custom Backsplashes are a type of Wall Material Region that does not cut into the existing wall surface by default. See *"Appliances and Fixtures" on page 277 of the Appliances and Fixtures Tutorial*.

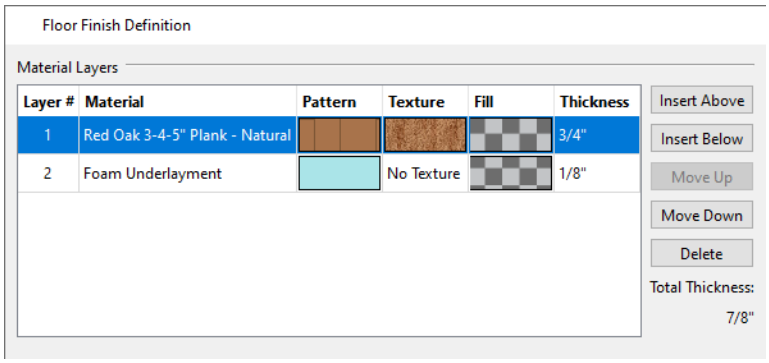
Specifying Flooring Materials

Just like with walls, flooring materials can be set in a Perspective Floor Overview.

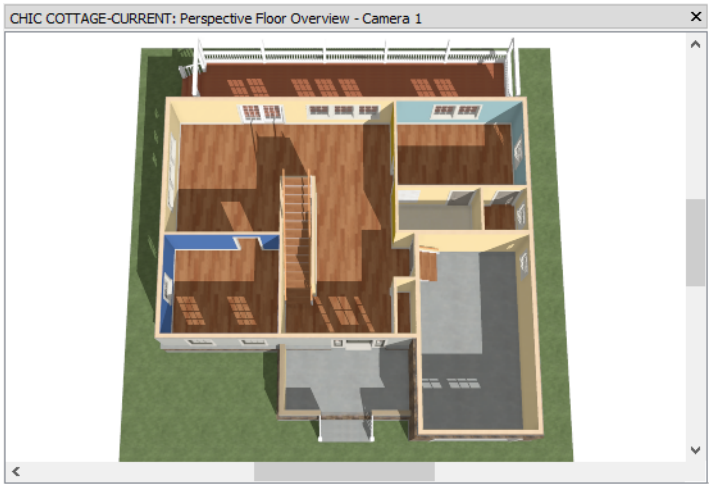
Flooring materials are an example of a Dynamic Default: if you change a setting in the appropriate defaults dialog, rooms in your plan that are set to use that default will update automatically. If a room has been customized and is no longer set to use the default flooring, that room will not be affected.

To set flooring defaults

1. On Floor 1, select **3D> Create Perspective View> Perspective Floor Overview** .
2. Select **Edit> Default Settings** to open the Default Settings dialog:
   - Click the arrow beside "Floors and Rooms" to expand the category.
   - Select "Floor/Ceiling Platform", and click the **Edit** button.
3. In the Floor/Ceiling Platform Defaults dialog, click the **Floor Finish Edit** button to open the Floor Finish Definition dialog.
4. With Layer 1 selected, click in the **Name**, **Pattern**, or **Texture** cell in its row to open the Select Material dialog.
5. On the Library Materials panel of the Select Material dialog:
   - The content is filtered by **Type** so that it only lists Materials and is additionally filtered to show the selected material's "Walnut" **Folder** located at Core Catalogs> Materials> Flooring> Wood Flooring> 3-4-5" Plank.
   - In the Folders panel, click the arrow to the left of the "Walnut" folder to close it and instead expand the "Red Oak" folder.
   - Select the "Red Oak 3-4-5" Plank - Natural" material and click OK.



6. Click OK once more to return to the Default Settings dialog and notice that in the 3D view behind the dialog, all rooms aside from the Bath, Garage, and Porch update to display the new default flooring material.
7. Click Done to close the Default Settings dialog and **Orbit** as needed to see all of the rooms.



8. Go **Down One Floor** to Floor 0 and notice that the room on this floor is also using the new default flooring material.

The flooring material specified in the Floor/Ceiling Platform Defaults dialog is the default material for all floors; however, each floor can have a different default flooring material if you choose.

To set flooring defaults by floor

1. Go **Up** to Floor 2 and select **Edit> Default Settings** .
   - Click the arrow beside "Floors and Rooms" to expand the category.
   - Click the arrow beside "Floor Levels" to expand this subcategory.
   - Select "Floor 2" and click the **Edit** button.
2. On the STRUCTURE panel of the 2nd Floor Defaults dialog:



   - Notice that the **Default** check box to the right of the **Floor Finish Edit** button is checked, which means that Floor 2 is currently using the default floor finish set in the Floor/Ceiling Platform Defaults.
   - Click the **Floor Finish Edit** button to open the Floor Finish Definition dialog.
3. Click in the **Thickness** field for Layer 1 to select it, then click the **Select Material** button.

4. On the LIBRARY MATERIALS panel of the Select Material dialog:
   - The content is filtered by **Type** so that it only lists Materials and is additionally filtered to show the selected material's "Red Oak" **Folder**.
   - Click on the "Red Oak" **Folder** filter so that it is no longer used and type "carpet" in the Search field.
   - Select the "Carpet" **Folder** line item from the drop-down list
   - The Folders panel now expands to show Core Catalogs> Materials> Flooring> Carpet.
   - Select a carpet material such as "Carpet-01 Dover" and click OK.
5. In the 2nd Floor Defaults dialog, notice that the **Floor Finish Default** check box is now unchecked. This mean that this setting is no longer tied to the Floor Finish setting in the Floor/Ceiling Platform Defaults dialog.
6. Click OK and then Done to close all dialogs and notice that the floor finish material on Floor 2 is now the carpet that you selected.

Many Room Types are set to use the default floor finish for the Current Floor. Some Room Types like Kitchen, Bath, Garage, and Porch are typically set up with their own unique default materials, however.

To set flooring defaults by Room Type

1. Go **Down One Floor** to Floor 1 again and **Orbit** as needed so that the floor of the Bath can be seen.
2. Select **Edit> Default Settings**, and in the Default Settings dialog:
   - Click the arrow beside "Floors and Rooms" to expand the category.
   - Select "Room Types" and click the **Edit** button.
3. In the Room Types dialog, scroll down the list, select "Bath", and click the **Edit** button.
4. On the STRUCTURE panel of the Bath Room Type Defaults dialog:
   - Notice that the **Default** check box to the right of the **Floor Finish Edit** button is unchecked.
   - This means that this room type is not using the default material set in the 1st Floor Defaults dialog, and explains why the Bath room's floor finish did not change when the "Red Oak 3-4-5" Plank - Natural" material set as the default, above.
   - Click the **Floor Finish Edit** button to see the composition of the floor finish: Ivory Tile, Thinset Mortar, and Backerboard.
   - You can click the **Floor Finish Edit** button and specify a different default surface material for Bath rooms, if you wish.
5. Click OK and then Done to close all dialogs.

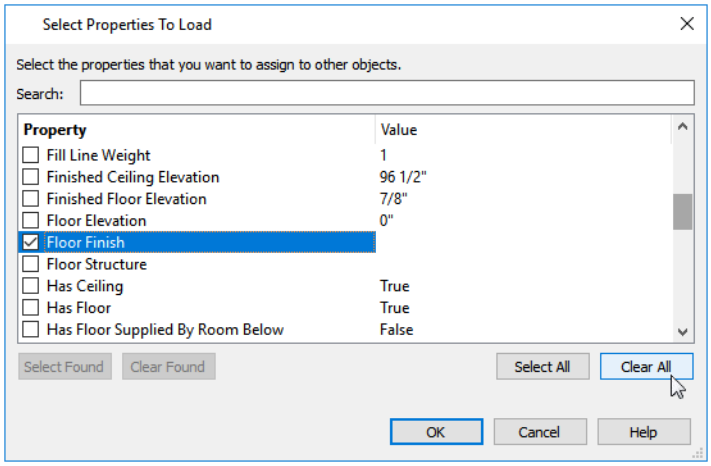
In addition, flooring materials can be specified for each room individually. The best way to do this is to edit a room's Floor Finish Definition to ensure that the finish layer has the correct underlayment.

The Kitchen, for example, uses the default wood planking underlaid by foam underlayment. We can use the Material Painter to replace the wood planking with tile, but the result would be tile installed over foam. An easy way to apply the floor finish layers to the Kitchen would be appropriate for tile is using the Object Painter tools.

To apply properties from one object to another

1. In the Perspective Floor Overview, **Orbit** around until both the Kitchen and Bath floor can be seen.
2. Select **Tools> Object Painter> Object Eyedropper**.
3. Click on the floor surface of the Bath room, then click the **Select Properties to Paint** edit button.

4. In the Select Properties to Load dialog:



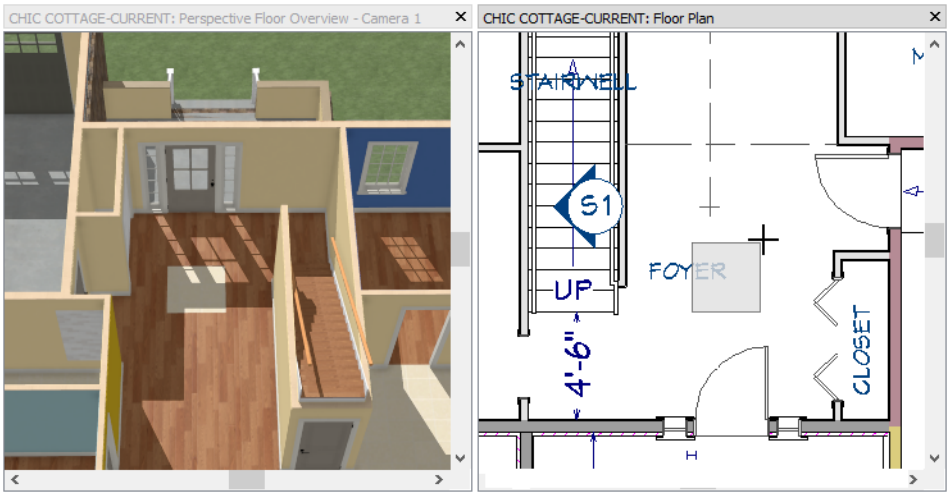
   - Click the **Clear All** button so no Properties in the list are selected.
   - Check the box beside **Floor Finish**.
   - Click OK.
5. Move the mouse pointer over the Kitchen floor surface and click once.
6. Click the **Select Objects** button, then click on the floor surface in the Kitchen to select the room.
7. Click the **Open Object** edit button, and on the STRUCTURE panel of the Room Specification dialog:
   - Click the **Define** button for **Floor Finish**.
   - Confirm that the Kitchen now has a tile surface material along with thinset and backerboard instead of foam underlayment, then click OK.
8. You can now use the **Material Painter** in **Object Mode** to replace the surface material if you wish.
9. Remember to **Save** your work.

USING FLOOR MATERIAL REGIONS

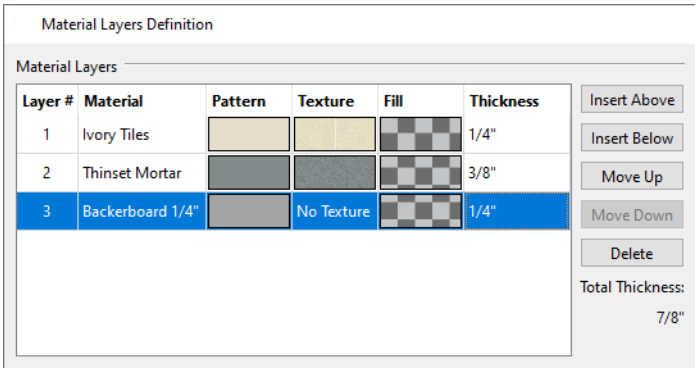
Similar to Wall Material Regions, Floor Material Regions replace a portion of a room's floor surface layer with a different material. They also have depth and can extend up past the surface of the floor if need be. Like Wall Material Regions, they also have a defaults dialog where you can set properties in advance.

To add a Floor Material Region

1. In the Perspective Floor Overview, **Orbit** around until the front door in the Foyer room can be seen, then **Zoom** in.
2. Select **Window> Tile Vertically** to tile the Overview and plan view side by side.
3. Click in the plan view window to make it active and **Zoom** in on the Foyer room.
4. Select **Build> Floor> Floor Material Region**, then click and drag a rectangle in the middle of the Foyer room. Do not worry about exact size or position right now.



5. Click on the Floor Material Region to select it, then click the **Open Object** edit button.
6. In the Material Region Specification dialog:
   - Notice that **Cut Finish Layers of Parent Object** is checked.
   - Click the **Edit** button.
7. In the Material Layers Definition dialog:

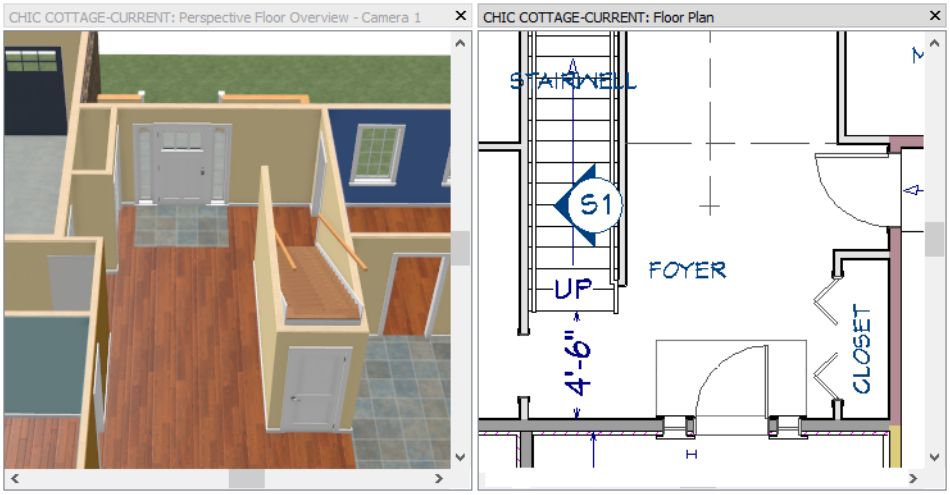


   - Click the **Insert Below** button to add a copy of the selected layer below the original.
   - With the new layer selected, click the **Move Down** button to below the other layers, making it Layer 3.
   - With Layer 3 selected, click in the **Name**, **Pattern**, or **Texture** cell in its row to open the Select Material dialog.
8. On the PLAN MATERIALS panel of the Select Material dialog, select the "Backerboard 1/4"" material, then click OK.
9. Notice that the **Total Thickness**, reported to the right of the layer table, is 3/4" and recall that the thickness of the rooms' Floor Finish is 7/8".
10. Increase the **Thickness** of the "Thinset Mortar" layer to 3/8", then click OK.

To resize and position a Floor Material Region

1. Click the **Select Objects** button, then click on the Floor Material Region to select it.
2. Click and drag the edit handle that displays in the middle of its bottom edge to extend its bottom edge until it snaps to the front door wall's interior surface.
3. Use Temporary Dimensions to resize it to 72" wide and 48" deep.
4. Use the **Center Object** edit tool to center the Floor Material Region in front of the entry door.

5. You can also use the **Material Painter** to experiment with different tile materials. Here, "Natural Slate Tiles" from Core Catalogs> Materials> Tile> Stone> Slate is applied using **Plan Mode**.



6. Remember to **Save** your work.

Creating Schedules

The finish materials for interior rooms can be listed in a Room Finish Schedule.

To set room finish schedule defaults

1. Select **Edit> Default Settings** and in the Default Settings dialog, click the arrow beside "Schedules, select "Room Finish Schedule" from the list, and click the **Edit** button.
2. On the General panel of the Room Finish Schedule Defaults dialog, under **Categories to Include**:
   - Click the arrow to the left of **Rooms** to expand the category.
   - Uncheck **Attic**, **Deck**, and **Porch**.
   - Click OK and Done to close both dialogs and apply your changes.

To prevent your plan views from becoming unnecessarily cluttered, schedules should be created in CAD Detail windows.

To create a finish material schedule

1. Open the "Schedules Detail" CAD Detail. There are two ways to do this:
   - Select **View> Project Browser**; expand the CAD Details folder under CHIC COTTAGE-CURRENT; right-click on the "Schedules Detail", and select **Open View** from the contextual menu.
   - Select **CAD> CAD Detail Management**. In the CAD Detail Management dialog, select the "Schedules Detail" and click the **Open** button.
2. Select **Tools> Schedules> Room Finish Schedule**, then click once in an empty space near the Door and Window Schedules.
3. Click on the new schedule to select it, then click the **Open Object** edit button.
4. On the General panel of the Room Finish Schedule Specification dialog, change the **Main Title** to "Room Finish Materials".
5. On the Columns/Rows panel:
   - In the list of **Columns to Include**, click on the top line item, scroll down to the bottom of the list, press the ***Shift*** key on the keyboard, then click on the last line item to select all line items.

- Release the ***Shift*** key and press the ***Ctrl/⌘*** key, then click on "Room Name" to remove it from the selection set.
- With the ***Ctrl/⌘*** key still pressed, remove "Wall Material" and "Floor Finish", as well.
- Click the **Remove** button. Only "Room Name", Wall Material", and "Floor Finish" should be listed under **Columns to Include**.
- Click OK.

ROOM FINISH MATERIALS		
ROOM NAME	WALL MATERIAL	FLOOR FINISH
BATH	COLOR - BUTTER	IVORY TILES, THINSET MORTAR, BACKERBOARD 1/4"
BEDROOM	COLOR - DEW	RED OAK 3-4-5" PLANK - HONEY, FOAM UNDERLAYMENT
CLOSET	COLOR - BUTTER	RED OAK 3-4-5" PLANK - HONEY, FOAM UNDERLAYMENT
DINING	COLOR - FRESH	RED OAK 3-4-5" PLANK - HONEY, FOAM UNDERLAYMENT
FOYER	COLOR - BUTTER, COLOR - MAYA GOLD	RED OAK 3-4-5" PLANK - HONEY, FOAM UNDERLAYMENT
GARAGE	COLOR - BUTTER	
KITCHEN	COLOR - BUTTER	IVORY TILES, THINSET MORTAR, BACKERBOARD 1/4"
LIVING	COLOR - BUTTER, COLOR - MAYA GOLD	RED OAK 3-4-5" PLANK - HONEY, FOAM UNDERLAYMENT
STAIRWELL	COLOR - BUTTER	RED OAK 3-4-5" PLANK - HONEY, FOAM UNDERLAYMENT

6. When you are finished, close the "Schedules" CAD Detail and **Save** your work.

Adding Annotations

Some information about the material finishes in this plan should have annotations.

The Working Plan View is active, so "Plan Rich Text Defaults" are still in use. See *"To set the rich text defaults" on page 24 of the Exterior Walls Tutorial*.

To add rich text annotations for materials

1. Select **CAD> Text> Rich Text**, then click in the Porch room.
2. On the Rich Text panel of the Rich Text Specification dialog, type "concrete" in the text field and click OK.
3. With the text selected, use **Copy/Paste** edit tool to add the same annotation in the Garage.
4. Add a Rich Text object that says "1 x 5 1/2 composite decking" inside the back Deck room.
5. When you are finished, **Save** your work.

You can continue working on this plan in *Room Moldings on page 211*.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Finishes. Then, click OK.
3. Notice that Chic Cottage-Finishes is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

REVIEW

This lesson describes the best practices for assigning finish materials to walls and floors using a variety of techniques and tools.

To specify the wall finish for all rooms *193*

To use the Material Eyedropper *195*

To specify the wall finish for a room *195*

To specify a custom finish for a single wall *196*

To select a wall in 3D *197*

To apply a wall covering *198*

To set the Wall Material Region defaults *199*

To create a Wall Elevation view *199*

To create a tile shower surround *199*

To copy a Wall Material Region *202*

To set flooring defaults *203*

To set flooring defaults by floor *204*

To set flooring defaults by Room Type *205*

To apply properties from one object to another *205*

To add a Floor Material Region *206*

To resize and position a Floor Material Region *207*

To set room finish schedule defaults *208*

To create a finish material schedule *208*

To add rich text annotations for materials *209*

To save a plan revision *209*

Assessment Questions

Tutorial 11 - Finish Materials

What Material Painter mode is best for applying a paint color to all interior walls in a plan?

- The Material Painter Plan Mode will replace all instances of a particular material with a new material. In a plan where no walls have been previously painted, all or nearly all wall drywall surfaces will be replaced.

What are two ways to assign a paint color to all the walls of a particular room?

- A custom color can be assigned to a specific room in the Room Specification dialog or using the Material Painter's Room Mode.

What tool lets you apply multiple attributes from one object to another similar object?

- The Object Eyedropper tool allows you to select attributes belonging to one object and then apply them to another, similar object.

How is a Wall Material Region different from a Wall Covering?

- Wall Coverings can be used in addition to a wall's surface material to create accents like wallpaper border or wainscoting.
- Unlike a Wall Covering, Wall Material Regions do more than just apply a material to the surface of a wall: they actually replace the wall surface layer with a different material. They also have depth and can extend out past the surface of a wall.

What is the name of the dialog where the default floor finish for all rooms can be set?

- The default floor finish can be set in the Floor/Ceiling Platform Defaults dialog click the Floor Finish Edit button to open the Floor Finish Definition dialog.

How can you tell if a room is set to use the default floor finish material?

- On the Structure panel of the Room Specification dialog, the Default check box to the right of the Floor Finish Edit button will be checked if it is set to use the default floor finish for its Room Type.

Room Moldings

Moldings are a common design feature on the interior and exterior of homes.

Learning Objectives

The previous lesson, *Finish Materials*, explained various ways to apply finish materials to walls and floors in Chief Architect. This lesson describes best practices in Chief Architect for adding base, crown, and chair rail moldings to rooms. Concepts introduced include:

File Management 211
Productivity Tips 212
Setting the Defaults 212
Using Plan Views 212
Applying Room Moldings 213
Using Molding Polylines 216
Creating Schedules 220
Creating Revisions 221

File Management

At this point in the design process, both the Chic Cottage-Finishes and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Finishes was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to add moldings to rooms, keep in mind these tips to improve your productivity.

Drawing and Editing

- Each floor has an Exterior Room that can be used to edit that floor's exterior in various ways, including adding horizontal molding around the perimeter. See *To select the Exterior Room on page 216*.
- When a polyline-based object is selected, the edge that you clicked on is the Selected Edge and can often be edited in special ways.

Content

- You can create your own custom molding profiles and save them in the Library for future use.
- Create template plans with your preferred room moldings set as defaults when you begin a new plan.
- A selection of moldings and millwork catalogs are available for download in the "Millwork" category of the 3D Library. Select **Library> Get Additional Content**  to launch your default web browser to that page.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When adding interior moldings, there are a number of defaults that should be borne in mind.

Base, crown and chair rail molding defaults can be assigned to each floor in your plan. See *To specify the default room moldings on page 213*.

Moldings, or casing, can also be applied to doors and windows. For more information, see *"Setting the Defaults" on page 83 of the Doors and Windows Tutorial*.

Moldings can be assigned to cabinets, as well. See *"Adding Moldings and Millwork" on page 241 of the Cabinet Styles Tutorial*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

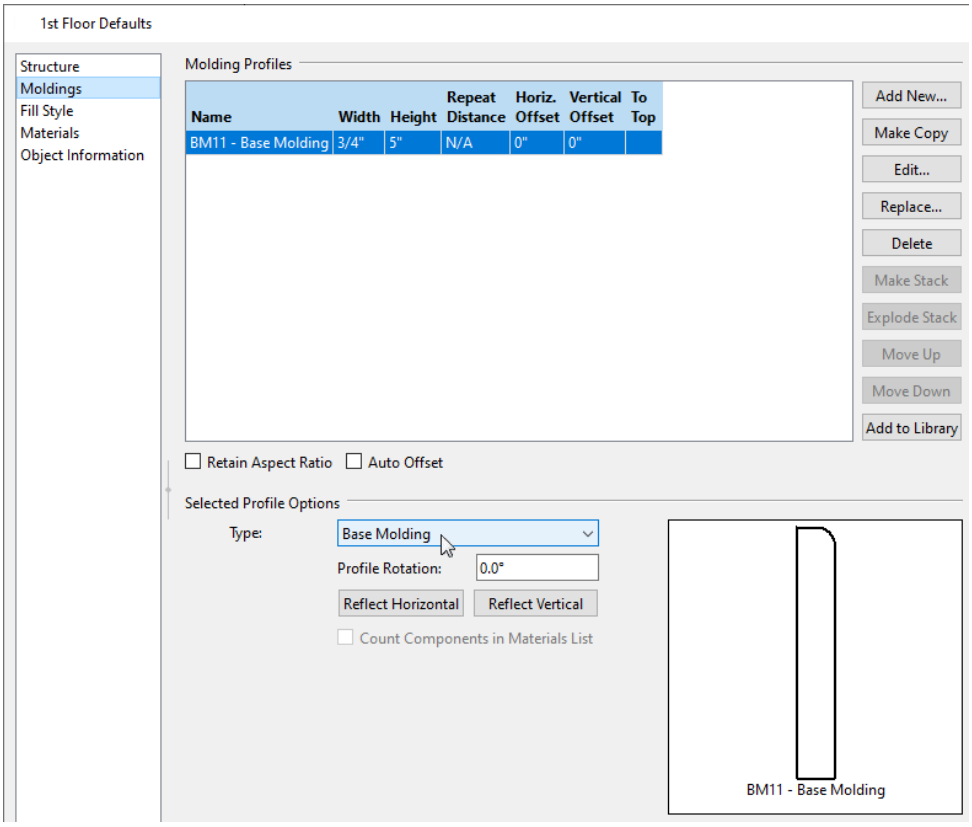
The Working Plan View will work well for adding room moldings, as it did when customizing ceilings and finish materials. See *"To switch to a different saved plan view" on page 180 of the Custom Ceilings Tutorial*.

Applying Room Moldings

Base, crown and chair rail moldings can be specified by floor, and also customized for individual rooms. Room moldings are an example of a Dynamic Default.

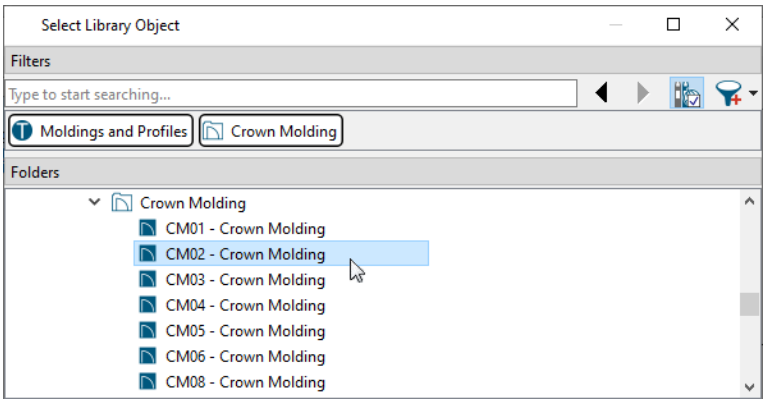
To specify the default room moldings

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside "Floors and Rooms" to expand the category.
   - Click the arrow beside "Floor Levels" to expand this subcategory.
   - Select "Floor 1" and click the **Edit** button.
2. On the Moldings panel of the 1st Floor Defaults dialog, note that the **Selected Profile** is Default Base Molding and that its **Type** is "Base Molding".

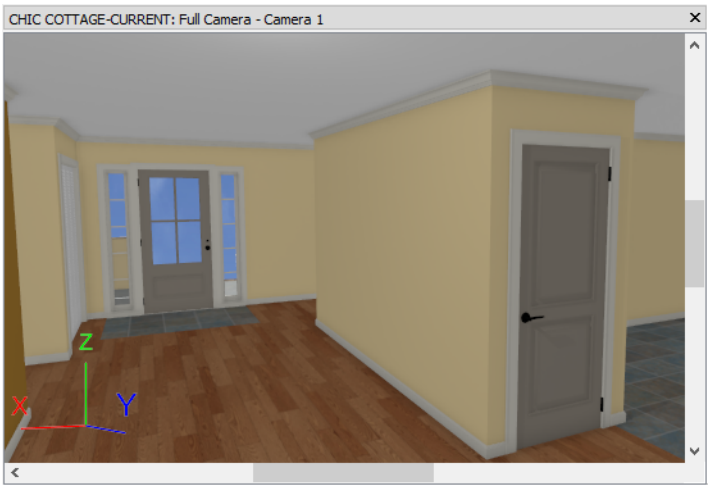


3. Click the **Replace** button to open the Select Library Object dialog:
   - The content is filtered by **Type** so that it only lists Moldings and Profiles.
   - To further filter the results, type "base molding" in the Search field, then select the "Base Molding" **Folder** line item in the Filters drop-down list.
   - The tree list in the Folders panel will now expand to show Core Catalogs> Architectural> Moldings> Base Molding.
   - Select "BM08 - Base Molding" and click OK.

4. Click the **Add New** button to open the Select Library Object dialog again.



   - Browse to Core Catalogs> Architectural> Moldings> Crown Molding.
   - Or, type "crown molding" in the Search field, then select the "Crown Molding" **Folder** line item in the Filters drop-down list.
   - Select "CM02 - Crown Molding" in Core Catalogs> Architectural> Moldings> Crown Molding and click OK.
5. Returning to the 1st Floor Defaults dialog:
   - Note that the **Type** for this molding is "Crown Molding".
   - Below the Molding Profiles list, make sure that **Retain Aspect Ratio** is checked.
   - In the Molding Profiles list, select the "CM02 - Crown Molding" line item, click in its **Height** field, and type 3".
6. Click OK and then Done to close both dialogs.
7. The results can be seen in an interior **Full Camera** view.

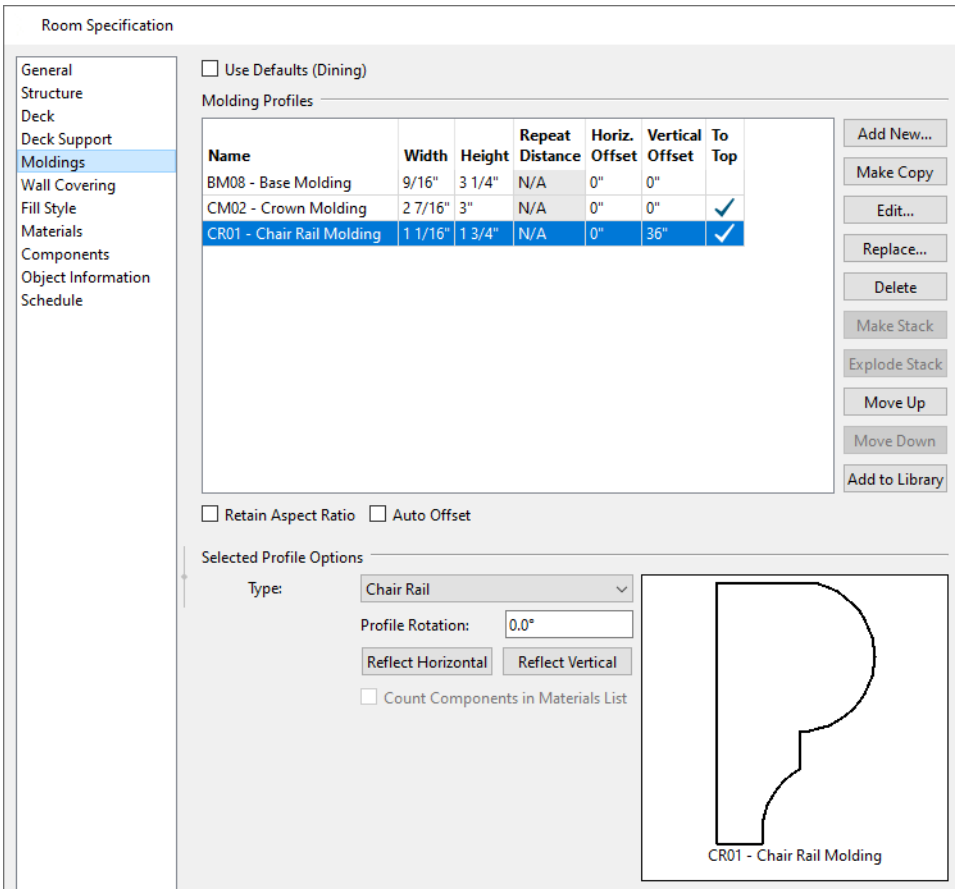


By default, Stairwells and other Open Below rooms do not receive moldings. Neither do exterior rooms like Porches and hybrid rooms like Garages. However, moldings can be specified for individual rooms.

To customize a room's moldings

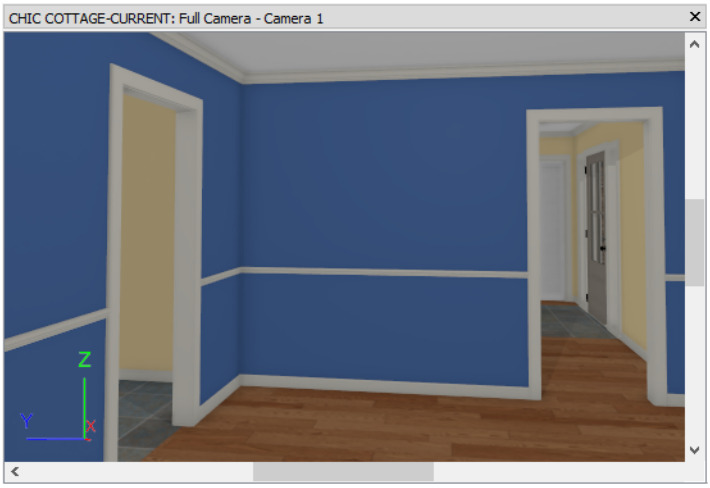
1. Click the **Select Objects** button, then click in a blank space in the Dining room to select it.
2. Click the **Open Object** edit button to open the Room Specification dialog.

3. On the MOLDINGS panel of the Room Specification dialog, uncheck **Use Default**. Then:



- Click the **Add New** button.
- Search for and select "CR01 - Chair Rail Molding" in the Select Library Object dialog.
- Confirm that "Chair Rail" is selected as the molding **Type**.
- Click OK to close the dialog and apply your change.

4. The results can be seen in a **Full Camera** view of the Dining room.



Not all moldings make sense in all rooms and can be removed when they are not needed.

To remove molding from a room

1. Select **File> Close View** to return to plan view, then click the **Select Objects** button and click in a blank space in the front Closet to select it.
2. Click the **Open Object** edit button to open the Room Specification dialog.
3. On the MOLDINGS panel:
   - Uncheck **Use Default**.
   - Select the "CM02 - Crown Molding" line item in the table.
   - Click the **Delete** button.
   - Click OK to close the Room Specification dialog.
4. When you are finished, remember to **Save** your work.

USING MOLDING POLYLINES

Moldings are also important to exterior design. Here, a horizontal transition board or "belly band" will be added that follows the shape of the structure's exterior.

The Chief Architect Library has a wide selection of different types of moldings. If you do not find a profile that meets your needs, however, you can create one using the CAD tools. Molding profiles can be very complex, but here a simple rectangular profile is needed.

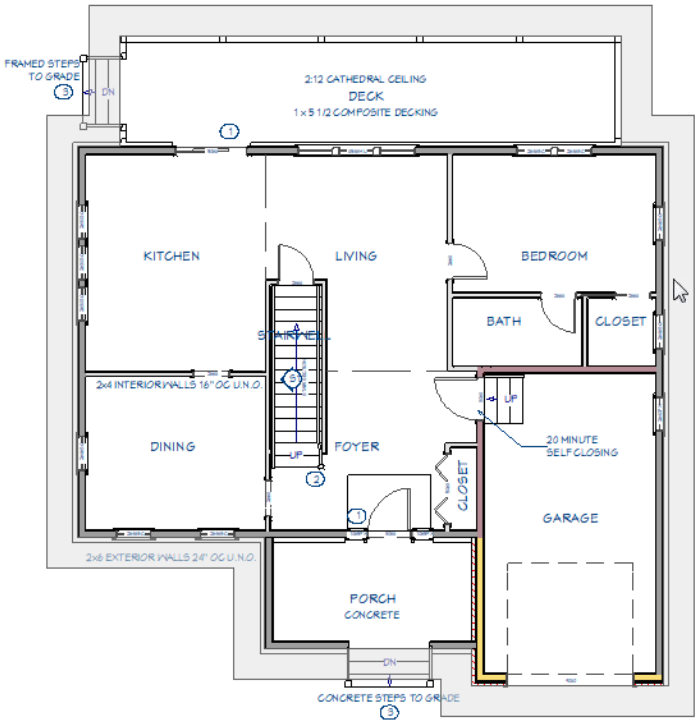
To create a rectangular molding profile

1. Select **CAD> Boxes> Rectangular Polyline**.
2. Make sure that **Temporary Dimensions** are enabled.
3. Click and drag to draw a rectangular shape in an empty space in plan view.
4. Using Temporary Dimensions, resize the polyline's width:
   - Select vertical edge and click on the Temporary Dimension that reports its distance from the opposite edge.
   - Type 1 1/2" in the inline text field and press the Enter key.
5. Select a horizontal edge and repeat the above steps to make the polyline's height 11 1/4".
6. With the polyline selected, click the **Add to Library** edit button. A new "Molding" line item is added to the User Catalog.
7. Right-click on the new Molding line item and select Rename from the contextual menu. Type a short, descriptive name like 2x12 Profile and press the Enter key.
8. Right-click on the 2x12 Profile line item and select **Open Object** from the contextual menu. On the General panel of the Molding Specification dialog, confirm that its Height and Width are 11 1/4" and 1 1/2", respectively, then click OK.
9. Select the rectangular CAD polyline that you drew in step 1 and click the **Delete** edit button.

To select the Exterior Room

1. Click the **Select Objects** button, then click once just outside an exterior wall.
   - Most likely, the wall or a roof plane will become selected.
   - The type of object currently selected is stated on the left side of the Status Bar at the bottom of the program window.

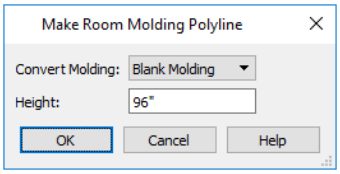
2. Click the **Select Next Objects** button until the Exterior Room becomes selected.



3. When the Exterior Room is selected:
   - A band around the exterior of the structure will become highlighted.
   - The words "Exterior room" will display on the left side of the Status Bar.

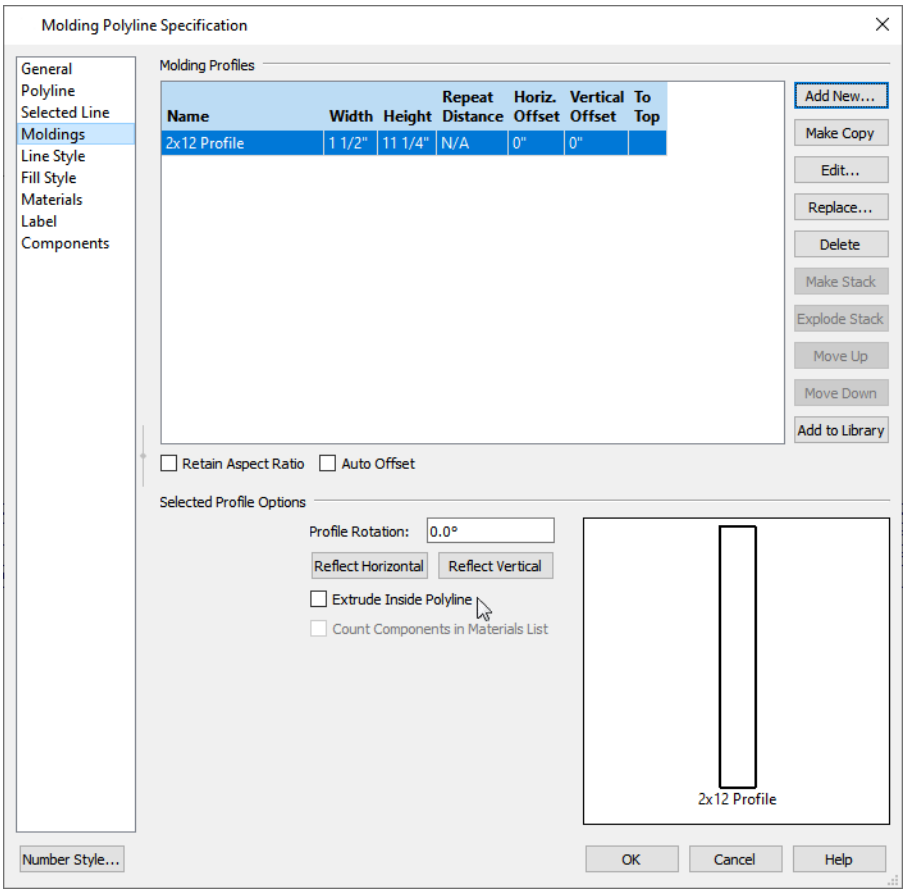
To create an exterior room molding

1. Select **3D> Create Perspective View> Perspective Full Overview** .
2. Select **Window> Tile Vertically** , then return to the plan view window.
3. Select the Exterior Room as described above and click the **Make Room Molding Polyline** edit button.
4. In the Make Room Molding Polyline dialog:



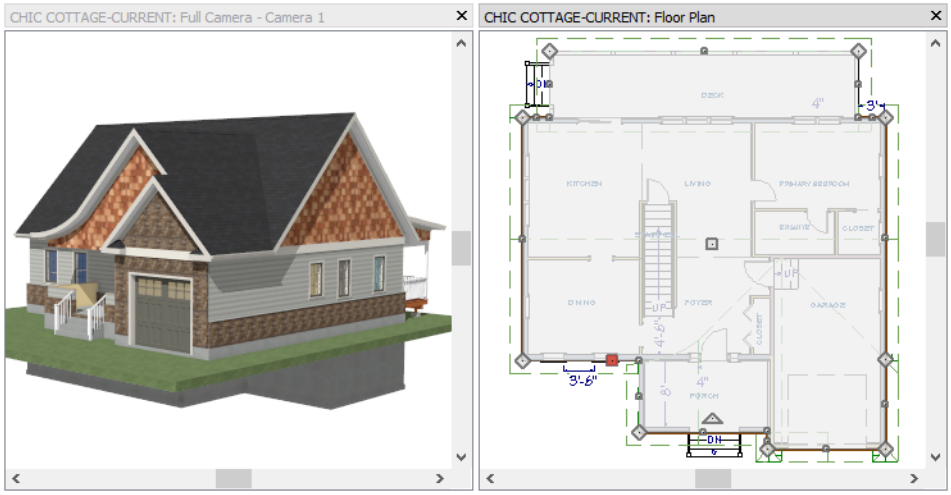
   - Select "Blank Molding" from the **Convert Molding** drop-down list.
   - Specify the **Height** as 96" and click OK.
5. With the newly created Molding Polyline selected, click the **Open Object** edit button.

6. On the MOLDINGS panel of the Molding Polyline Specification dialog:



- Click the **Add New** button, and assign your new "2x12 Profile" to the selected polyline.
- Note that the molding profile's **Width** is 1 1/2" and its **Height** is 11 1/4".
- Uncheck **Extrude Inside Polyline**, then click OK.

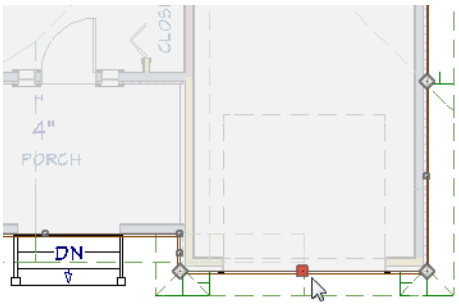
7. Click in the overview window and Orbit around the model. Notice that the molding is present around all sides of the structure.



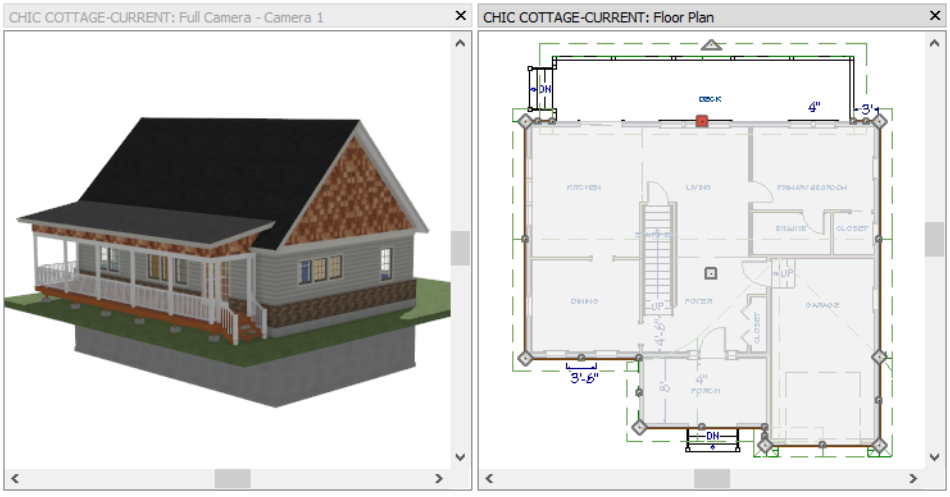
Once a Molding Polyline has been created, it can be modified in either floor plan or a 3D view.

To edit a Molding Polyline

1. Orbit the overview camera until the front of the structure can be seen.
2. Return to plan view, then **Zoom** in on the Porch and the front of the Garage.
3. Click the **Select Objects** button, then click on the edge of the Molding Polyline located over the front of the Garage to make it the Selected Edge.



4. Click the **Remove Molding from Selected Edge** edit button. Notice:
   - The molding polyline no longer displays along the front of the Garage in either view.
   - The Remove Molding from Selected Edge button on the edit toolbar has been replaced by the **Add Molding to Selected Edge** edit button.
5. When the polyline is selected, the edge located over the front of the Porch can be seen. Click on it to make it the Selected Edge, then click the **Open Object** edit button.
6. On the GENERAL panel of the Molding Polyline Specification dialog, uncheck **No Molding on Selected Edge** and click OK.
7. Orbit the camera so that the Deck can be seen, then return to the plan view window.
8. Click the **Select Objects** button, then click on the edge of the Molding Polyline located along the back railing of the Deck. If the wall becomes selected instead, use the **Select Next Object** edit tool, described above.
9. Click the edit handle located at the center of the horizontal Deck railing and drag it down until it snaps to the back wall of the house.



10. With the edge still selected, click the **Add Molding to Selected Edge** edit button.
11. When you have finished, remember to **Save** your work.

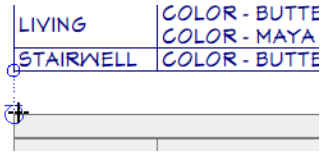
Creating Schedules

Like finish materials, room moldings can be listed in a Room Finish Schedule. The Room Finish Schedule Defaults were set in the *Finish Materials* tutorial. See *"To set room finish schedule defaults" on page 208 of the Finish Materials Tutorial*.

To prevent your plan views from becoming unnecessarily cluttered, schedules should be created in CAD Detail windows.

To create a room moldings schedule

1. Open the "Schedules Detail" CAD Detail. There are two ways to do this:
   - Select **View>Project Browser**, expand the CAD Details folder, right-click on the "Schedules Detail" and select **Open View** from the contextual menu.
   - Select **CAD> CAD Detail Management**. In the CAD Detail Management dialog, select the "Schedules Detail" and click the **Open** button.
2. Select **Edit> Snap Settings** and confirm that at least one the Extension Snaps at the bottom of the submenu is enabled.
3. Select **Tools> Schedules> Room Finish Schedule**, then:



   - Move your mouse pointer over the bottom left corner of the Finish Materials Schedule.
   - A square **Endpoint** Snap Indicator and within it, a round Extension anchor will appear. When they do, move the mouse pointer straight down from the corner.
   - Notice the extension line that follows the mouse down from the anchor and the Extension Snap icon that follows the mouse pointer.
   - Click to place another Room Finish Schedule directly below the first.
4. Click on the schedule to select it, then click the **Open Object** edit button.
5. On the General panel of the Room Finish Schedule Specification dialog:
   - Change the **Main Title** to "Room Moldings".
   - In the list of **Objects to Include**, click the arrow next to "Rooms" to expand the category and uncheck "Open Below".
6. On the Columns/Rows panel, remove all columns from the **Columns to Include** list except "Name", "Base Molding", "Chair Rail", and Crown Molding", then click OK.

ROOM FINISH SCHEDULE			
ROOM NAME	BASE MOLDING	CHAIR RAIL	CROWN MOLDING
BATH	BM08 - BASE MOLDING		CM02 - CROWN MOLDING
BEDROOM	BM08 - BASE MOLDING		CM02 - CROWN MOLDING
CLOSET	BM08 - BASE MOLDING		
CLOSET	BM08 - BASE MOLDING		CM02 - CROWN MOLDING
DINING	BM08 - BASE MOLDING	CR01 - CHAIR RAIL MOLDING	CM02 - CROWN MOLDING
FOYER	BM08 - BASE MOLDING		CM02 - CROWN MOLDING
GARAGE			
KITCHEN	BM08 - BASE MOLDING		CM02 - CROWN MOLDING
LIVING	BM08 - BASE MOLDING		CM02 - CROWN MOLDING

7. When you are finished, **Save** your work.

You can continue working on this plan in the *Interior Furnishings* tutorial or move on to the *Cabinet Styles* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Moldings. Then, click OK.
3. Notice that Chic Cottage-Moldings is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for assigning moldings to rooms, including the Exterior Room

---

To specify the default room moldings *213*

To customize a room's moldings *214*

To remove molding from a room *216*

To create a rectangular molding profile *216*

To select the Exterior Room *216*

To create an exterior room molding *217*

To edit a Molding Polyline *219*

To create a room moldings schedule *220*

To save a plan revision *221*

Assessment Questions

Tutorial 12 - Room Moldings

In what dialog can you specify the default room moldings for a plan?

- The default base, crown and chair rail moldings can be specified by floor in Floor Defaults dialogs.

How do you select the Exterior Room in plan view?

- In plan view, click just outside of an exterior wall using the Select Objects tool. If the wall or another object becomes selected, click the Select Next Object edit button until the left side of the Status Bar reports that the Exterior Room is selected and a band around the entire outside of the structure becomes highlighted.

What type of object can be used to create a horizontal band around a building's exterior?

- A Molding Polyline around the exterior of the structure can be used to create a horizontal band. An easy way to create it is using the Create Room Molding Polyline edit tool.

What type of snapping behavior allows you to align an object as it is drawn with another nearby object that already exists?

- Extension Snaps allow you to align an object with a snap point on another object.

What Schedule tool allows you to create a schedule of interior moldings?

- The Room Schedule tool creates schedules that are set to list a variety of room attributes such as moldings.

Interior Furnishings

Furnishings can help with space planning and are an important element of presentation views.

Learning Objectives

The previous lesson, *Room Moldings*, explained how add base, crown and chair rail moldings to rooms in Chief Architect. This lesson describes best practices in Chief Architect for adding a variety of furniture and accessories to a plan. Concepts introduced include:

File Management

At this point in the design process, both the Chic Cottage-Moldings and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Moldings was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to add furnishings to a plan, keep in mind these tips to improve your productivity.

Drawing and Editing

- Use the Material Defaults dialog to specify the materials initially assigned to furniture objects placed from the Library Browser.
- Hold down the ***Ctrl/⌘*** key when moving or resizing an object to override snapping and other movement restrictions.

Content

- A wide selection of accessories and furniture are available for download from the Chief Architect 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.
- Create Architectural Blocks of furniture groupings and add them to the library for future use.

Interface

- Use the **Advanced Search** in the Library Browser to help you focus the results of Library Browser Searches.
- Right-click on an item in the Library Browser to access a contextual menu with a variety of options.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Ctrl/⌘*** - override movement restrictions

- ***C*** - Concentric Edit Behavior
- ***Ctrl/⌘ + S*** - Save

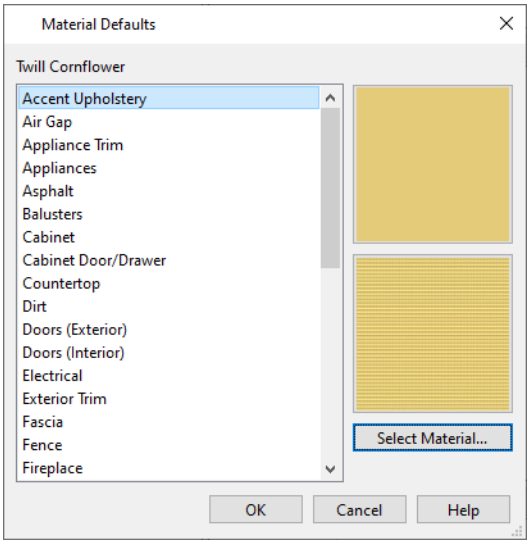
SETTING THE DEFAULTS

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When placing symbols from the Library, the settings in the Material Defaults dialog can be helpful.

Some furnishing objects in the library have been assigned particular materials to complement the object's design and initially use those materials regardless of the overall style of the plans they are placed into. Some furnishings, however, inherit default materials for furniture and upholstery that can set differently for each plan.

To set the Material Defaults for upholstery

1. Select **Edit> Default Settings**, click on "Materials" in the list and click the **Edit** button.
2. In the Material Defaults dialog, scroll down the list, select "Furniture", and notice that the material specified for this item is "Birch (honey)".
3. Next, select "Furniture Upholstery" and notice that the material specified for this item is "Chenille - Pebble".
4. Scroll up and select the "Accent Upholstery" item in the list.
5. Click the **Select Material** button and on the LIBRARY MATERIALS panel of the Select Material dialog:



   - The content is filtered by **Type** so that it only lists Materials.
   - To further filter the results, type "fabric" in the Search field, then move your mouse pointer over the "Fabric & Wall Coverings" **Folder** line item in the Filters drop-down list.
   - The Folders panel expands to show Core Catalogs> Materials> Fabric & Wall Coverings.
   - Browse through the folders and choose a default fabric material for fabric accents and pillows placed into the current plan from the Library.
   - Here, "Twill Cornflower" is used.
   - When your choice is selected, click OK.
6. Click Done, then **Save** your work.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

The Working Plan View will work well for adding furnishings, as it did when customizing ceilings, finish materials, and moldings. See *"To switch to a different saved plan view" on page 180 of the Custom Ceilings Tutorial*.

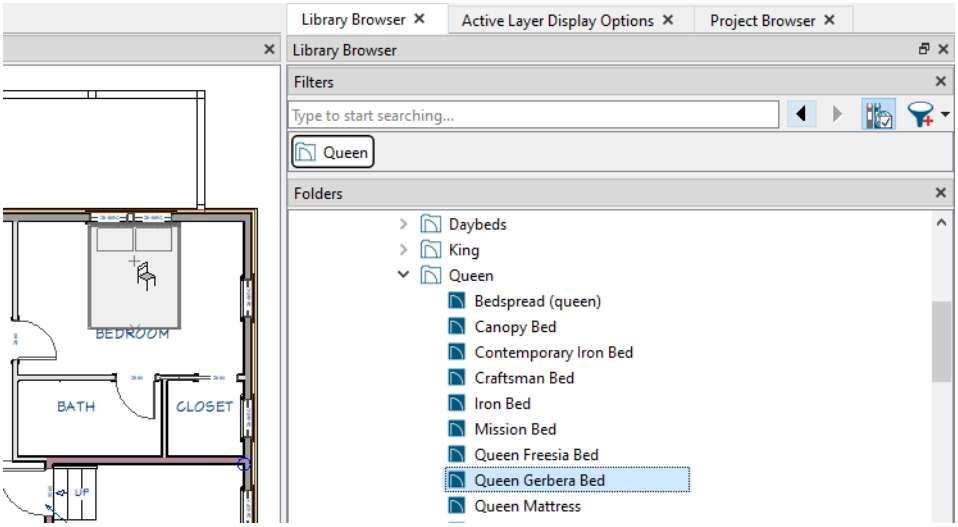
Placing Library Objects

A variety of items in the Library are designed to be assigned to other objects: for example, handles, locks, and hinges are meant to be assigned to doors. For more information, see *"Using Library Content" on page 88 of the Doors and Windows Tutorial*.

A wide selection of other library symbols, on the other hand, are designed to stand alone as fixtures and furnishing objects.

To place a furniture object in a plan

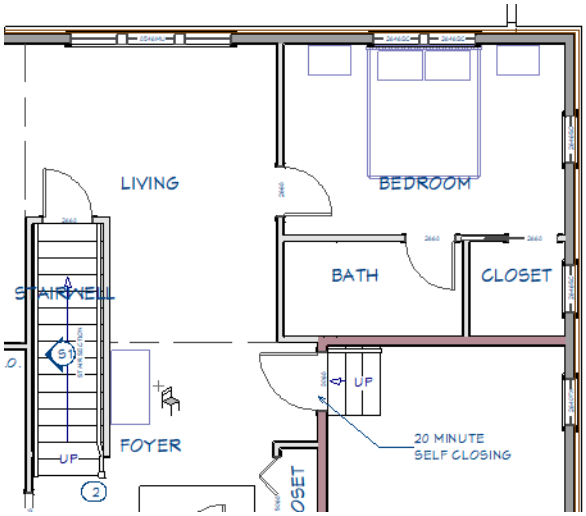
1. In the Library Browser's Search text field, type "queen".
   - As you type, items that match this search parameter appear in a drop-down list below the Search field.
   - Click on the "Queen" **Folder** line item in the Filters drop-down list to use it as a search filter.
   - The Folders panel will expand to show Core Catalogs> Interiors> Furniture> Beds.
2. Click on a bed in the "Queen" folder to see it in greater detail in the Preview panel and select it for placement.



When you select an item in the Library and move the mouse pointer into a view window, the pointer icon indicates the type of object selected, a preview outline of the object follows your pointer as you move it, and basic information displays in the Status Bar at the bottom of the program window.

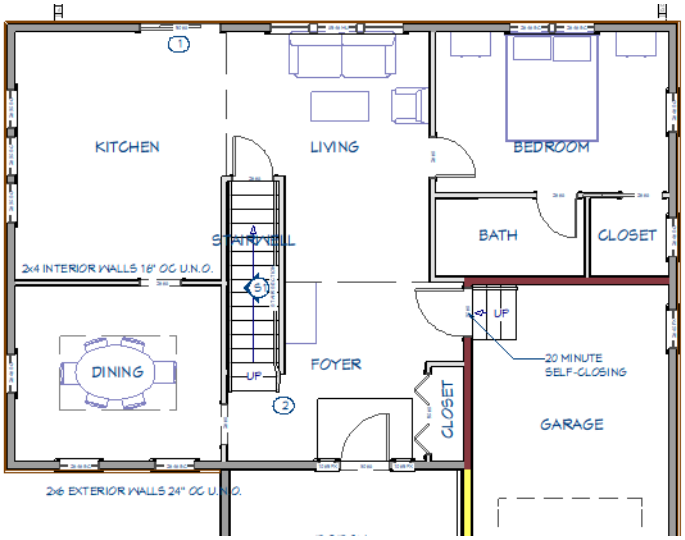
3. Move your mouse pointer around the perimeter of the Bedroom and notice:
   - The Furniture icon follows your mouse pointer.
   - The bed's preview outline snaps to the nearest wall, orienting it so that its back faces the wall.
4. When the bed's preview outline is located under the windows, click once to place a bed at that location.

5. Perform a new Library search:
   - In the Search field, type "end table" press the Enter key, and select the End Tables **Folder** .
   - The Folders panel will expand to show Core Catalogs> Interiors> Furniture> Tables> End Tables.
6. Place an End Table with Drawers on each side of the bed in the Bedroom. Here, the "Basket Drawer" is used.
7. Perform a new Library search for "dresser" and place a dresser such as "Basket Dresser 1" in the Foyer, against the wall of the Staircase.



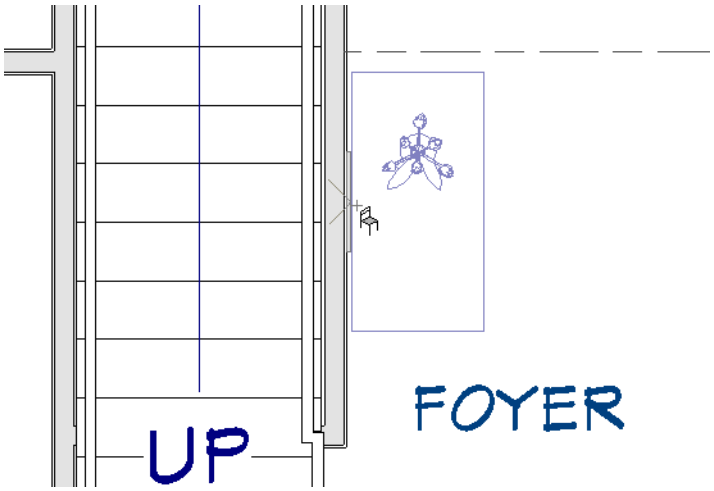
To place furniture sets in a plan

1. Clear the previous filter and perform a new search.
2. Type "sets" in the Search field and select the Dining Sets **Folder** located at Core Catalogs> Interiors> Furniture> Tables> Dining Tables> Dining Sets.
3. Select a grouped dining set and place it in the Dining room.
4. Clear the Dining Sets filter and search for "sets" again.
5. This time, select the Living Room Sets **Folder** .
6. Place a sofa, matching chair, and a coffee table in the Living room.

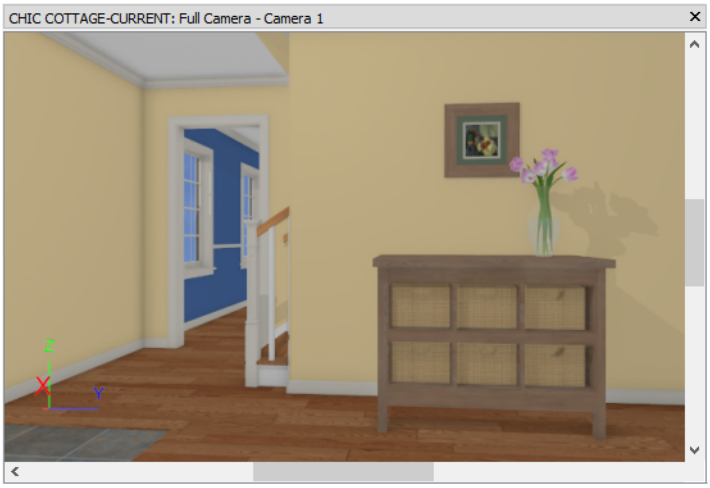


To add decorative furnishings

1. In the Folders panel, Browse to Core Catalogs> Interiors> Accessories.
2. **Zoom** in on the Foyer room and place a vase from the "Vases & Pots" catalog on the dresser. Here, the "Tulips" vase is used.
3. Browse to the "Square" **Folder** in the Mirrors & Frames catalog, select the "Double Mat Frame", and place it on the wall at the back of the dresser.



4. Select **3D> Create Perspective View> Full Camera**, then click and drag a camera arrow in the Foyer, from right to left, in the direction of the dresser.

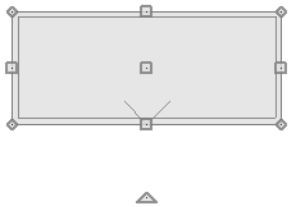


Customizing Library Objects

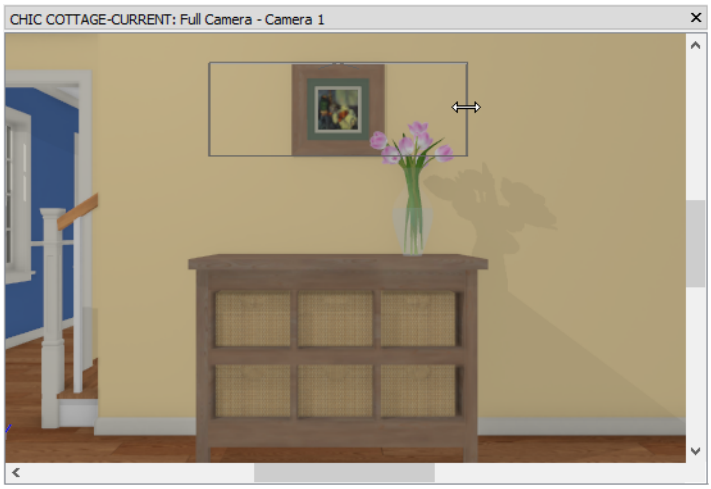
Once a library object has been placed into a plan, it can be edited in a variety of ways in both 2D and 3D views.

To modify a symbol from the Library

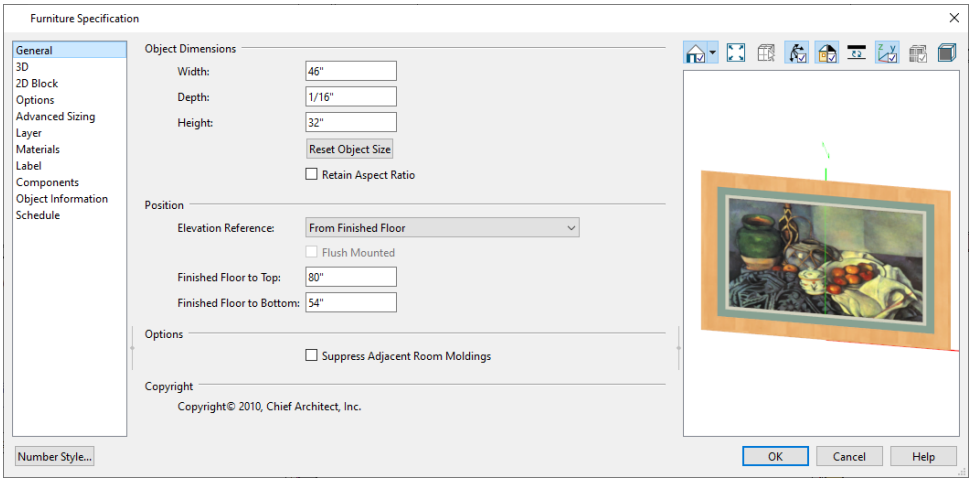
1. Click the **Select Objects** button, then click on the coffee table in the Living room to select it. Notice that the table has ten edit handles that can be used to resize, reshape, and rotate it:



2. Select **Window> Select Next Tab** to return to the camera view in the Foyer.
3. Click the **Select Objects** button and click on the frame to select it. When selected on its side in a camera view, the frame displays only four edit handles: an Extend handle along each side.
4. Use these edit handles to resize and reshape the frame so it better suits the aspect ratio of the painting.
5. To resize the frame concentrically, hold down the ***C*** key as you drag an edit handle. When prompted to regenerate the frame's 2D symbol in plan view, select "No".



6. You can specify the size of the frame with greater precision in its specification dialog. With the frame still selected, click the **Open Object** edit button.
7. On the GENERAL panel of the Furniture Specification dialog:



- Select the Standard Rendering Technique from the drop-down above the Preview pane so the painting can be seen instead of a solid color.

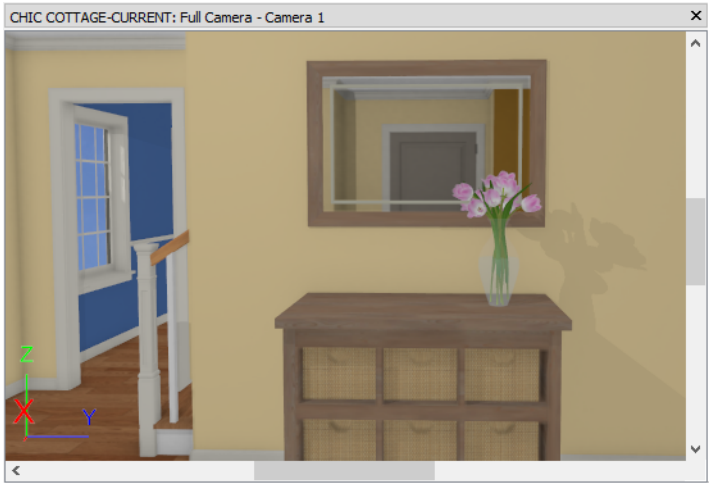
- Specify the **Finished Floor to Top** as 80".
- Make any adjustments to the **Width** and **Height** that you would like.

You can create custom materials for use in picture frames. For details, see Knowledge Base article KB-00007 at www.chiefarchitect.com/support/database.html.

By replacing the painting texture inside the frame, it can instead be turned into a hall mirror.

To create a mirror

1. On the MATERIALS panel of the Furniture Specification dialog, select the "Image" component and click the **Select Material** button.
2. On the LIBRARY MATERIALS panel of the **Select Material** dialog, Search for "mirror", select the solid grey "Mirror" material.
3. Click OK to close both dialogs and apply your changes.
4. Select **3D> Material Painter> Component Mode** .
5. Select **3D> Material Painter> Material Eyedropper** , then:



   - Notice that the regular mouse pointer is replaced with an Eyedropper icon .
   - Click on the mirror material in the center of the frame to load it into the eyedropper.
   - The mouse icon changes from an eyedropper into a Spray Can icon .
   - Click on the green mat just inside the wood of the frame.
   - The mirror material replaces the green mat, leaving a rectangular white accent that follows the shape of the mirror.
6. When you are finished, select **File> Close View** to return to plan view.

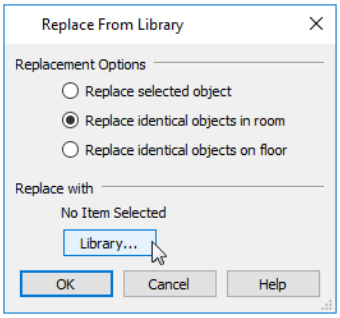
You can replace a library object in your plan with a different item from the Library using the **Replace From Library** edit tool. This can be particularly helpful if you have multiple copies of the same object and would like to replace them all at once.

To replace a library object

1. Select **3D> Create Orthographic View> Wall Elevation** , then click in the Bedroom and drag to draw a camera arrow pointed straight up on screen, towards the back wall.
2. If it is not already open, select **View> Active Layer Display Options** . In the Active Layer Display Options side window:

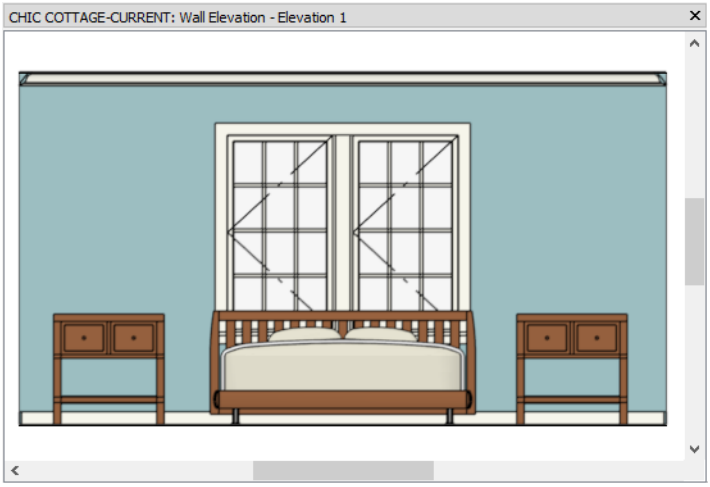
- Notice that because the Wall Elevation is currently active, "Camera View Layer Set" is listed as the active Layer Set.
- In the **Name Filter** field, begin typing the word "furniture". The list of layers will be filtered to match as you type.
- Select the "Furniture, Interior" layer and click in the "Disp" column to add a check mark.

3. Click the **Select Objects** button, then click on one of the end tables to select it.
4. Click the **Replace From Library** edit button to open the Replace From Library dialog.



- Select one of the **Replacement identical objects in room**.
- Click the **Library** button.
- In the Select Library Object dialog:
  - Type "bedside" in the Search field.
  - Select the "Manning Bedside Table" from the Search results and click OK.

5. Click **OK** once more to close the Replace from Library dialog and notice that both tables are replaced by the new bedside table.
6. Notice, too, that these tables are not using the default furniture material like the bed is. Use the **Material Eyedropper** to apply the lighter colored Ash wood to the tables, as described above.

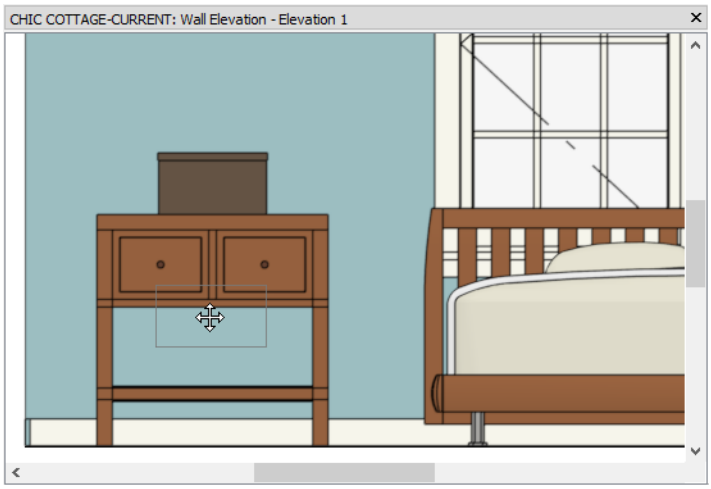


Many accessory symbols are set up to snap to a nearby wall or rest on top of a table. You can override this behavior to place items inside larger objects like storage furniture.

To place an accessory inside a furniture object

1. Select **Window> Select Next Tab** to return to plan view while leaving the Wall Elevation view in the Bedroom open.
2. In the Library Browser, search for "box", select the "Storage Box", and move your mouse pointer into the Bedroom.

3. Click once on one of the bedside tables to place a box at that location.
4. Select **Window> Select Next Tab** to return to the Wall Elevation view again.
5. **Zoom** in on the table with the Storage Box and notice that the box is resting on top of the table.
6. Click the **Select Objects** button, then click on the box and try to drag it downwards toward the lower shelf. The box does not move because the table already occupies that space.
7. Hold down the ***Ctrl/⌘*** key and try again. The ***Ctrl/⌘*** key allows you to override movement restrictions so you can position the box on the lower shelf, inside the table.



8. When you are finished, select **File> Close View** to return to plan view.
9. Remember to **Save** your work.

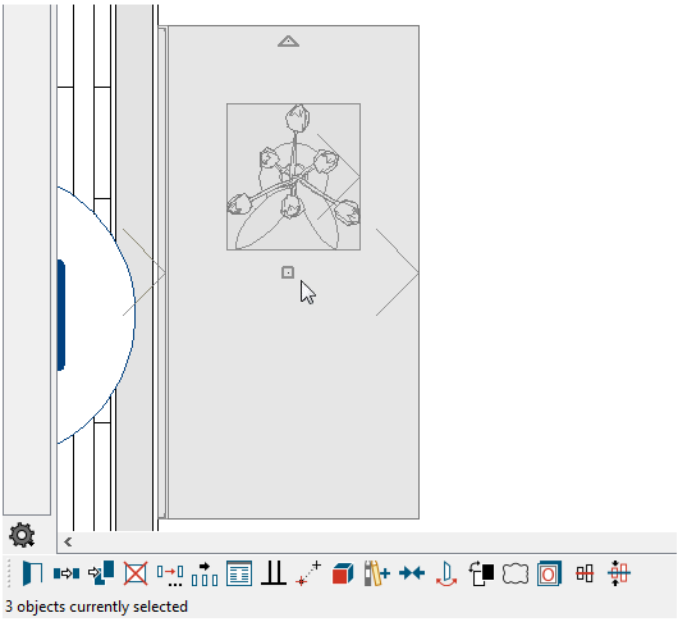
Using Architectural Blocks

Architectural Blocks are groups of objects like furniture and accessories that are blocked together so they can be placed, moved, rotated and even deleted as though they were a single object.

To create an Architectural Block

1. **Zoom** in on the dresser in the Foyer.
2. Click the **Select Objects** button, then click on the vase to select it.
3. With the vase selected, hold down the ***Ctrl/⌘*** key and click on the wall frame to add it to the selection set.
4. Continue holding down the ***Ctrl/⌘*** key and click on the dresser to select it, as well.
5. The Status Bar should now report "3 objects currently selected" at the bottom left corner of the program window.

6. Click the **Make Architectural Block** edit button and notice:



   - The Status Bar now reports that an "Architectural Block" is the selected object.
   - The Make Architectural Block edit button has been replaced by the **Explode Architectural Block** button, which lets you break the block into its individual component objects again.
7. Click and drag the selected Architectural Block's Move edit handle to move it away from the wall and notice that the dresser, vase, and wall frame all move together as a single unit.
8. Select **Edit> Undo** to return the Architectural Block to its original location.

To edit a component object in an Architectural Block

1. Click the **Select Objects** button, then click on the vase. The Architectural Block will become selected.
2. Click the **Select Next Object** edit button.
3. The vase will become selected, and you can edit it using its edit handles, edit tools, and specification dialog.

Architectural Blocks provide a way to furnish and accessorize a plan quickly and easily. When you've created one that can be useful in other projects, add it to the library.

To add an Architectural Block to the library

1. Click on the Architectural Block to select it.
2. Click the **Add to Library** edit button to add the block to the User Catalog in the Library Browser.
3. Right-click on the new item in the User Catalog and select **Rename** from the contextual menu to change the name from "Untitled" to something descriptive like "Foyer Table".

You can organize the content in your User Catalog into project-specific folders.

To create a folder of plan-specific library content

1. Right-click on the User Catalog line item and select **New> Folder** from the contextual menu.
2. Type a short, descriptive name for this new folder. Here, "Chic Cottage" is used.

3. Select the "Foyer Table" line item, then click and drag it over the new Chic Cottage folder. When the folder becomes highlighted, release the mouse button to move the item into the folder.
4. Move the "Hat Channel" and "2x12 Profile" line items into the Chic Cottage folder, as well.
5. When you are finished, remember to **Save** your work.

The Beach Palette folder was created in the Finish Materials tutorial to collect a selection of complementary colors in one place. These materials are used in Chic Cottage, but are not project-specific. Instead of moving Beach Palette folder into the Chic Cottage folder, you can add a link.

To create a link to a folder

1. Right-click on the Beach Palette folder and select **Copy** from the contextual menu.
2. Right-click on the Chic Cottage folder and select **Paste Link** from the contextual menu.
   - A copy of the Beach Palette folder is created in the Chic Cottage folder.
   - The materials in both Beach Palette folders are linked to one another.
3. When you are finished, remember to **Save** your work.

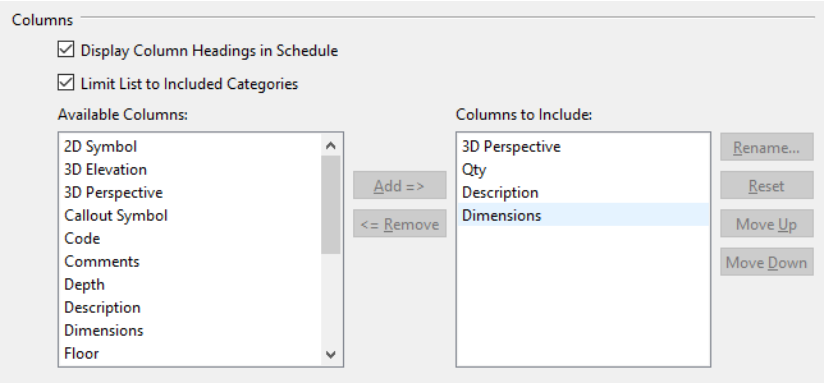
You can continue working on this plan in the *Cabinet Styles* tutorial.

Creating a Schedule

Although not usually present in construction drawings, furnishings play a vital role in interior designs. The furnishings in a particular room can be listed in a Furniture Schedule.

To set furniture schedule defaults

1. Select **Edit> Default Settings** and in the Default Settings dialog, click the arrow beside "Schedules, select "Furniture Schedule" from the list, and click the **Edit** button.
2. On the General panel of the Furniture Schedule Defaults dialog:



   - Under **Columns to Include**, remove all of the columns except "Qty" and "Description".
   - Under **Available Columns**, select "3D Perspective" and click the **Add** button.
   - With "3D Perspective" selected in the Columns to Include list, click the **Move Up** button to move it to the top of the list.
   - **Add** the "Dimensions" column and move it to the bottom of the list.
   - Under **Object Preview Options**, check the box beside **Scale Images**.
3. Click OK and Done to close both dialogs and apply your changes.

To create a furniture schedule

1. Select **CAD> CAD Detail Management** .
2. In the CAD Detail Management dialog, select "Schedules Detail" and click the **Open** button.
3. Select **Tools> Schedules> Furniture Schedule** , then click once in an empty space near the other schedules.

Just like real furnishings, furniture symbol measurements are not always in whole inches. In schedules, these values are reported as fractions by default. They can, however, be rounded instead.

To edit number formatting in a schedule

1. Select the schedule and click the **Open Object** .
2. On the NUMBER FORMATTING panel of the Schedule Specification dialog:
   - Click on the "Dimensions" line item under Format Column.
   - Below the list, you can specify the units of measurement as well as accuracy.
   - Here, simply set the **Smallest Fraction** to 1/1 and click OK.

If you wish, you can use Extension Snaps to align the furniture schedule below the room moldings schedule created previously. See *"To create a room moldings schedule" on page 220 of the Room Moldings Tutorial*.

As an alternative to listing the dining room chairs and table individually, they can instead be listed as a set.

To add an architectural block to a schedule

1. Select the Dining room furniture set and click the **Open Object** edit button.
2. On the GENERAL panel of the Architectural Block Specification dialog, check the box beside **Treat as One Object**.
3. On the SCHEDULE panel:
   - Check **Include in Schedule**.
   - Select the **Include in Schedule As** radio button.
   - Click the arrow beside "Furniture" and check the box beside "Indoor".
4. On the OBJECT INFORMATION panel, delete the %automatic_description% macro from the **Description** field and instead type a short but more descriptive phrase like "Dining Set".
5. Click OK to close the dialog and apply your change.
6. Click in the Schedule Detail to make it the active window and notice that the separate line items for the chairs and table have been replaced by a single Dining Set line item.

Accessories like vases and baskets do not necessarily belong in a furniture schedule.

To remove an object from a schedule

1. Still in the Schedule Detail, click on the "Tulips" line item in the Furniture Schedule to select it and highlight the row.
2. Click the **Find Object in Plan** edit button. The frame behind the dresser in the Foyer becomes selected automatically in plan view, and that view window becomes active.
3. With the vase and flowers symbol selected, click the **Open Object** edit button.
4. On the SCHEDULE panel of the Furniture Specification dialog, uncheck **Include in Schedule** and click OK.
5. Repeat this process to remove the storage boxes from the schedule, as well.
6. When you are finished, **Save** your work.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Furnishings. Then, click OK.
3. Notice that Chic Cottage-Furnishings is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Organizing Documents in the Project Browser

As the number of archive and revision documents grow, you can add more folders to keep them organized.

To organize Plans using custom folders

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View>Project Browser**.
2. Right-click on the Chic Cottage Project and select **New Folder** from the contextual menu.
3. A new folder is created immediately below the Project level line item and an inline text editor is active.
4. Type a descriptive name for the folder and press the Enter key. Here, "Roof Tutorials" is used.
5. Click and drag "Chic Cottage-Roof" and "Chic Cottage-Dormers" into the new "Roof Tutorials" folder.
6. Create another new folder with a short, descriptive name like "Interior Design Tutorials".
7. Click on the "Chic Cottage-Ceilings.plan" to select it, then:
   - Hold down the ***Shift*** key and click on "Chic Cottage-Moldings.plan".
   - These two documents as well as the two documents listed between them are selected as a group.
8. Click and drag the selection to the "Interior Design Tutorials" folder. When the folder becomes highlighted, release the mouse button.'

Review

This lesson describes the best practices for adding furniture and accessories to a plan

Assessment Questions

Tutorial 13 - Interior Furnishings

How do the Material Defaults affect furnishing objects placed from the Library Browser?

- Some furnishing objects in the library have been assigned particular materials to complement the object's design and initially use those materials regardless of the overall style of the plans they are placed into. Some furnishings, however, inherit the default materials furniture and upholstery that can set differently for each plan in the Material Defaults dialog.

What are two ways to find an object in the Library Browser?

- To get an idea of what options are available, you can browse the contents of the Library.
- When you know what you want to find in the Library, you can save time by searching.

What edit tool lets you substitute all instances of an object with a different object from the library?

- You can replace a library object in your plan with a different item from the Library using the Replace From Library edit tool. This can be particularly helpful if you have multiple copies of the same object and would like to replace them all at once.

What key on the keyboard lets you move an object through another object, overriding movement restrictions

- The Ctrl key allows you to override movement restrictions when moving or resizing objects.

What is an Architectural Block?

- Architectural Blocks are groups of objects like furniture and accessories that are blocked together so they can be placed, moved, rotated and even deleted as though they were a single object.

What feature in the program can you use to customize how information like object sizes is reported?

- The NumberFormatter Ruby class allows you to specify the unit of measurement used in a macro.

What feature allows you to create a custom schedule column?

- The Custom Object Fields tool allows you to create object attributes that can be listed in custom schedule columns.

What two things must you do to include an Architectural Block in a schedule?

- To include an Architectural Block in a schedule, it must have Treat as One Object and Include in Schedule checked in the Architectural Block Specification dialog.

What edit tool lets you locate a particular object listed in a schedule?

- The Find Object in Plan edit tool locates the object associated with a selected line item in a schedule.

What setting lets you remove an object from a schedule?

- The Include in Schedule check box found in a variety of different objects' specification dialogs, on the Schedule panel.

Kitchen and Bath Tutorials

Chapter 4

The Kitchen and Bath Tutorials describe best practices for designing kitchens and baths in Chief Architect:

In this tutorial you will learn about:

Cabinet Styles

Cabinet objects support a high degree of customization, allowing you to model a wide variety of styles.

Learning Objectives

This lesson describes best practices in Chief Architect for customizing cabinet styles. Concepts introduced include:

- File Management *236*
- Productivity Tips *237*
- Setting the Defaults *237*
- Using Plan Views *237*
- Specifying Door, Drawer, and Hardware Styles *238*
- Specifying Countertops and Backsplashes *240*
- Adding Moldings and Millwork *241*
- Specifying Cabinet Materials *246*
- Updating Cabinet Defaults *247*
- Modifying Cabinet Fronts *248*
- Adding Millwork *256*
- Applying Custom Materials *257*
- Creating Revisions *258*

File Management

At this point in the design process, both the Chic Cottage-Furnishings and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Furnishings was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to customize cabinet styles, keep in mind these tips to improve your productivity.

Drawing and Editing

- Use the Material Defaults dialog to specify the materials initially assigned to cabinet doors and drawers placed from the Library Browser.
- The **Match Properties** edit tool lets you assign selected attributes from one object to another.
- The **Set as Default** edit tool allows you to apply a selected object's specifications to the defaults for that type of object.

Content

- A selection of name brand cabinet catalogs are available for download in the "Cabinets" category of the 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.
- Create template plans that have your custom cabinet styles set as the defaults and ready for use when you begin a new plan.

Interface

- Cabinet doors and drawers can be applied to a cabinet directly from the library: select the door or drawer in the Library Browser, then click once on the cabinet in a camera or plan view.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When placing cabinets, there are several defaults that should be borne in mind.

Before placing cabinets, it is a good idea to set the Cabinet Defaults so that they meet your needs.

As an alternative to setting all desired specifications, you can place a cabinet into a plan, customize its construction and appearance, and then apply all of its settings to the defaults for its object type. See *Updating Cabinet Defaults on page 247*.

When a cabinet door, drawer, or panel is inserted into a cabinet, it inherits the default "Cabinet Door/Drawer" material set in the Material Defaults dialog for the current plan. See *To use Material Defaults on page 247*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

As noted in the *Exterior Walls* tutorial, Saved Plan Views have a number of important settings associated with them, including active Layer Set and Default Set. See *"To examine a saved plan view's settings" on page 5 of the Exterior Walls Tutorial*.

When you know that a particular task will require you to make changes to multiple layers and to create annotations using different saved defaults, you can save time by opening a Saved Plan View created for that task.

In the *Chic Cottage Roof* tutorial, the Roof Plan View and Working Plan View were open at the same time and the two views' appearance and settings were compared. Then, the Working Plan View was closed and work was done in the Roof Plan View. See *"Using Plan Views" on page 138 of the Chic Cottage Roof Tutorial*.

A more efficient way to switch between Saved Plan Views is using the **Saved Plan View Control** drop-down in the toolbars.

To switch to a different saved plan view

1. Click the **Saved Plan View Control** drop-down, which is located in the top toolbar by default.
2. Select "Kitchen & Bath Plan View" from the drop-down list.
3. The current view window remains open, and now uses the Kitchen and Bath Plan View.
4. In the Active Layer Display Options side window, notice that the "Kitchen and Bath Layer Set" is now listed as active, and that:
   - Wall layers and manually drawn dimensions no longer display.
   - Dimensions associated with room labels do display.
   - Object labels and the saved section view camera symbol are smaller.
5. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** .
6. Right-click on the "Kitchen and Bath Plan View" in the Project Browser and select **Edit View** from the contextual menu.
7. On the SELECTED DEFAULTS panel of the Saved Plan View Specification dialog, notice that the names of the Saved Defaults associated with this view all begin with "Kitchen and Bath", then click Cancel.

Cabinets can now be customized and later, laid out and annotated, without affecting the appearance of either the floor or roof plan.

SPECIFYING DOOR, DRAWER, AND HARDWARE STYLES

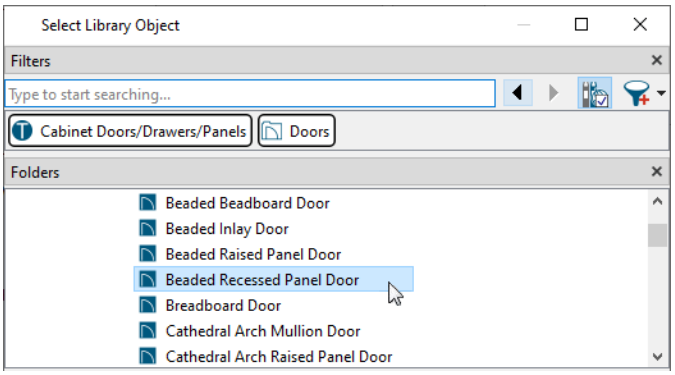
A variety of custom door and drawer styles and hardware symbols is available in the Library and can be specified in the Cabinet Defaults dialogs as well as applied to a cabinet in either its specification dialog or in a 3D view.

It is recommended that you set the defaults for an object before placing instances of that object in a plan. A slightly different alternative to this best practice is to place a single instance of an object, customize it, and then set its attributes as the defaults before placing more objects.

To specify a custom door or drawer style

1. Select **Build> Cabinet> Base Cabinet** , then click in the Kitchen near the windows to place a base cabinet against the left vertical wall. Notice that its back snaps to the wall surface automatically.
2. Click the **Select Objects** button, then click on the base cabinet to select it and click the **Open Object** edit button.
3. On the DOOR/DRAWER panel of the Base Cabinet Specification dialog, click the **Library** button under the Door Panel heading.

4. In the Select Library Object dialog:



- The content is filtered by **Type** so that it only lists Cabinet Doors/Drawers/Panels.
- In addition, the door currently assigned to the cabinet is from the Library. As a result, the Doors **Folder** is selected and the tree list in the Folders panel is expanded to show the door selected at Core Catalogs> Architectural> Cabinet Doors, Drawers, & Panels> Doors.
- Browse through the folder and select a different cabinet door style, such as "Beaded Recessed Panel Door", then click OK.

Cabinet handles, hinges and pulls can also be specified.

To specify cabinet hardware

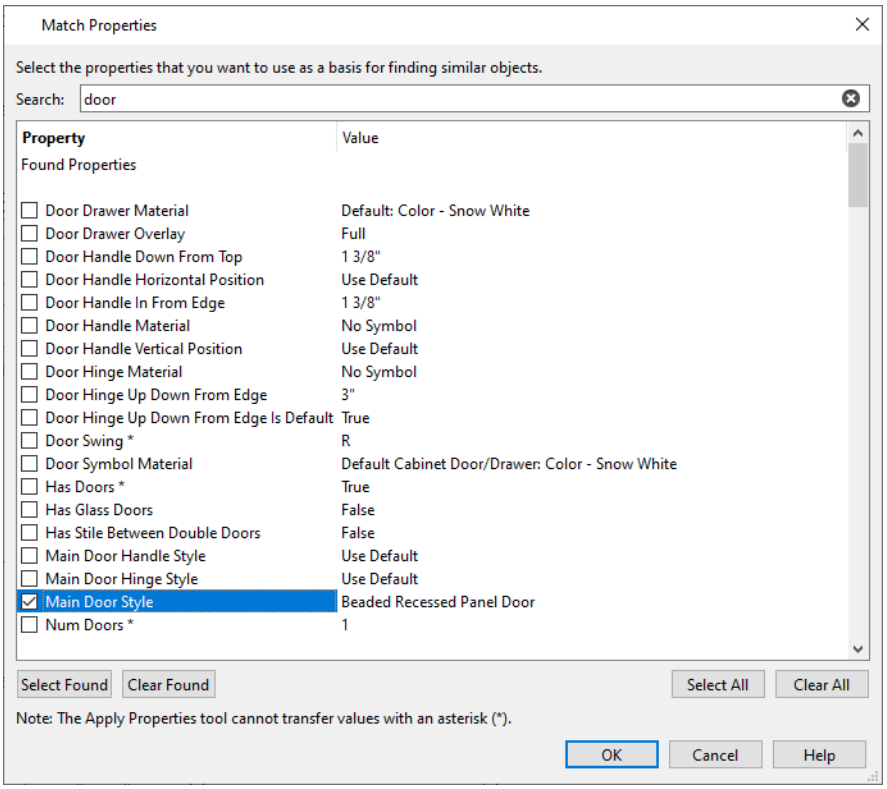
1. Still on the DOOR/DRAWER panel of the Base Cabinet Specification dialog:
2. Click the drop-down arrow for Main Style under the "Door Handle" heading.
3. The choices include "None", three parametric knob and handle types, and the option to choose a handle symbol from the Library.
4. Select "Library" from the drop-down list or click the **Library** button and select the "CP04 Bar Pull" in the Select Library Object dialog.
5. Adjust the handle's **Vertical Position**:
   - Select the **Distance from Top** radio button.
   - Type 6" in the text field and press the Tab key to update the preview.
6. Click OK to close the Base Cabinet Specification dialog and apply your change.

Now is a good time to assign the "Beaded Recessed Panel Door" and "CP04 Bar Pull" to wall and full height cabinets so they match.

To apply matching object properties

1. Select **Build> Cabinet> Wall Cabinet**, then move your mouse pointer into drawing area.
2. Click to place a wall cabinet to the right of the windows.
3. Select **Build> Cabinet> Full Height**, then click to place a tall cabinet in the bottom right corner of the Kitchen.
4. Click the **Select Objects** button, then select the base cabinet and click the **Match Properties** edit button.

5. In the Match Properties dialog:



   - Type "door" in the **Search** field, check the box beside "Main Door Style".
   - In the **Search** field, delete "door", type "handle" and check the box beside "Main Door Handle Style".
   - Click OK.
6. Notice that the base cabinet is still selected. This is because it has the selected "Main Door Style" and "Main Door Handle Style" attributes.
7. Next, click the **Apply Properties** edit button and click once on the wall cabinet.
   - Notice that now both the base and wall cabinet are selected as a group.
   - This is because now, they both share the selected Match Properties attributes.
8. With the tool still selected, click once on the full height cabinet and notice that it too is added to the selection set.
9. Confirm that the wall and full height cabinets now have the "Beaded Recessed Panel Door" and "CP04 Bar Pull" assigned to them on the DOOR/DRAWER panel of their specification dialogs.
10. For both wall and full height cabinet, take a moment to adjust the door handle's **Vertical Position** using the **Up From Bottom** and **Distance From Top** settings. As with the base cabinet, 6" is a good value for both.

Doors and drawers can also be applied directly from the library. See *To apply a secondary door or drawer style on page 249*, below.

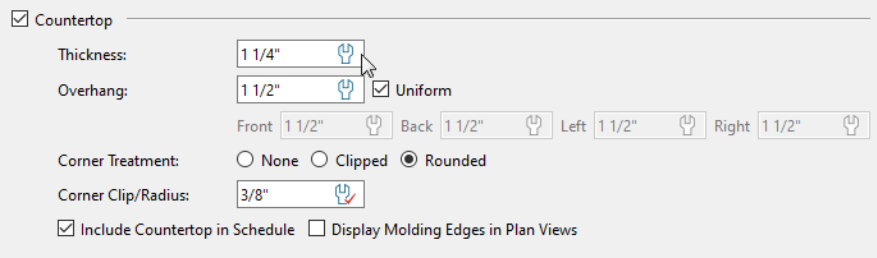
SPECIFYING COUNTERTOPS AND BACKSPLASHES

Countertops and backsplashes are customizable components of base cabinets.

To customize a countertop

1. Click the **Select Objects** button, then click on the base cabinet to select it and click the **Open Object** edit button.

2. On the GENERAL panel of the Base Cabinet Specification dialog:



   - Notice that the Thickness and Overhang settings have the Active Defaults icon in their text fields. The red check mark means that these values are drawn directly from the Base Cabinet Defaults dialog.
   - Specify the **Thickness** as 3 cm and press the ***Tab*** key on the keyboard to update the dialog.
   - 3 cm slabs are often described as being 1 1/4" in U.S. units, so change the Thickness to that value instead.
   - Specify the **Overhang** as 1 1/2".
3. Notice that Active Defaults icon no longer has a red check mark, indicating that these settings are no longer dynamically linked to the defaults dialog.

Custom Countertops that are independent objects can also be created. See *"To create a custom countertop" on page 270 of the Cabinet Layout Tutorial*.

To specify a backsplash

1. With the GENERAL panel of the Base Cabinet Specification dialog still open:
   - Specify the **Height** as 4" and notice its Active Defaults icon no longer has a red check mark.
   - Check the box beside **Side**.
   - Click OK.
2. Remember to **Save** your work.

Like countertops, backsplashes can also be drawn as independent objects. See *"Appliances and Fixtures" on page 277 of the Appliances and Fixtures Tutorial*.

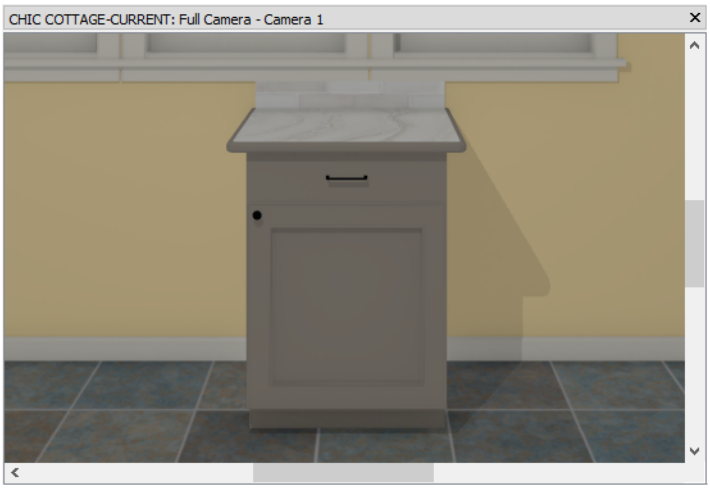
ADDING MOLDINGS AND MILLWORK

Just like doors, windows, and rooms, cabinets can be customized using moldings and millwork. See *"Applying Room Moldings" on page 213 of the Room Moldings Tutorial*.

To specify a counter edge profile

1. Click the **Select Objects** button, then click on the base cabinet in the kitchen to select it.
2. Click the **Open Object** edit button to open the Base Cabinet Specification dialog.
3. On the MOLDINGS panel, click the **Add New** button.
4. In the Select Library Object dialog:
   - The content is filtered by **Type** so that it only lists Moldings and Profiles.
   - To further filter the results, type "edge molding" in the Search field, then click on the "Edge Molding" **Folder** line item in the Filters drop-down list.
   - The tree list in the Folders panel will now expand to show Core Catalogs> Architectural> Moldings, Profiles, Extrusions> Edge Molding.
   - Select the "EM05 - Edge Molding" and click OK.

5. Returning to the MOLDINGS panel:
   - Below the Molding Profiles list, check the box beside **Retain Aspect Ratio**.
   - Specify the **Height** as 1 1/4" to match the Countertop Thickness and notice that the Width value adjusts so the profile becomes smaller without its shape being distorted.
   - Click in the **Name** field and type: EM05 - Counter Edge Profile.
   - Click OK to close the dialog and apply your changes.
6. To see the results so far, create a **Perspective Full Camera** view pointed at the base cabinet in the Kitchen.

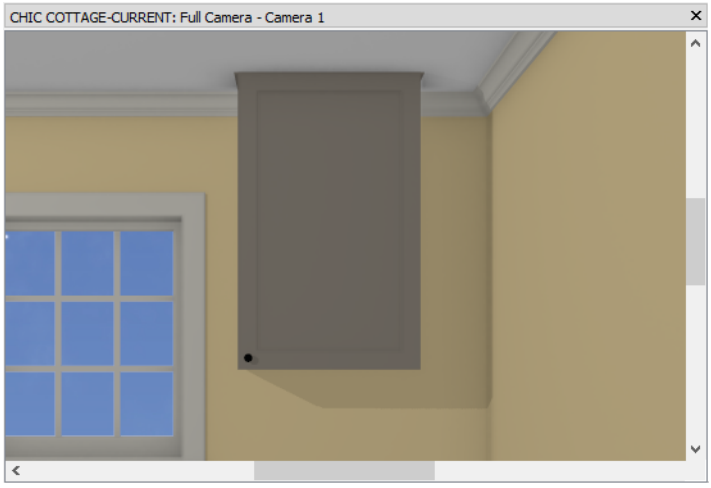


All new moldings are initially assigned the same material as the cabinet box. This, however, can be changed when need be. See *To use Material Defaults on page 247*.

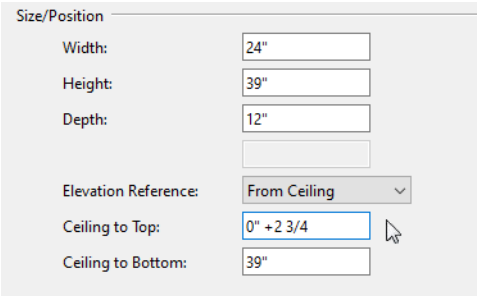
To apply crown molding

1. Select **Build> Cabinet> Wall Cabinet**, then move your mouse pointer into the camera view.
2. Notice that as you move your mouse pointer, the program will try to snap the cabinet at a particular height on the wall.
   - This is its default height, set in the Wall Cabinet Defaults dialog.
3. **Zoom** in or out as needed, then click to place a wall cabinet to the right of the windows.
4. Select the cabinet and click the **Open Object** edit button. On the GENERAL panel of the Wall Cabinet Specification dialog:
   - Select "From Ceiling" from the **Elevation Reference** drop-down list.
   - Specify the **Ceiling to Top** value as 0".
5. On the MOLDINGS panel, click the **Add New** button.
6. In the Select Library Object dialog:
   - The content is filtered by **Type** so that it only lists Moldings and Profiles.
   - To further filter the results, type "crown molding" in the Search field, then click on the "Crown Molding" **Folder** line item in the Filters drop-down list.
   - The tree list in the Folders panel will now expand to show Core Catalogs> Architectural> Moldings, Profiles, Extrusions> Crown Molding.
   - Select the "CM02 - Crown Molding", which is also the default crown molding for Floor 1, and click OK.
7. Returning to the Wall Cabinet Specification dialog:
   - Make sure that **Retain Aspect Ratio** is checked and change the **Height** of CM02 - Crown Molding to 3" to match the room's crown molding.

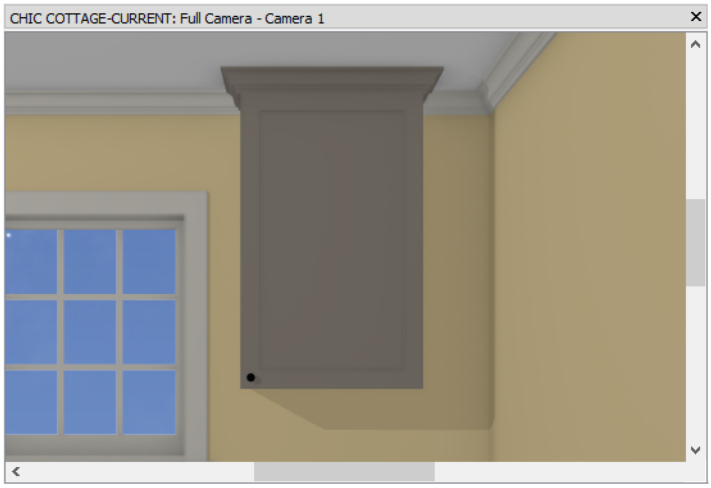
- Specify the **Vertical Offset** as -2 3/4", which is the height of the molding profile then make sure that **From Top** is selected.
- Click OK to close the dialog and apply your changes.



8. Notice that since the top of the cabinet touches the ceiling, the crown molding is forced into the ceiling and cannot be seen. To correct this, adjust the cabinet's **Finished Floor to Top** height:
   - With the wall cabinet still selected, click the **Open Object** edit button once more.
   - On the GENERAL panel of the Wall Cabinet Specification dialog:



     - Click in the **Ceiling to Top** value to place the cursor after the current value of 0".
     - Press the ***Spacebar***, then type + followed by 2 3/4", which is the CM02 - Crown Molding's Vertical Offset, specified previously.
     - Press the ***Tab*** key to update the dialog settings and notice the new value:2 3/4", then click OK.

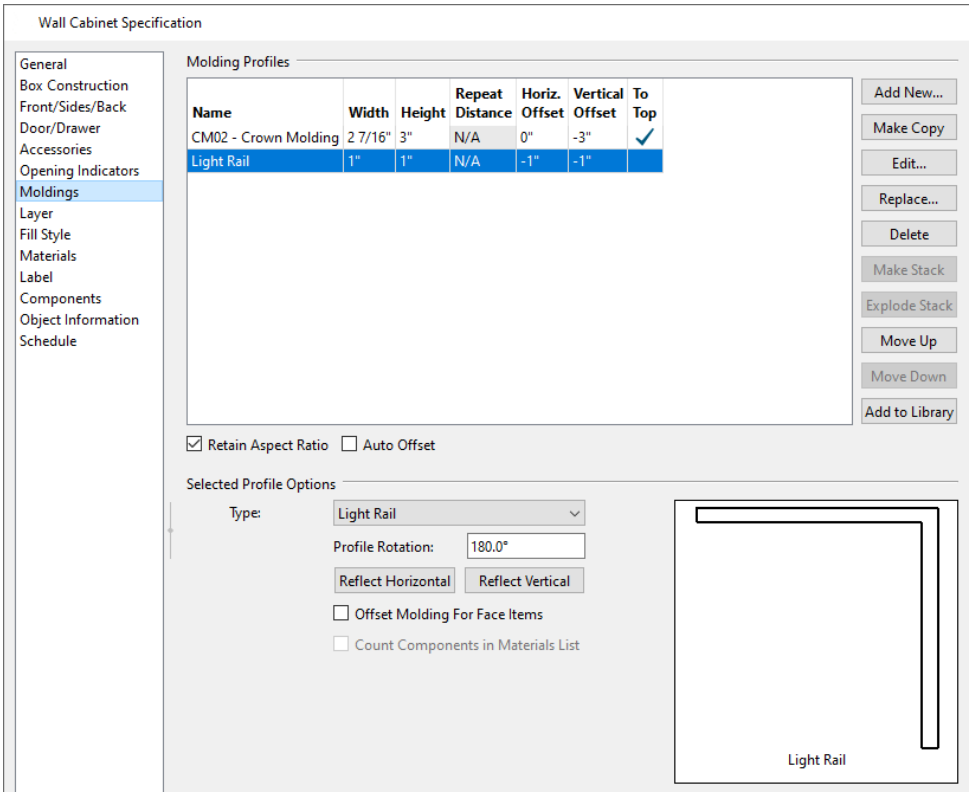


9. Use the **Match Properties** and **Apply Properties** edit tools to apply the crown molding to the full height cabinet, as described above. See *To apply matching object properties on page 239*.

There are two ways to create a light rail. One way is to create space under the cabinet bottom by increasing the Item Height of a wall cabinet's lowest Separation face item. For recessed or decorative light rails, you can instead apply a molding.

To add a light rail

1. With the wall cabinet still selected, click the **Open Object** edit button and return to the MOLDINGS panel of the Wall Cabinet Specification dialog.
2. Click the **Add New** button, and in the Select Library Object dialog:
   - Browse to Core Catalogs> Architectural> Moldings, Profiles, Extrusions> Brackets and Channels.
   - Select the "L-Bracket" and click OK.
3. Notice that the new molding can now be seen near the top of the cabinet in the dialog preview.
4. With the L-Bracket selected in the table, specify the **Type** as "Light Rail" and notice:
   - **To Top** is no longer checked in the moldings table.
   - The molding is now positioned at the bottom of the cabinet in the dialog preview.
5. Set the **Profile Rotate** to 180° to rotate it so the horizontal edge is against the bottom of the cabinet.
6. Make sure **Retain Aspect Ratio** is checked and specify the **Width** and **Height** as 1".
7. Specify the **Horizontal Offset** and **Vertical Offset** as - 1" to make the light rail flush with the front, sides, and bottom of the cabinet box.



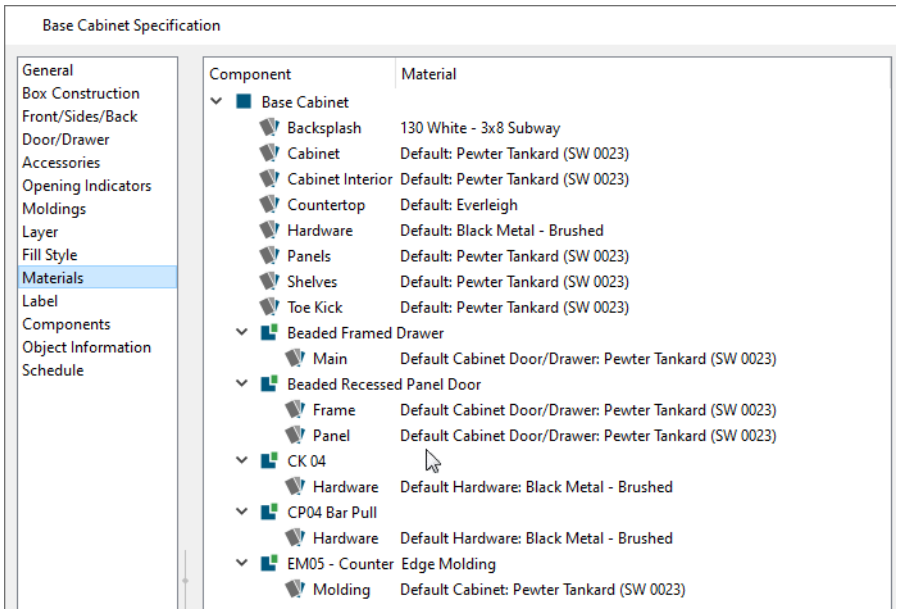
8. Rename the L-Bracket: click once on its **Name** in the table, then type "Light Rail" and click OK.
9. Remember to **Save** your work.

Millwork items such as feet can also be applied to cabinets. See *To add cabinet feet on page 256*, below.

SPECIFYING CABINET MATERIALS

To customize cabinet materials

1. Still in the camera view, select the base cabinet and click the **Open Object** edit button.
2. On the MATERIALS panel of the Base Cabinet Specification dialog:



   - Notice that nearly all of the items in the list of components has "Default" stated before the material name.
   - This means that these components are dynamically drawing their material assignments from the Base Cabinet Defaults dialog.
3. Click on the "Cabinet", hold down the ***Shift*** key and click on the "Cabinet Door/Drawer" component to select them as a group, and note that they are both set to use "Default: Color - Pewter Tankard (SW 0023)".
   - Click the **Select Material** button to open the Select Material dialog.
   - On the LIBRARY MATERIALS panel of the dialog, search for and select "Color - Robin's Egg" from the "Beach Palette" folder in the User Catalog and click OK.
4. Returning to the Base Cabinet Specification dialog:
   - Note the "Cabinet" and "Cabinet Door/Drawer" components are now assigned "Color - Robin's Egg".
   - Notice, too, that the material name is no longer preceded by "Default:". This means that these components no longer dynamically inherit their material from the Cabinet Defaults.
   - Click OK to close the dialog.
5. Returning to the camera view, select **3D> Material Painter> Material Painter Object Mode**.
6. Select **3D> Material Painter> Material Painter**.
   - In the Select Material dialog, select "Color - Robin's Egg" in either the User Catalog or on the PLAN MATERIALS panel, and click OK.
7. Move the mouse pointer into the camera view:
   - Notice that the mouse pointer displays a Spray Can icon.
   - When the pointer is over a surface with the "Pewter Tankard (SW 0023)" material, click once to replace it with "Color - Robin's Egg".

- Because **Material Painter Object Mode** is active, all instances of "Pewter Tankard" on the cabinet are replaced.

8. Next, select **3D> Material Painter> Material Painter Component Mode**.
9. Select **3D> Material Painter> Material Eyedropper**, then click on the countertop surface to load the "Everleigh" material into the Painter.
10. When the mouse pointer displays a Spray Can icon,
    - Click on the Counter Edge Profile to apply the countertop's material loaded into the Painter to that component.
    - Because **Material Painter Component Mode** is active, only the single component using "Color - Robin's Egg" that you clicked on receives the new material. Other components with the same material are unaffected.
11. Edit the wall and full height cabinets' materials to match using the method of your choice:
    - On the Materials panel of their specification dialogs.
    - Using the **Match Properties** and **Apply Properties** edit tools: use the keyword "material" to search the list of attributes.
    - Using the **Material Painter** in Component Mode.

The wall and full height cabinets have crown molding that would look better if it matched the room's crown molding material. To help ensure that these moldings' materials always match, use the Material Defaults.

To use Material Defaults

1. Select the wall cabinet and click the **Open Object** edit button.
2. On the MATERIALS panel, select the Crown Molding component and click the **Select Material** button.
3. In the Select Material dialog:
    - Go to the MATERIAL DEFAULTS panel.
    - Select "Room Moldings" and note that the material assigned to this default is "Alabaster (SW 7008)".
    - Click OK.
4. The Crown Molding component is now set to use the same material as the crown molding assigned to rooms. Click OK.
5. Repeat these steps to assign the "Room Moldings" material default to the full height cabinet's Crown Molding component as well.
6. When you are finished, close the camera view and **Save** your work.

UPDATING CABINET DEFAULTS

Once a base cabinet has been customized to meet your needs, you can apply its attributes to the Base Cabinet Defaults dialog so that the Base Cabinet tool creates new cabinets that are identical to the one you modified.

Bear in mind, though, that the base cabinet that you use for this purpose will not be set to dynamically use settings in the Base Cabinet Defaults and should be replaced with a new cabinet that does use Dynamic Defaults.

To use the Set as Default tool

1. Still in the camera view, select the base cabinet in the Kitchen.
2. Click the **Set as Default** edit button.
3. A message will confirm that the Base Cabinet Defaults have been updated.
4. Select **Build>Cabinet>Base Cabinet**, then click in the Kitchen next to the original cabinet against the left vertical wall.

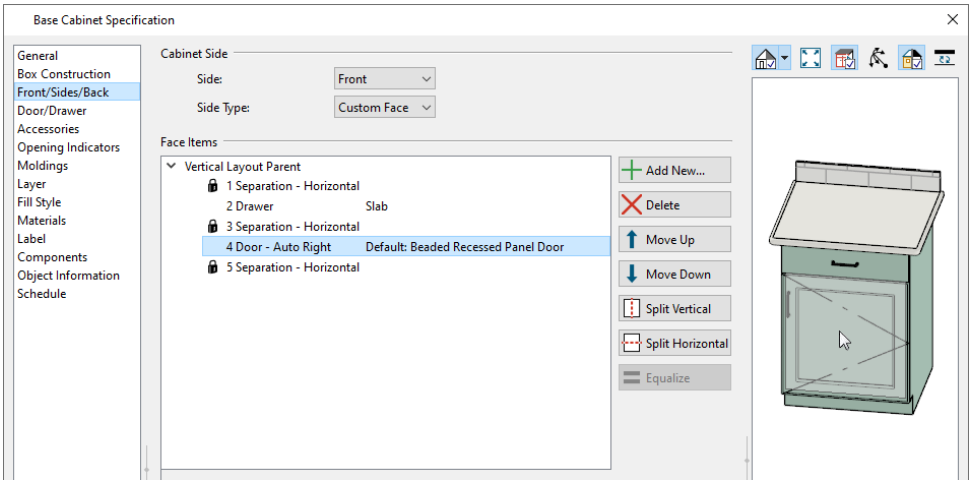
5. With the **Base Cabinet** tool still active, click on a base cabinet to select it, hold down the ***Shift*** key to select the second cabinet as well, and click the **Open Object** edit button.
6. On the GENERAL panel, notice the various instances of "No Change" under the "Countertop" and "Backsplash" headings
   - "No Change" indicates that the group-selected objects have different values for a particular setting.
   - These two base cabinets are identical except for one thing: the new cabinet is dynamically drawing its countertop and backsplash values from the Base Cabinet Defaults dialog while the original base cabinet is not.
   - Additional examples of "No Change" are found on the DOOR/DRAWER and MATERIALS panels.
7. Dynamic Defaults are useful because they help apply a variety of attributes consistently, improving efficiency and avoiding errors; so although you can reset each of these attributes to use the Dynamic Default, it is faster to simply click Cancel, select the original base cabinet and **Delete** it.
8. Repeat these steps to update the Wall Cabinet Defaults and Full Height Defaults settings.
9. Delete and replace the existing wall cabinet and full height cabinet and replace them with new cabinets.

MODIFYING CABINET FRONTS

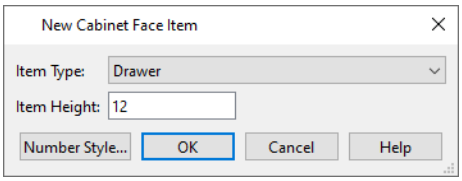
The layout of doors, drawers, and other items on a cabinet front can also be customized.

To create a drawer base

1. Create a copy of the customized base cabinet next to the original:
   - Click the **Select Objects** button, then click on the cabinet to select it.
   - Click the **Copy/Paste** edit button.
   - Position the mouse pointer along the left wall of the Kitchen, closer to the back wall than the existing cabinet, and click once.
2. Click on the new base cabinet to select it.
3. Click the **Open Object** edit button and on the FRONT panel of the Base Cabinet Specification dialog:
   - Click on the drawer in the preview pane on the right side of the dialog to select it.
   - Notice that its **Item Type** is "Drawer", and its **Item Height**, 5".
4. Next, click on the cabinet door in the preview pane.
   - Notice that its **Item Type** is "Auto Right Door". This means that if the cabinet is over 24" wide, it will change to a double door, but if it is under 24" wide, it will be a single right-handed door.
   - Select "Drawer" from the **Item Type** drop-down list instead.



5. Click the **Add New** button, and in the New Cabinet Face Item dialog:



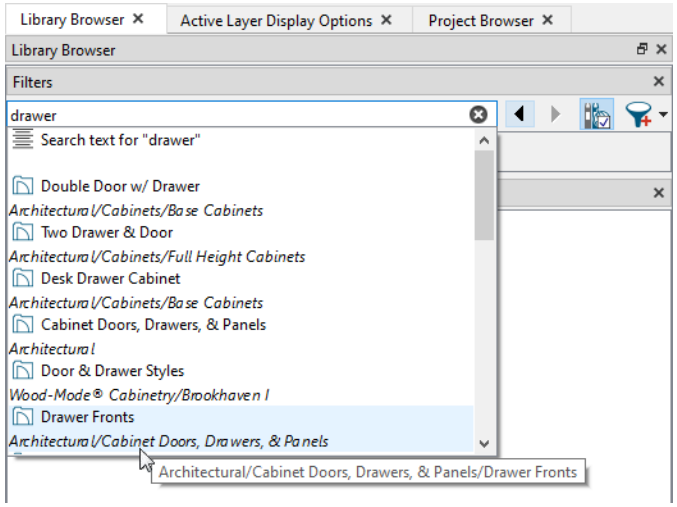
   - Select "Drawer" from the **Item Type** drop-down list.
   - Specify the **Height** as 12".
6. Click OK to close the Base Cabinet Specification dialog and apply your changes.

> Shelves can also be specified for any cabinet Door or Opening front item.

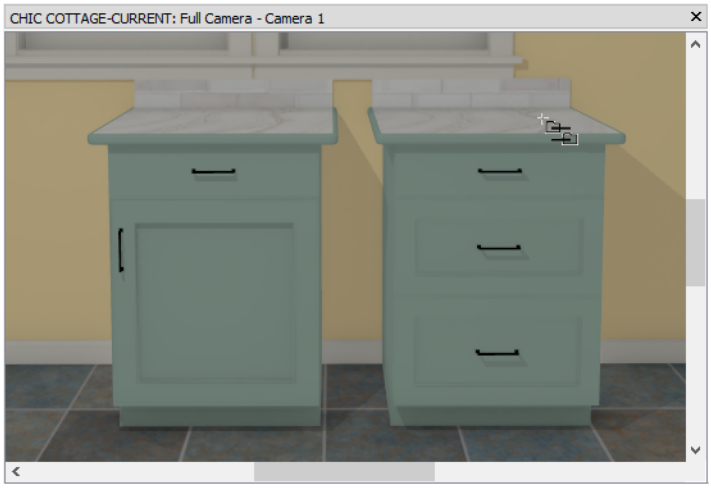
Notice that the drawer base features two drawer face styles: a slab draws above and two framed drawers below. There are two ways to add a secondary style.

To apply a secondary door or drawer style

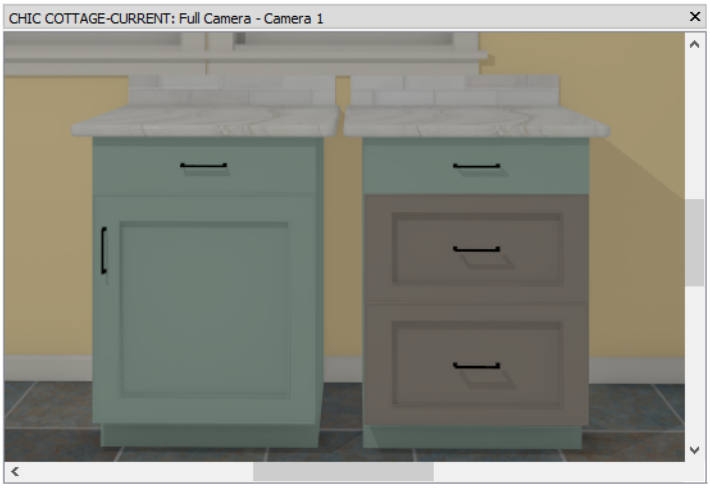
1. Select the new drawer base cabinet and click the **Open Object** edit button. On the FRONT/SIDES/BACK panel, notice the information for the Drawer line items in the Face Items table:
   - The two bottom drawers have "Default: Framed Panel Drawer" reported as their drawer panel. "Default" indicates that this is the cabinet's Main Drawer Style, specified on the DOOR/DRAWER panel.
   - The top drawer, "2 Drawer" has "Slab" reported as its drawer panel. This is a secondary style applied to this individual face item.
2. Click on the top drawer to select it in either the preview or the Face Items table. Under the Selected Item Properties heading below, click the **Appliance/Door/Drawer Specify** button.
3. The Face Item Specification dialogs allow you to specify non-default attributes to a selected cabinet door or drawer.
   - Notice that the Drawer Handle Style is "Use Default", while the Drawer panel Style is "Slab Drawers".
   - You can select a different secondary drawer style from the Library or select "Use Default" from the drop-down list.
   - There is another way to replace drawer styles, however, so click Cancel to close both dialogs.
4. If it is not already open, select **View> Library Browser** to open the Library Browser side window.
5. In the **Search** field, type "drawer" and then select the "Drawer Fronts" **Folder** located in Architectural> Cabinet Doors, Drawers, & Panels.



6. In the Folders panel, the tree list expands to show the Browse to show the Cabinet Doors, Drawers and Panels folder. Open the Drawer Fronts folder and select the "Beaded Framed Drawer".
7. Move your mouse pointer into the view window and position it over the cabinet. Notice that it displays the Replace from Library icon.



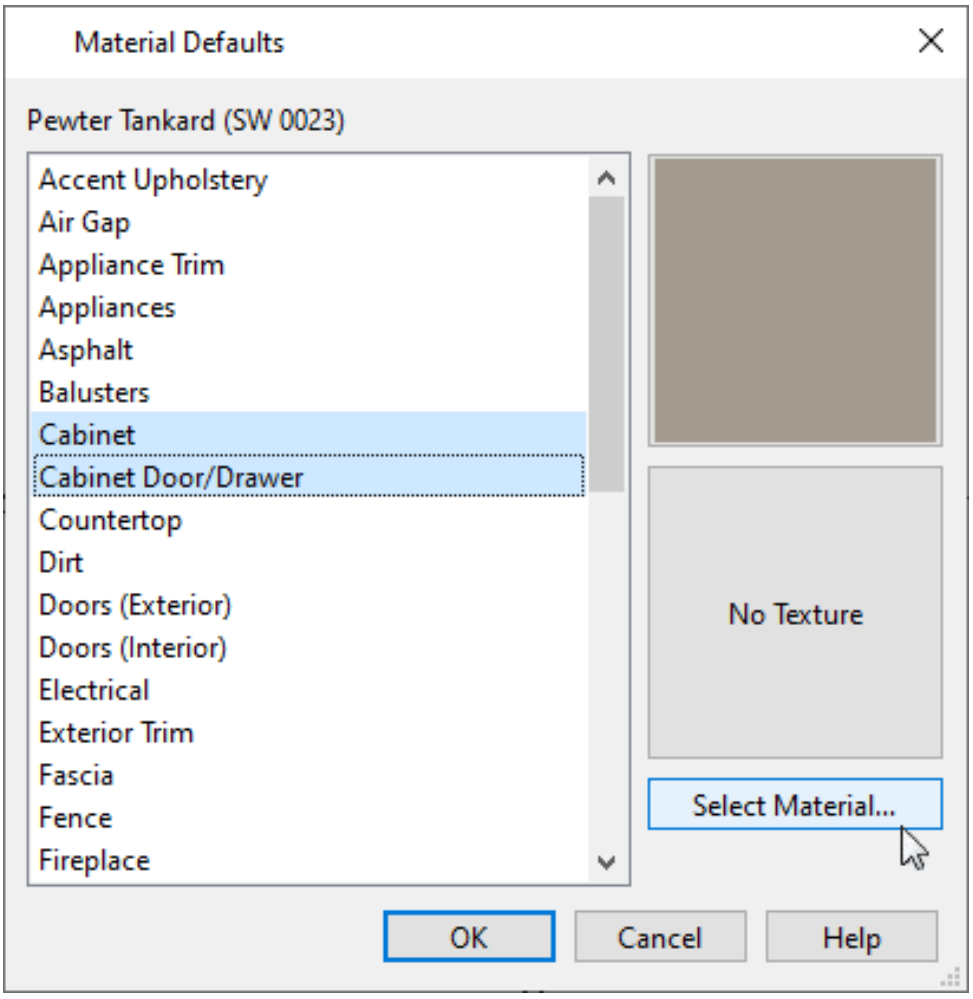
8. Click anywhere on the base cabinet box or countertop to apply the selected drawer front to the cabinet.
   - Library items specified as drawer fronts will be assigned to any drawers or false drawer front items set to use the default style.
   - Library items specified as doors will be assigned to any door or door panel front items set to use the default style.
   - In either case, only doors or drawers using the cabinet's Main Style are affected; those using a secondary style are not.
   - Alternatively, you can replace an individual door or drawer front with a different style by clicking directly on it.
9. Select the new drawer base cabinet and click the **Open Object** edit button. On the FRONT/SIDES/BACK panel, notice the information for the Drawer line items in the Face Items table:
   - The two bottom drawers now have "Default: Beaded Framed Drawer".
   - The top drawer, "2 Drawer" was unaffected and still has "Slab" reported as its drawer panel.
   - Click Cancel.



When drawers are assigned to a cabinet, they use the default Cabinet Door/Drawer material set in the Material Defaults dialog. You can use the Material Eyedropper and Material Painter tools to change the material, or you can update the Material Defaults to use the desired material.

To update cabinet Material Defaults

1. Select **Edit>Default Settings** . In the Default Settings dialog, select "Materials" and click the **Edit** button.
2. In the Material Defaults dialog, click on "Cabinet Door/Drawer" to select it and note that it is set to use "Color - Pewter Tankard (SW 0023)".
3. Hold down the ***Shift*** key and click on "Cabinet", which also uses "Color - Pewter Tankard (SW 0023)", to select them as a group.



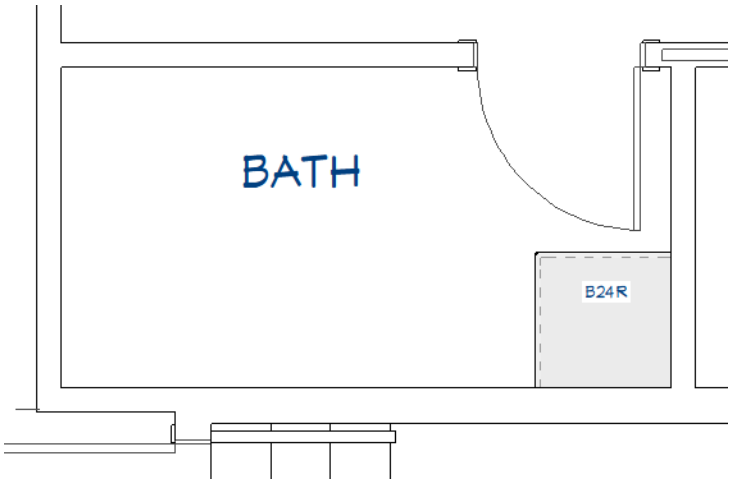
- Click the **Select Material** button to open the Select Material dialog.
- On the PLAN MATERIALS panel of the Select Material dialog, search for and select "Color - Robin's Egg" from the "Beach Palette" folder in the User Catalog and click OK.

4. Click Done to close the Default Settings dialog and return to the camera view. The drawer base's materials have updated to use the new Material Defaults.
5. When you are finished, **Save** your work and select **File> Close View** to return to plan view.

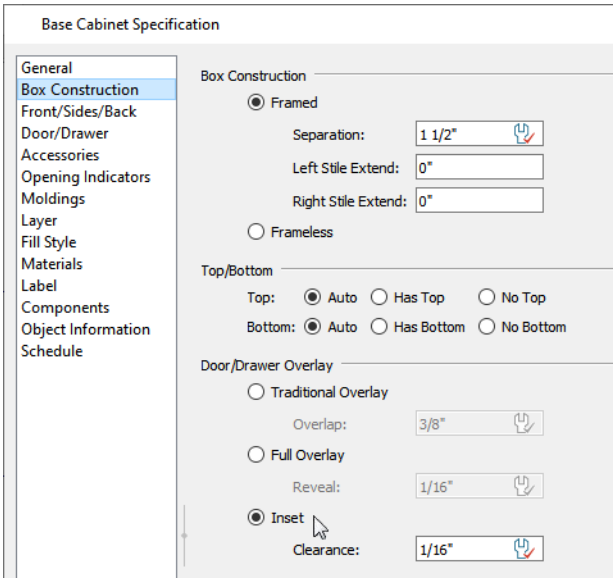
The new drawer base can be further customized to serve as a vanity in the Bath.

To change cabinet box construction and overlay

1. Select the drawer bank in the Kitchen and click the **Copy/Paste** edit button.

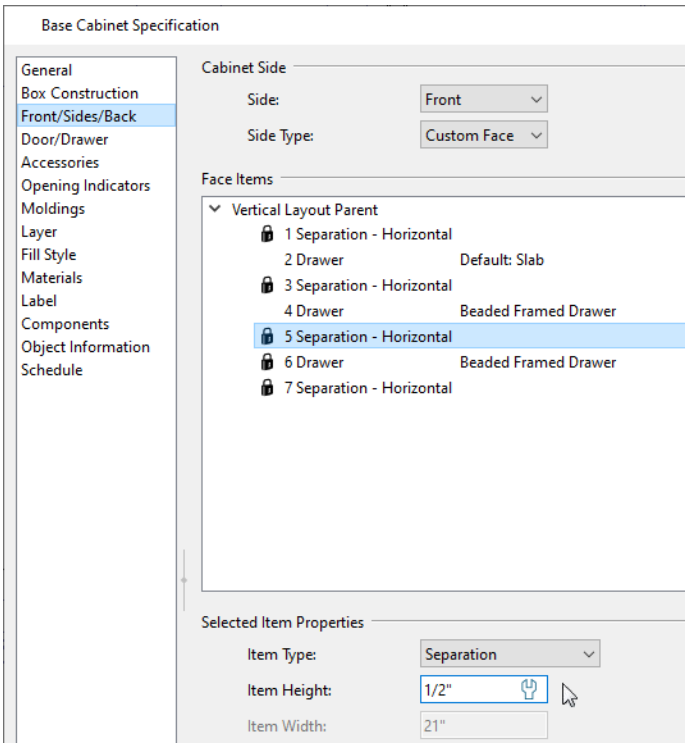


   - Click once along the lower horizontal wall in the Bath, in front of the door, to place a copy of the drawer bank at that location.
   - Select the new cabinet and move it into the lower right corner of the Bath using its edit handles.
2. With the new cabinet selected, click the **Open Object** edit button.
3. On the BOX CONSTRUCTION panel of the Base Cabinet Specification dialog:



   - Under the Box Construction heading, select **Framed**.
   - Under the Door/Drawer Overlay heading, select **Inset**.

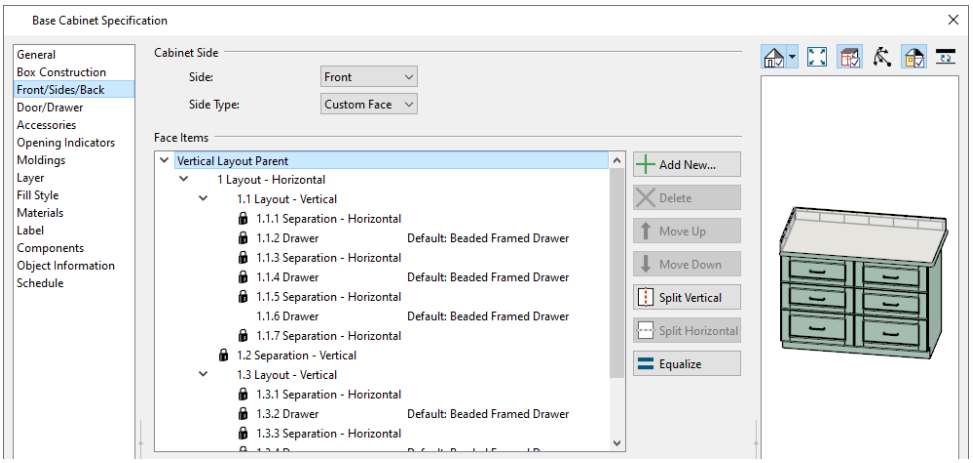
4. Still on the FRONT/SIDES/BACK panel:



   - Click on line item "3 Separation - Horizontal" in the list of **Face Items**.
   - Specify the **Item Height** as 1/2".
   - Specify the **Item Height** of line item "5 Separation - Horizontal" as 1/2", as well.
5. Specify the **Item Height** of the top drawer as 8 3/4" and the Item Height of the bottom two drawers as 9".
6. With the drawers essentially the same size, it makes sense for them to use the same Main Drawer Panel:
   - Select the top drawer face item and click the **Specify** button for **Appliance/Door/Drawer** under the Selected Item Properties heading.
   - In the Drawer Face Item Specification dialog, select "Use Default" from the **Door Panel Style** drop-down list, then click OK.
7. Click OK to close the dialog and apply your changes.

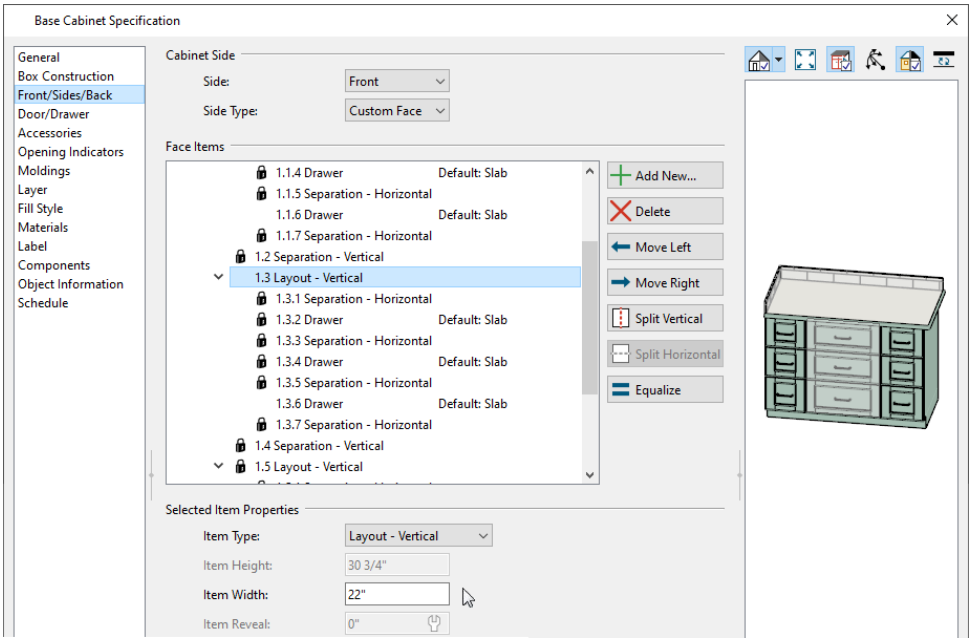
To create a split cabinet front

1. Open the Base Cabinet Specification dialog again and on the GENERAL panel, specify the **Width** as 48".
2. On the FRONT/SIDES/BACK panel, divide the cabinet front into two vertical sections:



- Click on "Vertical Layout Parent" at the top of the **Face Items** list to select it.
- Click the **Split Vertical** button to divide the stack of drawers into two stacks, side by side.

3. Vertically divide the stack of drawers on the left to make a total of three vertical sections:
   - In the **Face Items** list, click on line item "1.1 Layout - Vertical" to select it.
   - Notice that the vertical section on the left side of the cabinet becomes selected in the preview pane.
   - Click the **Split Vertical** button to divide the stack of drawers into two smaller stacks, side by side.
4. Specify the **Item Widths** of the three vertical sections:

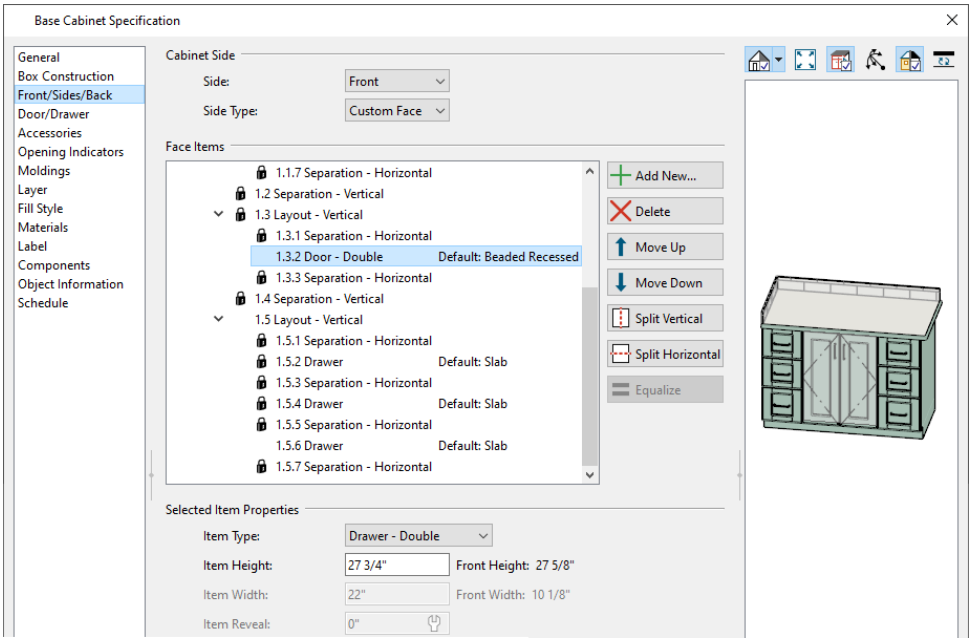


- With "1.1 Layout - Vertical" still selected, specify the **Item Width** as 10".
- Scroll down the **Face Items** list, select "1.5 Layout - Vertical" and specify its **Item Width** as 10" as well.
- Select "1.3 Layout - Vertical" in the **Face Items** list and confirm that its **Item Width** is 22".

5. Specify the **Item Widths** of the two vertical separation pieces:

- Select line item "1.2 Separation - Vertical" and specify its **Item Width** as 1/2".
- Specify the **Item Width** of "1.4 Separation - Vertical" as 1/2".

6. Replace the three drawers in the center with a door:



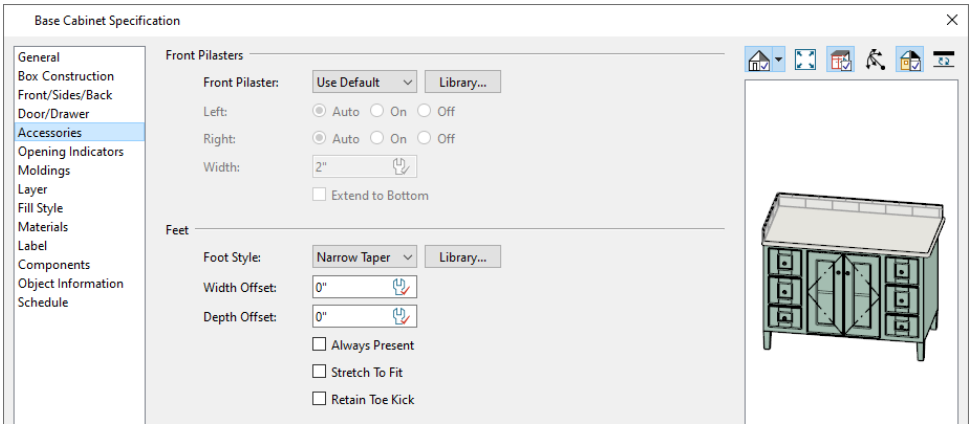
- Click on the top drawer in the middle vertical selection and click the **Delete** button.
- Delete the top drawer once more.
- Select the remaining middle drawer and specify its **Item Type** as "Door - Double".

7. On the DOOR/DRAWER panel:
   - Under the Door Handle heading, select "Knob" from the **Main Style** drop-down list.
   - Under the Drawer Handle heading, select "Knob" from the **Main Style** drop-down list.
8. Click OK to close the dialog and apply your changes.

ADDING MILLWORK

To add cabinet feet

1. Select the base cabinet in the Bath and click the **Open Object** edit button.
2. On the GENERAL panel of the Base Cabinet Specification dialog, specify the **Toe Kick Height** as 6".
3. On the ACCESSORIES panel, click the **Library** button next to **Foot Style**.
4. In the Select Library Object dialog
   - The content is filtered by **Type** so that it only lists Millwork.
   - In the Search field, type "feet" and select the Cabinet Feet **Folder** in the drop-down filter list.
   - The tree list in the Folders panel expands to show the contents of the Core Catalogs> Architectural> Millwork> "Cabinet Feet" **Folder**.
   - Select "Narrow Taper" and click OK.



5. Click OK to close the Base Cabinet Specification dialog, as well.
6. When you are finished, remember to **Save** your work.

A sink can be added to this cabinet later on. See *"To add a vanity sink" on page 283 of the Appliances and Fixtures Tutorial*.

Custom materials can be assigned to this bathroom vanity, as well. See *Applying Custom Materials on page 257*.

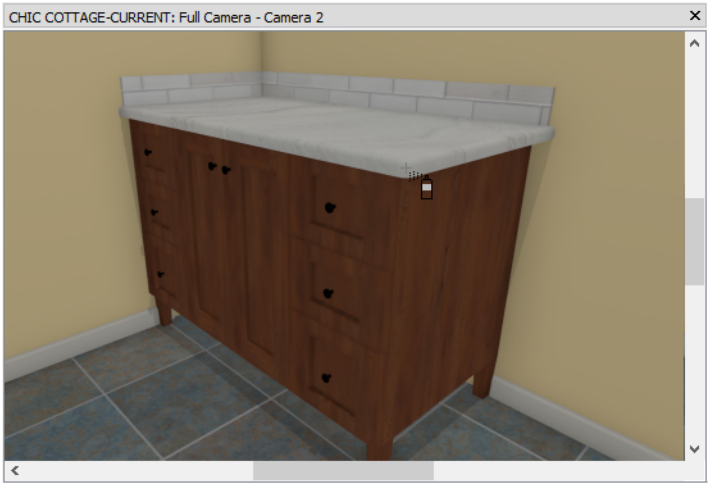
Applying Custom Materials

Customizing materials on individual cabinets is best done after doors, drawers, hardware, millwork, and moldings is have been finalized. This is because these objects use the materials set in the Material Defaults dialog by default. When applying custom finish materials to a cabinet, the Material Painter Modes can be very helpful.

To specify custom materials on cabinets

1. Create a **Camera** view inside the Bath room.
2. The space is small, but you can use the **Mouse Orbit Camera** tool to position the camera so the cabinet's various components can be seen.
3. Select **3D> Material Painter> Material Painter Object Mode**.
4. Select **3D>Material Painter> Material Painter**.
5. In the Select Material dialog, browse to Core Catalogs> Materials> Wood.
   - Choose a wood species and stain.
   - Here, "Birch - Honey" is used.

6. Click OK, then move the mouse pointer into the Wall Elevation view:



   - Notice that the mouse pointer displays a Spray Can icon.
   - When the pointer is over a surface with the "Color - Robin's Egg" material, click once to replace it with "Birch - Honey".
   - Because **Material Painter Object Mode** is active, all instances of "Color - Robin's Egg" on the cabinet are replaced.
7. When you are finished, select **File> Close View** to return to plan view and **Save** your work.

You can continue working on this plan in the *Cabinet Layout* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Cabinet Style. Then, click OK.
3. Notice that Chic Cottage-Cabinet Style is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for setting the style of the default cabinets.

To switch to a different saved plan view 238
To specify a custom door or drawer style 238
To specify cabinet hardware 239
To apply matching object properties 239

To customize a countertop *240*
To specify a backsplash *241*
To specify a counter edge profile *241*
To apply crown molding *242*
To add a light rail *244*
To customize cabinet materials *246*
To use Material Defaults *247*
To use the Set as Default tool *247*
To create a drawer base *248*
To apply a secondary door or drawer style *249*
To update cabinet Material Defaults *251*
To change cabinet box construction and overlay *253*
To create a split cabinet front *255*
To add cabinet feet *256*
To specify custom materials on cabinets *257*
To save a plan revision *258*

Assessment Questions

Tutorial 14 - Cabinet Styles

What are two ways that cabinet doors and drawers can be assigned to a cabinet?

- Cabinet doors and drawers can be assigned on the Door/Drawer panel of the Base Cabinet Specification dialog.
- They can also be assigned directly from the Library: select a door or drawer and then click on a cabinet in the drawing area.

What type of object is used to add counter edge profiles and light rails to cabinets?

- Counter edge profiles and light rails can be added to cabinets using moldings assigned on the Moldings panel of the Cabinet Specification dialog.

What option in the Cabinet Specification dialog lets you create a set of drawers next to a door?

- On the Front/Sides/Back panel, click the Split Vertical button to divide a face item into two identical items, side by side.

What does the Set as Default edit tool do?

- The Set as Default edit tool lets you apply the settings in a selected object’s specification dialog to the defaults for that type of object.

What tool lets you assign certain properties of one object to another object in the plan?

- The Match Properties edit tool lets you apply specific attributes assigned to one object to another object.

What defaults can you use to help ensure that all cabinets use the same materials?

- Assigning Material Defaults to objects like cabinets helps ensure that they use the same materials in the current plan.

Cabinet Layout

Laying out cabinets with different sizes and face items requires precision, and is made easy with snapping, bumping, and a variety of editing tools.

Learning Objectives

This lesson describes best practices in Chief Architect for placing and arranging cabinets. Concepts introduced include:

Using Plan Views *261*

Laying out Base Cabinets *261*

File Management

At this point in the design process, both the Chic Cottage-Cabinet Style and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Cabinet Style was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to lay out a cabinet design in a plan, keep in mind these tips to improve your productivity.

Drawing and Editing

- Create a single drawer base or other special cabinet and then copy it to produce any additional ones that you need.
- Use the **Center Object** edit tool to center cabinets relative to windows, other cabinets, or other objects.
- The **Reflect About Object** edit tool lets you move a cabinet to the other side of another cabinet; use with the **Copy/Paste** edit tool to create identical cabinets on either side.

Content

- Create Architectural Blocks of cabinet groupings like islands and add them to the library for future use.

Interface

- Because cabinets often have different combinations of face items, it is often helpful to design their layout in a Wall Elevation or other camera view.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects

- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When adding cabinets to a plan, there are several defaults of particular importance.

Before placing cabinets, it is a good idea to set the Cabinet Defaults so that they meet your needs. Cabinet style, construction, and materials can all be set in advance. See *"Cabinet Styles" on page 236 of the Cabinet Styles Tutorial*.

When a cabinet door, drawer, or panel is inserted into a cabinet, it inherits the default "Cabinet Door/Drawer" material set in the Material Defaults dialog for the current plan. See *"To use Material Defaults" on page 247 of the Cabinet Styles Tutorial*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

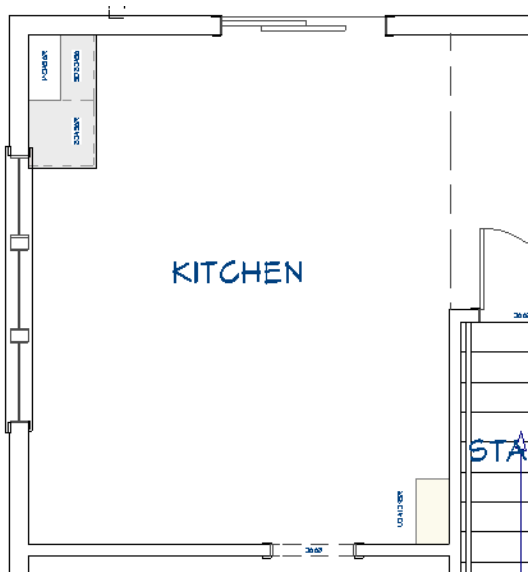
The Kitchen & Bath Plan View is ideal for adding cabinets to a plan. See *"To switch to a different saved plan view" on page 238 of the Cabinet Styles Tutorial*.

Laying out Base Cabinets

Several cabinets were placed in the *Cabinet Styles* tutorial for the purposes of setting defaults using the Set as Default edit tool. Additional cabinets can now be added to create a kitchen cabinet layout. See the *Cabinet Styles* tutorial.

To bump and push cabinets

1. Zoom in on the Kitchen area in plan view.
2. Click the **Select Objects** button, then click on the wall cabinet that was placed in the *Cabinet Styles* tutorial to select it.
3. Move your mouse pointer over the square Move edit handle located at the cabinet's center, then click and drag to move the cabinet upward towards the back wall of the structure.
   - When the selected cabinet's editing preview outline reaches the wall, it bumps into it and stops.
4. Next, click on either of the base cabinets.
5. Click and drag its Move edit handle to move the cabinet in the direction of the other cabinet.
   - When the selected cabinet's editing preview outline reaches the other cabinet, it bumps into it and stops.
6. Release the mouse button again, and then repeat the same action: click and drag the Move edit handle towards the other cabinet.
   - Notice that this time, the selected cabinet pushes the other cabinet, moving them both.
   - Drag upward until the cabinets bump into the corner of the room.



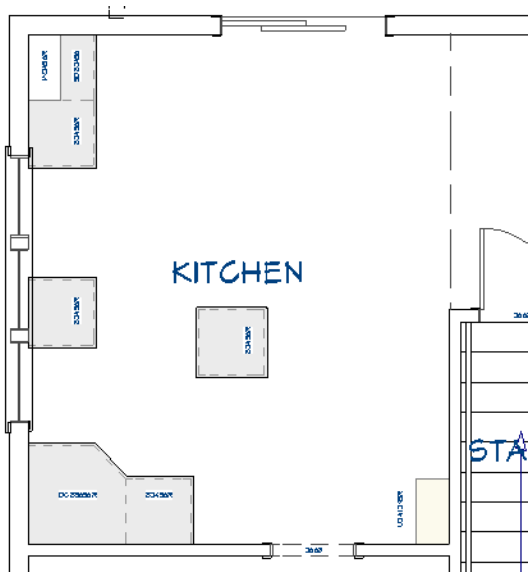
Although the defaults for cabinet style were set in the previous tutorial, some additional default settings can be set in advance of placing more cabinets to improve efficiency.

To set cabinet defaults

1. Select **Edit>Default Settings**. In the Default Settings dialog:
   - Click the arrow to the left of "Cabinets" to expand the category.
   - Select "Base Cabinet", hold down the ***Shift*** key, and then click on "Wall Cabinet" and "Full Height Cabinet" to add them to the selection set.
   - With all three default selected, click the **Edit** button.
2. On the GENERAL panel of the shared Cabinet Defaults dialog, make sure there is a check mark beside **Diagonal Door** and click OK.

To place base cabinets

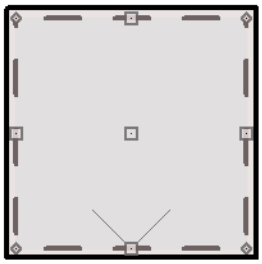
1. Select **Build> Cabinet> Base Cabinet**, then click to place a base cabinet along the left vertical wall in the kitchen, in front of the middle window. Notice that its back snaps to the wall surface automatically.
2. Move the mouse pointer in front of the new cabinet and notice the preview:
   - When the pointer is close to the new cabinet, the cabinet preview is oriented in the same direction as the existing cabinet.
   - As you move further way, the preview is oriented so its front faces down on-screen.
3. Click to place another base cabinet in the middle of the room: either orientation is fine.
4. Move the mouse pointer into the bottom left corner of the Kitchen room and notice that the shape of the cabinet preview outline changes. Click to place a corner cabinet.
5. Place one more cabinet along the wall separating the Kitchen from the Dining room, just to the right of the corner cabinet.



Often, the base cabinet located under a window is wider than average to accommodate a sink.

To resize a cabinet

1. A cabinet can be selected in several ways:
   - Click on it while the **Select Objects** tool is active.
   - Click on it while the **Cabinet Tool** used to create it is active.
   - Right-click on it when any tool is active.
2. Select the cabinet under the window, and notice that edit handles and a front indicator display.



3. Move your mouse pointer over its various edit handles. The arrow that displays indicates what function that handle performs, as does the Status Bar.
4. Click and drag one of the cabinet's horizontal sides to adjust its width.
   - As you drag, notice the Temporary Dimension that reports its width changes in 3" increments. Cabinets resize in this manner to conform to standard cabinet sizes.
   - Notice that its label updates as well. When it is 24" wide, the label is B24R; when it is 27" wide, it becomes B27R.
   - Do not release the mouse button. Instead, press the Esc key to restore the cabinet to its original size.
5. Click the **Open Object** edit button and on the GENERAL panel of the Base Cabinet Specification dialog, specify the **Width** as 30" and click OK.
6. Specify the other base cabinet along the left vertical wall that is not in a corner as 30" wide, as well.

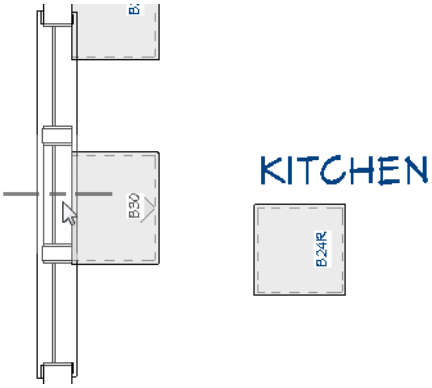
7. Using either its edit handles or specification dialog, make the cabinet next to the diagonal-front corner cabinet 18" in width.



When a cabinet is located under a window, it is typically centered on it.

To center a cabinet

1. With the base cabinet still selected, click the **Center Objects** edit button.
2. Move your mouse pointer over the middle window.
3. When a dashed horizontal centering axis displays in the window, click once.



While default cabinets are easily placed using the Base Cabinet tool, special cabinets like the drawer base take some time to create. When more than one is needed, though, it can be copied and pasted. The drawer base in this plan can be distinguished in plan view by its label; however, it is much easier to see in a Wall Elevation view.

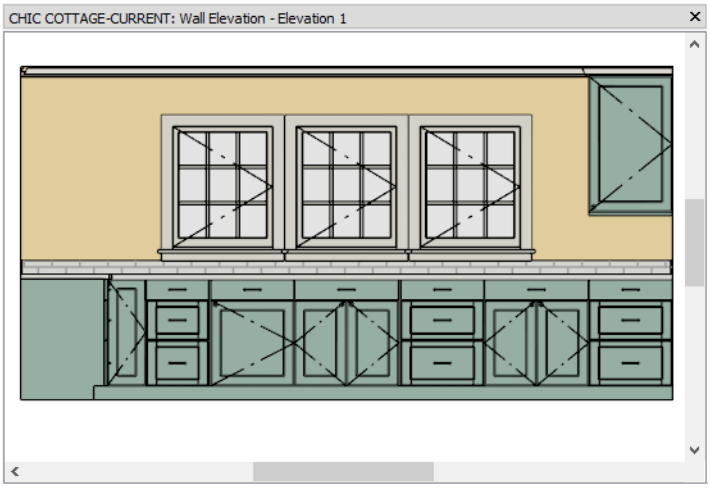
To copy and paste cabinets

1. Select **3D> Create Orthographic View> Wall Elevation**, then click and drag a camera arrow in the Kitchen room, pointed towards the left vertical wall. Click to the left of the cabinet in the middle of the room and be sure to draw the camera arrow perfectly horizontal.
2. Select the drawer base on the right, click the **Copy/Paste** edit button, then click the **Sticky Mode** edit button.

3. Click the **Reflect About Object** edit button, then:



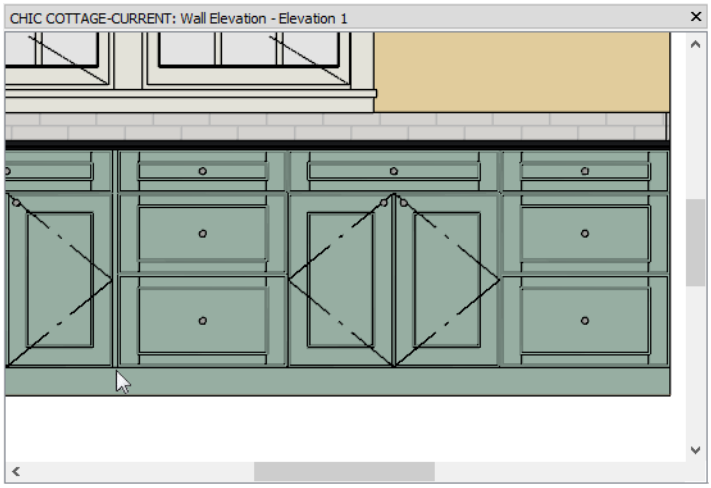
   - Move your mouse pointer over the 2-door cabinet to its left.
   - When a dashed vertical reflection axis displays, click once.
   - A copy of the original drawer base is created on the other side of the door base.
4. With the newly pasted drawer base selected, click the **Reflect About Object** edit button.
5. Move your mouse pointer over the 2-door sink base cabinet to its left.
   - When a dashed vertical reflection axis displays, click once.
   - Another copy of the drawer base is created on the left side of the sink base.
6. Click **Main Edit Mode** to get out of Sticky Mode but leave the new cabinet selected.
7. Resize the selected drawer base to a **Width** of 18", then click and drag it to the left until it bumps into the corner cabinet.
8. To finish the layout, select **Build> Cabinet> Base Cabinet** and click to place a cabinet in the gap between the sink base and the drawer base to its left.



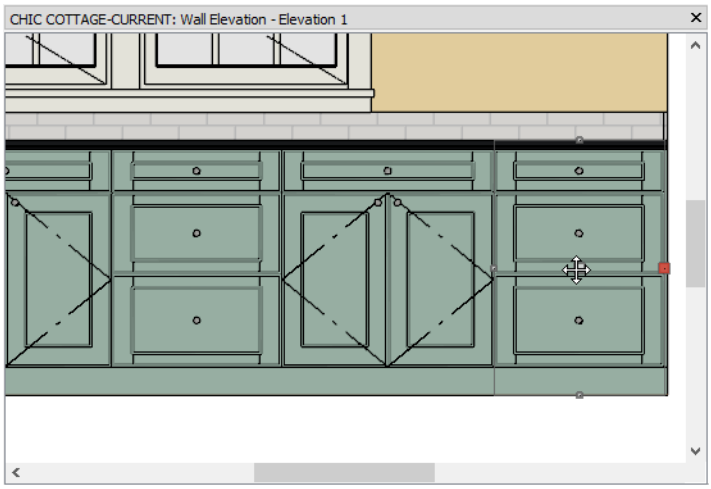
Small gaps between cabinets or between cabinets and walls are filled in with fillers automatically.

To control module lines and filler locations

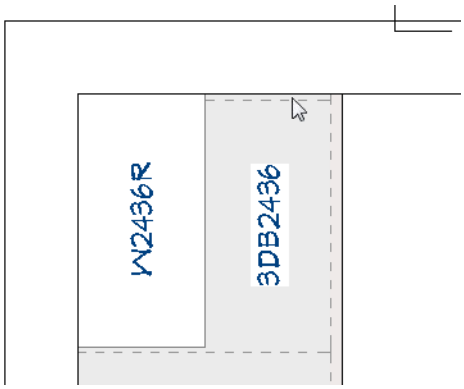
1. **Zoom** in on the right half of the Kitchen room and notice that the partition between the sink base and the drawer base to its right is wider than the others.



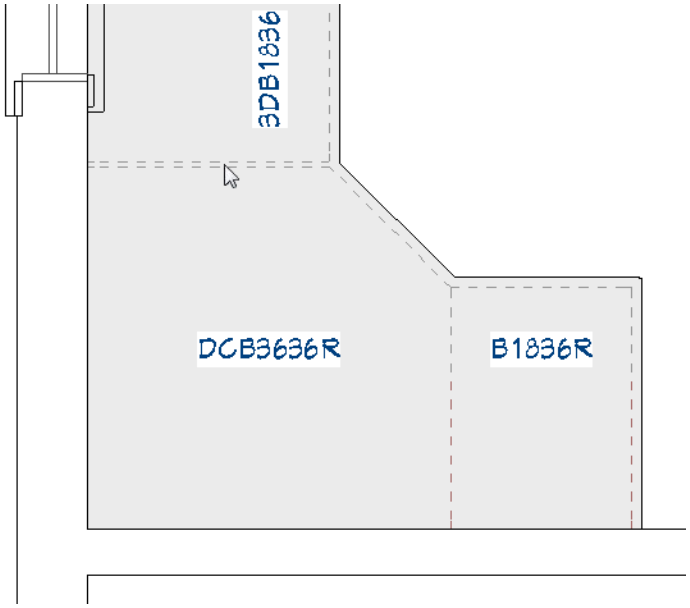
2. Click the **Select Objects** button, then click on the drawer bank on the right to select it.
3. Click the cabinet's Move edit handle and drag slowly to the left.



- When you see the cabinet and two cabinets to its left shift and bump against the sink base cabinet, release the mouse button.
- Notice that the wider than average separation now is located on the far right, next to the wall.
- Select **File> Close View** to return to plan view and **Zoom** in on the top left corner of the Kitchen. Note that cabinet fillers can also be seen in plan view.



4. If it is not already open, select **View> Active Layer Display Options**. In the Active Layer Display Options side window:
   - Locate the "Cabinets, Module Lines" layer in the list.
   - Click in the Display column for this layer to remove the check mark.
   - Click OK and notice that the dashed lines representing the sides of base cabinet boxes no longer display.
5. Select **Edit> Undo** to turn the display of the "Cabinets, Module Lines" layer on again.
6. Pan down to the bottom left corner of the kitchen:
   - Select **Window> Pan Window** or click and hold the middle mouse button.
   - Drag the mouse pointer in an upward direction, then release the mouse button when the lower left corner of the Kitchen comes into view.
7. Select the drawer base located against the left vertical wall, next to the corner cabinet.
8. Click the cabinet's Move edit handle and drag slowly upward.
   - When you see the cabinet and the one to its right shift and bump against the sink base, release the mouse button.
   - Notice that there is a wider than average separation between the corner cabinet and the drawer base.



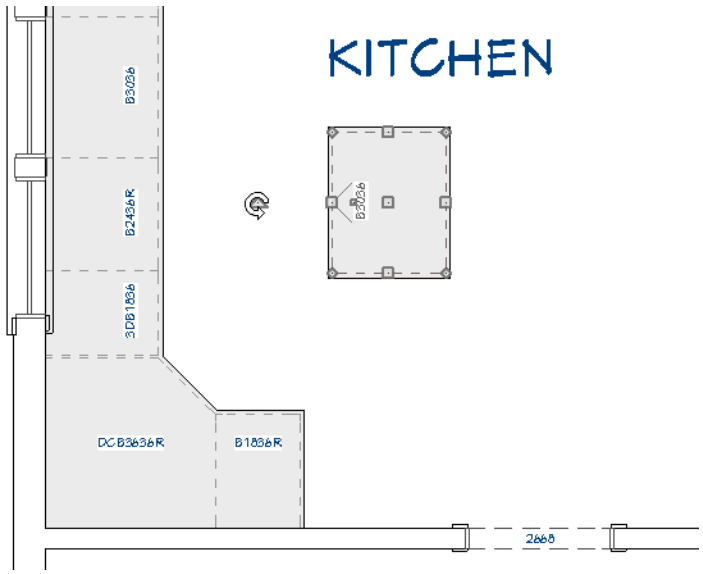
9. When you are finished, **Save** your work.

Creating a Kitchen Island

Kitchen islands can have a wide variety of cabinet configurations and styles.

To create a cabinet island

1. Click the **Select Objects** button, then click on the base cabinet located in the middle of the kitchen to select it.
2. Using either its edit handles or its specification dialog, increase its **Width** to 30".
3. With the cabinet still selected, rotate it so it faces to the left:



   - Move your mouse pointer over the triangular Rotate edit handle.
   - Click and drag in a circular motion until the cabinet has rotated 180°, then release the mouse button.
   - With the cabinet still selected:
4. Place 18" wide drawer bases on both sides of the island cabinet:
   - Select the drawer base located on either side of the corner cabinet
   - Click the **Copy/Paste** edit button, then click the **Sticky Mode** edit button.
   - Click once on each side of the island cabinet.
   - Notice that the pasted drawer bases are oriented in the same direction as the cabinet that they are placed beside.
   - Click **Main Edit Mode** to get out of Sticky Mode but leave the new cabinet selected.
5. Select the three island cabinets as a group:
   - With one of the drawer bases still selected, hold down the ***Shift*** key.
   - Click on each of the other island cabinets to add them to the selection set.
   - The total number of selected objects is stated on the left side of the Status Bar.
6. Click the **Open Object** edit button. On the GENERAL panel of the Base Cabinet Specification dialog, under the Countertop heading:
   - Uncheck the box beside **Uniform**.
   - Specify the **Back** as 0".
   - Increase the Backsplash **Height** to 6" and check the box beside **Always Present**.
   - Notice that the Active Defaults icon in the edited text field lose their check mark. This means these values are not using Dynamic Defaults.

7. Still on the GENERAL panel, uncheck the box beside **Backsplash**, then click OK.
8. With the three cabinets still group-selected, center the island on the side of the sink base:



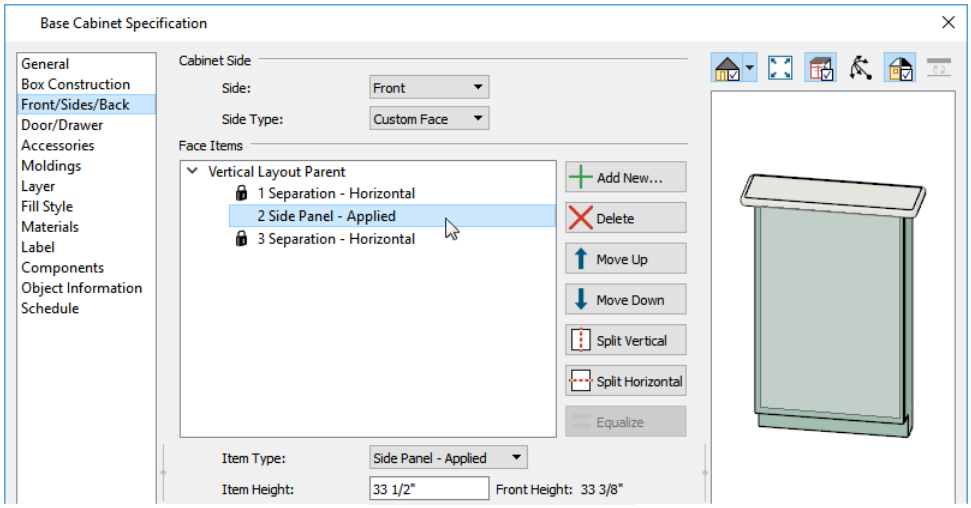
- Click the **Center Object** edit button and move your mouse pointer over the top horizontal edge of the sink base.
- When a dashed horizontal centering axis displays along the edge of the sink base, click once to center the grouped kitchen island cabinets relative to that edge.

9. At this point, you may find it helpful to move the Kitchen room label. See *"To control the display of room labels" on page 36 of the Interior Walls Tutorial*.

Using a number of the techniques introduced in the *Cabinet Styles* tutorial, a base cabinet can also be modified to serve as the support for a breakfast bar.

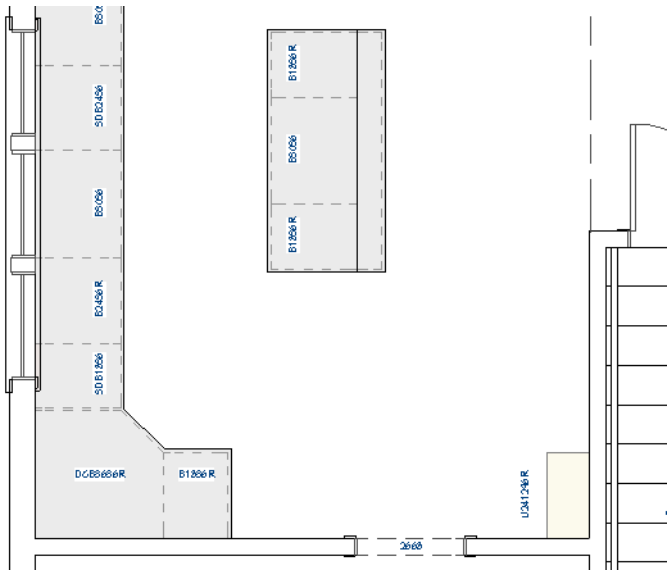
To add a breakfast bar

1. Select **Build> Cabinet> Base Cabinet**, then click to place a base cabinet at the back of the island cabinets.
2. Select the new cabinet and click the **Open Object** edit button.
3. On the GENERAL panel of the Base Cabinet Specification dialog, specify the **Height** as 42" and the **Depth** as 7".
4. On the FRONT/SIDES/BACK panel:



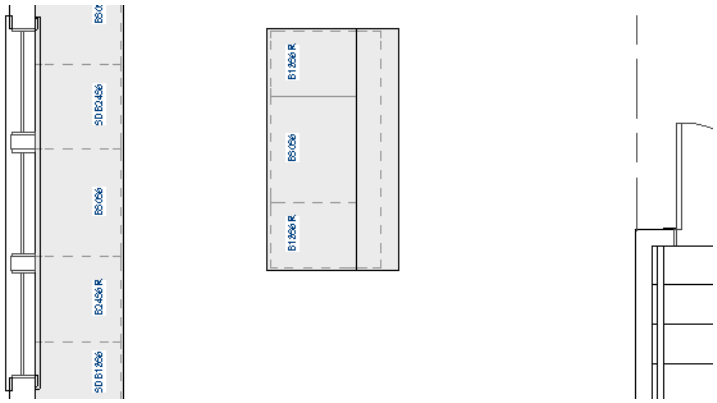
- Select the drawer and click the **Delete** button.
- Select the door and specify its **Item Type** as "Side Panel - Applied".

5. On the ACCESSORIES panel, click the **Library** button next to **Panel Style**.
6. In the Select Library Object dialog, browse to Core Catalogs> Architectural> Cabinet Doors, Drawers & Panels> Doors, select the "Beaded Beadboard Door" panel and click OK.
7. On the LABEL panel, check the box beside **Suppress Label** and click OK.
8. Using the edit handles, snap each side of the cabinet to the sides of the drawer bases so that its Width equals the total width of the other three island cabinets.



To create a custom countertop

1. With the back cabinet still selected, click the **Generate Custom Countertop** edit button.
2. Click on the right vertical edge of the countertop polyline to select it, then:
   - Click on the Temporary Dimension that reports the overhang distance from the selected edge to the cabinet box.
   - You may need to **Zoom** in on this dimension in order to click on it.
   - In the inline text field, type 12" and press the ***Enter*** key.



Custom Countertops can be edited into a wide variety of custom shapes. For more information, visit chiefarchitect.com.

Like furnishings, cabinets can be blocked together into a single unit. See *"Using Architectural Blocks" on page 230 of the Interior Furnishings Tutorial*.

To create an architectural block

1. **Zoom** out so that the entire kitchen island can be seen.
2. Click the **Select Objects** button, then click on the Kitchen room label to select it.
3. Hold down the ***Shift*** key, then click and drag to draw a rectangular selection marquee around the island.
   - When you release the mouse button, the four cabinets and the Custom Countertop will become selected, while the room label will become deselected.
   - The total number of selected objects will be stated on the left side of the Status Bar.
4. With the five objects that make up the island selected, click the **Make Architectural Block** edit button.
5. When you are finished, remember to **Save** your work.

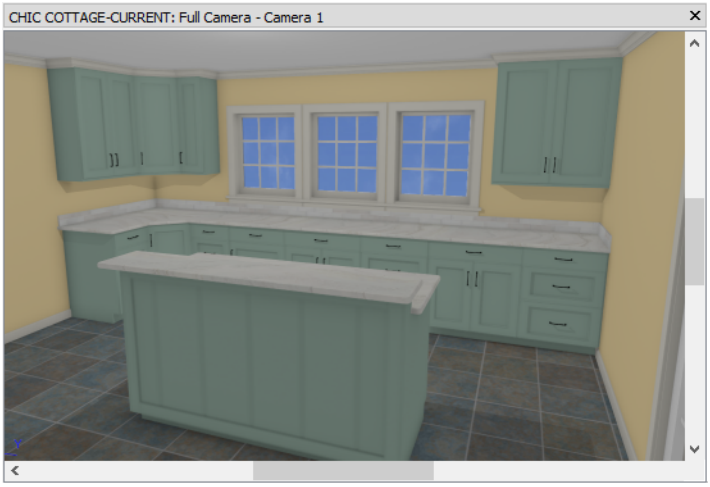
Adding Wall Cabinets and Soffits

Wall cabinets and soffits can be added in much the same manner as base cabinets.

A wall cabinet was placed in the *Cabinet Styles* tutorial for the purposes of setting defaults using the Set as Default edit tool. Additional wall cabinets can now be placed. See *Cabinet Styles on page 236*.

To place and edit wall cabinets

1. Select **Build> Cabinet> Wall Cabinet**.
2. Move the mouse pointer into the lower left corner of the Kitchen, and when the preview outline changes from a standard rectangular to a corner cabinet shape, click once.
3. Click once on either side of the corner cabinet to create a wall cabinet on the left vertical wall, and one on the horizontal wall separating the Kitchen from the Dining room.
4. Select the wall cabinet in the upper left corner of the Kitchen and:
   - Move it into the corner using its Move edit handle.
   - Resize it to 36" in width.
5. Select the wall cabinet between the corner cabinet and the windows and resize it to 12" in width.
6. Select the wall cabinet on the right side of the corner cabinet and resize it to 30" in width.
7. Create a **Camera** view of the Kitchen to see the results.



Once a refrigerator is placed, an additional wall cabinet can be added over it. See *To add a wall cabinet over a refrigerator on page 280*.

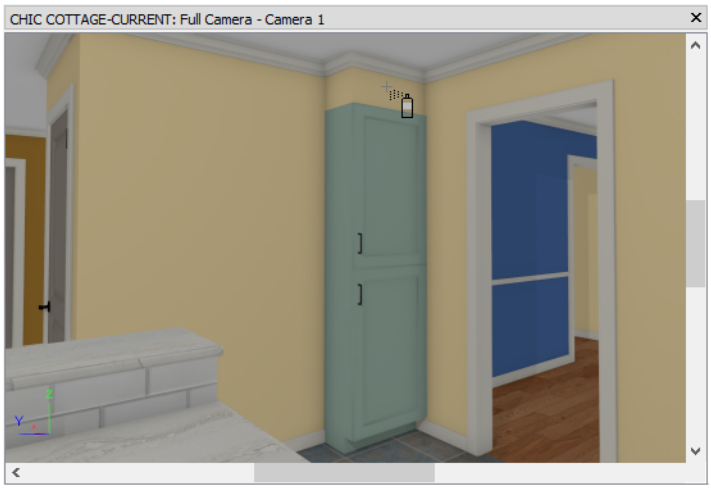
The Soffit tool is a versatile tool that can be used for a wide variety of applications, but its primary purpose is to fill in gaps between wall and full height cabinets and the ceiling. In Chic Cottage, the wall cabinets are positioned so that their crown molding reaches the ceiling. Rather than use a full height cabinet with a custom height to do the same thing, a standard height cabinet can be used, and the space above filled with a soffit.

To set the soffit defaults

1. Click the **Select Objects** button, then click on the full height cabinet in the Kitchen to select it and click the **Open Object** edit button.
2. On the GENERAL panel of the Full Height Cabinet Specification dialog, specify the **Height** as 84".
3. On the MOLDINGS panel, select the "CM02 - Crown Molding", click the **Delete** button, and then click OK.
4. Select **Edit> Default Settings** , and in the Default Settings dialog, click the arrow next to "Cabinets" to expand the category, select "Soffit" and click the **Edit** button.
5. On the GENERAL panel of the Soffit Defaults dialog, specify the **Width** as 24", the **Height** as 12", the **Depth** as 12", and the **Floor to Bottom** value as 84". Then, click OK.

To place soffits

1. Select **Build> Cabinet> Soffit** then click above the full height cabinet in the Kitchen to place a soffit above it.
2. Create a Camera view in the Kitchen, pointed towards the wall cabinet.
3. Notice that the room's crown molding wraps around the soffit automatically.
4. Use the **Material Eyedropper** to assign the "Color - Butter" material on the Kitchen walls to the soffit so they match.



5. Select **File> Close View** to return to plan view, and remember to **Save** your work.

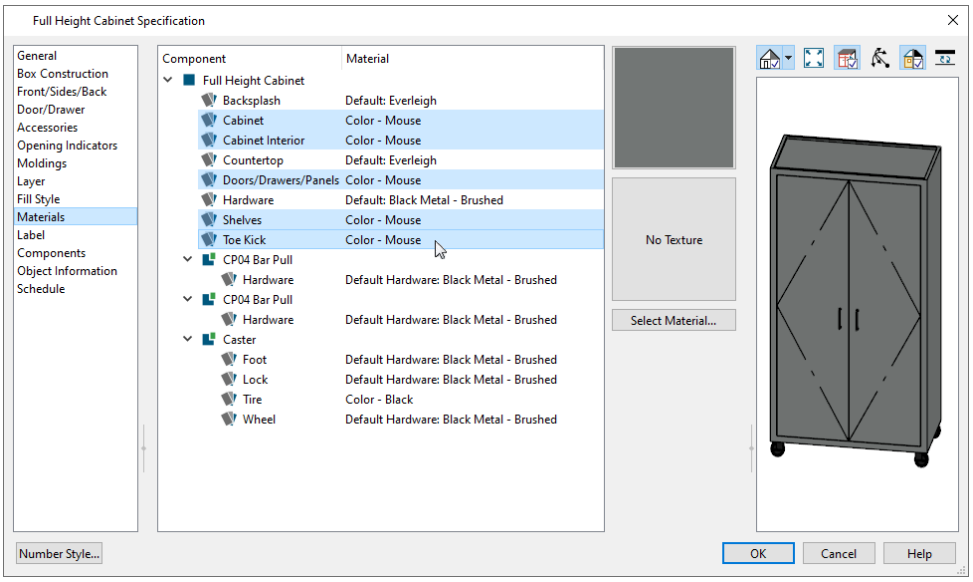
PLACING FULL HEIGHT CABINETS

A full height cabinet was placed in the *Cabinet Styles* tutorial for the purposes of setting defaults using the Set as Default edit tool.

To place and edit full height cabinets

1. Select **Build> Cabinet> Full Height**, then click along the back horizontal wall of the Garage to place a cabinet at that location.

2. Select the cabinet and click the **Open Object** edit button.
3. On the GENERAL panel, specify the **Width** as 36", the **Height** as 72", and the **Depth** as 18".
4. On the BOX CONSTRUCTION panel, click the radio buttons beside **Framed** and **Inset**.
5. On the FRONT/SIDES/BACK panel:
   - Select the upper door and click the **Delete** button.
   - Notice that it is replaced by an "Opening" item with shelves. **Delete** it as well.
6. On the DOOR/DRAWER panel:
   - Select "Slab" from the **Door Style** drop-down list.
   - Select "Pull Vertical" from the Door Handle **Main Style** drop-down list.
   - Specify the **Horizontal Position Distance From Edge** value as 2".
7. On the ACCESSORIES panel:
   - Specify "Caster" as the **Foot Style**.
   - Check the box beside **Always Present**.
   - See *"To add cabinet feet" on page 256 of the Cabinet Styles Tutorial*.
8. On the MOLDINGS panel, select the crown molding and click the **Delete** button.
9. On the MATERIALS panel, assign the "Color - Mouse" material to the following components: Cabinet, Doors/Drawers/Panels, and Shelves.



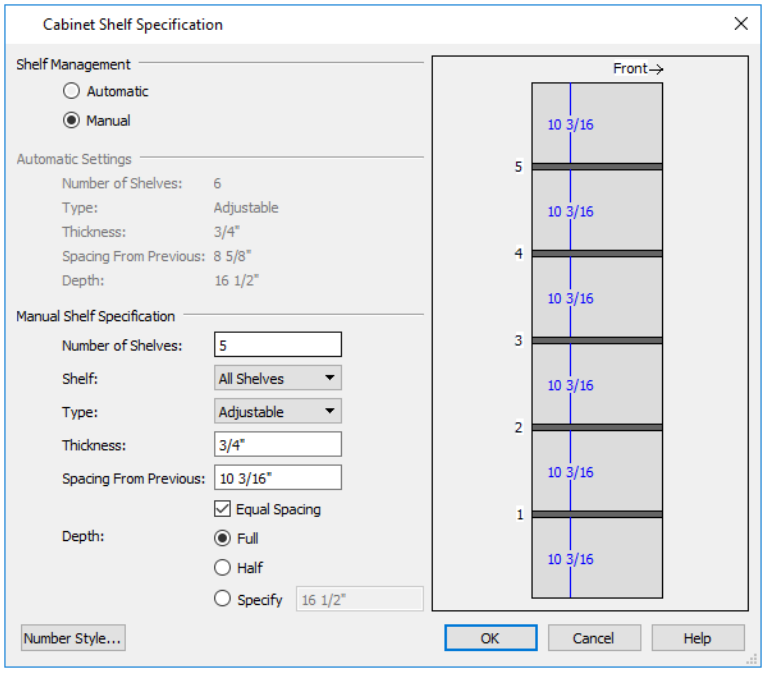
10. Click OK to close the dialog and apply your changes.

The shelves in all Door and Opening cabinet face items are adjustable.

To adjust cabinet shelves

1. With the full height cabinet still selected, click the **Open Object** edit button to open the Full Height Cabinet Specification dialog again.
2. On the FRONT/SIDES/BACK panel:
   - Select the Door face item.
   - Click the **Specify** button to the right of the **Shelves** label.

3. In the Cabinet Shelf Specification dialog:



   - Click the radio button beside **Manual**.
   - Specify the **Number of Shelves** as 5, then click OK.
4. Click OK to close the Full Height Cabinet Specification dialog and apply your change.
5. Remember to **Save** your work.

Creating Schedules

Like doors, windows, and furnishings, cabinets can be listed in dynamic, customizable schedules. See *"Creating Schedules" on page 98 of the Doors and Windows Tutorial* and *"Creating a Schedule" on page 232 of the Interior Furnishings Tutorial*.

See, too, *"To change schedule numbering" on page 122 of the Decks and Porches Tutorial*.

Adding Annotations

With cabinets in place, annotations can be added. The Kitchen and Bath Plan View is active, so "Kitchen and Bath Text Defaults" are in use. See *"To switch to a different saved plan view" on page 238 of the Cabinet Styles Tutorial*.

Kitchen and bath views are often printed at a larger scale than other types of views, but their annotations should still be consistent in size with annotations in other views.

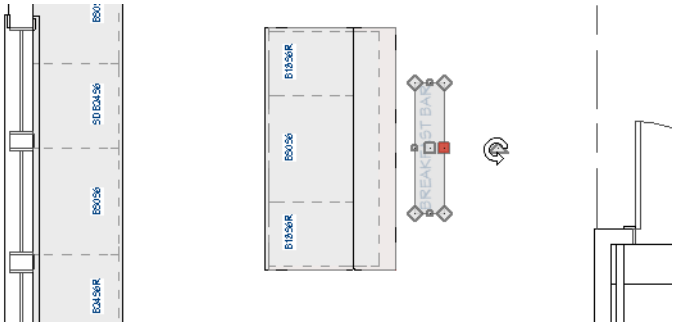
To set the rich text defaults

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** .
2. Right-click on "Kitchen and Bath Plan View" and select **Edit View** from the contextual menu.
3. On the Selected Defaults panel of the Saved Plan View Specification dialog, click the **Edit** button to the right of **Rich Text** to open the Rich Text Defaults dialog.

4. In the Rich Text Defaults dialog, notice that "Kitchen and Bath Rich Text Defaults" is stated in the dialog box's title bar.
5. On the RICH TEXT panel:
   - Click the **Uppercase** Aa button.
   - Notice that the character size is set at 3" and recall that in the "Roof Rich Text Defaults", the character size is 6". See *"To set the rich text defaults" on page 172 of the Dormers Tutorial*.
   - Click the **Print Size** button to open the Print Size Calculator dialog. At a printed scale of 1/4" = 1', a capital A will be 1/16" tall when printed, whereas in the "Roof Rich Text Defaults" it will be 1/8" tall when printed.
   - Change the Printed Scale to 1/2" = 1', then change the Desired Print Size to 1/8" and notice that at this scale, 3" character size will produce the same size printed text as the "Roof Rich Text Defaults".
6. On the APPEARANCE panel, note that Rich Text is placed on the "Text, Kitchen & Bath" layer by default when this Saved Default is active.
7. Click OK and then Done to close all dialogs and apply your changes.

To add Rich Text cabinet annotations

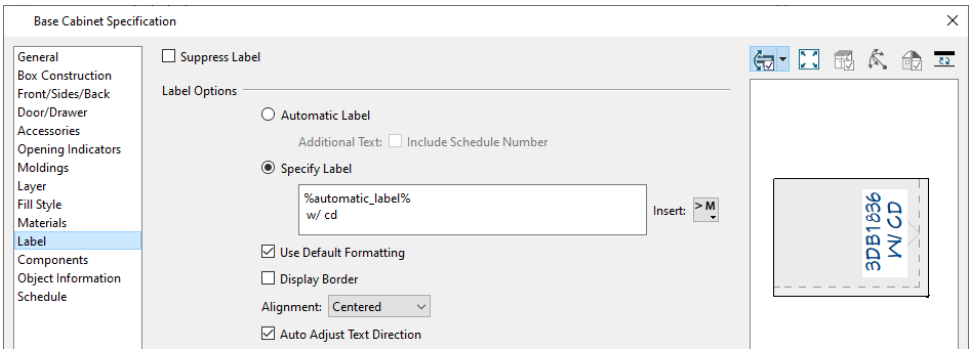
1. Select **CAD> Text> Rich Text**, then click near right side of the Kitchen island.
2. In the Rich Text Specification dialog:
   - In the text field, type the following: breakfast bar.
   - Click OK to close the dialog and create a Rich Text object.
3. Click on the newly created text object to select it, then click and drag its triangular Rotate edit handle to rotate it 90° to the left.



4. Move it so that is next to the edge of the breakfast bar countertop.

To customize a cabinet label

1. Select the 3DB18 base cabinet located next to the corner cabinet and click the **Open Object** edit button.
2. On the LABEL panel of the Base Cabinet Specification dialog:



   - Select the **Specify Label** radio button and delete the label text.
   - Click the **Insert Macro** button, browse to Object Specific in the menu, and select "Automatic Label".
   - Press the ***Enter*** key to wrap to a second line and type "w/ cd" to indicate a cutlery drawer.
   - Select "Centered" from the **Alignment** drop-down list.
   - When you are satisfied with the label's appearance, click OK.
3. When you are finished, remember to **Save** your work.

Cabinet floor plans often have key notes. Notes created in the Kitchen & Bath Plan View use "Kitchen and Bath Note Defaults" and are placed on the "Text, Kitchen & Bath" layer. See *"To add plan notes" on page 79 of the Interior Stairs Tutorial*.

You can continue working on this plan in the *Appliances and Fixtures* tutorial.

CREATING REVISIONS

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Cabinets. Then, click OK.
3. Notice that Chic Cottage-Cabinets is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

REVIEW

This lesson describes the best practices for placing cabinets. It also discussed the important default settings associated with cabinets.

Assessment Questions

Tutorial 15 - Cabinet Layout

What edit tool can be used to align a cabinet with another object, such as a window?

- Use the Center Object edit tool to center objects like cabinets relative to windows, other cabinets, or other objects.

What two edit tools can be used to create identical cabinets on either side of cabinet?

- The Reflect About Object edit tool lets you move a cabinet to the other side of another cabinet; use with the Copy/Paste edit tool to create identical cabinets on either side.

How do you remove the dashed lines between cabinet boxes in plan view?

- Turn off the display of the "Cabinets, Module Lines" layer in the current plan view.

What tool allows you to create a counter that is independent of any base cabinet?

- The Generate Custom Countertop edit tool creates an independent custom countertop over a selected cabinet.

What tool can be used to create an island that can be selected and edited like a single object?

- The Make Architectural Block edit tool groups a set of selected object into an architectural block which can be moved, rotated, or deleted as a single object.

What is the primary purpose of the Soffit tool?

- The Soffit tool is meant to be used to fill in the space between wall or full height cabinets and the ceiling.

Appliances and Fixtures

Along with cabinets, fixtures and appliances are essential to kitchen and bath layouts.

Learning Objectives

This lesson describes best practices in Chief Architect for placing appliances and fixtures. Concepts introduced include:

File Management *278*

Productivity Tips *278*

Setting the Defaults *278*

Using Plan Views *279*

Placing Appliances *279*

Placing Fixtures *282*

Editing Appliances and Fixtures *286*

Creating a Kitchen Elevation *286*

Creating Schedules *290*

Adding Annotations *292*

Creating Revisions *297*

File Management

At this point in the design process, both the Chic Cottage-Cabinets and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Cabinets was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to place appliances in a plan, keep in mind these tips to improve your productivity.

Drawing and Editing

- Use the **Center Object** edit tool to center cabinets relative to windows, other cabinets, or other objects.
- The **Reflect About Object** edit tool lets you move a cabinet to the other side of another cabinet; use with the **Copy/Paste** edit tool to create identical cabinets on either side.

Content

- A wide selection of name brand appliances are available for download from the Chief Architect 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.
- Create Architectural Blocks of cabinet groupings like cooktop islands and add them to the library for future use.

Interface

- Because appliances are often placed in or beside cabinets, it is often helpful to design their layout in a Wall Elevation or other camera view.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Ctrl/⌘ + L*** - Library Browser
- ***Spacebar*** - Select Objects
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When placing symbols from the Library, the settings in the Material Defaults dialog can be helpful.

Some appliances in the library have been assigned particular materials because those are the standard for that particular item, and they initially use those materials regardless of the overall style of the plans they are placed into. Some appliances, however, are available in multiple finishes and are set up inherit the default appliance materials that can set differently for each plan in the Material Defaults dialog.

When adding fixtures and appliances to a plan, it is helpful to set the Material Defaults for "Appliances", "Appliance Trim", "Fixtures, and "Fixture Trim".

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

The Kitchen and Bath Plan View is ideal for adding cabinets to a plan and will work well for appliances as well. See *"Using Plan Views" on page 237 of the Cabinet Styles Tutorial*.

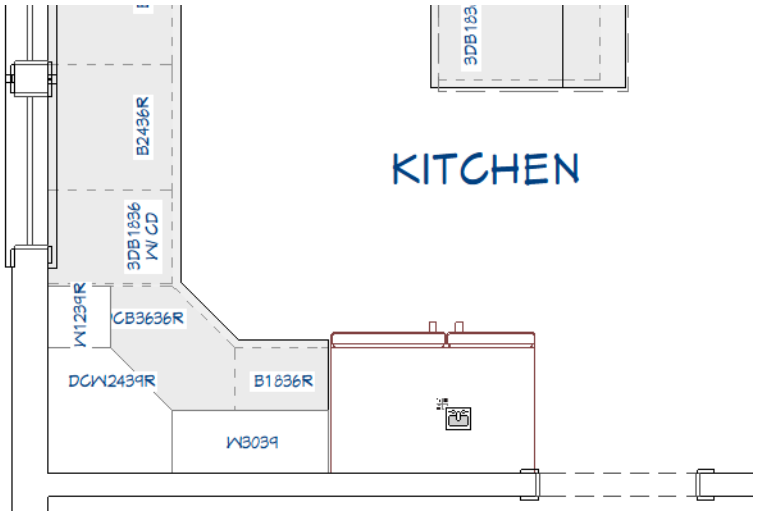
Placing Appliances

Unlike objects like cabinets that have drawing tools, appliances and fixtures are symbol objects that are placed into plans from the Library. As such, they do not have default settings.

Appliances fall into two basic categories: freestanding and built-in.

To place freestanding appliances

1. If it is not already open, select **View> Library Browser** to open the Library Browser.
2. In the Core Catalogs, browse to Architectural> Appliances> Refrigerators.
   - There are a variety of refrigerator types to choose from.
   - Here, the "Counter-depth Side-by-Side Refrigerator" in the "Side-by-Side" **Folder** is used.
3. Select a Bottom Mount Refrigerator, then click along the wall separating the Kitchen from the Dining room to place a refrigerator next to the cabinets.



4. Now is a good time to specify a final position for the doorway to the Dining room:
   - Click on the doorway to select it.
   - Click on the Temporary Dimension that reports how far the doorway is from the vertical wall on the right.
   - In the inline text field, type 18" and press the ***Enter*** key.

With a refrigerator in place, a cabinet can be added over its top.

To add a wall cabinet over a refrigerator

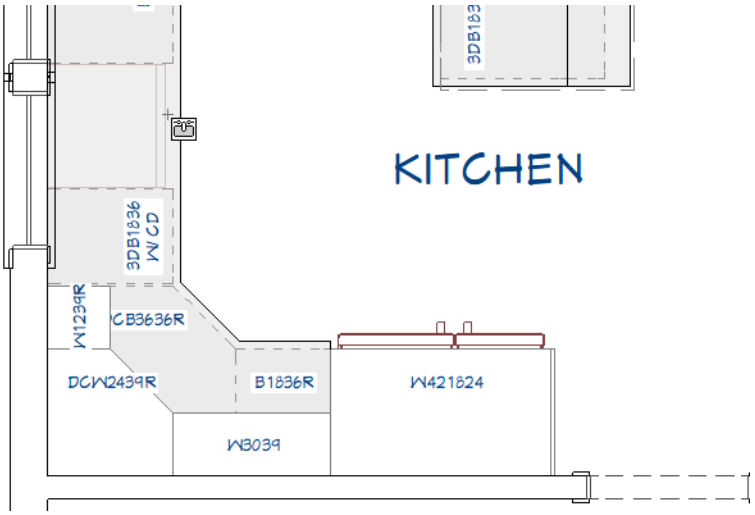
1. Select **Build> Cabinet> Wall Cabinet**, then click at the back of the refrigerator to place a cabinet over this appliance symbol.
2. Click on the new wall cabinet to select it, then click the **Open Object** edit button. On the GENERAL panel of the Wall Cabinet Specification dialog:
   - Notice that the Height value is 23 1/8". This is because when the cabinet was placed, its bottom height automatically adjusted to meet the top of the appliance fixture below.
   - Change the **Height** to a more standard 18".
   - Adjust the **Ceiling to Top** value to 2 3/4".
   - Change the **Width** to 42" and the **Depth** to 24".
3. **Zoom** in on the right side of the refrigerator.
4. Select **Build> Cabinet> Partition**, then click to the right of the refrigerator to place a vertical partition at that location.
5. Select the Partition and snap it to the edge of the wall cabinet:
   - Click the **Point to Point Move** edit button.
   - Move the mouse pointer over the Partition's lower left corner. When the **Endpoint** Snap Indicator displays, click once.
   - Move the mouse pointer over the lower right corner of the wall cabinet. When the **Endpoint** Snap Indicator displays, click once.
6. Click and drag the Move edit handle on front edge up until it snaps to the front edge of the wall cabinet.
7. With the Partition still selected, click the **Open Object** edit button. On the GENERAL panel of the Partition Specification dialog, specify its **Height**:
   - Type 95 5/8", which is the room's Finished Floor Height.
   - After this value type - 2 3/4" to create room for crown molding. See *To apply crown molding on page 242*.
   - Press the ***Tab*** key and note that the final value is 92 7/8".
   - Specify the **Finished Floor to Bottom** as 0".
8. On the MOLDINGS panel, assign the "CM02 - Crown Molding" to the Partition and specify the same size and offset as used by wall cabinets:
   - Make sure that **Retain Aspect Ratio** is checked and change the **Height** to 3".
   - Specify the **Vertical Offset** as -2 3/4".
   - Click OK.

A freestanding appliance can also be placed under base cabinet countertops.

To place undercounter appliances

1. To begin, **Delete** the 24" base cabinet next to the drawer base with "w/ cd" added to its label to denote a cutlery drawer.
2. In the Folders panel of the **Library Browser**, browse to Core Catalogs> Architectural> Appliances> Dishwashers.
3. Select a dishwasher for placement, and move your mouse pointer into the drawing area. Notice that the pointer displays the Fixtures icon.

4. Click once in the 24" gap between the base cabinets to place a dishwasher at that location. Notice:



   - The dishwasher automatically snaps to the wall.
   - The adjacent base cabinets' countertops automatically extend over the dishwasher.
5. Click on the dishwasher to select it and press the ***Right Arrow*** key once or twice to bring its front closer to the cabinets' front.

Like furnishings, Appliances and cabinets can be blocked together to form a single unit. See *"Using Architectural Blocks" on page 230 of the Interior Furnishings Tutorial*.

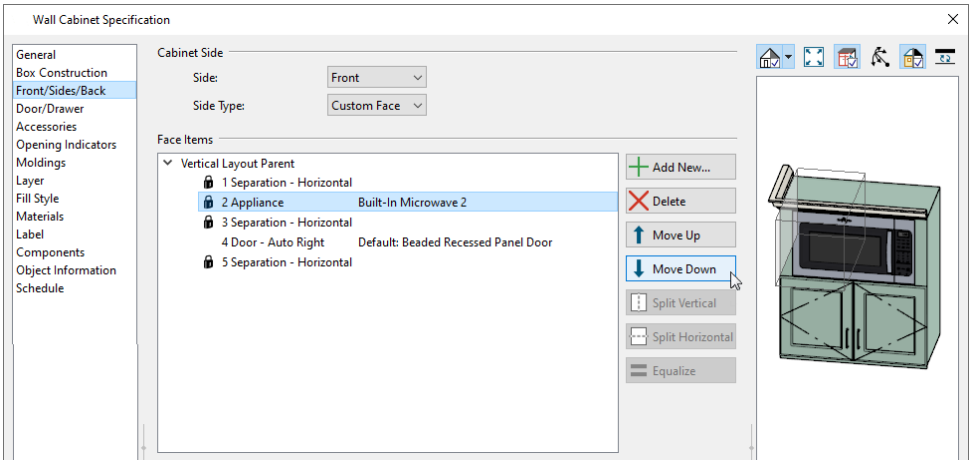
To modify an architectural block

1. Click the **Select Objects** button, then click on the kitchen island Architectural Block to select it.
2. Click the **Explode Architectural Block** edit button to break the block into its component objects.
3. Select the topmost 18" wide cabinet in the island group and press the ***Up Arrow*** key twice to move it upward 2".
4. Select the 30" wide middle cabinet and **Delete** it.
5. In the **Library Browser**, browse to Core Catalogs> Appliances> Ranges> Electric and Induction Ranges and select the "Flat Top Range - Integrated".
6. Move the mouse pointer into the space left by the deleted cabinet and click once to place the range.
7. In the **Library Browser**, browse to Core Catalogs, browse to Architectural> Appliances>Hoods> Large, select the "Glass Island Hood", and place it in front of the island.
   - Click on the hood to select it, then move over the island using its edit handle.
   - If necessary, Rotate it so it faces the same direction as the range.
   - Use the **Center Objects** edit tool to center the hood over the range. See *"To center a cabinet" on page 264 of the Cabinet Layout Tutorial*.
8. Resize the breakfast bar support and countertop to match the new size of the island using their edit handles.
9. Group-select the appliances and cabinets that make up the island and click the **Make Architectural Block** edit button. See *"To create an architectural block" on page 271 of the Cabinet Layout Tutorial*.

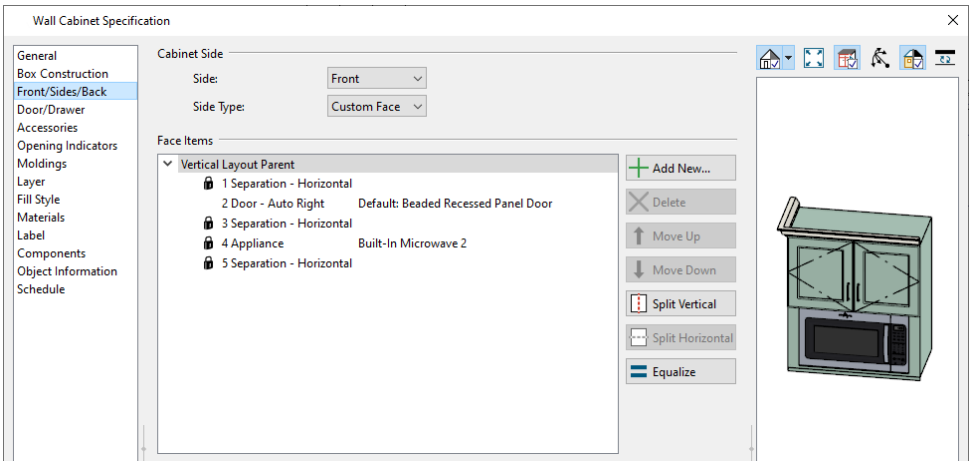
While most large appliances are free-standing, some are designed to be built into a cabinet.

To place a built-in appliance in a cabinet front

1. Begin by selecting the wall cabinet in the top left corner of the Kitchen and increasing its **Depth** to 18" using either its edit handles or specification dialog.
2. In the **Library Browser**, browse to Core Catalogs> Appliances> Microwave Ovens> Built-In and select the "Built-In Microwave 2" symbol.
3. Move the mouse pointer over the wall cabinet in the top left corner of the Kitchen and click once.
4. Click the **Select Objects** button, then click on the wall cabinet to select it and click the **Open Object** edit button.
5. In the Wall Cabinet Specification dialog, notice that the microwave symbol has been inserted at the top of the cabinet box.



6. Click on the microwave in the preview panel to select it.
   - The program automatically makes the DOOR/DRAWER/PANEL panel active.
7. Click the **Move Down** button located to the right of the face items list two times to move the microwave below both the middle horizontal partition and the door.
8. Now select the cabinet door and click the **Move Up** button once to position it above the middle horizontal partition, then click OK.

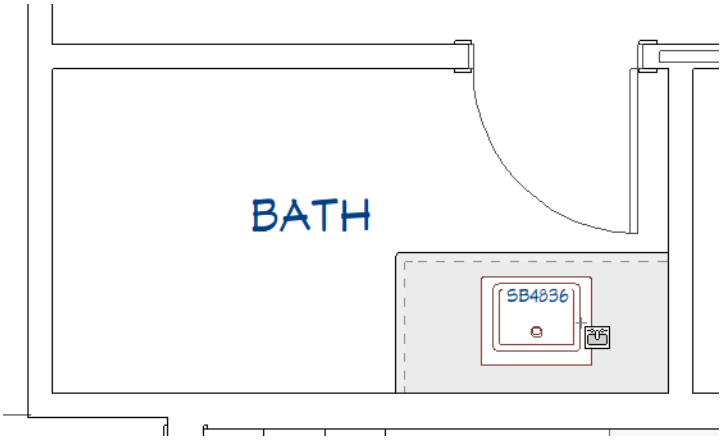


PLACING FIXTURES

Like appliances, plumbing fixtures can be either free-standing or inserted into cabinets.

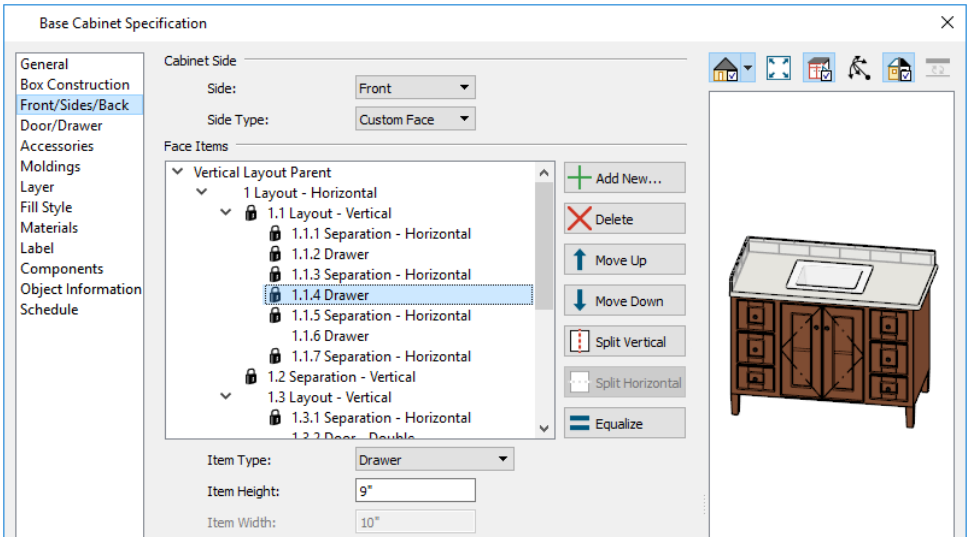
To add a vanity sink

1. If it is not already open, select **View> Library Browser** to open the Library Browser.
2. In the Search field, type "bathroom sink" and select Symbol Type "Sinks (bathroom)" from the search results drop-down list.
3. In the Filter Results panel, navigate to Architectural> Plumbing Fixtures> Sinks> Bathroom Sinks.
4. Open the "Vanity" **Folder** and select the "Rectangular Sink".
5. Move your mouse pointer into the drawing area and click once on base cabinet located in the Bath to insert the sink into that cabinet at its center point.



- A message confirm whether you want to convert all top drawers to False Drawers. Since the sink will be positioned directly over double doors, click No.

6. Select the cabinet and click the **Open Object** edit button.
7. On the FRONT/SIDES/BACK panel of the Base Cabinet Specification dialog:

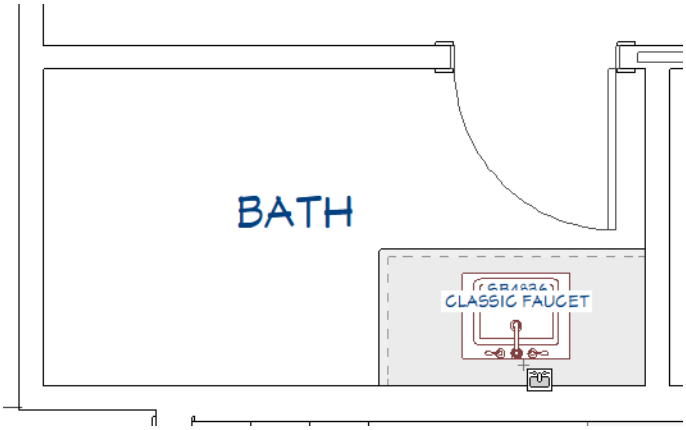


- Click on the top left drawer in the preview to select it and change its **Item Type** to "Drawer",
- Specify the top right drawer as a "Drawer" as well, then click OK.

> You can also specify a drop-in fixture for a cabinet as well as its position in the Base Cabinet Specification dialog.

To add a faucet

1. Returning to the **Library Browser**, click on the Sinks (bathroom) search result to clear it so it is no longer in use.
2. Search for "faucet" and select the "Faucets" **Folder** located at Architectural> Plumbing Fixtures>.
3. Navigate to Fixtures> Deck Mounted and select a faucet symbol. Here, the "Classic Faucet" faucet is used.
4. Move your mouse pointer into the drawing area and click once on the vanity sink to place a faucet at that location.



5. Click on the newly placed faucet to select it and move it into position on the back surface of the sink.
6. Create a **Camera** view in the Bath so the faucet can be seen.
   - By default, faucet symbols seek the countertop; however, this is easily addressed.
7. Click the **Select Objects** button, then click on the faucet symbol to select it and click the **Open Object** edit button.
8. On the GENERAL panel of the Fixture Specification dialog:
   - Click in the **Finished Floor to Bottom** field
   - Type +3/4" after the existing value and press the ***Tab*** key to confirm that the new value is 36 3/4".
   - Click OK.
9. Confirm that the faucet now sits on top of the sink's back surface, then close the camera view.

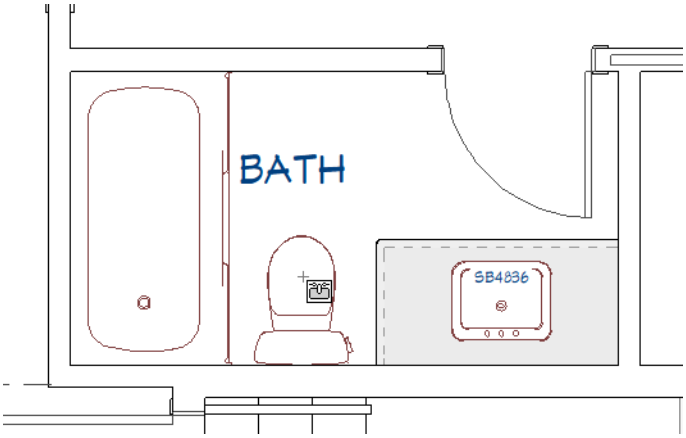
Repeat these steps to add a kitchen sink and faucet to the 30" base cabinet under the middle window. Here, "Double Sink Narrow" and "Claiborne Faucet" are used.

To place bathroom fixtures

1. In plan view, **Zoom** in on the Bath.
2. In the **Library Browser**, browse to Core Catalogs> Architectural> Plumbing Fixtures> Bathtubs> Standard Tubs and select "Standard Tub 1".
3. Move the mouse pointer into left side of the Bath, then:
   - Move the mouse pointer from wall to wall and notice that the bathtub's preview outline snaps to the nearest wall.
   - When the preview outline is snapped to the left vertical wall and the V-shaped front indicator points to the right, click once to place the bathtub.
4. Click on the tub to select it, then click the **Open Object** edit button. On the GENERAL panel of the Fixture Specification dialog, specify the **Width** as 60" and click OK.
5. With the tub still selected, center it along the left wall of the bathroom.
   - Click the **Center Object** edit button.
   - Move the mouse pointer to the right side of the Bath, near the right vertical wall.

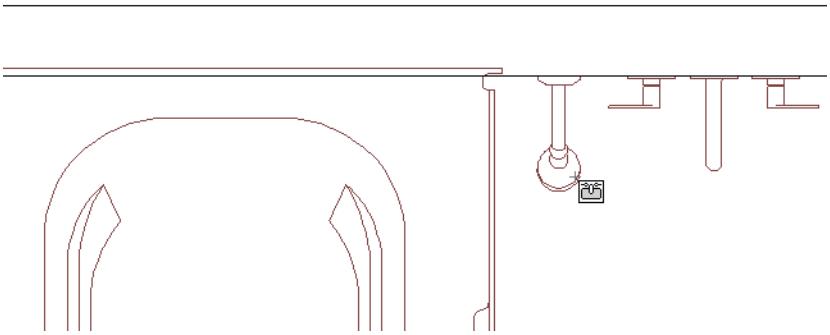
- When the Bath room becomes highlighted and a dashed horizontal centering axis displays along its center line, click once. The tub becomes centered in the Bath.

6. Browse to the Plumbing Fixtures> Toilets **Folder** and select the "Standard Toilet".
7. Move your mouse pointer into the space between the bathtub and the cabinet and click once to place the toilet at that location.



To add tub and shower trim

1. Returning to the **Library Browser**, search for "faucets", browse to Plumbing Fixtures> Faucets> Bathroom Fixtures> Tub & Shower Fixtures> Wall Mounted, and select a fixture. Here, "Utilitarian 2" is used.
2. Move the mouse pointer into the Bath and click once along the vertical wall that separates the Bath from the Bedroom, to the right of the tub. Click once to place a tub spout at that location.
3. Returning to the **Library Browser**, open to the "Spray Heads & Spouts" **Folder** and select a fixture. Here, "Standard Head" is used.
4. Click to place a shower head next to the tub spout on the horizontal wall.



5. Select the shower head and use the **Center Object** edit tool to center it over the tub spout.
6. With the shower head still selected:
   - Hold down the ***Shift*** key and click on the tub spout to add it to the selection set.
   - Click the **Make Architectural Block** edit button.
7. With the new Architectural Block still selected, use the **Center Object** edit tool to center it over the tub.
8. When you are finished, **Save** your work.

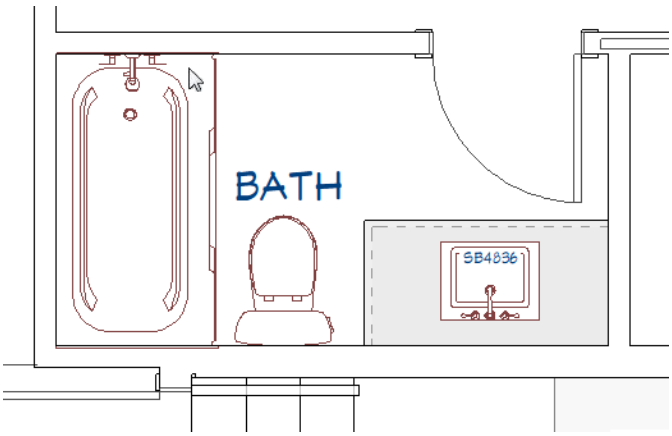
The tub and shower trim are currently positioned opposite the tub's drain. This is easily addressed.

Editing Appliances and Fixtures

Like most objects, fixtures and appliances can be modified using their edit handles and their specification dialogs.

To reverse a fixture symbol

1. Click on the bathtub to select it and click the **Open Object** edit button.
2. On the 3D panel of the Fixture Specification dialog:
   - Check **Reflect Geometry** and click OK.
   - The tub's drain is now positioned near the spout and showerhead.



3. When you are finished, and **Save** your work.

Creating a Kitchen Elevation

Kitchen and bath plans often require cabinet elevations with dimensions. Wall Elevation views are often ideal for this task because they only include objects in the same room as the camera.

The automatic dimension tools each have their own defaults dialogs. In addition, automatic dimensions inherit many of their settings from the currently active Saved Dimension Defaults.

To set the Wall Elevation dimension defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside "Camera Tools" to expand the category.
   - Select "Wall Elevation" and click the **Edit** button.
2. On the Selected Defaults panel of the Wall Elevation Defaults dialog:
   - Just like plan views, elevation views have saved defaults associated with them.
   - These are the defaults that are active when a new Wall Elevation view is created.
   - Notice, too, that Wall Elevations are set to use the "Kitchen and Bath Elevation Layer Set".
   - Click the **Edit Default** button to the right of the **Dimensions** drop-down list.
3. In the Dimension Defaults dialog:
   - Notice that Kitchen and Bath Dimension Defaults is stated in the title bar.
   - On the Setup Automatic panel, notice that you can specify which sides of the elevation Auto Elevation Dimensions generate.

- On the LOCATE AUTO ELEVATION panel, you can choose to add an Outer Dimension as well as specify whether a variety of different objects are located by Auto Elevation Dimensions.
- On the LAYER panel, notice that dimensions are created on the "Dimensions, Kitchen & Bath" layer when the Kitchen and Bath Dimension Defaults are in use.
- On the TEXT STYLE panel, notice that dimensions use the 1/2" Text Style, which is assigned to their default layer, when this saved default is active.

4. Click Cancel and then Done to close all dialogs.

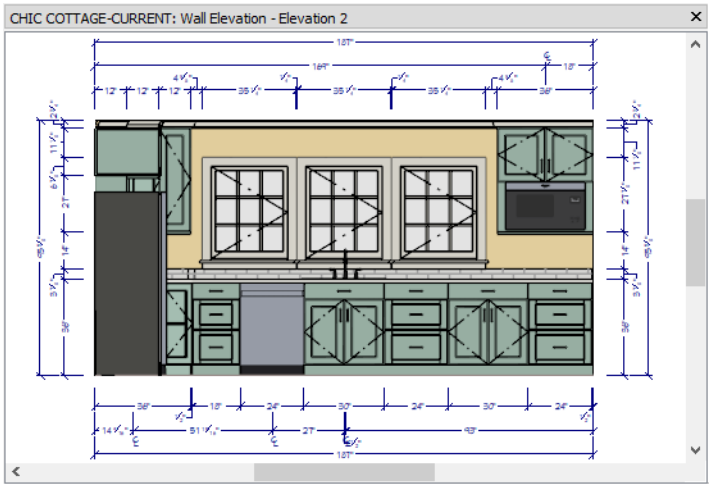
To create a Wall Elevation view

1. Select **3D> Create Orthographic View> Wall Elevation**, then click one or two plan inches to the left of the Kitchen island cabinets and drag a horizontal camera arrow from right to left.
2. In the Wall Elevation view that is created when you release the mouse button, notice:
   - Only the Kitchen can be seen in the view.
   - The Active Layer Display Options side window reports that the "Kitchen and Bath Elevation Layer Set" is now active.
3. Select **Tools> Edit Active View** and on the GENERAL panel of the Cross Section/Elevation Specification dialog, notice that **Clip to Room** is checked and click Cancel.

Automatic dimensions can be created with a single click, and then edited in a variety of ways.

To create Auto Elevation Dimensions

1. Select **CAD> Automatic Dimensions> Auto Elevation Dimensions**.



2. A complete set of dimensions are created around all four sides of the wall elevation.

Auto Elevation Dimensions on all four sides typically locate more objects than you actually need. Once created, though, they are easily edited.

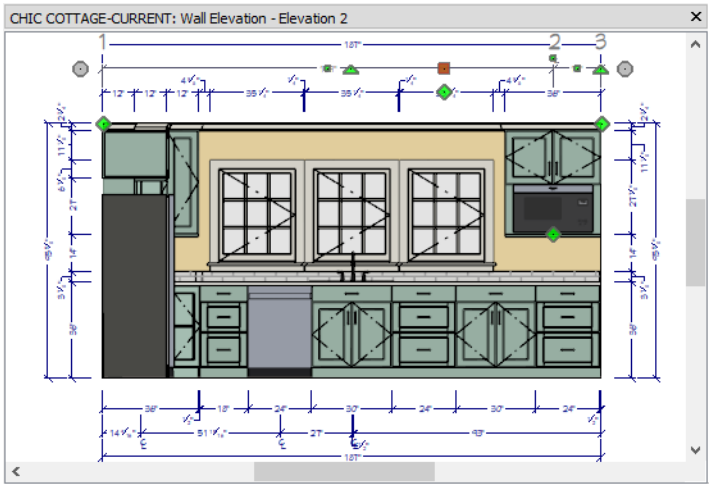
Extension line edit handles sometimes display in front of other objects and may not be easy to see. To make them easier to use, you can change their fill color.

To change the edit handle fill color

1. Select **Edit> Preferences** in Windows or **Chief Architect> Preferences** in macOS.
2. On the COLORS panel of the Preferences dialog, click the **Handle Fill** Color button and choose a bright, easy to see color, then click OK.

To move an extension line

1. Click the **Select Objects** button, then select the horizontal dimension line located above the model that has three Centerline dimensions. Notice:
   - The end points and each extension are numbered from left to right.
   - Diamond-shaped edit handles under each CL extension are positioned on the surface of the object the extension line locates. These are Move Extension Line edit handles.

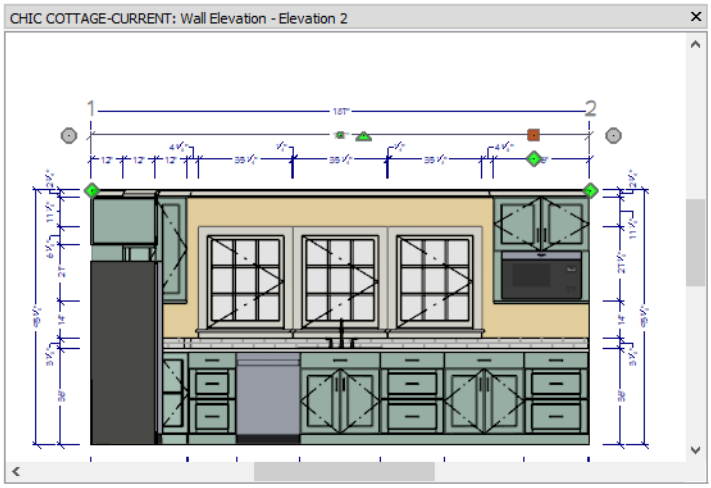


2. Click on the diamond-shaped Move Extension Line edit handle associated with extension 2, located at the top center of the under mount microwave and drag it to the left. Notice:
   - As you drag, an extension line preview snaps to the location of each object that the dimension line can locate.
   - The dimension value previews on either side of extension 2 update to reflect the line's current location.
3. When the extension line locates the center of the right window, release the mouse button.
4. A message will confirm whether you want to turn off Auto Refresh Elevation Dimensions. Click the Yes button.

This particular extension line is not actually required, however, so it can be removed. There are two ways to do this.

To delete an extension line

1. Click and drag the extension line 2's Move Extension Line edit handle to the right until it meets and replaces extension 3.
2. Select **Edit> Undo**.
3. Click and drag the extension line 2's Move Extension Line edit handle upwards, away from the dimension line entirely. When the extension line's number no longer displays, release the mouse button.

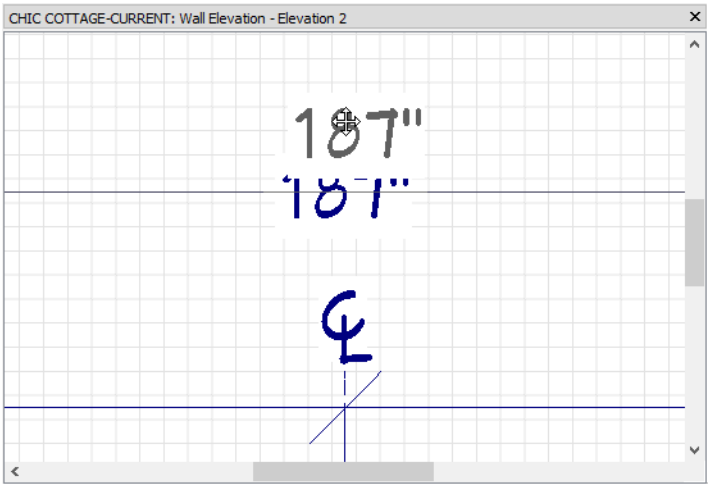


4. When you are finished editing extension lines, you may want to return to the COLORS panel of the Preferences dialog and change the **Handle Fill** Color back to a pale grey color.

Extensions can also be added to dimension lines. See *"To position a ceiling light" on page 303 of the Light Fixtures Tutorial*.

To reposition a dimension label

1. With the dimension line still selected, move your mouse pointer over the small, square Move Dimension Label edit handle located in the middle of a dimension segment label.
2. When the mouse pointer turns into a four-headed arrow ✥, click and drag to move the label.



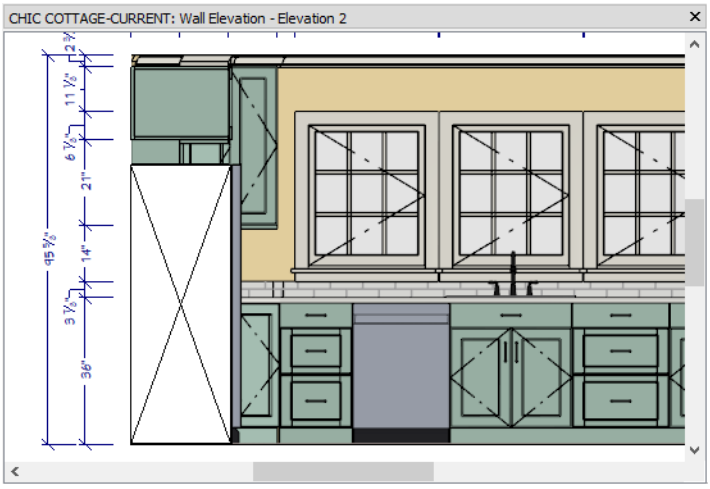
Cabinet elevations sometimes use cross boxes to cover objects that are clipped in the view. CAD objects drawn in an elevation are placed on the view's Current CAD Layer.

To set kitchen and bath CAD defaults

1. Select **Tools> Active View> Edit Active View** .
2. On the SELECTED DEFAULTS panel of the Wall Elevation Defaults dialog, note that the Current CAD Layer in this view is "CAD, Kitchen and Bath" and click OK.

To add a cross box

1. Make sure that **Object Snaps** are enabled.
2. Select **CAD> Boxes> Cross Box**, then:
   - Click on the top back corner of the refrigerator and drag across and down to the bottom front corner.
   - When you release the mouse button, a cross box is created.
3. You can resize the cross box if you want:
   - Click and drag a corner edit handle and notice that both adjacent edges move and/or resize but the corner angle remains 90°.
   - CAD Box objects like Cross Boxes always have four 90° corners.



Cabinet elevations are often included in construction documents, so this Wall Elevation view can be saved for use later on. See *"Sending Section and Elevation Views to Layout" on page 492 of the Sending Views to Layout Tutorial*.

To save and name a camera

1. Select **Tools> Active View> Save Active View**.
2. Select **Tools> Edit Active View** to open the Camera Specification dialog.
   - On the GENERAL panel, type a short, descriptive **Name** for the camera, like "Kitchen Elevation".
   - On the PLAN DISPLAY panel, notice that the camera is set to display as a callout in plan view, and that its Callout Label is E1.
   - On the LAYER panel, notice that the camera is located on the "Cameras" layer. This layer controls its display in plan view.
   - Click OK to close the dialog and apply your changes.
3. Select **File> Close View** to close the camera view and return to plan view.
4. Remember to **Save** your work.

Saved camera views are listed in the Project Browser using their camera Name.

CREATING SCHEDULES

Several different schedules have been created in previous tutorials. Here, two different types of schedules will be created using the same Fixture Schedule tool: one for appliances and one for plumbing fixtures.

To set fixture schedule defaults

1. Select **Edit> Default Settings** and in the Default Settings dialog, click the arrow beside "Schedules, select "Fixture Schedule" from the list, and click the **Edit** button.
2. On the GENERAL panel of the Fixture Schedule Defaults dialog:
   - Under **Categories to Include**, expand the "Fixture" category and uncheck everything except "Appliances" and "Plumbing".
   - Under **Columns to Include**, remove all of the columns except "Qty", "Description", "Code", "Manufacturer", and "Comments".
3. On the LABELS panel, select the **Use Label** radio button.
4. Click OK and Done to close both dialogs and apply your changes.

To prevent your plan views from becoming unnecessarily cluttered, schedules should be placed in CAD Detail windows. You can access these views in the Project Browser as well as via the CAD menu.

To create appliance and plumbing fixture schedules

1. Select **CAD> CAD Detail Management**.
2. In the CAD Detail Management dialog, select "Schedules Detail" and click the **Open** button.
3. Select **Tools> Schedules> Fixture Schedule**, then click once in an empty space near the other schedules.
4. If you wish, you can use Extension Snaps to align the Fixture Schedule below, above, or beside the other schedules created previously. See *"To create a room moldings schedule" on page 220 of the Room Moldings Tutorial*.
5. Select the schedule and click the **Open Object** edit button. On the GENERAL panel of the Fixture Schedule Specification dialog:
   - Change the **Main Title** to "Kitchen Appliance Schedule".
   - Uncheck **Include Objects from All Floors**.
   - Select "Kitchen" from the **Include Objects from Room** drop-down list.
   - Under **Objects to Include**, uncheck "Plumbing".
   - Click OK.
6. Create a second Fixture Schedule for plumbing fixtures using the steps above:
   - Change the **Main Title** to "Plumbing Fixture Schedule".
   - Under **Objects to Include**, uncheck "Appliances" and add a check next to "Indoor".
7. On the COLUMNS/ROWS panel of the Fixture Schedule Specification dialog:
   - Add "Room Name" to the list of **Columns to Include** and move it to the top of the list.
   - Check the box beside **Automatically Sort by** and select "Room Name" and "Ascending" from the drop-down lists.
   - Check the box beside **Then by** and select "Description" and "Ascending" from the drop-down list.
8. If you want, you can adjust the schedules' column widths so they are aligned. See *To edit schedule columns on page 57*.

KITCHEN APPLIANCE SCHEDULE				
QTY	DESCRIPTION	CODE	MANUFACTURER	COMMENTS
1	BUILT-IN MICROWAVE 1			
1	COUNTER-DEPTH SIDE-BY-SIDE REFRIGERATOR [39 5/16W]			
1	DISHWASHER 1			
1	FLAT TOP RANGE - INTEGRATED [31W]			

PLUMBING FIXTURE SCHEDULE					
ROOM NAME	QTY	DESCRIPTION	CODE	MANUFACTURER	COMMENTS
BATH	1	CLASSIC FAUCET			
BATH	1	RECTANGULAR SINK			
BATH	1	STANDARD HEAD			
BATH	1	STANDARD TOILET			
BATH	1	STANDARD TUB 1 [60W]			
BATH	1	UTILITARIAN 2			
KITCHEN	1	CLAIBORNE FAUCET			
KITCHEN	1	DOUBLE SINK NARROW			

An easy way to locate an object listed in a schedule is using the Find in Plan edit tool.

To customize an object's Description

1. Select **Window> Tile Vertically**, then click in the plan view to make it the active window.
2. Click on the line item that lists the refrigerator in the Kitchen Appliance Schedule to select it, then click the **Find in Plan** edit button. The refrigerator will become selected in the plan view window.
3. Click the **Open Object** edit button, and on the 3D panel of the Fixture Specification dialog:
   - Notice that the symbol's **Name** is "Counter-depth Side-by-Side Refrigerator".
   - Notice, too, that "Width" is selected as the **Include Size** option. This is what produces the [39 5/16W] in its name.
   - Click the drop-down list and select "None" instead.
4. On the OBJECT INFORMATION panel, notice:
   - %automatic_description% is used as the symbol's **Description**.
   - **Code**, **Manufacturer**, and **Comment** information can be added, as well, if you wish.
   - Click OK to close the dialog and apply your change.
5. Notice that the sink's automatic label updates to reflect your change.
6. Click on the Schedules Detail view tab and confirm that the refrigerator's Description in the Kitchen Appliance Schedule also shows this change.
7. Other fixtures' Descriptions can be modified, as well, if you wish.
8. When you are finished, close the "Schedules Detail" window and **Save** your work.

ADDING ANNOTATIONS

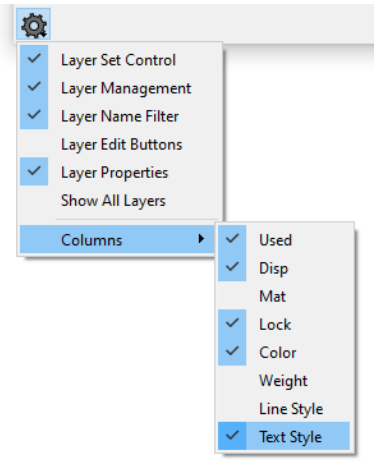
Additional annotations for appliances can be added in plan view. Text objects can be used for this purpose as they have been in previous tutorials, but so can the appliances' object labels.

Object labels always use the Text Style assigned to their layer. An easy way to access this and other layer information is using the Active Layer Display Options side window.

To set the defaults for fixture labels

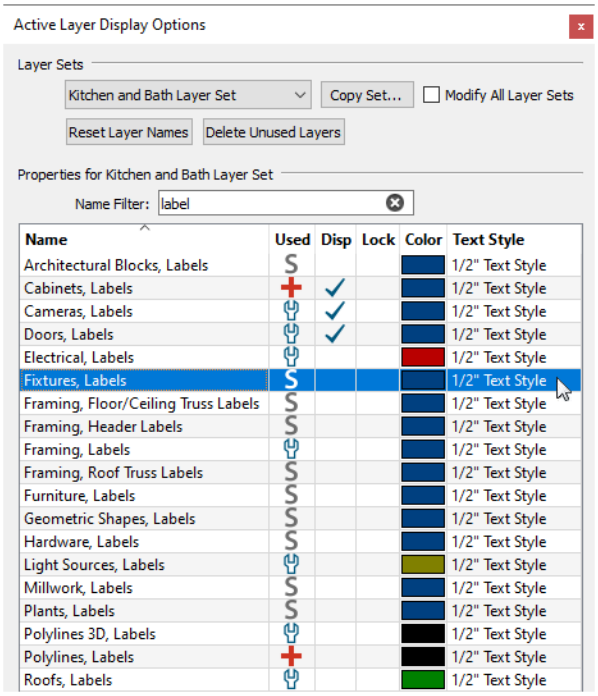
1. If it is not already open, select **View> Active Layer Display Options**. In the Active Layer Display Options side window:

2. Click the **Options** button at the bottom left corner of the side window, then:

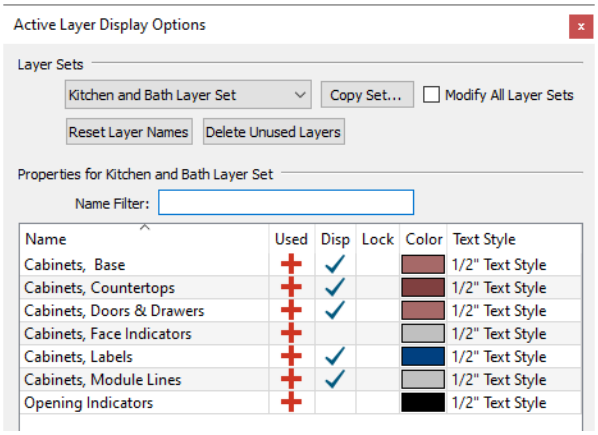


- Click on **Columns** in the contextual menu that opens.
- Click on **Text Style** in the submenu to add a check mark.
- Notice that in the list of layers above, there is now a Text Style column on the right.

3. Type "label" in the **Name Filter** field to show only layers with this word in their name, and notice that most of them use the "1/2" Text Style". This allows various types of object labels to have the same, consistent appearance in views using a particular layer set: here, the "Kitchen and Bath Layer Set".

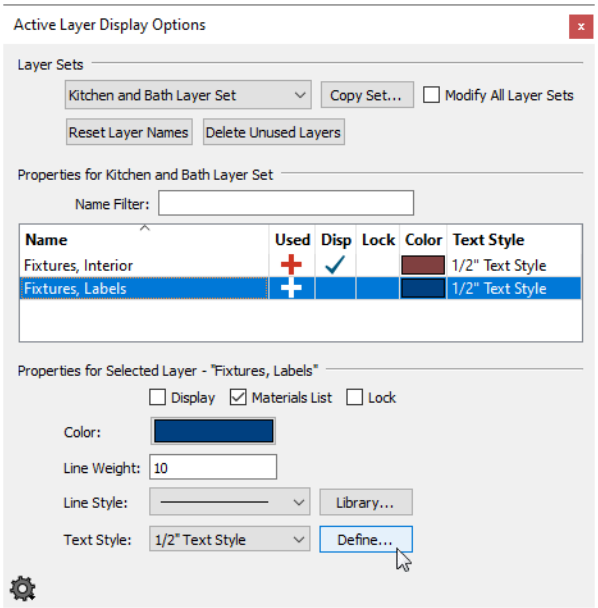


4. Select a base cabinet in the drawing and notice that:



- Now, only seven layers display: the selected object's layer, plus six others.
- When an object is selected, only the layers that affect that object's appearance are listed.

5. Now select the refrigerator and notice that only two layer display: the "Fixtures, Interior" and "Fixtures, Labels" layer.
6. Click on the "Fixtures, Labels" layer to select it. Notice that information about this layer displays and can be edited at the bottom of the side window.



7. Click the **Define** button to the right of the **Text Style** drop-down list.
8. In the Saved Text Styles Defaults dialog, which opens next:
   - Notice that there are a number of different Saved Text Styles set up for particular drawing scales and tasks.
   - "1/2" Text Style" is selected in the list because it is assigned to the "Fixtures, Labels" layer.
   - With the "1/2" Scale Text Style" selected, click the **Edit** button.
9. In the Text Style Defaults dialog, make sure that the box beside **Uppercase** is checked.
10. Click OK to close all dialogs.

Currently, the only appliance with a label showing is the dishwasher. This is because it is an inserted fixture that will essentially replace an actual cabinet at that location. As such, its label displays along with the cabinet labels. The other appliance labels can be turned on in any of several ways.

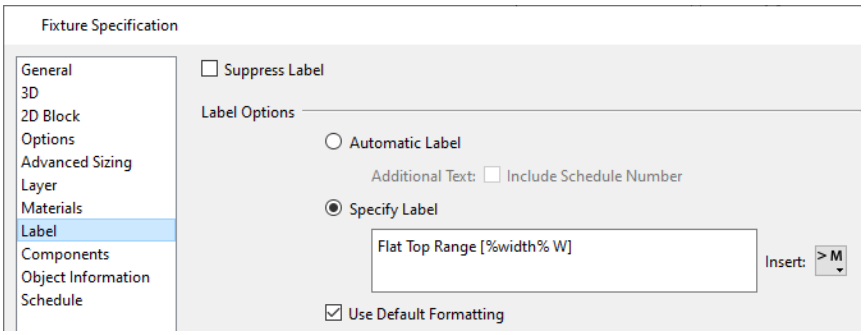
To control the display of appliance labels

1. Click to add or remove a check mark in the "Display" column for the "Fixtures, Labels" layer in the Active Layer Display Options side window.
2. There are other ways to turn on or off the display of the "Fixtures, Labels" layer, as well:
   - Select **Tools> Layer Settings> Display Options** to open the Layer Display Options dialog.
   - With the refrigerator or any other fixture selected, click the **Object Layer Properties** edit button to open the Object Layer Properties dialog.
3. An individual fixture's label can be placed on a custom layer on the LABEL panel of its Fixture Specification dialog.
4. An individual fixture's label can be hidden even when its layer is turned on by checking **Suppress Label** on the LABEL panel of its Fixture Specification dialog.

Automatic symbol labels like the Apron Front Sink's report a symbol's Name and optional Include Size information. See *To customize an object's Description on page 292*, above. There are other ways to include size information in an object's label that give you more control over the formatting.

To specify an automatic label

1. **Zoom** in on the kitchen island.
2. Click the **Select Next Object** button, then click on the front of the range symbol visible to the left of the range hood.
   - The Architectural Block will become selected rather than the fixture symbol, which you can confirm by checking the left side of the Status Bar at the bottom of the program window.
   - Click the **Select Next Object** edit button to select the range.
   - When the range is selected, its label can be seen from beneath the hood and the Status Bar will report that an Interior Fixture is selected.
3. With the flat top range selected, click the **Open Object** edit button.
4. On the 3D panel of the Fixture Specification dialog, notice that the Name and Include Size selection match the information in the range's automatic label.
5. On the LABEL panel:
   - Click the **Specify Label** radio button.
   - The text of the range's Name and Include Size information now populate the label text field.
   - Delete this text and instead type: Flat Top Range
6. Next, click the **Insert Macro** button and:



   - In the menu that opens, browse to and select **Object Specific> Width**.
   - When you click on Width, "%width%" is added to the text field, after "Range".

- In the preview pane, you can see that the width is formatted with the inch sign ".
- Add a space after "Range", a W after %width%, and brackets [ ] around "%width% W".

7. Click OK to close the dialog and apply your changes.

Most fixtures use an automatic label by default. Fixtures that are inserted into cabinets, however, do not have labels of their own unless they are associated with a schedule set to use shaped callout labels.

To label a built-in fixture

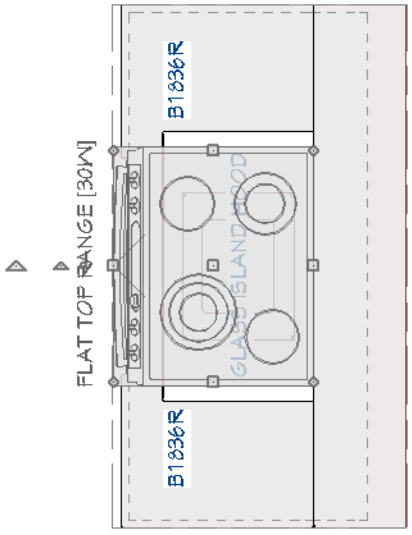
1. Select the wall cabinet housing the microwave oven and click the **Open Object** edit button.
2. On the LABEL panel of the Wall Cabinet Specification dialog, notice that the cabinet is using its **Automatic Label**.
   - Select the **Specify Label** radio button, then delete the text that says "W3639".
   - Click the **Insert Macro** button and select **Object Specific> Automatic Label**.
   - Wrap the label to two lines by pressing the ***Enter*** key.
   - In the second line of text, type: Built-In Microwave.
   - Specify the **Alignment** as "Centered" and then click OK.



In some cases, you may want to move or rotate an object label to improve its visibility.

To move and rotate object labels

1. **Zoom** in further on the flat top range.
2. With the range still selected, notice its edit handles. To the right of the square Move edit handle located at its center, there is a small square Move Label handle.
3. Drag the Move Label edit handle to the left, past the edge of the range symbol.



4. Now click the **Open Object** edit button. On the Label panel of the Fixture Specification dialog:
   - Under the Plan View Position and Orientation heading, notice that **Y Offset** value is not 0 like the X Offset is. This is the result of moving the label using its edit handle.
   - Set this value to as 18" and click OK.

To suppress an individual label

1. Select the sink faucet in the Kitchen and click the **Open Object** edit button.
2. On the LABEL panel of the Fixture Specification dialog, check **Suppress Label in all Views** and click OK.
3. Remember to **Save** your work.

CREATING REVISIONS

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Fixtures. Then, click OK.
3. Notice that Chic Cottage-Fixtures is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

REVIEW

This lesson describes the best practices for placing fixtures and appliances.

To place freestanding appliances *279*

To add a wall cabinet over a refrigerator *280*

To place undercounter appliances *280*

To modify an architectural block *281*

To place a built-in appliance in a cabinet front *282*

To add a vanity sink *283*

To add a faucet *284*

To place bathroom fixtures *284*

To add tub and shower trim *285*

To reverse a fixture symbol *286*

To set the Wall Elevation dimension defaults *286*

To create a Wall Elevation view *287*

To create Auto Elevation Dimensions *287*

To change the edit handle fill color *288*

To move an extension line *288*

To delete an extension line *288*

To reposition a dimension label *289*

To set kitchen and bath CAD defaults *289*

To add a cross box *290*

To save and name a camera *290*

To set fixture schedule defaults *291*

To create appliance and plumbing fixture schedules *291*

To customize an object's Description *292*

To set the defaults for fixture labels *292*

To control the display of appliance labels *295*

To specify an automatic label *295*

To label a built-in fixture *296*

To move and rotate object labels *296*

To suppress an individual label *297*

To save a plan revision *297*

Assessment Questions

Tutorial 16 - Appliances and Fixtures

What are the two broad categories of appliance fixtures that describe how they are placed?

- Freestanding appliances can be placed as independent objects.
- Built-in cabinets are designed to be inserted into cabinets, either in the front or in the countertop.

How can a cabinet drawer be removed?

- On the Front/Sides/Back panel of the Base Cabinet Specification dialog, click on the drawer in the preview pane, then click the Delete button.

What tool can be used to position one object relative to a point on another object?

- The Point to Point Move edit tool lets you move an object by clicking on a point on that object, then clicking on a different point somewhere else, including on another object.

What setting lets you flip features like opening handles from one side of a fixture to the other?

- On the General panel of the Fixture Specification dialog, check or uncheck the box beside Reverse Symbol.

What camera tool creates an elevation view of a single room?

- The Wall Elevation tool creates an elevation view of one wall in the room that the camera is created in.

What tool allows you to create dimensions around the sides of an elevation view?

- The Auto Elevation Dimensions tool creates dimensions above, below, and on both sides of the model in a cross section or elevation view.

What are two ways to remove an extension from a dimension line?

- Both methods use the Move Extension Line edit handle: click and drag this handle to move an extension line to the location of another extension line, or click and drag it away from the dimension line entirely.

Where do object labels get their appearance from?

- Object labels get their appearance from the Text Style that is assigned to their layer. Appliance labels, for example, get their Text Style from the "Fixtures, Labels" layer by default.

What are two ways to move or rotate an object label?

- Object labels have their own Move and Rotate edit handles.
- You can also specify a label's position and orientation in its object's specification dialog, on the Label pane.

Light Fixtures

Lighting is an important practical and aesthetic consideration in any building plan.

Learning Objectives

This lesson describes best practices in Chief Architect for adding light fixtures to a plan. Concepts introduced include:

File Management 299

File Management

At this point in the design process, both the Chic Cottage-Fixtures and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Fixtures was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to add lighting to a plan, keep in mind these tips to improve your productivity.

Drawing and Editing

- Use the **Center Object** edit tool to center a light fixture relative to a window, cabinet, or other object.
- The **Reflect About Object** edit tool lets you move one light to the other side of another light; use with the **Copy/Paste** edit tool to create a row of evenly spaced fixtures.
- Use the **Center Object** edit tool to center a light fixture relative to a window, cabinet, or other object.

Content

- A selection of Lighting catalogs is available for download from the Chief Architect 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.
- Create template plans that have your custom light fixtures set as the defaults and ready for use when you begin a new plan.

Interface

- Default Sets let you activate a set of defaults and layer settings for a specific purpose: for example, an electrical plan.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Ctrl/⌘ + L*** - Library Browser
- ***Spacebar*** - Select Objects
- ***Tab*** while moving - Enter Coordinates
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

SETTING THE DEFAULTS

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When adding light fixtures to a plan, there are several defaults that should be set in advance.

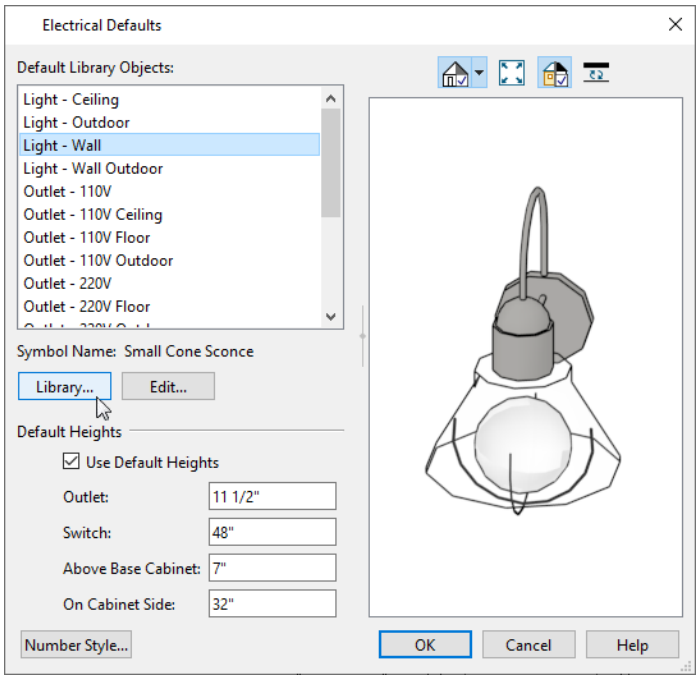
When positioning electrical objects, it is a good idea to make sure your Dimension Defaults are set to meet your needs. See *To set the dimension defaults on page 303*.

Unlike other drawing tools, the Electrical Tools place symbol objects. You can specify which symbols are placed by these tools in the Electrical Defaults dialog. Here, the default Light fixtures will be set; however, the defaults for outlets and switches can also be specified.

To set the Electrical Defaults for light fixtures

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside “Electrical” to expand the category.
   - Select “General Electrical” and click the **Edit** button.
2. In the Electrical Defaults dialog, notice that there is a scrollable list of electrical objects for a variety of different purposes.
   - Select "Light - Ceiling" and notice that the default symbol is a 4" Recessed can light.
   - Select "Light - Outdoor" and notice that the default symbol is a bollard light.

3. Select "Light - Wall" and click the **Library** button:



- In the Select Library Object dialog, the content is filtered by **Type** so that it only lists Electrical objects.
- The currently selected library object's **Folder**, Flush Mounted, is selected as a filter and shown in the Folders tree list.
- Click on the Flush Mounted **Folder** to remove it from use as a filter and in the Search field, type "lighting".
- In the Filters drop-down list, click on the "Lighting Suites" **Folder**.
- The Folders panel tree list now expands to show the contents of Core Catalogs> Architectural> Lighting> Lighting Suites.
- Open the "Small Cone" **Folder**, select the Small Cone Sconce, then click OK.

4. Click OK and then Done to close both dialogs and apply your changes.
5. Select **File> Save** to save these changes.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

As noted in the *Exterior Walls* tutorial, Saved Plan Views have a number of important settings associated with them, including active Layer Set and saved defaults. See *"To examine a saved plan view's settings" on page 5 of the Exterior Walls Tutorial*.

When you know that a particular task will require you to make changes to multiple layers and to create annotations using different saved defaults, you can save time by opening a Saved Plan View created for that task.

To switch to a different saved plan view

1. Click the **Saved Plan View Control** drop-down, which is located in the top toolbar by default.
2. Select "Electrical Plan View" from the drop-down list.

3. The current view window remains open, and now uses the Electrical Plan View.
4. In the Active Layer Display Options side window, notice that the **Active Layer Set Options** side window reports that the "Electrical Layer Set" is now active, and that:
   - Kitchen and Bath text as well as door, window, cabinet labels no longer display.
   - Furnishings do not display.
   - The saved section view camera symbol does not display.
5. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** .
6. Right-click on the "Electrical Plan View" in the Project Browser and select **Edit View** from the contextual menu.
7. On the SELECTED DEFAULTS panel of the Saved Plan View Specification dialog, notice that the names of the Saved Defaults associated with this view all begin with "Electrical", then click Cancel.

An electrical plan can now be drawn and annotated, without affecting the appearance of the kitchen plan or other plan views.

ADDING CEILING LIGHTING

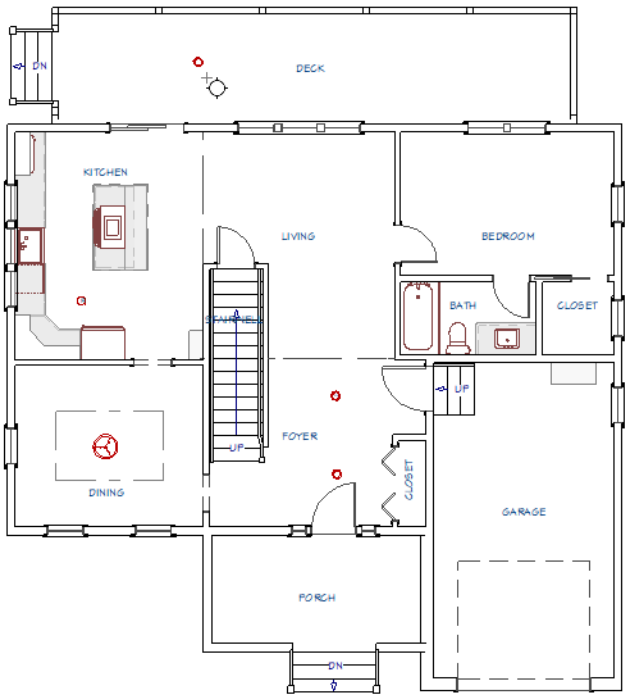
The Light tool will place a different fixture, depending on where you click: when you click on a wall, an interior or exterior sconce will be placed; when you click in the middle of a room, a ceiling mounted fixture will be placed; if you click outside a structure, a path light will be created.

Lighting is often described as having three categories: ambient, task, and accent. Ceiling lights provide examples of all three.

Light fixtures can be placed using the Light tool as well as from the Library.

To add ceiling light fixtures

1. Select **Build> Electrical> Light** , then click in the Kitchen, between the island and the dishwasher. A recessed can light, as specified in the Electrical Defaults dialog, is created.
2. Select **View> Library Browser** to open the Library Browser:
   - Browse to Chief Architect Core Catalogs> Architectural> Lighting> Chandeliers> Pendant Chandeliers.
   - Select the "Bowl Chandelier" and click in the Dining area to place a copy at that location.
   - Browse to the Lighting> Ceiling Mounted> Flush Mount folder, select the "Half Dome" symbol, and click in the Foyer, near the front door.
   - Browse to the Lighting> Ceiling Mounted> Recessed folder, select the "6" Recessed Light - Adjustable Eyeball" and click in the Foyer, in line with the door to the Garage.
   - Browse to the Lighting> Pendants folder, select the "Craftsman Lantern", and click an empty space in the Deck.



Once a room has a can light in it, that light can be positioned and then replicated to produce evenly spaced ambient lights.

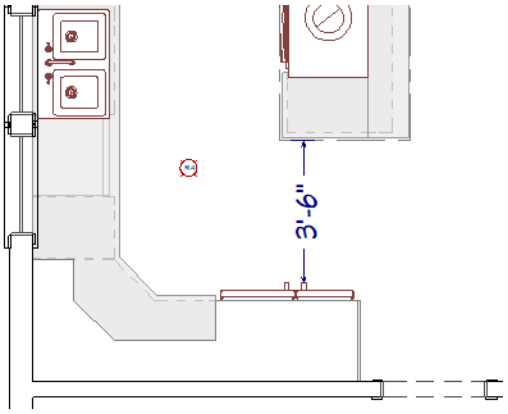
To set the dimension defaults

1. Select **Edit> Default Settings**, click the arrow next to "Dimension" to expand the category, then select "Dimensions" and click the **Edit** button.
2. In the Saved Dimension Defaults dialog that opens next, notice that "Electrical Dimension Defaults" is selected and click the **Edit** button.
3. On the SETUP panel of the Dimension Defaults dialog:
   - Notice that "Electrical Dimension Defaults" is stated in the title bar.
   - Notice, too, the **Reach** setting. This value controls how close an eligible object must be in order for a dimension line to locate it as it is drawn.
4. On the LOCATE MANUAL panel, under the Locate Objects heading:
   - Under the Cabinets heading, check the box beside **Sides**.
   - Under the Fixtures/Appliances heading, check the box beside **Sides/Corners**.
   - Under the Electrical heading, make sure all boxes are checked.
   - Click OK and then Done to close both dialogs and apply your changes.

Ceiling can lights are often positioned at regular intervals. There are several ways to achieve this.

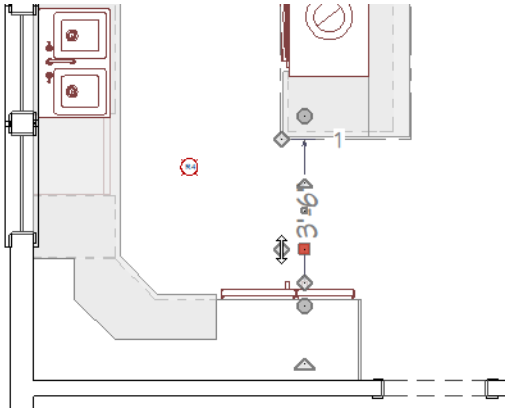
To position a ceiling light

1. **Zoom** in on the Kitchen.
2. Click the **Select Objects** button, then click on the recessed can light to select it.
3. Select **CAD> Dimensions> Manual Dimension**, then click and drag to draw a vertical dimension line from the front of the refrigerator to the bottom edge of the island.

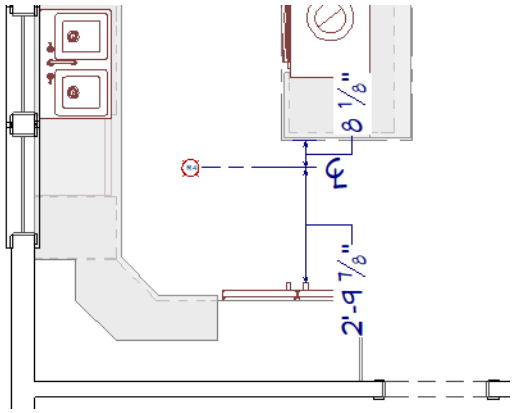


- Draw the dimension line on the far right side of the refrigerator so it is more than 24" away from the recessed can light, leaving it beyond the default Reach distance.

4. Use the dimension line to position the island Architectural Block 3' 6" away from the refrigerator:
   - Click the **Select Objects** button, then click on the island.
   - Move your mouse pointer over the dimension line.
   - When the arrow changes to a pointing hand, click once.
   - Type 42" in the inline text field and click OK.
5. Select the dimension line and add an extension line that locates the recessed can light:

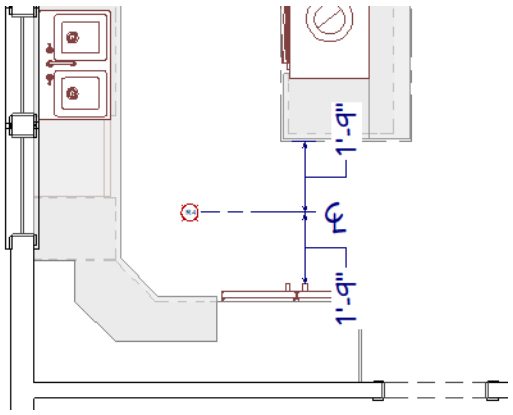


- Click and drag the diamond-shaped Add Extension Line edit handle towards the light.
- When an extension line to the light displays, release the mouse button.



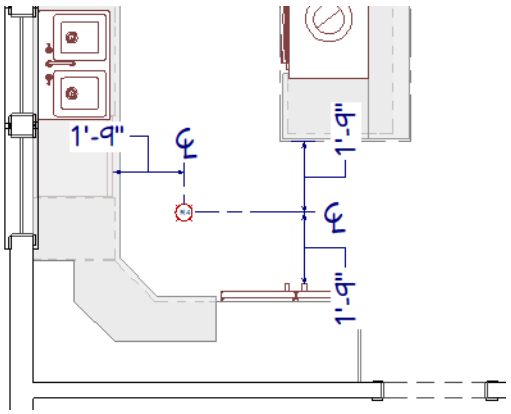
- The dimension line now locates the light fixture as well as the two cabinets.
- Click on the can light to select it.
- If the dimension line is selected instead, click the **Select Next Object** edit button or press the ***Tab*** key as needed until the light becomes selected.
- The type of object currently selected is stated at the bottom left corner of the program window, in the Status Bar.

6. With the light fixture selected:



- Click on one of the dimension labels.
- In the inline text field, type in a new dimension and press the ***Enter*** key.
- The light will move to the new position that you specified.
- The space between the island and refrigerator is 3’ 6" wide, so typing 1' 9" will center the light between the two.

7. Center the light in the 42" space between the dishwasher and the island cabinets:
   - Draw a **Manual Dimension** from the dishwasher to the can light.
   - Select the can light, then click on the dimension line.
   - In the inline text field, type 21" and press the ***Enter*** key.

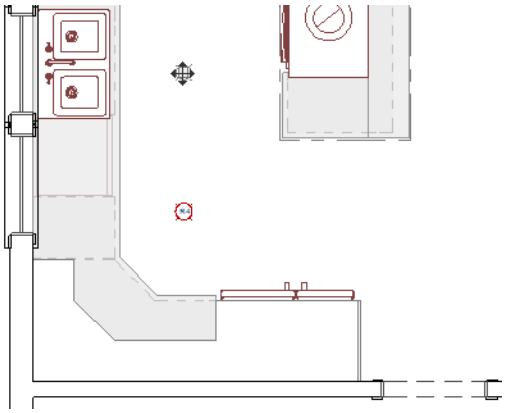


8. When you are finished, the dimension lines can be deleted if you wish. See *"To delete a dimension line" on page 41 of the Interior Walls Tutorial*.

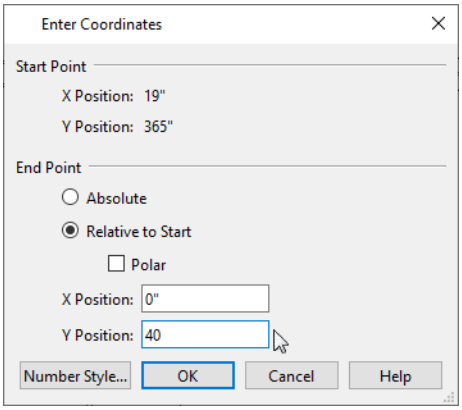
There are a number of ways to replicate objects like light fixtures. The best method to use will depend on the specific circumstances and your needs.

To specify ceiling light spacing

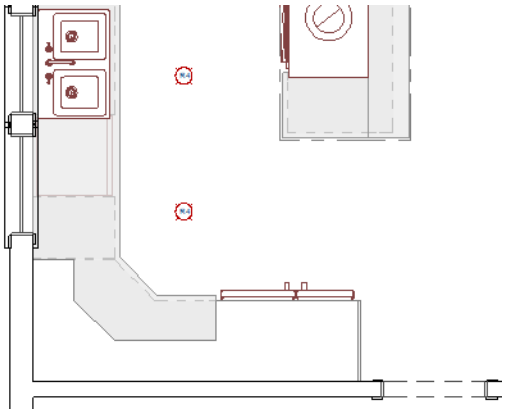
1. Click on the can light to select it, then click the **Copy/Paste** edit button.
2. Click and drag the Move edit handle upward and with the mouse button held down, press the ***Tab*** key.



3. In the Enter Coordinates dialog, specify **End Point Y Position** as 40".

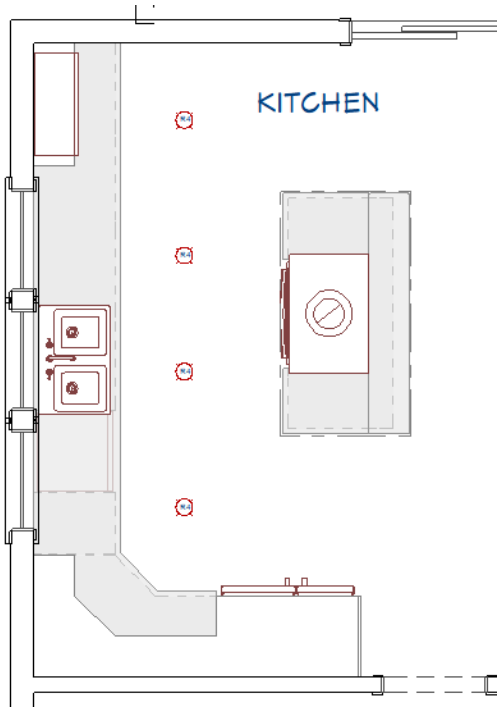


4. When you click OK, a copy of the can light is created 40" above the original on-screen.

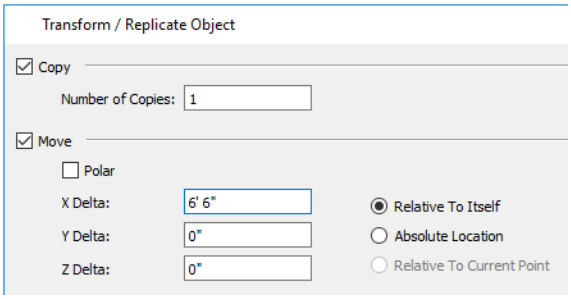


5. With the new can light still selected, hold down the ***Shift*** key and click on the other can light to add it to the selection set. Then:
   - Click the **Copy/Paste** edit button.
   - Click the **Reflect About Object** edit button.

- Move your mouse pointer over the kitchen island Architectural Block and look for a horizontal dashed reflection axis line.
- When you see the reflection axis, click once to make a copy of the lights identically spaced on the other side of the island.

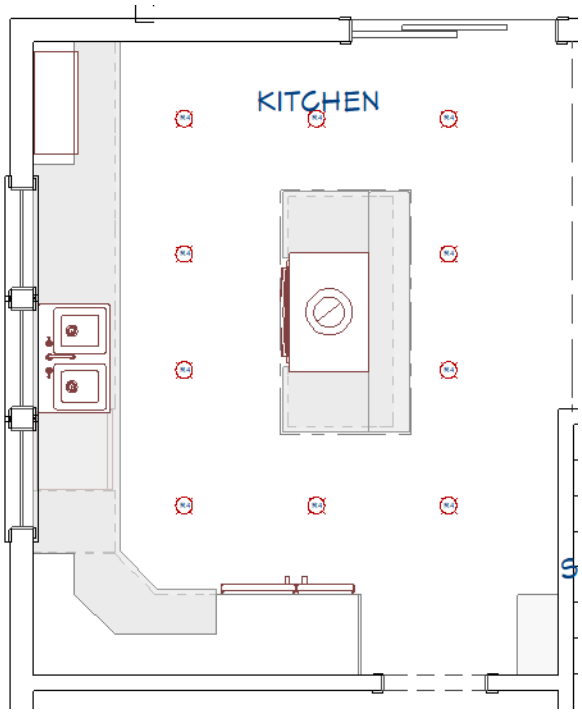


6. Use the ***Shift*** key to select all four can lights as a group and click the **Transform/Replicate Object** edit button. In the Transform/Replicate Object dialog:



- Check the box beside **Copy** and specify the **Number of Copies** as 1.
- Under the Move heading, specify the **X Delta** value as 6’ 6".
- Click OK.

7. With the four newly pasted can lights selected, click on the two middle lights one at a time to remove them from the selection set.
8. With the top and bottom lights still selected, click the **Transform/Replicate Object** edit button and:
   - Check the box beside **Copy** and specify the **Number of Copies** as 1.
   - Specify the **X Delta** value as - 3’ 3". This value is half the distance used previously, and the negative value will position the copies to the left of the originals rather than to the right.
   - Click OK.

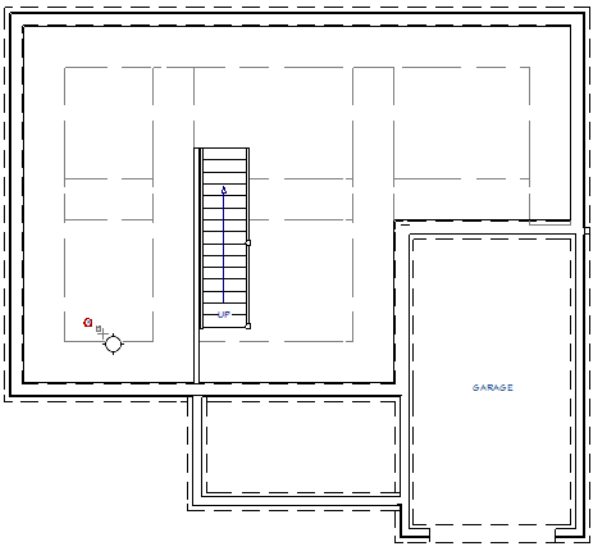


9. Remember to **Save** your work.

In some spaces, a regularly spaced array of ceiling lights is required.

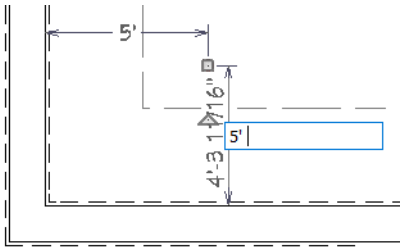
To create an array of lights

1. Go **Down One Floor** to Floor 0.
2. Select **Build> Electrical> Light**, and place a can light in the lower left corner of the basement.

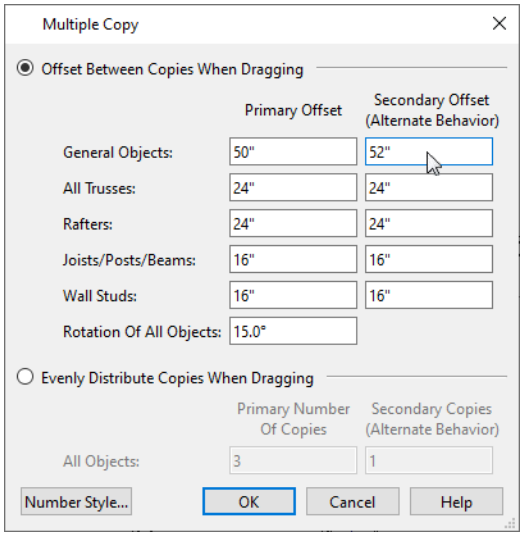


3. Select **CAD> Dimensions> End to End Dimension**, then click and drag to draw dimension lines between the can light and the two nearest exterior walls.
4. Click the **Select Objects** button, then click on the can light to select it.

5. Click on each dimension line, and in the inline text field, type 5’ and press the ***Enter*** key.

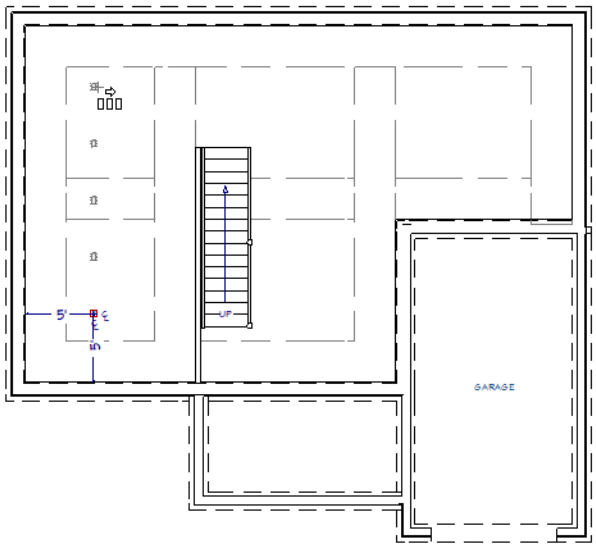


6. With the can light still selected, click the **Multiple Copy** edit button.
7. Next, click the **Multiple Copy Interval** edit button, and in the Multiple Copy Interval dialog:

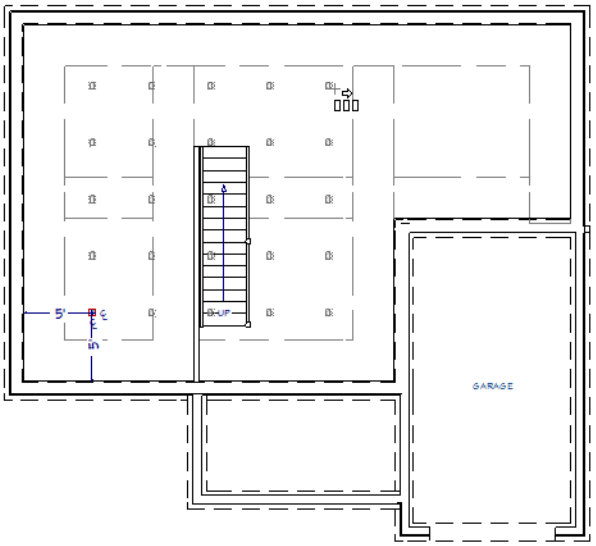


- For **General Objects**, specify the **Primary Offset** as 50".
- For **General Objects**, specify the **Secondary Offset** as 52".
- Click OK.

8. Move the mouse pointer over the can light, and when the pointer displays the Multiple Copy icon, right-click and drag upward to create a row of evenly-spaced copies.

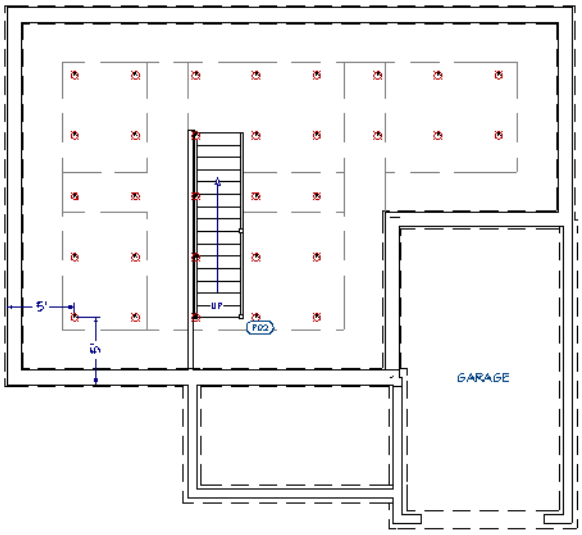


9. Release the right mouse button, then:



- With no mouse button pressed, drag to the right, across the wider portion of the basement.
- Click once to create an array of lights in the wider portion of the basement.

10. With the top right can light selected:



- Hold down the ***Shift*** key and select the light immediately below it to select it as well.
- Click the **Multiple Copy** edit button.
- Left-click and drag to the right to create three more pairs of lights.

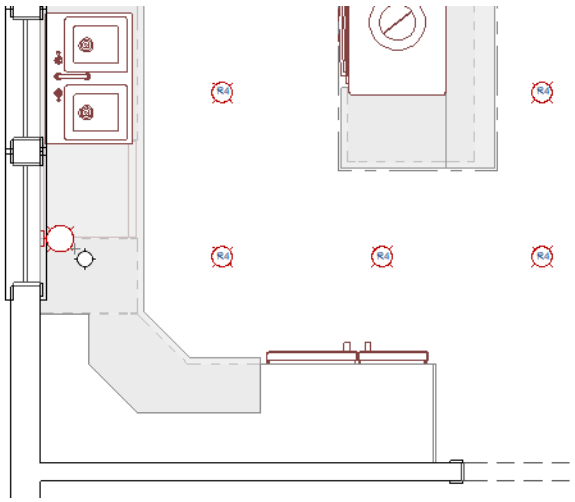
11. When you are finished, **Save** your work.

Adding Wall Lights

Wall lights can also add ambient, task and accent lighting.

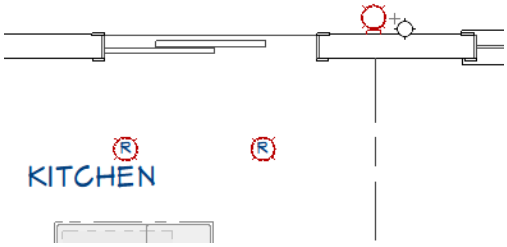
To add wall lights

1. Select **Build> Electrical> Light**, then click in the Kitchen, on the wall over the sink to place a sconce light at that location.

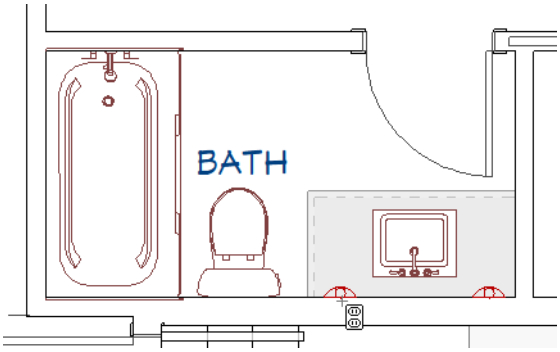


2. Click on the light to select it and click the **Open Object** edit button. In the Electrical Service Specification dialog, note that the light is the "Small Cone Sconce" specified as the default interior wall light, then click the Cancel button.

3. With the **Light** tool still active, click in the Deck, to the right of the sliding door.



4. Select this new light and click the **Open Object** edit button. Notice that this light is the "Wide Brim Sconce" specified as the default exterior wall light, then click the Cancel button.
5. In the **Library Browser**, browse to Core Catalogs> Architectural> Lighting> Wall Mounted> Flush Mount.
6. Select the "Prism Sconce", then click in the Bath to place two sconces: one above each side of the vanity.



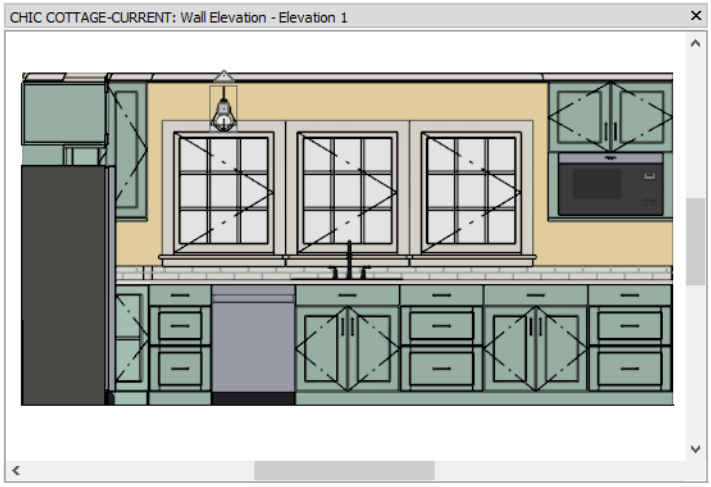
Once placed, wall lights can be modified. Properties like height are sometimes most easily adjusted in a 3D view.

To edit wall lights

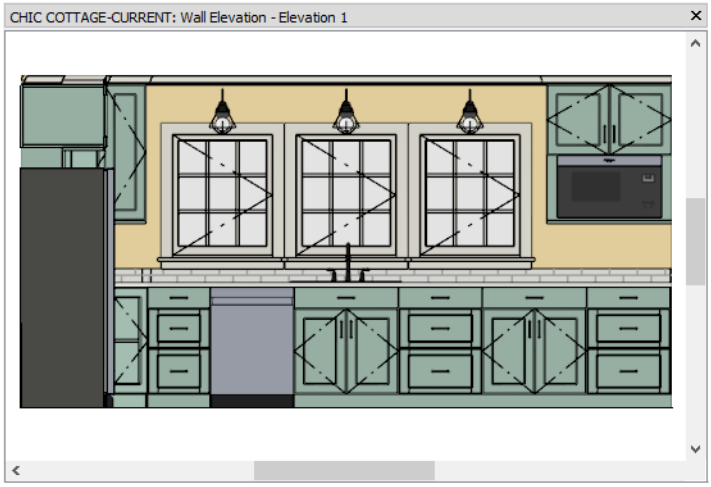
1. Select **3D> Create Orthographic View> Wall Elevation**, then click and drag a camera arrow in the Kitchen room, pointed towards the left vertical wall. Be sure to draw the camera arrow perfectly horizontal.
2. Click the **Select Objects** button, then click on the wall sconce to select it.



3. Click the **Open Object** edit button, and on the GENERAL panel of the Electrical Service Specification dialog, change the **Height to Center** to 86" and click OK.
4. With the sconce still selected, center it over the left window:



   - Click the **Center Object** edit button.
   - Move your mouse pointer over the left window.
   - Look for an outline to display around the window and a vertical dashed centering axis to display below it, near the bottom of the view extents.
   - When the outline and centering axis can be seen, click once to center the sconce.
5. Click the **Copy/Paste** edit button, then drag the sconce's Move edit handle to create a copy over the middle window.
6. Use the **Center Object** edit tool to center the new sconce over the middle window.
7. Repeat steps 4 - 6 to create a light centered over the right window as well.



8. The position of the bathroom sconces can be adjusted in the same manner.
9. When you are finished, select **File> Close View** to return to plan view and remember to **Save** your work.

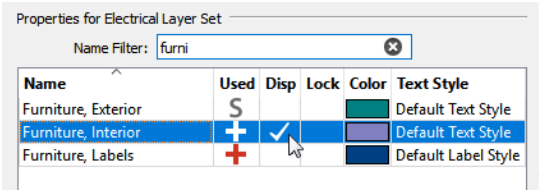
Adding Table and Floor Lights

A variety of additional light fixtures are available in the Library Browser that are designed to be cabinet-mounted or rest on a table or the floor.

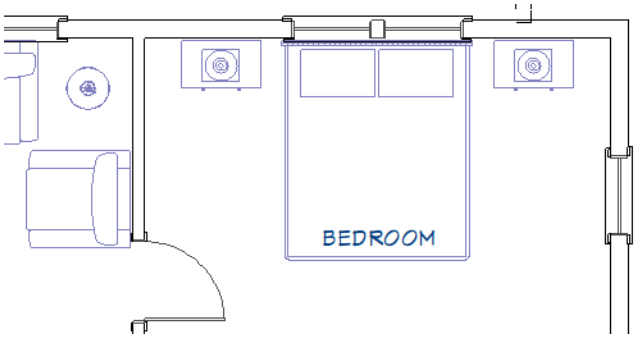
In order to place table and floor lamps, the display of furnishings should be turned on.

To add table and floor lights

1. If it is not already open, select **View> Active Layer Display Options**. In the Active Layer Display Options side window:
   - Begin typing "furniture" in the **Name Filter** field.
   - Select the "Furniture, Interior" layer and click in the "Disp" column to add a check mark.



2. In the **Library Browser**, type "table lamp" in the Search field and click on the Table Lamps **Folder** in the Filters drop-down list.
   - The Folders panel expands to show the contents of Chief Architect Core Catalogs> Architectural> Lighting> Lamps> Table Lamps.
   - Select the "Table Lamp", move the mouse pointer into the Bedroom, and click to place a lamp on each of the night stands.
3. In the Library, search for "floor lamp and select the Floor Lamps **Folder** in the Filters drop-down list.
4. Select a "Floor Lamp", and click to place a lamp in the top right corner of the Living room.



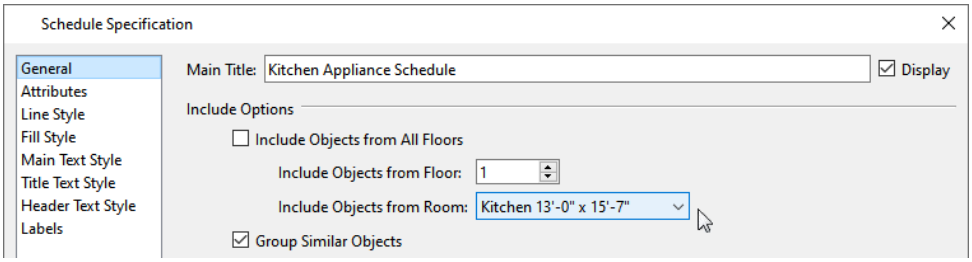
Creating Schedules

In previous tutorials, schedules were created using the Schedule Tools. Another option allows you to quickly create a schedule of objects located in a single room.

Although a typical plan is unlikely to have more than one electrical schedule, it is still a good idea to set up the schedule defaults the way you want them in your template plans. *"To set schedule defaults" on page 98 of the Doors and Windows Tutorial*.

To create a kitchen lighting schedule

1. Click the **Select Objects** button, then click in an empty space in the Kitchen to select it.
2. Click the **Create Schedule from Room** edit button.
3. In the Create Room Schedule dialog, select **Electrical** and click OK.
4. Click once in the plan view to place a schedule at that location.
5. Select the schedule and click the **Open Object** edit button. On the GENERAL panel of the Electrical Schedule Specification dialog:



- Change the Main Title to "Kitchen Lighting Schedule".
- Notice that "Kitchen 13’-0" x 15’ x 7"" is selected in the **Include Objects from Room** drop-down list.
- Under **Objects to Include**, uncheck **Outlets**, **Switches**, and **Other** so that only **Lighting** is selected.
- Click OK.

KITCHEN LIGHTING SCHEDULE		
2D SYMBOL	DESCRIPTION	COMMENTS
	4" RECESSED LIGHT	
	SMALL CONE SCONCE	

To prevent your plan views from becoming unnecessarily cluttered, schedules should be placed in CAD Detail windows.

To move a schedule to a CAD Detail

1. With the schedule still selected select **Edit> Cut**.
2. Select **CAD> CAD Detail Management**.
3. In the CAD Detail Management dialog, select the "Schedules Detail" and click Open.
4. Select **Edit> Paste> Paste** and click once in an empty space to the right of the other schedules to place the electrical schedule at that location.
5. Select **File> Close View** to close the Schedule Detail window.
6. When you are finished, **Save** your work.

Lights are often included in electrical legends, as well. See *"Adding a Legend" on page 328 of the Electrical Objects Tutorial*.

ADDING ANNOTATIONS

With lighting in place, relevant annotations can be added.

In previous tutorials, the "Kitchen & Bath Plan View" was active, annotations were added using "Kitchen and Bath Rich Text Defaults", and were placed on the "Text, Kitchen & Bath", layer. That layer was turned off, however, when the "Electrical Plan View" was opened. See *Light Fixtures on page 299*.

In addition to creating an uncluttered space for drawing lighting and other electrical objects, another benefit of switching to the "Electrical Plan View" is that annotations added while it is active will be placed on their own layer. This means that electrical annotations will display in the electrical plan but not in other views.

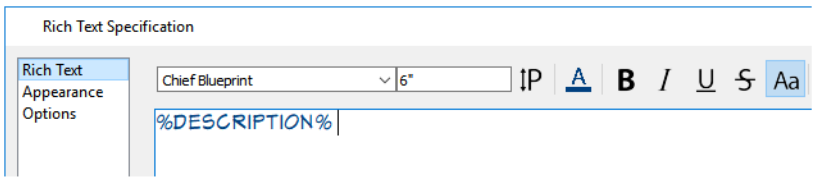
To set the Rich Text defaults

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser**
2. Right-click on "Electrical Plan View" and select **Edit View** from the contextual menu.
3. On the SELECTED DEFAULTS panel of the Saved Plan View Specification dialog, click the **Edit** button to the right of **Rich Text** to open the Rich Text Defaults dialog.
4. In the Rich Text Defaults dialog, notice that "Electrical Rich Text Defaults" is stated in the dialog box's title bar.
5. On the RICH TEXT panel:
   - Click the **Uppercase** Aa button.
   - Notice that the character size is set at 6". This is the same size as used in the Working Plan View and Roof Plan View, and will produce a capital A that is 1/8" tall when printed. See *"To set the rich text defaults" on page 172 of the Dormers Tutorial*.
6. On the APPEARANCE panel, note that Rich Text is placed on the "Text, Electrical" layer by default when this Saved Default is active.
7. Click OK to close both dialogs and apply your changes.

Text macros can be used to insert dynamic information about an object into a text object with a line with arrow that points to that object.

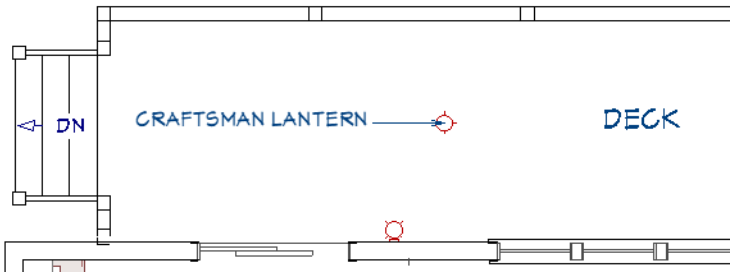
To use a text macro in rich text annotations

1. **Zoom** in on the Deck room.
2. Select **CAD> Text> Leader Line**, then:
   - Click on the center of the ceiling light and drag a line to the left. When the line is one or two plan feet in length, release the mouse button.
   - You can click and drag to draw a second line segment attached to the end of the first line if you wish. See *"To set leader line preferences" on page 100 of the Doors and Windows Tutorial*.
   - Alternatively, simply click an additional time to draw no additional leader line segments.
   - Either way, when you release the mouse button, the Rich Text Specification dialog opens.
3. On the RICH TEXT panel of the Rich Text Specification dialog:



   - Type the following macro into the text field: %description%
   - Click OK.

4. Instead of displaying the text that you typed, the Rich Text object reports the Description of the light fixture that the leader line is snapped to: in this case, "CRAFTSMAN LANTERN".



5. When you are finished, **Save** your work.

Lights and other electrical symbols are often listed in an electrical legend. See *Adding a Legend on page 328*.

You can continue working on this plan in the *Electrical Objects* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Lighting. Then, click OK.
3. Notice that Chic Cottage-Lighting is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for adding lighting to a plan.

To save a plan revision *317*

Assessment Questions

Tutorial 17 - Light Fixtures

How does the Light tool behave differently depending on where you click?

- The Light tool will place a different fixture, depending on where you click: when you click on a wall, an interior or exterior sconce will be placed; when you click in the middle of a room, a ceiling mounted fixture will be placed; if you click outside of a structure, a path light will be created.

What are two ways you can get a dimension line to locate a light fixture?

- Dimension lines can be drawn directly from a light fixture to another object.
- A dimension line can also be drawn between two objects, and then an extension line can be added to the dimension line, locating the light fixture as well.

What are two edit tools that can be used to create an evenly spaced set of ceiling lights?

- The Transform/Replicate Object and Multiple Copy edit tools can both be used to create evenly spaced sets of ceiling lights.

What edit tool lets you efficiently create an array or grid of ceiling lights?

- The Multiple Copy tool lets you create an array of objects like ceiling lights.

What edit tool lets you create a schedule of objects located in a specific room?

- The Create Schedule from Room edit tool lets you create a schedule of objects that are located in the currently selected room.

Electrical Objects

Like lighting, electrical switches and outlets are an important practical consideration. So, too, are data and security items like jacks and smoke detectors.

Learning Objectives

This lesson describes best practices in Chief Architect for placing electrical, data, and security items. Concepts introduced include:

Productivity Tips *319*

Setting the Defaults *319*

Using Plan Views *320*

Placing Outlets *320*

Placing Switches *325*

Drawing Electrical Connections *326*

Adding Data and Security Items *328*

Adding a Legend *328*

Creating Revisions *329*

Organizing Documents in the Project Browser *329*

Organizing Documents in the Project Browser *378*

Organizing Documents in the Project Browser *450*

File Management

At this point in the design process, both the Chic Cottage-Lighting and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Lighting was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to add electrical objects to a plan, keep in mind these tips to improve your productivity.

Drawing and Editing

- Use the **Center Object** edit tool to center a light fixture relative to a window, cabinet, or other object.
- The **Reflect About Object** edit tool lets you move one outlet to the other side of another outlet; use with the **Copy/Paste** edit tool to create a row of evenly spaced outlets.
- Make a dimension line locate an additional object by adding an extension line to it.

Content

- A selection of special outlets, switches, and data and security items is available in the Core Catalogs of the Library Browser.
- Create template plans that have your preferred switches and outlets set as the defaults and ready for use when you begin a new plan.

Interface

- Wall mounted items like outlets and switches are often best edited in camera views.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Ctrl/⌘ + L*** - Library Browser
- ***Spacebar*** - Select Objects
- ***Tab*** while moving - Enter Coordinates
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When adding electrical objects to a plan, it is a good idea to set your Electrical Defaults in advance.

Unlike other drawing tools, Electrical Tools place symbols from the Library. You can specify which symbols are placed by these tools in the Electrical Defaults dialog. See *"To set the Electrical Defaults for light fixtures" on page 300 of the Light Fixtures Tutorial*.

An electrical layout is an example of a plan view that requires its own set of annotations and layer settings. See *To switch to a different saved plan view on page 301*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

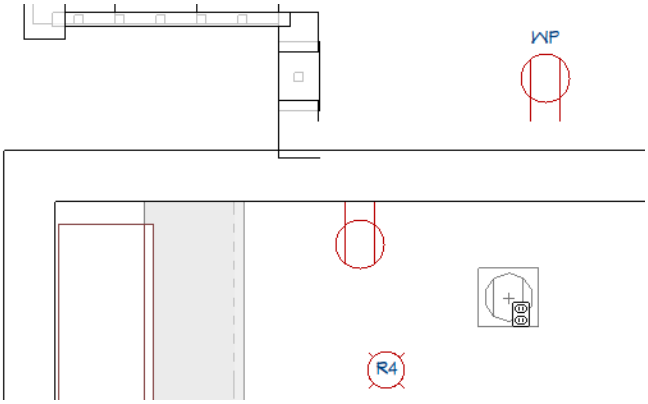
The Electrical Plan View will work well for adding electrical and data items, as it did when adding lighting in the *Light Fixtures* tutorial. See *"To switch to a different saved plan view" on page 301 of the Light Fixtures Tutorial*.

Placing Outlets

Electrical Outlets can be placed using the 110V, GFCI, and 220V Outlet tools, as well as from the Library. The type of outlet symbol that is created by the Outlet tools depends on the location where it is placed.

To place wall and floor outlets

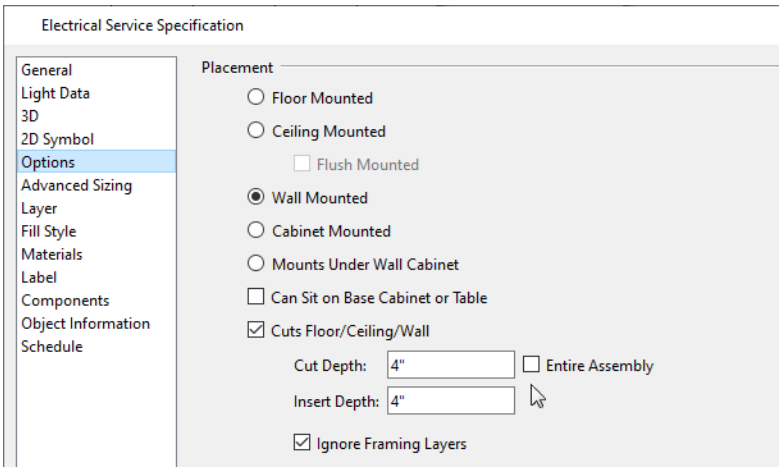
1. **Zoom** in on the Kitchen.
2. Select **Build> Electrical> 110V Outlet**, then click along the wall at the back of the refrigerator to place a 110V outlet at that location.
3. Place another 110V Outlet to the left of the sliding door to the Deck.
4. Place a third in the Deck room, also to the left of the sliding door.
   - Note that its symbol includes the letters WP, which stands for "weatherproof".
   - This outlet is currently offset from the wall because it is attached to the stone layer of the lower exterior pony wall. This will be addressed in a moment.
5. Move the mouse pointer an empty space in the Kitchen and notice that the object preview outline has a square around it, indicating that a floor outlet will be placed at that location if you click.



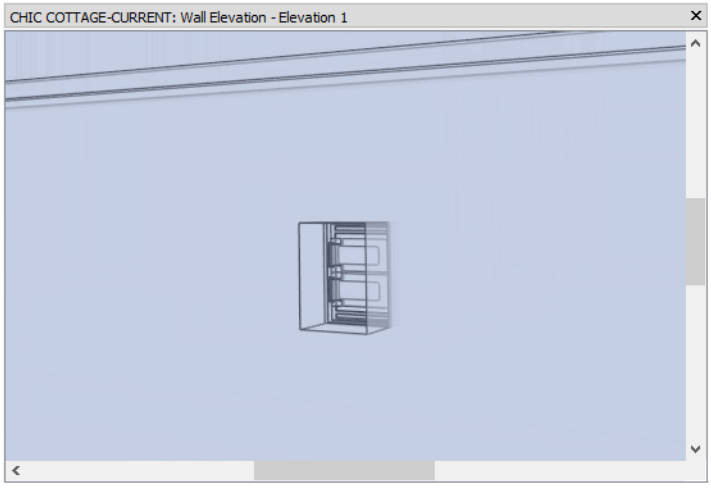
6. Click the **Select Objects** button, then click on one of the 110 Volt outlets to select it.
   - If you select a different object like a wall, cabinet, or fixture instead, click the **Select Next Object** edit button until the outlet becomes selected.
   - You can see what kind of object is currently selected on the left side of the Status Bar.
   - With the outlet selected, click the **Open Object** edit button and on the General panel of the Electrical Service Specification dialog, notice that the **Height to Center** is 11 1/2" and click Cancel.

To recess a wall-mounted electrical object

1. Click the **Select Objects** button, then click on the weatherproof outlet in the Deck room to select it.
2. Click the **Open Object** edit button and on the OPTIONS panel of the Electrical Service Specification dialog, change the **Distance from Wall** value to -4", then click OK.



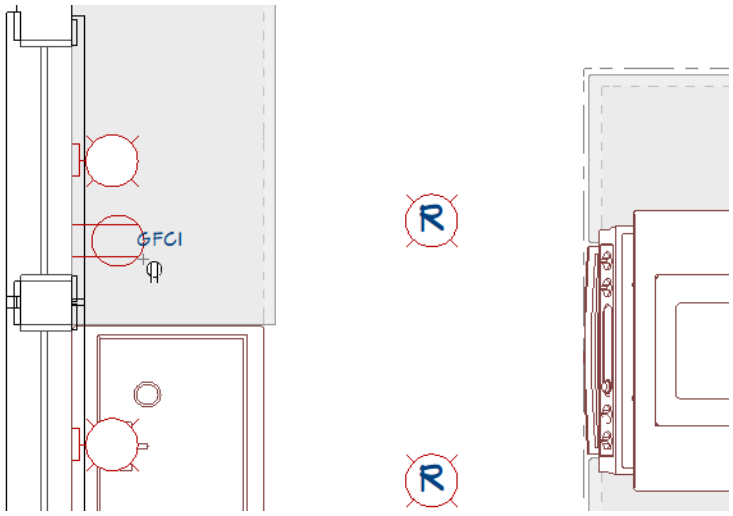
   - Check the box beside **Cuts Floor/Ceiling/Wall**.
   - Specify both the **Cut Depth** and **Insert Depth** to be 4".
   - Click OK.
3. The outlet is now drawn flush with the wall.
4. You can also see the results in a **Camera** view.



   - The outlet's inset is most easily seen in a Rendering Technique that represents surface edges using lines but does not show materials.
   - Select **3D>Rendering Techniques>Glass House**.
5. When you are finished, close the camera view and return to plan view.

To place an outlet above the countertop

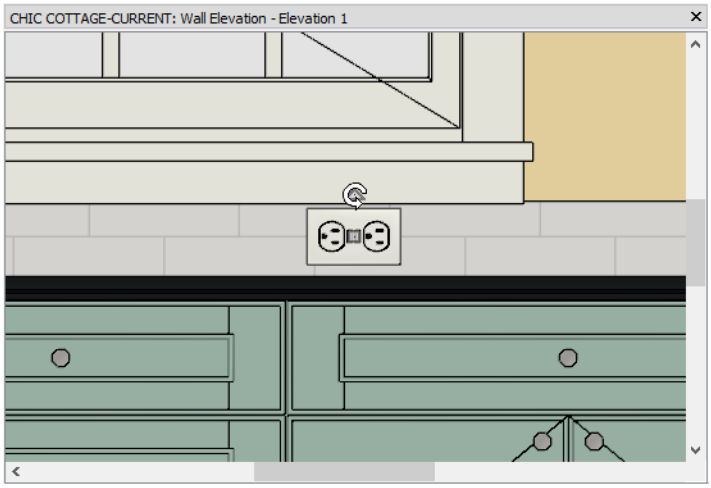
1. Select **Build> Electrical> GFCI Outlet**,
2. Click along the left vertical wall of the Kitchen, under a window, to place a GFCI outlet at that location.



3. Click on the outlet to select it and click the **Open Object** edit button. On the GENERAL panel of the Electrical Service Specification dialog:
   - Notice that the **Height to Center** is 43" rather than 11".
   - This is because this outlet was placed using an Outlet tool at a location where a countertop is present.
   - Because this outlet should be under the window, change the **Height to Center** is 39", then click OK.

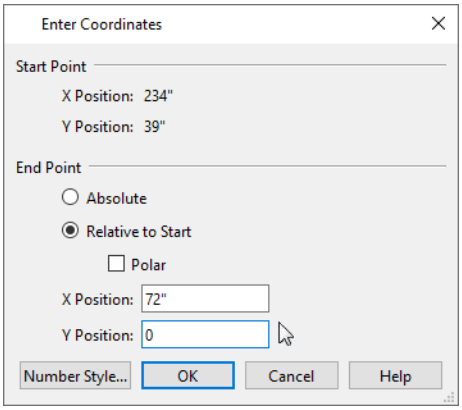
To rotate a wall-mounted electrical symbol

1. Select **3D> Create Orthographic View> Wall Elevation**, then click between the kitchen island and the cabinets to the left, and drag a camera arrow to the left.
2. In the Wall Elevation view, **Zoom** in on the outlet.
3. Click the **Select Objects** button, then click on the outlet to select it and rotate it so that it is oriented horizontally instead of vertically:
   - Move your mouse pointer over the triangular Rotate edit handle.
   - Click and drag in a circular motion until the cabinet has rotated 90°, then release the mouse button.
4. A Question message will ask if you want to regenerate the outlet's 2D plan view symbol.
   - Be sure to click **No** to continue using the standard symbol for 110V outlets.
   - If you click Yes, the standard CAD symbol for 110V outlets will be replaced by a thin rectangle representing the outlet's shape, as viewed looking straight down on it.

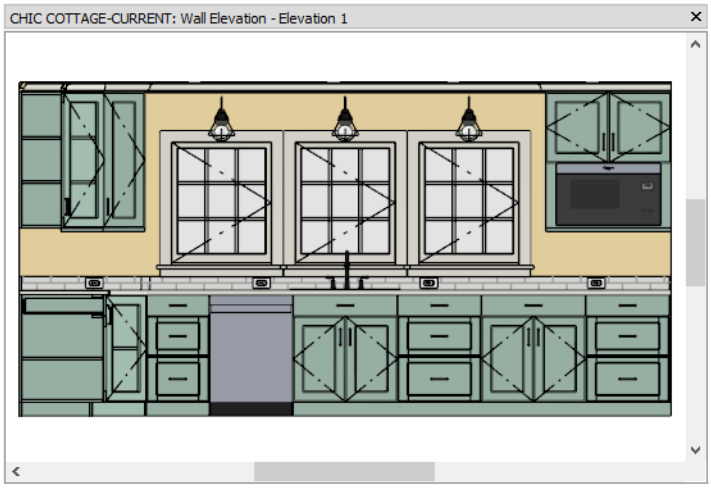


To lay out kitchen counter outlets

1. With the outlet still selected, click the **Center Object** edit button.
2. Move the mouse pointer over the apron sink base, and when a vertical centering axis displays, click once to center the outlet under the window.
3. Click the outlet's square Move edit handle and drag to the right, and with the mouse button held down, press the ***Tab*** key.
4. In the Enter Coordinates dialog:



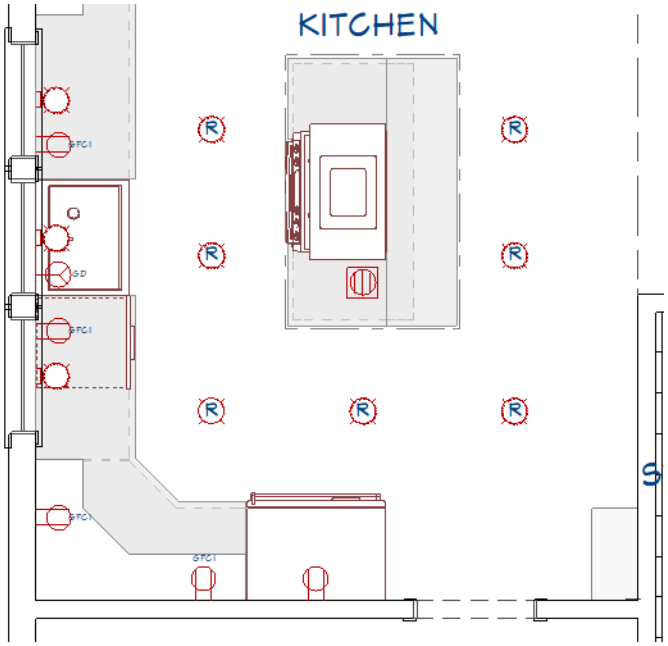
   - Make sure **Relative to Start** is selected.
   - Specify the **End Point X Position** as 72" and make sure the **End Point Y Position** is 0".
   - Click OK.
5. With the outlet still selected, click the **Transform/Replicate Objects** edit button.
6. In the Transform/Replicate Object dialog, which opens next:
   - Check the box beside **Copy** and set the **Number of Copies** to be 3.
   - The box beside **Move** should be checked. If there is not, click to add a check mark.
   - In the **Y Delta** field, type -48".
   - Make sure that **Relative to Itself** is checked and click OK.



7. Select **File> Close View** to return to plan view.
8. Copy and paste one more GFCI outlets on the horizontal wall, to the left of the refrigerator:
   - Select one of the existing GFCI outlets.
   - Click the **Copy/Paste** edit button.
   - Click once along the horizontal wall to place a final GFCI outlet.

To add outlets from the library

1. If it is not already open, select **View> Library Browser** .
2. In the Library Search field, type "outlets" and select the "Outlets" **Folder** line item in the Filters drop-down list.
3. The Folders panel will show the contents of Core Catalogs> Mechanical, Electrical, Plumbing> Electrical> Outlets.
4. Browse to Floor Mounted> 220V and select the 220V Receptacle symbol.
5. Move the mouse pointer over the kitchen island click once to place a 220 volt floor outlet for the range.
6. Next, browse to Outlets> Surface Mounted> Appliances and place a wall-mounted Garbage Disposal outlet behind the sink base

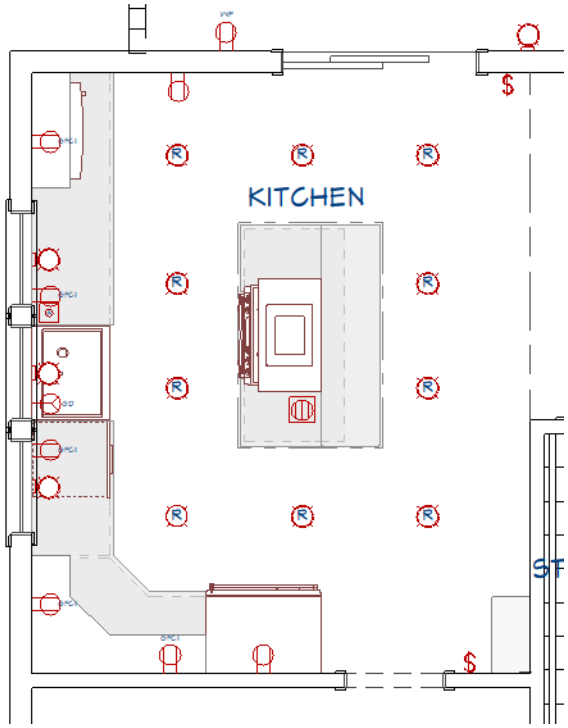


Placing Switches

With lights and outlets in place, electrical switches to control them are needed. Switches can be placed using the Switch tool as well as by selecting symbols from the Library Browser.

To place switches

1. Select **Build> Electrical> Switch** $, then click on the back horizontal wall, to the right of the sliding door to the Deck to place a switch at that location.
2. Place a second switch to the right of the doorway into the Dining room.
3. Select **View> Library Browser**, then browse to Core Catalogs> Mechanical, Electrical, Plumbing> Electrical> Switches.
4. Select the "Air Switch - Countertop" symbol, then on the countertop near the sink to place an air switch for the garbage disposal at that location.

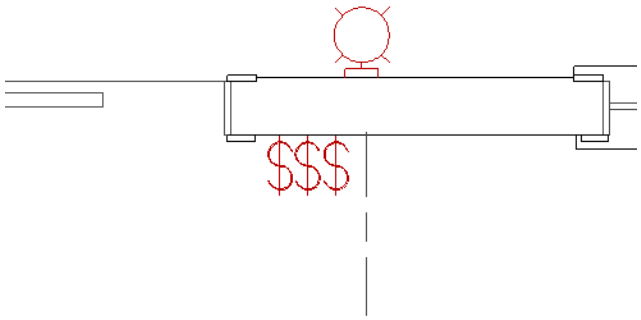


Multiple single switches can be positioned side-by-side and then blocked together to form multi-gang switches. Multi-gang outlets can also be created using this technique.

To create multi-gang switches

1. **Zoom** in on the switch located near the sliding door to the Deck.
2. Use the **Switch** $ tool to place two more switches to the right of the existing switch.
3. Group-select the switches:
   - Select one of the switches, hold down the ***Shift*** keys on the keyboard, then click on the other two switches to add them to the selection set.
   - The number of selected objects is reported on the left side of the Status Bar at the bottom of the program window.

4. With the three switches group-selected, click the **Make Ganged Electrical Block** edit button.



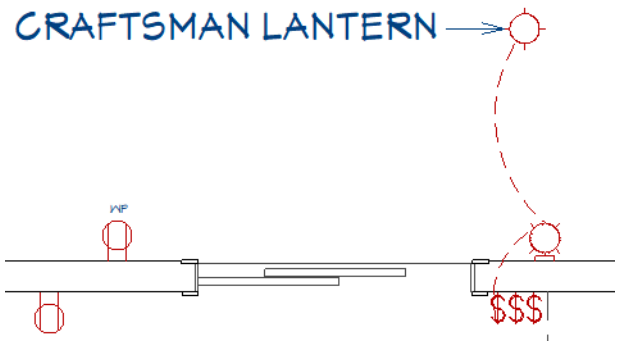
5. Place a second switch to the right of the doorway to the Dining room and created a Ganged Electrical Block there, as well.
6. When you are finished, **Save** your work.

Drawing Electrical Connections

With lights, outlets, and switches in place, wiring connections can be drawn.

To draw electrical connections

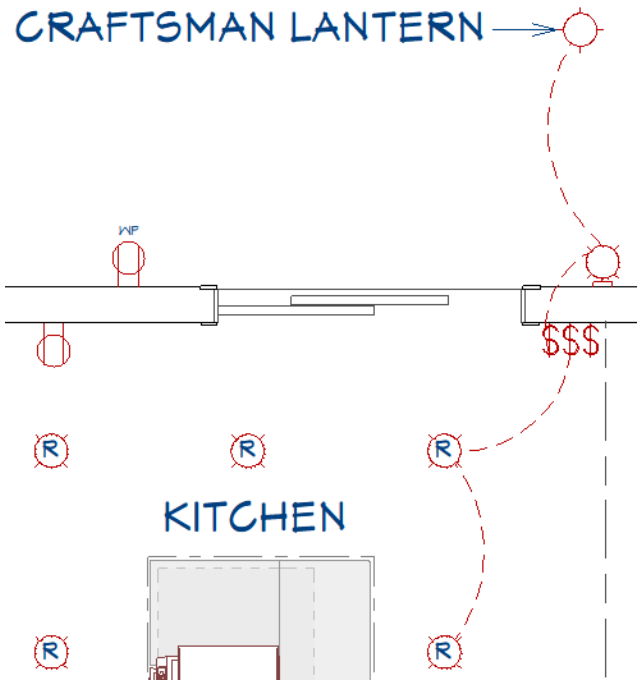
1. Select **Build> Electrical> Electrical Connection**, then click on the switch that is closest to the sliding door to the Deck.
2. Hold the mouse button down, drag a line to the exterior wall light on the Deck, and release the mouse button to create an Electrical Connection spline.
3. Draw a second spline between the wall light and the Deck ceiling light.



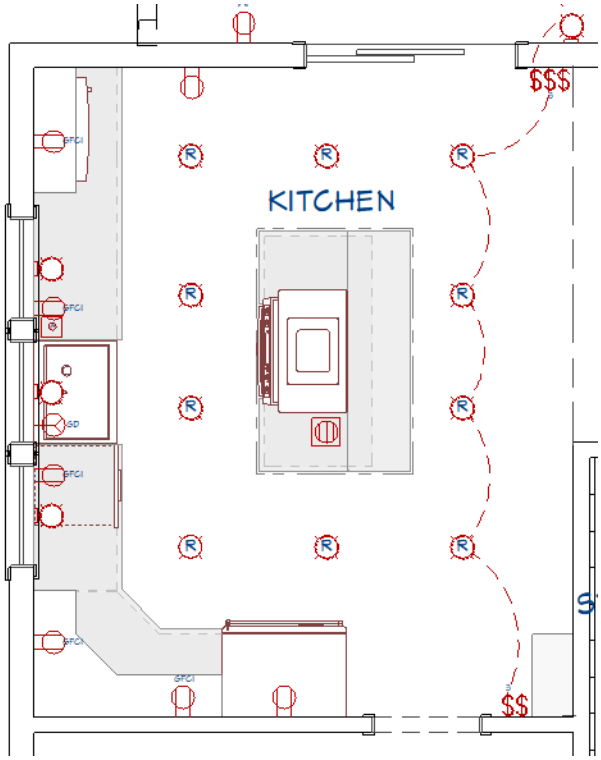
To create three way connections

1. Use the **Electrical Connection** tool to draw an Electrical Connection spline between the middle switch to the right of the sliding door and the top right can light in the Kitchen.

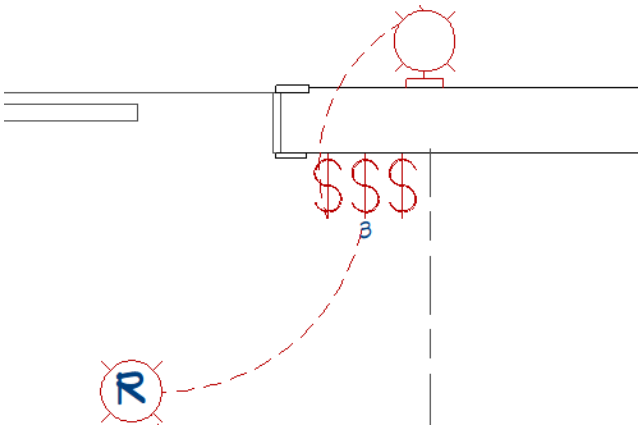
2. Draw another spline between the top right can light and the light located below it.



3. Continue drawing splines to connect the four lights on the right side of the Kitchen.
4. Draw a final spline from the bottom right can light to a switch located to the right of the doorway to the Dining room.



5. Notice that when the circuit has switches on each end, they automatically become 3 Way switches.



6. When you are finished, be sure to **Save** your work.

Once drawn, Electrical Connection splines can be selected and edited like other spline-based objects.

Adding Data and Security Items

A selection of data and security objects is available in the Library.

To add data and security symbols

1. Select **View> Library Browser** to open the Library Browser side window.
2. Browse to Core Catalogs> Mechanical, Electrical, Plumbing> Electrical.
3. Notice that there is a selection of Detectors and Alarms, Jacks, and other Special Symbols.
4. Select any of these symbols to place them in your plan.
5. When you are finished, remember to **Save** your work.

Adding a Legend

An electrical legend can be created using an Electrical Schedule.

To create an electrical legend

1. If it is not open, select **View> Project Browser**, then:
   - Click the arrow next to CAD Details to expand the category.
   - Right-click on "Legends and Notes" and select Open View from the contextual menu.
   - You can also open CAD Detail windows by selecting **CAD> CAD Detail Management**.
2. Select **Tools> Schedules> Electrical Schedule**, then click in an empty space near the Wall Legend to place an Electrical Schedule.
3. Select the new schedule and click the **Open Object** edit button.
4. On the GENERAL panel of the Electrical Schedule Specification dialog:
   - Click in the Main Title text field and rename the schedule "Electrical Legend".
   - Make sure both **Scale Images** and **Use Plan View Scale** are checked.
5. Remember to **Save** your work.

You can continue working on this plan in the *Floor Framing* tutorial.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Electrical. Then, click OK.
3. Notice that Chic Cottage-Electrical is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Organizing Documents in the Project Browser

Before moving on to the Framing Tutorials, organize your Kitchen and Bath plans in a new folder.

To organize Plans using custom folders

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser**.
2. Right-click on the Chic Cottage Project and select **New Folder** from the contextual menu.
3. A new folder is created immediately below the Project level line item and an inline text editor is active.
4. Type a descriptive name for the folder and press the ***Enter*** key. Here, "Kitchen and Bath Tutorials" is used.
5. Click on the "Chic Cottage-Cabinet Style.plan" to select it, then:
   - Hold down the ***Shift*** key and click on Chic Cottage-Lighting".
   - These two documents as well as the three documents listed between them are selected as a group.
6. Click and drag the selection to the "Kitchen and Bath Tutorials" folder. When the folder becomes highlighted, release the mouse button.'

Review

This lesson describes the best practices for placing electrical outlets and switches.

To place wall and floor outlets *320*

To recess a wall-mounted electrical object *321*

To place an outlet above the countertop *322*

To rotate a wall-mounted electrical symbol *322*

To lay out kitchen counter outlets *323*

To add outlets from the library *324*

To place switches *325*

To create multi-gang switches *325*

To draw electrical connections *326*

To create three way connections *326*

To add data and security symbols *328*

To create an electrical legend *328*

To save a plan revision *329*

To organize Plans using custom folders *329*

To organize Plans using custom folders *379*

To organize Plans using custom folders *450*

Assessment Questions

Tutorial 18 - Electrical Objects

How does the Outlet tool behave differently depending on where you click?

- The Outlet tool will place a different outlet type, depending on where you click:
  - Click on a wall in an interior room to place a standard 110V outlet.
  - Click on a wall in an exterior room or on the building's exterior to place a weatherproof outlet.
  - Click in the middle of a room to place a floor mounted outlet.

What settings allow you to recess a wall-mounted outlet into the surface of its owner wall?

- The Cuts Floor/Ceiling/Wall setting on the Options panel of the Electrical Service Specification dialog along with the Cut Depth and Insert Dept settings allow you to inset an outlet into a wall.

How do you create multi-gang Switches?

- Multiple single switches positioned side-by-side on a wall can be grouped into ganged electrical blocks using the Make Ganged Electrical Block edit tool. Multi-gang outlet can also be created using this tool.

What tool can be used to connect Switches to Lights and Outlets?

- The Connect Electrical tool can be used to draw splines connecting switches to lights and outlet.

Where can you specify whether an outlet is floor or ceiling mounted?

- Where an outlet mounts is specified on the Options panel of its Electrical Service Specification dialog.

Why is it recommended that you not regenerate a wall outlet's 2D Block?

- Outlets and other electrical objects are represented in plan view using standard 2D symbols. If an outlet's CAD Block is regenerated, the result will be based on a top-down view of its wall plate, which is not normally used in plan views.

Framing Tutorials

Chapter 5

The Framing Tutorials describe best practices for generating and editing framing in Chief Architect Premier:

Floor Framing

Floor platforms are framed using joists and beams, often using a combination of automatic and manually edited framing. Lowered ceilings can be added under floor platforms, as well.

Learning Objectives

This lesson describes best practices in Chief Architect for generating floor and ceiling framing. Concepts introduced include:

File Management

At this point in the design process, both the Chic Cottage-Electrical and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Electrical was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create floor and ceiling framing, keep in mind these tips to improve your productivity.

Drawing and Editing

- Before generating framing, place a **Framing Reference Marker**  at the point where you would like the framing layout to be measured from.
- Most framing plans are a combination of manually drawn and automatically generated framing objects.

Content

- Create template plans that have your preferred structural defaults set and ready for use when you begin a new plan.

Interface

- When drawing and editing framing, it may be helpful to turn off **Grid Snaps**  . **Object Snaps**  , however, should be left on.
- Default Sets let you activate a set of defaults and layer settings for a specific purpose: for example, framing plans.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

SETTING THE DEFAULTS

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When adding floor and ceiling framing to a plan, there are several defaults of particular importance.

The default Floor and Ceiling Joists were specified in the House Design chapter. See *"To set the default floor structures" on page 12 of the Exterior Walls Tutorial*.

Joist spacing and Rim Joist characteristics are set for each floor level in the Automatic Framing Defaults dialog. See *To set the automatic floor framing defaults on page 334*.

At various points in the design process, you have encountered Framing Members, for example:

- Creating a new Wall Type. See *"To create a new Wall Type" on page 9 of the Exterior Walls Tutorial*
- Setting the default Floor and Ceiling Joists. See *"To set the default floor structures" on page 12 of the Exterior Walls Tutorial*.
- Creating a custom Hat Channel profile. See *"To create a custom hat channel framing type" on page 180 of the Custom Ceilings Tutorial*.

Before building framing, now is a good time to take a closer look at default Framing Type Defaults, which describe different types of boards and control the appearance and description of all framing members in a Plan.

To set Framing Type Defaults

1. Select **Edit> Default Settings**  to open the Default Settings dialog.
   - Click the arrow beside “Framing” to expand the category.
   - Select "Framing Types" and click the **Edit** button.
2. In the Framing Type Management dialog:
   - Notice that a variety of common structural member types are listed in the table, while a selection of management tools are found on the right.
   - Select "I-Joist" and click the **Edit** button on the right.
     - In the I-Joist Framing Type Defaults dialog, note that the Composition is Wood, the Shape is I-Joist/Beam, and that I-Joist size is not described using Nominal Sizes.
     - Click Cancel
   - Select "Lumber" and click the **Edit** button.
     - In the Lumber Framing Type Defaults dialog, that "Lumber" is composed of Wood, has a rectangular shape, and is described using Nominal Sizes.
     - Click Cancel.
   - Select "LVL" and click the **Edit** button.
     - In the LVL Framing Type Defaults dialog, that "LVL" is composed of Wood, has a rectangular shape, composed of wood, but unlike Lumber is not described using Nominal Sizes.
     - Click Cancel.

- "I-Joist" was the original Framing Type for Floor and Ceiling Joists and was replaced by "Lumber" in the Exterior Walls tutorial. "LVL", meanwhile, is the default Framing Type for Rim Joists. See *To set the automatic floor framing defaults on page 334*, below.

3. You can examine additional Framing Members in the list by clicking the **Edit** button and then clicking Cancel.
4. When you are finished, click OK and then Done to close both dialogs and return to plan view.

Snap settings play an important role when framing objects are drawn and edited. It is usually helpful to toggle Grid Snaps off. Object Snaps, however, should be toggled on.

To set the Snap Settings

1. Begin by turning off Grid Snaps: select **Edit> Snap Settings>** and notice whether there is a small check mark in the icon to the left of **Grid Snaps** .
   - If there is a check mark, Grid Snaps are currently toggled on. To turn them off, click on **Grid Snaps** in the submenu.
   - If there is no check mark, Grid Snaps are already toggled off.
2. Make sure that Object Snaps are turned on: select **Edit> Snap Settings> Object Snaps** .

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

Several different Saved Plan Views have been used in previous tutorials. Framing is another example of a drawing task that is made easier and more efficient by using a Saved Plan View created for that purpose.

In the *Chic Cottage Roof* tutorial, the Roof Plan View and Working Plan View were open at the same time and the two views' appearance and settings were compared. Then, the Working Plan View was closed and work was done in the Roof Plan View.

A more efficient way to switch between Saved Plan Views is using the **Saved Plan View Control** drop-down in the toolbars.

To switch to a different saved plan view

1. Click the **Saved Plan View Control** drop-down, which is located in the top toolbar by default.
2. Select "Framing, Floor Plan View" from the drop-down list.
3. The current view window remains open, and now uses the Framing, Floor Plan View.
4. If it is not already open, select **View> Active Layer Display Options** . Note that the **Active Layer Set Options** side window reports that the "Framing, Floor Layer Set" is now active, and that:
   - Cabinets, fixtures, and electrical objects no longer display.
   - Room Labels do not display.
   - Doors and window openings now display only header lines using a dashed line style and do not include casing or sills.
5. Switch to the Project Browser side window by clicking on its tab. If it is not open, select **View> Project Browser** . Next:
   - Click the arrow to the left of "Plan Views" to expand the category.
   - Right-click on the "Framing, Floor Plan View" and select **Edit View** from the contextual menu.
6. On the Selected Defaults panel of the Plan View Specification dialog, notice that the names of the Saved Defaults associated with this view all begin with "Framing" and end with "Floor", then click Cancel.

The settings in the "Framing, Floor Plan View" are typical of floor framing drawings and will make working on floor framing easier.

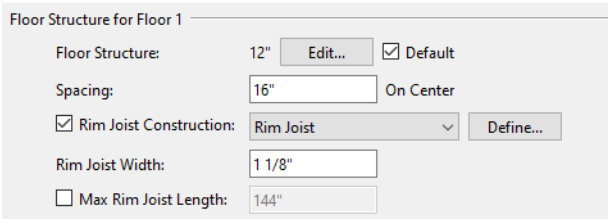
Generating Floor and Lowered Ceiling Framing

The floor framing for a given floor level is always generated or manually drawn on the floor level below.

The default floor framing structures were set in the *Exterior Walls* tutorial; however, additional floor framing defaults can also be set in the Automatic Framing Defaults dialog.

To set the automatic floor framing defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside “Framing” to expand the category.
   - Select "Automatic Framing" and click the **Edit** button.
2. On the FOUNDATION panel of the Automatic Framing Defaults dialog, under the "Floor Structure for Floor 1" heading:

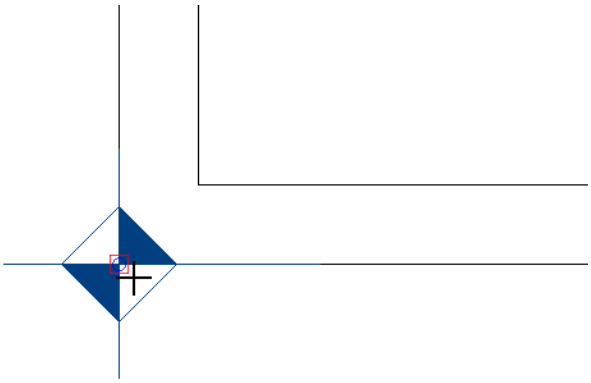


   - Notice that the **Floor Structure** is 12" in depth, as set in the *Exterior Walls* tutorial.
   - Make sure the **Spacing** is set to 16".
   - Specify the **Width** of the joists as 1 1/2".
3. You can also specify the attributes of **Rim Joist Construction**:
   - Click the **Define** button to open the Framing Member Defaults Management dialog.
   - Notice that Framing Members for a variety of common structural roles are listed here.
   - With "Rim Joist" selected, click the **Edit** button.
   - On the GENERAL panel of the Rim Joist Framing Member Defaults dialog, notice that Rim Joists are set to generate as "LVL" Framing Members.
   - You can take a look at the settings on the other panels, as well, and then click Cancel.
4. Click Cancel once more to return to the Automatic Framing Defaults dialog.
5. Repeat step #2 on the 1ST and 2ND panels, as well.
6. Click OK and then Done to close both dialogs.

Before generating framing, it is a good idea to place a Framing Reference Marker to specify the point where the framing layout is measured from.

To place a Framing Reference Marker

1. Go to Floor 1 and **Zoom** in on the lower left corner of the structure.
2. Select **Build> Framing> Framing Reference Marker** and move the mouse pointer over the wall intersection.
3. When an **Endpoint** Snap Indicator displays at the outside corner of the wall framing, click once to place a Framing Reference Marker at that location.

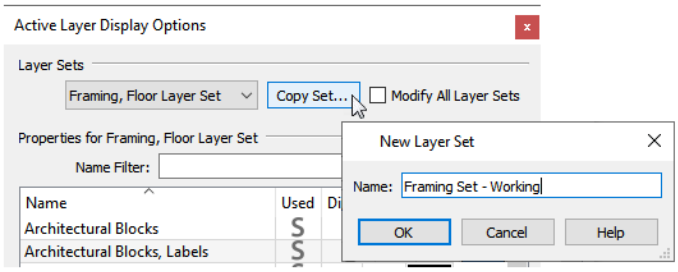


4. When you are finished, **Save** your work.

The Framing, Floor Plan View is set up specifically to show floor framing. For the purposes of exploring how floor and lowered ceiling framing work, both types of joists need to display. One solution is to create a custom layer set.

To create and use a custom Layer Set

1. If it is not already open, select **View>Active Layer Display Options**. In the Active Layer Display Options side window:
   - Note that "Framing, Floor Layer Set" is selected at the top of the window.
   - Click the **Copy Set** button.
2. In the New Layer Set dialog, type a short, descriptive **Name** for the new Layer Set, such as "Framing Set - Working" and click OK.



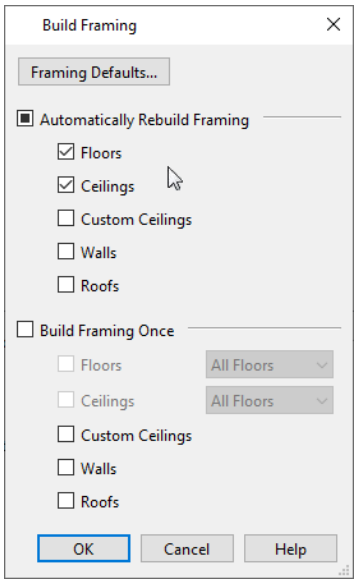
3. Notice that "Framing Set - Working" is now the selected layer set.
4. Turn on the "Framing, Ceiling Joists" layer.

The "Framing Set - Working" can now be changed as needed while editing framing objects, while the original "Framing, Floor Layer Set" will be ready for use when it is time to create framing plans for printing.

To generate floor and ceiling framing

1. Go **Down One Floor** to Floor 0 and select **Window> Fill Window**.
2. Select **Build> Framing> Build Framing**.

3. In the Build Framing dialog:



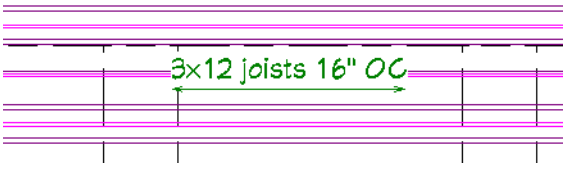
- You can choose which categories of framing to generate, as well as specify whether they automatically rebuild when changes are made to the model.
- Under the **Automatically Rebuild Framing** option, check the boxes beside **Floors** and **Ceilings**.
- Click OK.

> Note: When floor or ceiling framing is set to generate automatically in the Build Framing dialog, it will do so automatically for all floors, and will rebuild any time changes are made to the model that affect floor or ceiling platforms.

There are several ways to change the direction of floor and ceiling joists. The Joist Direction Line tool is one of them, although it is typically only useful in situations where joists can span in either direction and still be structurally sound.

To use a Joist Direction Line

1. Select **Build> Framing> Joist Direction** .
2. Click inside the basement room and drag to draw a horizontal line.
3. When you release the mouse button, notice that the floor and ceiling joists rebuild to follow the same direction as the Joist Direction Line.



4. Select the Joist Direction Line and use its Rotate handle to rotate it 90°. With Auto Rebuild Floor and Ceiling Framing checked, both the floor and ceiling joists rebuild vertically to follow the Joist Direction Line.
5. Select the Joist Direction Line and **Delete** it. Notice that both floor and lowered ceiling joists change back to their original directions.
6. Select **Edit> Undo** to restore the vertical Joist Direction Line.

7. Select **Build> Framing> Build Framing** and clear the check box next to **Automatically Build Framing**, which will prevent all categories of framing from automatically rebuilding, then click OK.
8. **Delete** the Joist Direction Line and notice that this time, none of the joists are modified.
9. When you are finished, **Save** your work.

Using Bearing Walls

Another way to control joist direction is by specifying key walls as Bearing Walls that floor and ceiling joists can bear on. This is the recommended method in most situations because it affects the structure by allowing shorter joist spans. See *Bearing Walls, Beams, and Lines*.

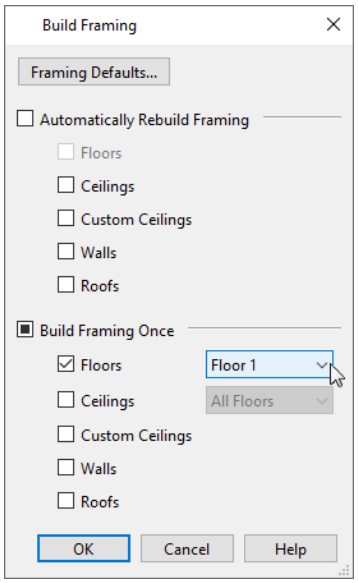
To specify an interior bearing wall

1. Click the **Select Objects** button, then click on the wall to the left of the staircase to select it.
   - If a different object is selected instead, click the **Select Next Object** edit button.
   - The type of object selected is stated on the left side of the Status Bar.
2. Click the **Open Object** edit button, and on the GENERAL panel of the Wall Specification dialog:
   - Check the box beside **Foundation Wall**.
   - Notice that a footing is added under the wall in its dialog preview.
3. On the STRUCTURE panel, check the box beside **Bearing Wall** and click OK.

Because Auto Rebuild Floor and Ceiling Framing has been turned off, the program must be directed to rebuild the floor joists.

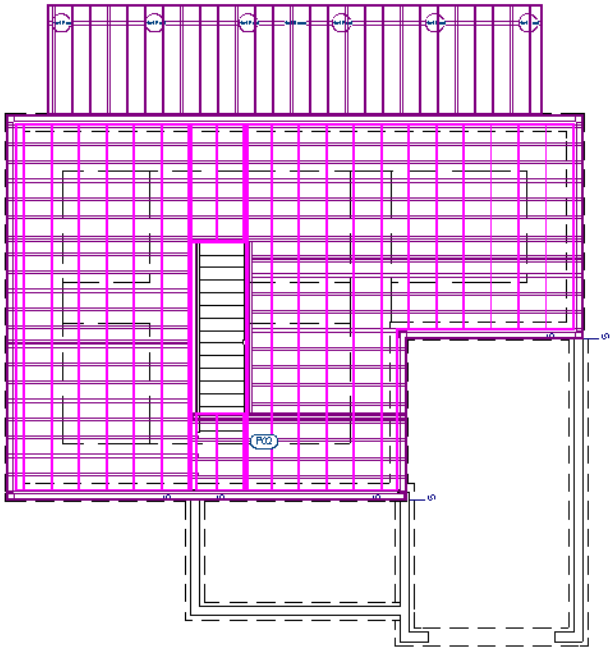
To rebuild floor framing for a single floor level

1. Select **Build> Framing> Build Framing**.
2. In the Build Framing dialog:



   - Under the **Build Framing Once** option, check the box beside **Floors**.
   - Select "Floor 1" from the drop-down list to only rebuild the floor joists for that floor level.
   - Click OK.

3. Notice that the floor joists change direction, running horizontally and bearing on the Bearing Wall created above, while the lowered ceiling framing is unchanged.



4. When you are finished, **Save** your work.

Adding Posts and Beams

One other way to modify the structure and produce shorter joist spans is by adding beams that floor and ceiling joists can bear on.

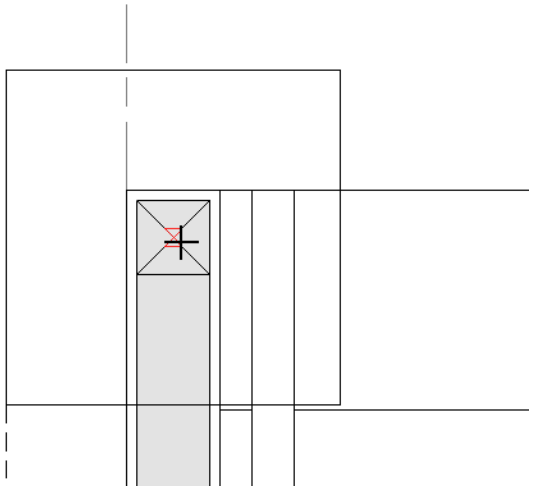
To set the post and beam defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog.
   - Click the arrow beside “Framing” to expand the category.
   - Select "Manual Framing" and click the **Edit** button.
2. On the Beams panel of the Manual Framing Defaults dialog:
   - Notice that Floor/Ceiling Beam **Construction** is set to "Floor/Ceiling Beam", measuring 12" x 3 1/2".
   - Click the **Define** button to examine the "Floor/Ceiling Beam" Framing Member Defaults, note that they are the "Lumber" Framing Type, and click Cancel.
   - Under the "Options" heading, click the radio button beside **With Joists**.
3. On the Posts panel:
   - Notice that Post **Construction** is set to "Post", measuring 3 1/2" x 3 1/2".
   - Click the **Define** button to examine the "Post" Framing Member Defaults, note that they are the "Lumber" Framing Type, and click Cancel.
   - Notice that you can specify the defaults for Post Footings created using the Post with Footing tool: These should also be set to "Post", measuring 3 1/2" x 3 1/2".
4. Click OK and then Done to close both dialogs and apply your changes.

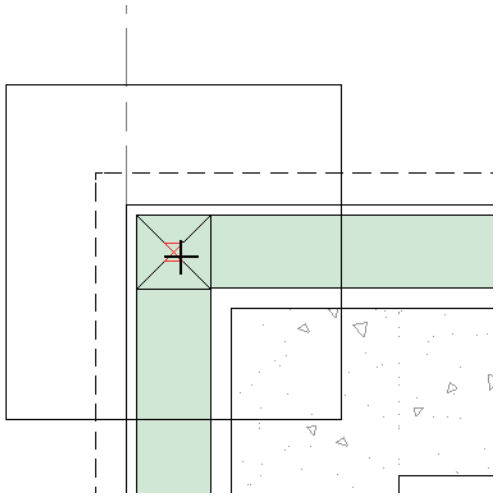
It is easier to place posts and draw beams when no joists are present in the view. When placing posts in walls, displaying wall layers is also helpful. An easy way to achieve both is to switch to the "Working Layer Set".

To add a post

1. If it is not already open, select **View> Active Layer Display Options** and then:
   - Select "Working Layer Set" from the Layer Sets drop-down list.
   - Notice that the display of framing is turned off while the display of wall layers is turned on.
2. **Zoom** in on the top end of the interior wall next to the stairwell.
3. Select **Build> Framing> Post with Footing**, then move the mouse pointer over the end of the wall and click once to place a post inside the wall's framing layer.



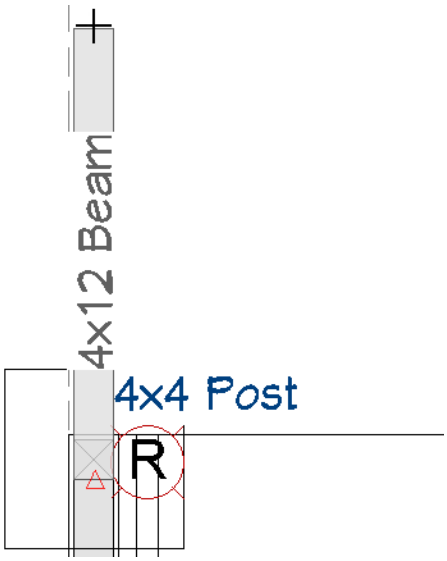
4. A message will ask whether you want to turn on the "Framing, Posts" layer. Click the Yes button.
5. Place a second Post with Footing in the corner of the wall furring at the top left corner of the Garage area.



With the posts in place, beams can be drawn. When With Joists is specified in the Framing Defaults dialog, Floor/Ceiling Beams will draw with the same top height as joists.

To draw a beam at joist level

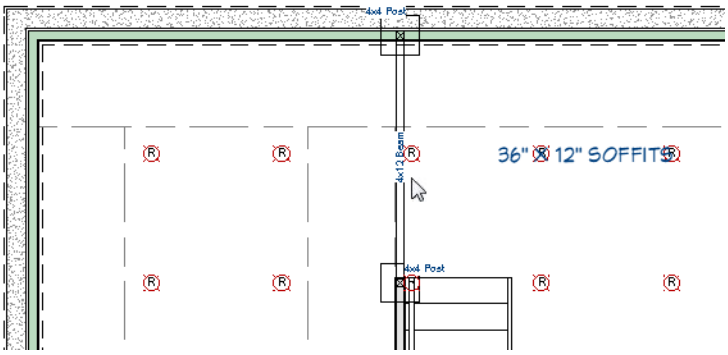
1. **Zoom** in on the post located at top end of the wall next to the staircase.
2. Select **Build> Framing> Floor/Ceiling Beam**, then:



   - Move the mouse pointer over the bottom edge of the post.
   - When the **Midpoint** △ snap indicator displays, click the mouse button.
   - Drag upward to draw a floor beam.
3. **Zoom** out as needed so the back wall of the basement can be seen.

> If you zoom out using the mouse scroll wheel, the beam will remain selected.

4. Extend the floor beam upward until it reaches the outside surface of the back basement wall's furring layer.
5. You can add a **Post with Footing** to support this end of the beam, as well.

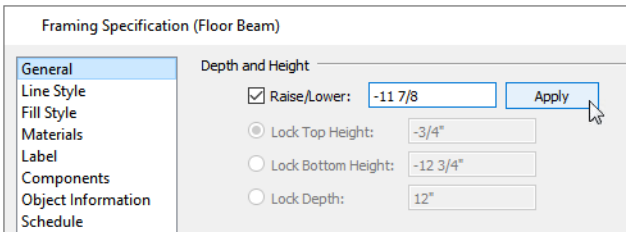


6. Notice that both the Beam and the Posts automatic labels describe their dimensions using Nominal Sizes.
7. Select the beam and click the **Open Object** edit button. On the GENERAL panel of the Framing Specification (Floor Beam) dialog:
   - Notice that the **Top Height** is -3/4", which puts it directly underneath the subfloor on Floor 1, even with the tops of the joists.
   - Click Cancel.

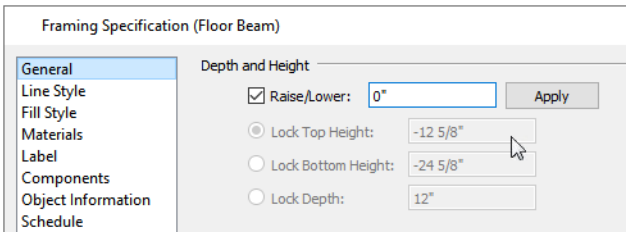
To create a beam that runs under the floor joists, you can either change the default Placement setting for beams to Under Joists, or you can draw a beam and then edit its height.

To position a beam below floor joists

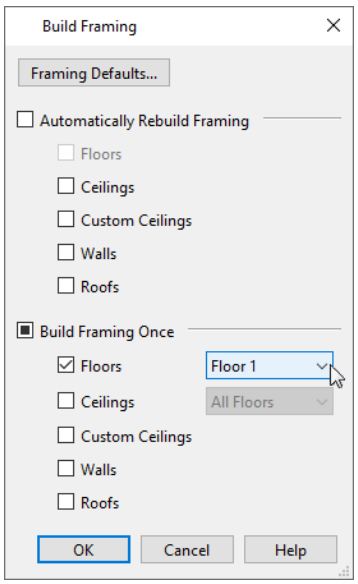
1. Draw a **Floor/Ceiling Beam** from the post located near the Garage to the back basement wall, as described above.
2. Add a **Post with Footing** at the top end of the beam.
3. Select the beam and click the **Open Object** edit button.
4. On the GENERAL panel of the Framing Specification (Floor Beam) dialog:



   - The **Top Height** is -3/4", which puts it directly underneath the subfloor on Floor 1, even with the tops of the joists.
   - Check the box beside **Raise/Lower**, and in the field to the right, type -11 7/8", which is the depth of the floor joists.
5. Click the **Apply** button and:

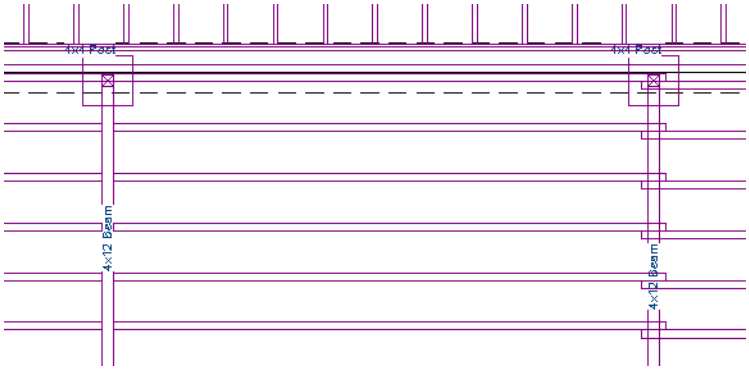


   - Notice that the **Top** and **Bottom Height** values adjust to this change.
   - Click OK to close the dialog and apply the change in height to the beam.
6. In the Active Layer Display Options side window, select "Framing Set - Working" as the active layer set again.
7. Select **Build> Framing> Build Framing**, and in the Build Framing dialog:

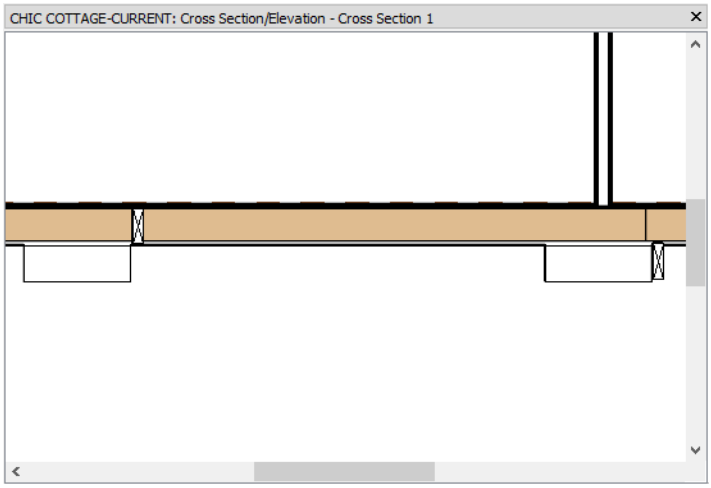


- Under the **Build Framing Once** option, check the box beside **Floors**.
- Select "Floor 1" from the drop-down list to only rebuild the floor joists for that floor level.
- Click OK.

8. Notice:
   - The joists butt against the beam on the left.
   - The joists lap over the beam on the right.
   - To make this easier to see, you can temporarily turn off the "Soffits" and "Framing, Ceiling Joists" layers.



9. The difference can also be seen in a Back Clipped Cross Section view. Select **3D> Create Orthographic View> Back Clipped Cross Section**, then click and drag a short camera arrow in the basement area. Be sure to draw the camera arrow straight up on-screen.



10. When you are finished, select **File> Close View** to return to plan view.

You can also create joists that pass over a beam without breaking.

To prevent joists from breaking over a beam

1. Select the beam on the right and click the **Open Object** edit button.
2. On the GENERAL panel of the Framing Specification (Floor Beam) dialog, uncheck **Bearing Beam** and click OK.
3. Select **Build> Framing> Build Framing**, and build Floor framing for Floor 1, as described above.
4. The joists now run across the top of the beam on the right without interruption.
5. Remember to **Save** your work.

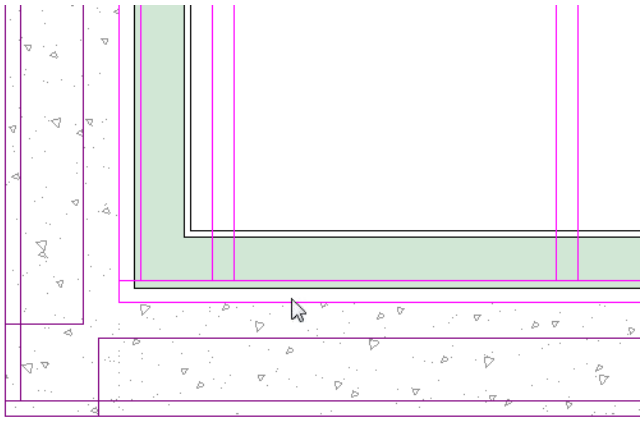
Editing Floor and Ceiling Framing

Once floor and ceiling framing have been generated, it can be modified. Floor and ceiling framing can be moved and resized using their edit handles, edit tools, and specification dialogs.

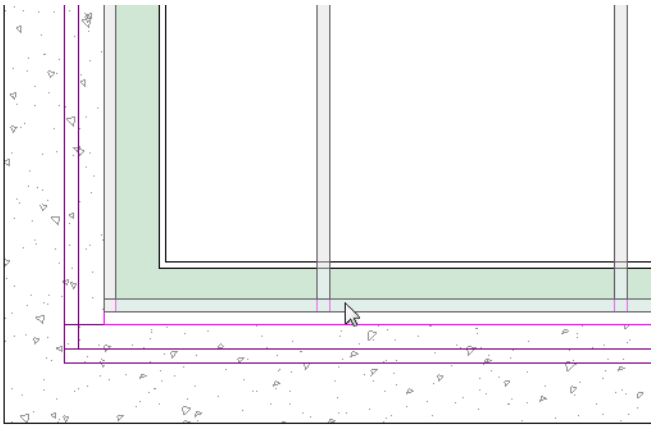
The lowered ceiling framing in Chic Cottage is for sound-proofing only, so it does not need to extend over the exterior concrete walls like the structural floor platform does.

To move joists

1. If it is not already open, select **View> Active Layer Display Options** . In the Active Layer Display Options side window:
   - First, make sure that the "Framing Set - Working" layer set is in use.
   - Turn off the display of the "Framing, Floor Joists" layer.
   - Turn off the "Footings" layer.
   - Turn on the "Walls, Layers".
   - Turn off the "Walls, Main Layer Only"
   - Lock the "Walls, Foundation" layer.
2. **Zoom** in on the bottom left corner of the basement.
3. Click the **Select Objects** button, then click on the horizontal ceiling joist located over air gap in the basement wall assembly.



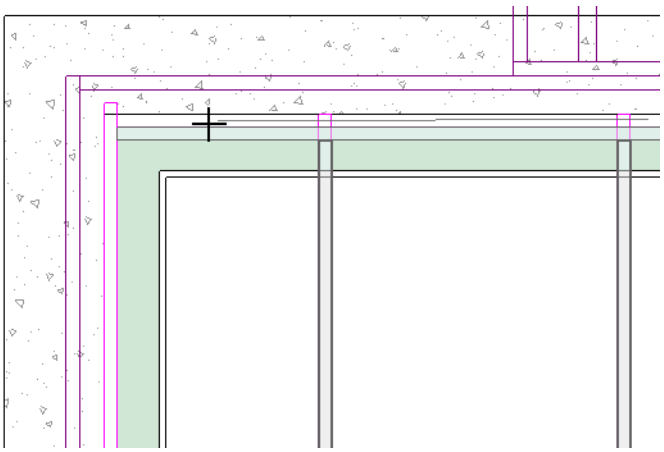
   - If a different object is selected instead, click the **Select Next Object** edit button.
   - When the joist is selected, it will display the grey Selection Fill color, which you can customize on the Colors panel of the Preferences dialog.
   - The type of object selected is also stated on the left side of the Status Bar.
4. Click the joist's Move edit handle and drag upwards until its bottom edge aligns with the outside edge of the basement wall's furring layer.
5. As you drag upwards, notice that the vertical joists display the Selection Fill color and are bumped upwards by the selected joist.



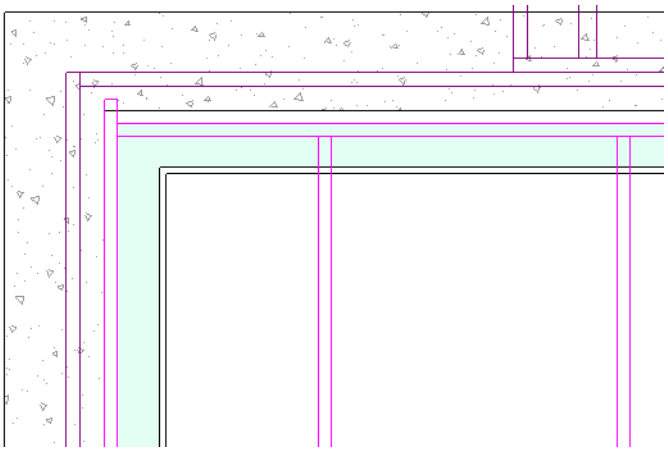
6. **Zoom** in on the top left corner of the basement. Notice:
   - The vertical joists extend through the exterior wall's air gap to the edge of the concrete layer.
   - The horizontal ceiling joist positioned at their ends was also pushed and is now located in the concrete layer.
7. Select **Edit>Snap Settings>Bumping/Pushing** to turn off the bumping and pushing behavior.
8. Select the horizontal joist and drag its Move edit handle downward until its top edge aligns with the outside edge of the basement wall's furring layer.
9. Notice that now, the vertical ceiling joists do not get pushed and extend through the horizontal joist after it is moved.
10. Select **Edit>Snap Settings>Bumping/Pushing** to turn the bumping and pushing behavior on again.

To trim joists

1. With the horizontal ceiling joist still selected:
   - Click the **Trim Object(s)** edit button.
   - Click the **Sticky Mode** edit button.
2. Move your mouse pointer just below the select joist, between the ends of the vertical ceiling joists that extend over the concrete wall.
3. Click and drag a temporary cutting line through one or more of the vertical ceiling joists' ends.



4. When you release the mouse button, the vertical joists are trimmed to the top edge of the selected horizontal ceiling joist.



5. Continue clicking and dragging to trim all of the vertical joists that extend over the selected horizontal joist.

To delete a joist

1. Select the vertical lowered ceiling joist located over the left basement wall.
2. Click the **Delete** edit button or press the ***Delete*** key.
3. Once you are done editing floor and ceiling framing, open the Active Layer Display Options side window and switch back to the Framing, Floor Layer Set.
4. When you are finished, **Save** your work.

ADDING ANNOTATIONS

With the floor framing in place, some framing annotations can be added.

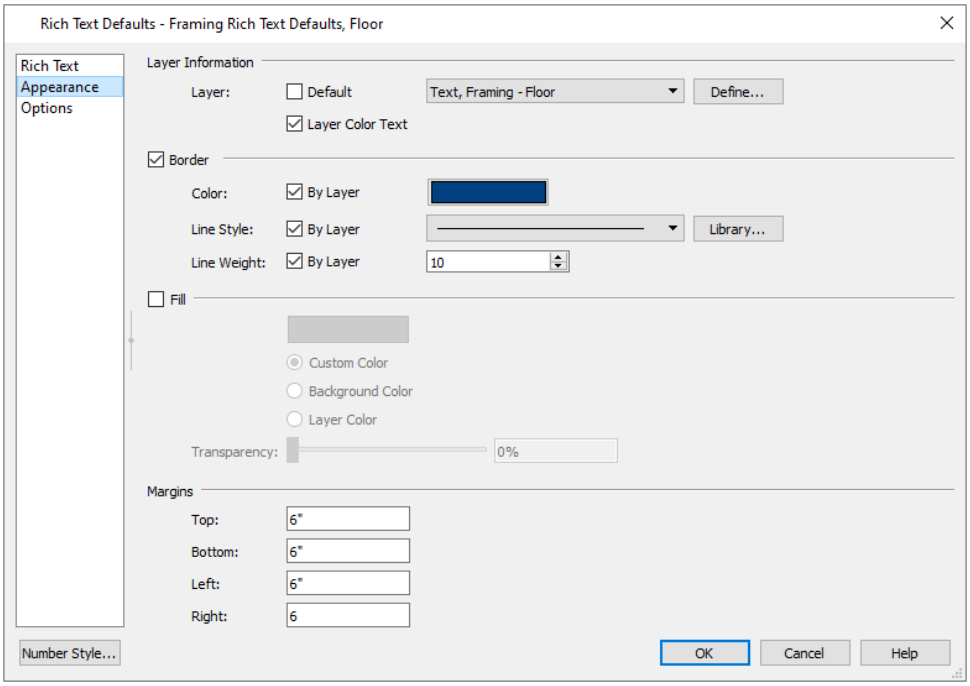
In the *Light Fixtures* and *Electrical Objects* Tutorials, the "Electrical Plan View" was active, annotations were added using "Electrical Rich Text Defaults", and were placed on the "Text, Electrical" layer. That layer was turned off, however, when the "Framing, Floor Plan View" was opened.

In addition to creating an uncluttered space for generating, editing, and displaying floor framing, another benefit of switching to the "Framing, Floor Plan View" is that annotations added while it is active will be placed on their own layer. This means that floor framing annotations will display in the floor framing plan but not in other views.

To set the rich text defaults

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** .
2. Right-click on "Framing, Floor Plan View" and select **Edit View** from the contextual menu.
3. On the SELECTED DEFAULTS panel of the Saved Plan View Specification dialog, click the **Edit** button to the right of **Rich Text** to open the Rich Text Defaults dialog.
4. In the Rich Text Defaults dialog, notice that "Framing Rich Text Defaults, Floor" is stated in the dialog box's title bar.
5. On the RICH TEXT panel:
   - Click the **Uppercase** Aa button.
   - Click the **Align Center** button.
   - Notice that the character size is set at 6". This is the same size as used in the Working, Roof, and Electrical Plan Views and will produce a capital A that is 1/8" tall when printed.

6. On the APPEARANCE panel:

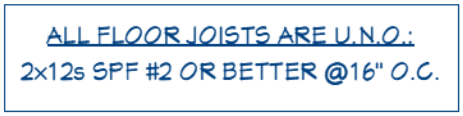


- Note that Rich Text is placed on the "Text, Framing - Floor" **Layer** by default when this Saved Default is active.
- Check the box beside **Border** to produce a border around Rich Text objects when "Framing Rich Text Defaults, Floor" is active and notice that the border's default Color, Line Style, and Line Weight can be specified.

7. Also on the APPEARANCE panel, increase the **Margins** to 6".
8. Click OK to close both dialogs and apply your changes.

To add rich text annotations

1. Select **CAD> Text> Rich Text**, then click in the view, near the front left corner of the drawing on Floor 0.
2. On the RICH TEXT panel of the Rich Text Specification dialog:
   - Confirm that **Uppercase** is active.
   - In the text field, type the following: all floor joists are u.n.o.:
   - Press the ***Enter*** key and note that the text wraps to a second line.
   - Type: 2x12s SPF #2 or better @16" O.C.
3. Use your mouse to highlight the first line of text, then click the **Underline** button to apply that attribute to the selection.
4. Use your mouse to highlight just the letter x in 2x12, then click the **Uppercase** button to remove that attribute from the selection.
5. Select the letter s after 2x12 and remove its **Uppercase** attribute as well.
6. Click OK to close the dialog and create a Rich Text object with a border.



7. Select the newly created Rich Text object and click the **Copy/Paste** edit button.

8. Click once near the deck joists at the back of the drawing to create a copy of the text at that location.
9. With the newly pasted text selected, modify its text:
   - Click the **Open Object** edit button.
   - On the RICH TEXT panel of the Rich Text Specification dialog, replace the word "floor" with "deck".
   - Replace the number "12" with "10", then click OK.



10. Remember to **Save** your work.

CREATING FILE REVISIONS

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Floor Framing. Then, click OK.
3. Notice that Chic Cottage-Floor Framing is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

REVIEW

This lesson describes the best practices for creating and editing floor and lowered ceiling framing.

To set automatic wall framing defaults *350*
To generate wall framing *351*
To modify layer settings *351*
To edit wall studs *351*
To specify stud spacing by Wall Type *353*
To regenerate all wall framing *354*
To rebuild framing in selected walls *354*
To retain wall framing *354*
To specify a Wall Detail’s name *355*
To find and open a Wall Detail view *355*
To draw Blocking in a Wall Detail *356*

To set the Dimension Defaults *357*

To draw dimension lines *358*

To add a secondary dimension label *359*

To add extension lines *359*

To draw a Running Dimension line *360*

To move and remove extension lines *361*

To save a plan revision *362*

Assessment Questions

Tutorial 19 - Floor Framing

What does a Framing Reference Marker do?

- A Framing Reference Marker specifies the point where framing layout is measured from. Before generating framing, it is a good idea to place a Framing Reference Marker.

When working on framing, what is helpful about switching to the Framing, Floor Plan View?

- The Framing Layer Set becomes active, so unnecessary objects like wall layers and cabinets no longer display.
- Most of the Active Defaults' names begin with the word "Framing", which means that they are set up for use specifically in framing plans and will create objects on layers that only display when the Framing Layer Set is active.

How does the presence of soffits against the ceiling affect lowered ceiling framing?

- The ceiling finish layers, including lowered ceiling framing, do not generate anywhere a soffit touches the ceiling surface.

What determines the direction of automatically generated joists?

- By default, floor and ceiling joists will generate in whatever direction results in the shortest spans. The Joist Direction Line tool can be used to specify joist direction regardless of span. Interior bearing walls and bearing beams can change the direction of shortest span.

What effect does an interior bearing wall have on the floor framing in Chic Cottage?

- The interior bearing wall on Floor 0 causes the floor joists to change direction and bear on that wall instead of the horizontal exterior walls. Lowered ceiling framing is not affected.

What is the difference between the two floor beams drawn in Chic Cottage?

- One beam is drawn at the same height as the floor joists and one is drawn lower, so the joists bear directly on top of it.

What edit tool can be used to adjust the lengths of multiple joists?

- The Trim Objects edit tool allows you to trim framing members to the edge of a selected object.

Wall Framing

Wall framing is typically generated automatically, and can be edited in a Wall Detail view.

Learning Objectives

This lesson describes best practices in Chief Architect for generating wall framing. Concepts introduced include:

Productivity Tips *349*

Setting the Defaults *350*

Generating Wall Framing *350*

Editing Wall Framing *351*

Specifying Stud Spacing *353*

Regenerating Wall Framing *353*

Working in Wall Details *354*

Dimensioning a Wall Detail *357*

Creating File Revisions *362*

File Management

At this point in the design process, both the Chic Cottage-Floor Framing and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Floor Framing was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create wall framing, keep in mind these tips to improve your productivity.

Drawing and Editing

- Before generating framing, place a **Framing Reference Marker**  at the point where you would like the framing layout to be measured from.
- Wall framing can often be edited most effectively in a Wall Detail view.

Content

- Create template plans that have your preferred structural defaults set and ready for use when you begin a new plan.

Interface

- Wall Details and other saved views are listed in and can be opened from the Project Browser side window.
- When drawing and editing framing, it may be helpful to turn off **Grid Snaps**  . **Object Snaps**  , however, should be left on.
- Default Sets let you activate a set of defaults and layer settings for a specific purpose: for example, framing plans.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***‘*** - Layer Display Options
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When adding wall framing to a plan, there are a number of defaults of particular importance.

Some aspects of wall framing is defined in each wall's Wall Type Definition. See *"Working with Wall Type Definitions" on page 8 of the Exterior Walls Tutorial*.

Numerous additional settings that affect how wall framing generates, however, are found in the Automatic Framing Defaults dialog. See *To set automatic wall framing defaults on page 350*, below.

When working with framing objects, it is often helpful to toggle **Grid Snaps** off. **Object Snaps**, however, should be toggled on. See *"To set the Snap Settings" on page 333 of the Floor Framing Tutorial*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

Wall framing is not typically shown in most plan views in construction documents; however, it can be useful to see and edit it in plan view while working on a design. For this purpose, switch to the Working Plan View, then select "Framing Set - Working" as the active layer set in the Active Layer Display Options side window.

Generating Wall Framing

Wall framing is always generated automatically using the Build Framing dialog.

To set automatic wall framing defaults

1. Select **Edit>Default Settings** to open the Default Settings dialog.
   - Click the arrow beside “Framing” to expand the category.
   - Select "Automatic Framing" and click the **Edit** button.
2. On the WALL panel of the Automatic Framing Defaults dialog:
   - Notice that the Stud **Construction** is set to "Wall Framing - Lumber".
   - You can click the **Define** button to confirm that they are using the "Lumber" Framing Type.
   - Notice, too, that Top and Bottom Plate Construction are using a special option: "Match Stud Default".
   - There are additional options for plates as well as wall intersections and more.
3. The existing settings reflect standard building practices and will work well for Chic Cottage, so click Cancel and then Done to close both dialogs.

To generate wall framing

1. Select **Build> Framing> Build Framing** .
2. In the Build Framing dialog, under the **Build Framing Once** heading, check the box next to **Walls** and click OK.
3. In plan view, only wall studs and headers will display, regardless of which layers are turned on.
4. Go **Up One Floor** to Floor 1 and notice that door and window headers receive automatic labels describing their size and number.
5. Select **3D> Create Perspective View> Perspective Framing Overview** to see the plates and sills.
6. When you are finished, select **File> Close View** and **Save** your work.

EDITING WALL FRAMING

Once generated, wall framing can be edited to produce a variety of configurations.

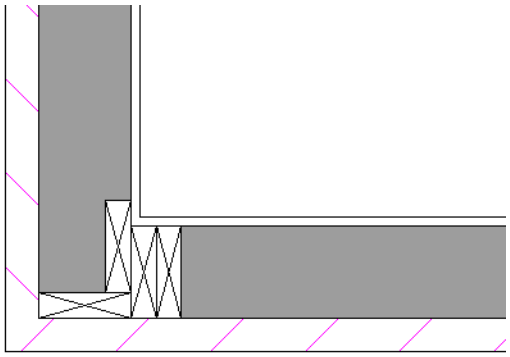
Because wall framing is generated inside walls, it is helpful to modify some layer settings before trying to select and edit it.

To modify layer settings

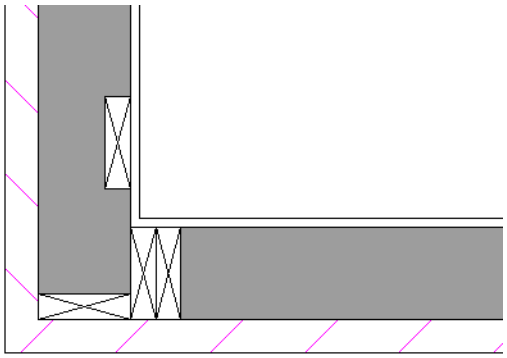
1. If it is not already open, select **View> Active Layer Display Options** .
2. In the Active Layer Display Options side window:
   - Turn off the display of the "Framing, Ceiling Joists" and "Framing, Rim Joists" layers.
   - Lock the "Walls, Railings" layer.

To edit wall studs

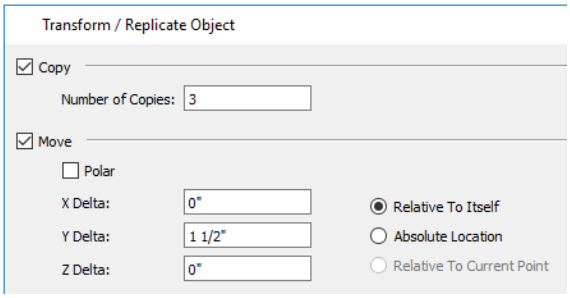
1. Still on Floor 1, **Zoom** in on the lower left corner of the Porch.



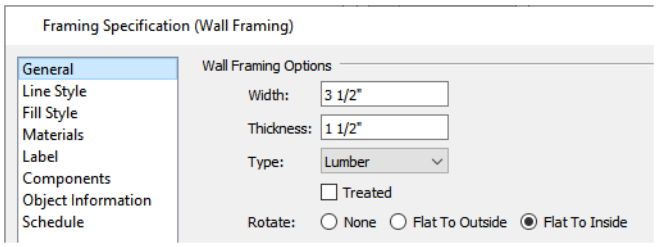
2. Click on the vertical corner wall stud positioned above the horizontal stud and use its Move edit handle to move it upward, out of the corner.



3. Select the horizontal corner wall stud and click the **Transform/Replicate Object** edit button. In the Transform/Replicate Object dialog:

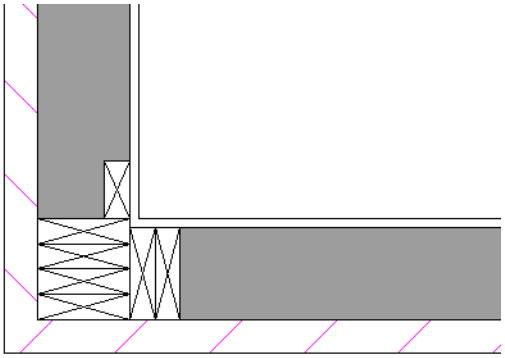


   - Check the box beside **Copy** and specify the **Number of Copies** as 3.
   - Confirm that the box beside **Move** is checked and specify the **Y Delta** value as 1 1/2".
   - Click OK to create a total of 4 horizontal corner studs.
4. Select the vertical corner stud that was moved in step 2 and click the **Open Object** edit button.
5. On the GENERAL panel of the Framing Specification (Wall Framing) dialog:



   - Specify the **Width** as 3 1/2".
   - Make sure that **Flat to Inside** is selected.
   - Click OK.

6. With the vertical stud still selected, click the **Point to Point Move** edit button, then:



   - Move the mouse pointer over the stud's lower right corner. When the **Endpoint** Snap Indicator displays, click once.
   - Move the mouse pointer over the top right corner of the top horizontal corner stud. When the **Endpoint** Snap Indicator displays, click once.
7. When you are finished, **Save** your work.

Specifying Stud Spacing

By default, stud spacing is set in the properties of the material assigned to each Wall Type's framing layer. Although like all defaults, it is best to set this up as early as possible, you can change a Wall Type's stud spacing after wall framing is built.

Although not a common requirement, it is possible to specify stud thickness and spacing for all walls in throughout a plan.

To specify stud spacing by Wall Type

1. Go **Down One Floor** to Floor 0.
2. Select **Build> Wall> Define Wall Types**.
3. In the Wall Type Definitions dialog:
   - Select the "8" Concrete with Furring" Wall Type from the drop-down list at the top left corner of the dialog.
   - Click on Layer 3 to select it.
   - On the Material Properties panel, note that the structure **Type** is "Framing" and the **Spacing** is 16" On Center.
4. Change the **Spacing** to 24" On Center.
5. Click OK to close the dialog and apply your change to this Wall Type.
6. Be sure to **Save** your work when you are done.

Notice that the framing in the basement walls does not change. In order for it to update, it will have to be regenerated.

Regenerating Wall Framing

In order for changes to a setting like stud spacing to affect framing, the framing needs to be rebuilt. There are three ways that this can be accomplished:

- Set wall framing to build automatically in the Build Framing dialog.
- Check the box beside **Wall** under **Build Framing Once** in the Build Framing dialog.
- Use the **Build Framing for Selected Object(s)** edit tool.

When wall framing is generated using the Build Framing dialog, wall framing is generated plan-wide. This means that manually edited wall framing will be deleted and replaced unless precautions are taken.

To regenerate all wall framing

1. Select **Build> Framing> Build Framing**, check the box beside **Wall** under **Build Framing Once** in the Build Framing dialog, and click OK.
2. Notice that:
   - The spacing of the basement wall framing increases.
   - Although the "Walls, Foundation" layer is currently locked, it is still possible to make changes to these walls. If objects are on a locked layer, it only means that they cannot be selected.
3. Go **Up One Floor** to Floor 1.
4. **Zoom** in on the Porch and notice that the customized wall corner framing has been replaced.
5. Select **Edit> Undo** to undo the previous action and restore the wall corner framing.

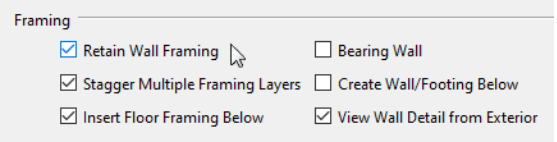
To rebuild framing in selected walls

1. Go **Down One Floor** to Floor 0 and notice that the basement wall framing is spaced at 16" on center again.
2. In the Active Layer Display Options side window, unlock the "Walls, Foundation" layer.
3. Click the **Select Objects** button, then select the basement walls as a group:
   - Click on one of the basement walls to select it.
   - Hold down the ***Shift*** key and click on the other walls that define the basement area to add them to the selection set.
4. When all six of the basement walls are selected, click the **Build Framing for Selected Object(s)** edit button.

Wall framing should only be edited when you are confident that you will not need to regenerate wall framing throughout the plan. To avoid losing your work, though, you can specify that a wall's framing not be rebuilt.

To retain wall framing

1. Go **Up One Floor** to Floor 1.
2. In the Active Layer Display Options side window, unlock the "Walls, Railings" layer.
3. Click the **Select Objects** button, then click on the front railing of the Porch to select it.
4. Press the ***Shift*** key and click on the side Porch railing to add it to the selection set.
5. Click the **Open Object** edit button, and on the STRUCTURE panel of the Railing Specification dialog, check **Retain Wall Framing** and click OK.



6. Select **Build> Framing> Build Framing**, and on the WALL panel of the Build Framing dialog, check **Build Wall Framing** and click OK.
7. Notice that this time, the customized wall corner framing is not replaced.
8. When you are finished, **Save** your work.

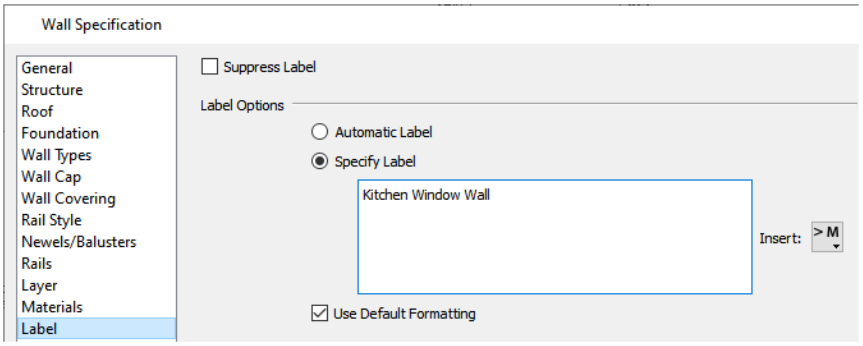
WORKING IN WALL DETAILS

Wall Details are a special type of view in which only the studs, plates and headers used to frame a selected wall display.

By default, Wall Details use the naming convention "Wall Detail - X", where X is simply a number. A more descriptive name can be assigned to any Wall Detail by customizing the associated wall's label.

To specify a Wall Detail's name

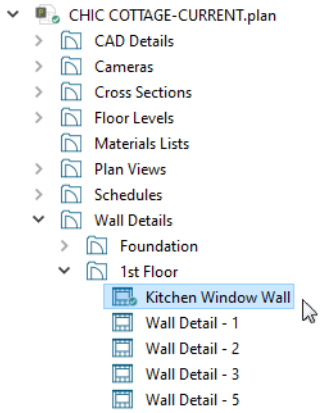
1. In plan view, click the **Select Objects** button, then click on the wall that contains the kitchen windows.
2. Click the **Open Object** edit button and on the LABEL panel of the Wall Specification dialog:



3. Click the radio button beside **Specify Label**.
4. Notice that the text field becomes populated by the name of the Wall Detail associated with the wall.
5. Delete the default name and type a short description like "Kitchen Window Wall", then click OK.
6. A Wall Detail can be opened in either of two ways: by selecting a wall and clicking the **Open Wall Detail** edit button, and using the Project Browser.

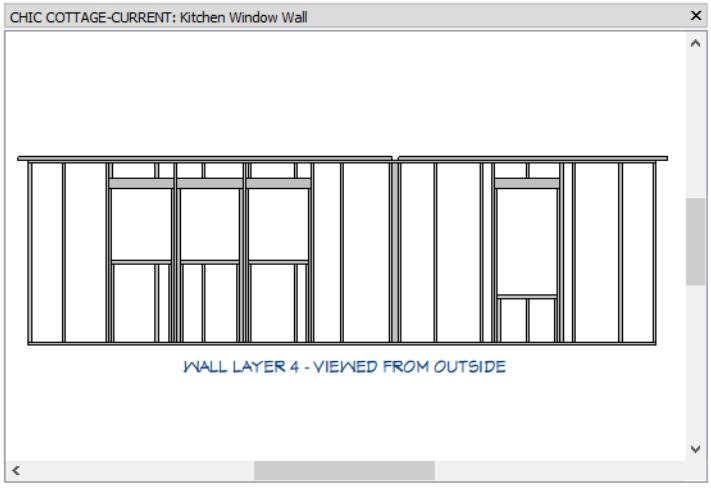
To find and open a Wall Detail view

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser**.
2. Click the arrow next to "Wall Details" to expand a list of subfolders, one for each floor in the plan.
3. Click the arrow next to the "1st Floor" subfolder to expand a list of the Wall Details for all walls on Floor 1 of the CHIC COTTAGE-CURRENT plan.



4. The "Kitchen Window Wall" detail should be the first item in the "1st Floor" folder. Right-click on it and select **Open**

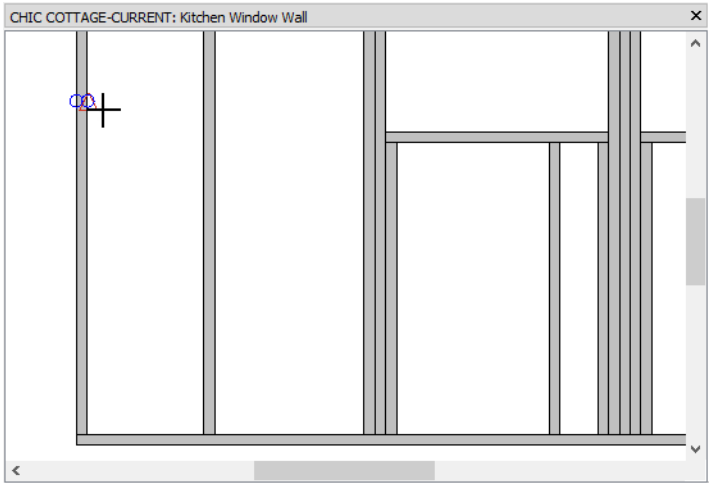
View from the contextual menu.



Wall framing can be selected and edited in a Wall Detail. Wall Details are also the only views in which Wall Bridging can be drawn.

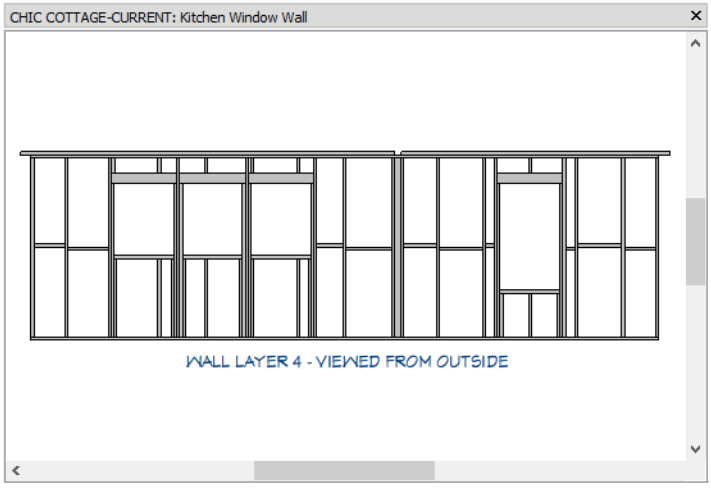
To draw Blocking in a Wall Detail

1. Select **Build> Framing> Build Framing**, and on the WALL panel of the Build Framing dialog, note that **Stagger Blocking** is checked, then click **Cancel**.
2. Select **Build> Framing> Blocking**, then move your mouse pointer over the midpoint of either end wall stud.



3. When the **Midpoint** △ Snap Indicator displays, click and drag a horizontal line across the wall until you reach the side of the first window.

4. Repeat these steps to create blocking between the windows and at the other end of the wall.



5. When you are finished, **Save** your work but leave the Wall Detail view open.

If you rebuild wall framing after manually editing in a Wall Detail, your changes will be lost. To protect changes made to a wall's framing, check Retain Wall Framing in the Wall Specification dialog.

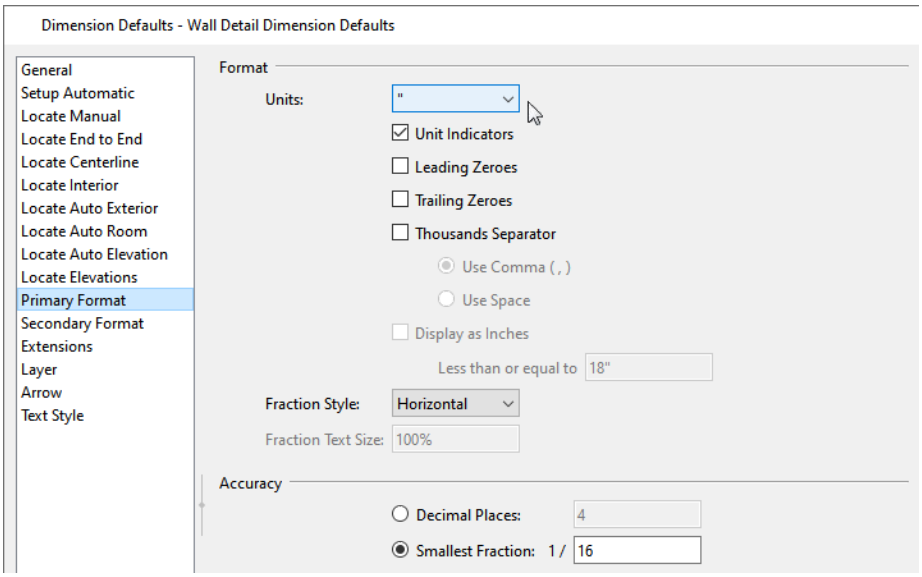
Dimensioning a Wall Detail

Dimensions and annotations can be added to Wall Detail views, and just like plan, elevation, and other CAD Detail views, Wall Details have saved defaults associated with them. Wall Details use the Default Set that was active when they were created and are assigned the "Detail Layer Set" by default. Once created, though, both can be changed and will be saved with the view.

To set the Dimension Defaults

1. Select **Tools> Active View> Edit Active View** .
2. On the Selected Defaults panel of the CAD Detail Specification dialog:
   - Notice that the Default Set the Wall Detail view is **Currently Using** is the "Plan Default Set" and that most of the Selected Defaults' names begin with "Plan", as well.
   - Recall that the Working, Roof, and Electrical Plan Views have defaults set up for printing at a 1/4" = 1' scale. See *"To set the rich text defaults" on page 172 of the Dormers Tutorial*.
3. Details are typically printed at a larger scale than plan views are, so select "1/2" Scale Default Set" from the **Currently Using** drop-down list.
4. The 1/2" Scale defaults are not task-specific and may be used in any view, whereas Wall Details have a few formatting requirements that are not needed in all views.
   - Click the **New Default** button to the right of **Dimension**.
   - In the New Default dialog, type a short, descriptive name like, "Wall Detail Dimension Defaults" and click OK.
5. In the Dimension Defaults dialog which opens next, notice that "Wall Detail Dimension Defaults" is stated in the dialog box's title bar.

6. On the PRIMARY FORMAT panel:



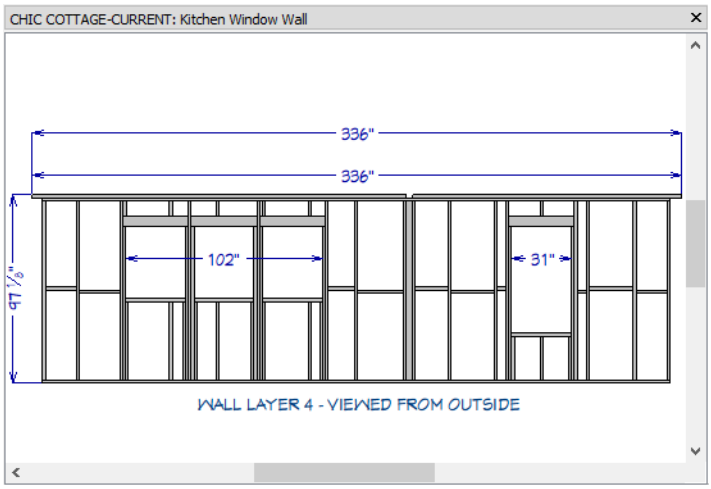
   - Select " from the **Units** drop-down list.
   - Make sure that **Smallest Fraction** is selected and that 16 is set as the denominator.
7. On the LOCATE MANUAL panel, make sure under "Framing", **Both Sides** is selected.
8. On the LOCATE END TO END panel, make sure under "Framing", **Both Sides** is selected.
9. On the TEXT STYLE panel:
   - Notice that the "1" Text Style" is in use and that it uses a Character Height of 1".
   - Select **Use Custom Text Style**.
   - Specify a **Character Height** of 6".
10. On the ARROW panel, specify the Size as 6", as well.
11. Click OK to return to the CAD Detail Specification dialog and notice:
    - The Selected Defaults for **Dimensions** is "Wall Detail Dimension Defaults".
    - The Default Set that the Wall Detail is **Currently Using** is now described as "Active Defaults". This is because there is no saved Default Set that uses the new "Wall Detail Dimension Defaults".
12. Click the **Save New Active Default** button to the right of the **Currently Using** drop-down list and in the New Default Set dialog, type a short, descriptive name like, "Wall Detail Default Set" and click OK.

The new Wall Detail Default Set is now in use in the currently open Wall Detail, and will be available in other views, as well.

To draw dimension lines

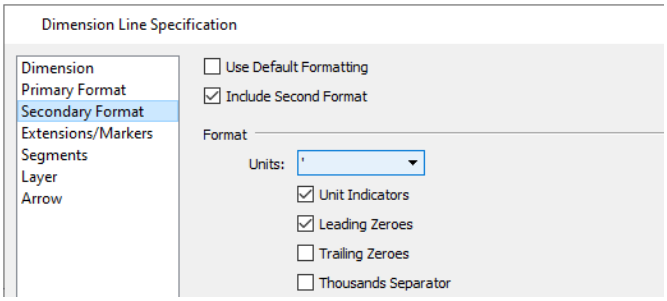
1. Select **CAD> Dimensions> End to End Dimension**, then click and drag to draw a vertical **End to End Dimension** line on the left side of the wall framing, measuring the wall's total height
2. Draw a horizontal **End to End Dimension** line about 12" above the wall's top plate.
3. Click on the dimension line to select it, then click on the Move edit handle that displays where you clicked on the line and drag upwards above the top plate 24".
4. Draw another horizontal **End to End Dimension** line identical to the one created in step 3, and in the original location.

5. Draw an **End to End Dimension** inside each of the two window openings.

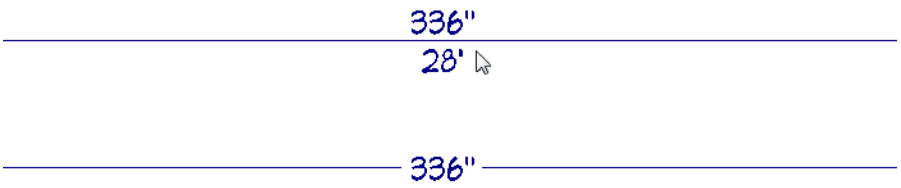


To add a secondary dimension label

1. Select the topmost horizontal dimension line and click the **Open Object** edit button.
2. On the SECONDARY FORMAT panel of the Dimension Line Specification dialog:



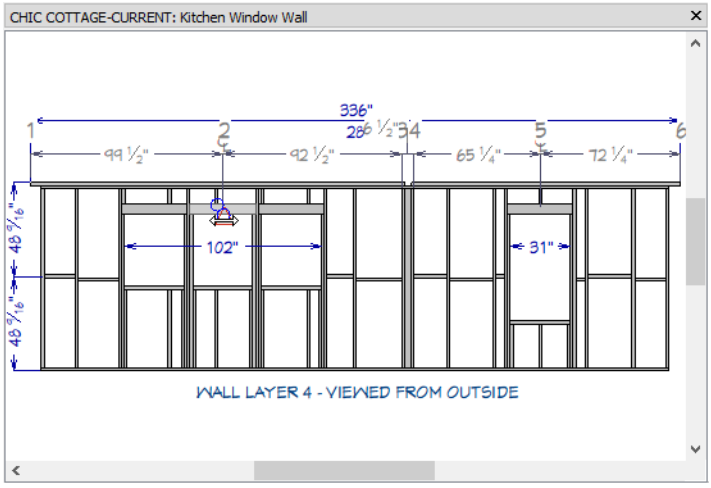
- Uncheck **Use Default Formatting**.
- Check **Use Second Format**.
- Select ’ from the **Units** drop-down list.
- Under the Accuracy heading, select **Smallest Fraction**.
- Click OK.



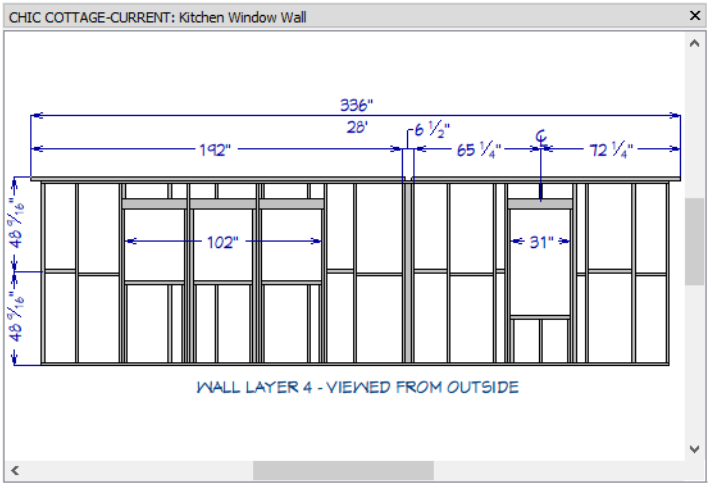
To add extension lines

1. Click on the lower 336" long horizontal dimension line to select it.
2. Notice the diamond shaped edit handle located just above the location where you clicked.

3. Click and drag this **Add Extension Line** edit handle towards the bottom midpoint of the left window header.



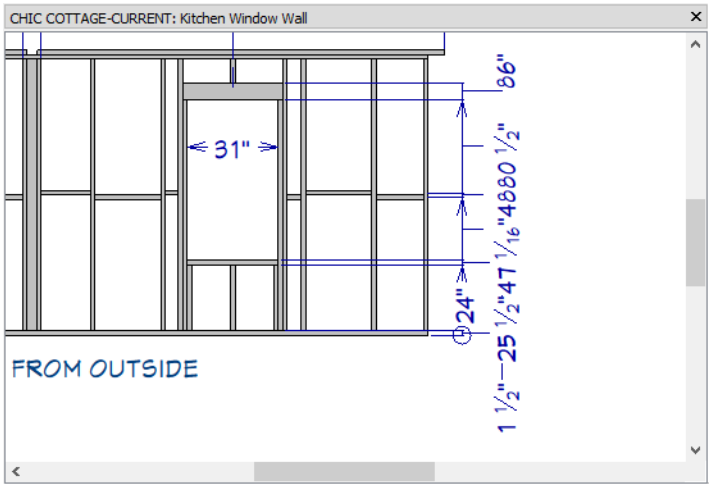
4. When a new extension line locating the header displays, and the **Midpoint** △ Snap Indicator can be seen, release the mouse button.
5. Repeat these steps to add an extension line that locates the header on the right.
6. Using the same technique, add extension lines that locates both sides of the blocking for the interior wall.
7. Select the vertical dimension line and add an extension line locating the horizontal blocking.



The Running Dimension tool creates cumulative dimension lines that can be used to measure the framing members that support window openings. Running Dimensions use the settings on the Locate Manual panel of the Dimension Defaults dialog.

To draw a Running Dimension line

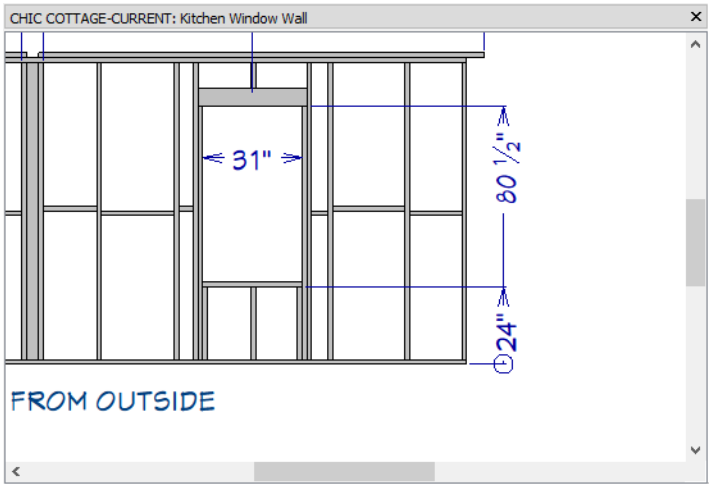
1. **Zoom** in on the right half of the wall framing.
2. Select **CAD> Dimensions> Running Dimension**, then click and drag to draw a vertical dimension line on the right side of the window opening, from the bottom of the wall framing to the bottom of the header.
3. Click on the dimension line to select it, then click on the Move edit handle that displays where you clicked on the line and drag to the right until it is about 12" past the last stud.



4. Running Dimensions have a number of special features:
   - A circle indicating the starting end of the dimension line.
   - Arrows that only point in one direction: away from the starting end.
   - Each dimension label is positioned near the arrow associated with its segment.
   - The dimension values in each segment of this dimension line are cumulative: each measures from the same point at the bottom of the wall.
   - These features are more easily seen when extra extension lines are removed.

To move and remove extension lines

1. Click on the Running Dimension line to select it.
2. Notice the diamond shaped edit handles located at the far ends of each of the extension lines. These are Extension Line handles.
3. Click on the Extension Line handle located at the top of the window sill board and drag it to the left until it snaps to the bottom of the sill board of the other window opening.
4. Click and drag the extension line locating the bottom surface of the wall's bottom plate and drag it to the right, past the dimension line itself. When you release the mouse button, it will be removed from the dimension line.



5. When you are finished, select **File> Close View** to return to plan view.
6. Remember to **Save** your work.

Creating File Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Wall Framing. Then, click OK.
3. Notice that Chic Cottage-Wall Framing is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for generating and editing wall framing.

To set automatic wall framing defaults *350*

To generate wall framing *351*

To modify layer settings *351*

To edit wall studs *351*

To specify stud spacing by Wall Type *353*

To regenerate all wall framing *354*

To rebuild framing in selected walls *354*

To retain wall framing *354*

To specify a Wall Detail’s name *355*

To find and open a Wall Detail view *355*

To draw Blocking in a Wall Detail *356*

To set the Dimension Defaults *357*

To draw dimension lines *358*

To add a secondary dimension label *359*

To add extension lines *359*

To draw a Running Dimension line *360*

To move and remove extension lines *361*

To save a plan revision *362*

Assessment Questions

Tutorial 20 - Wall Framing

What are the two types of wall framing object that can be seen in plan view?

- Wall studs and headers are the only types of wall framing that can be seen in plan view.

Where should wall stud spacing be set in most cases?

- Wall stud spacing should be set in the Wall Type Definition.

Where is the default rough opening size for doors and windows set?

- Door and window rough openings are specified in their respective defaults dialogs, and can be customized in their individual specification dialogs.

What can you do to prevent objects on a particular layer from being selected?

- If you lock a layer in the Layer Display Options dialog, objects on that layer cannot be selected.

What are two ways that manually edited wall framing can be protected when other wall framing needs to be rebuilt?

- You can rebuild framing in a selected wall only by clicking the Build Framing for Selected Object(s) edit button.
- You can also check the box beside Retain Wall Framing on the Structure panel of the Wall Specification dialog to prevent the selected wall's framing from being rebuilt.

How is wall Blocking drawn?

- Wall Blocking can only be drawn in a Wall Detail view using the Blocking tool.

How do you get a dimension line to display two dimension labels instead of one?

- A second label can be specified on the Secondary Format panel of the Dimension Line Specification dialog.

What Dimension tool allows you to create a dimension line with segments that all measure from the same point?

- The Running Dimension tool creates dimension lines that measure all segments from the same beginning point.

Roof and Ceiling Framing

Roof and ceiling framing are typically generated automatically and then edited as needed.

Learning Objectives

This lesson describes best practices in Chief Architect for generating roof framing. Concepts introduced include:

Productivity Tips *364*

Setting the Defaults *364*

Using Plan Views *365*

Generating Roof Framing *365*

Modifying Roof Framing *367*

Editing Roof Framing *369*

Generating Ceiling Framing 373
Editing Ceiling Framing 375
Adding Annotations 377
Creating File Revisions 378

File Management

At this point in the design process, both the Chic Cottage-Wall Framing and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Wall Framing was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create roof framing, keep in mind these tips to improve your productivity.

Drawing and Editing

- The **Paste Hold Position** tool lets you create a copy of an object at the identical position as the original, but on a different floor.
- Select a group of objects of the same type by activating the tool used to draw them, holding down the ***Shift*** key, and then drawing a selection marquee.

Content

- Create template plans that have your preferred structural defaults set and ready for use when you begin a new plan.
- Template plans can also include custom Layer Sets.

Interface

- When drawing and editing framing, it may be helpful to turn off **Grid Snaps**. **Object Snaps**, however, should be left on.
- Tiling 2D and 3D views can help in the positioning of objects like posts.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***F9*** - Reference Display
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When

adding roof framing to a plan, there are several defaults of particular importance.

Primarily, since roof framing generates inside the roof planes, it is important that the roof be completely correct before you build roof framing. If you design a roof and then later on decide that its structure needs to be changed, you need to either edit the roof planes or rebuild the roof.

Before generating framing, place a Framing Reference Marker to set where framing layout is pulled from. See *"To place a Framing Reference Marker" on page 334 of the Floor Framing Tutorial*.

As with other types of framing objects, when working on roof and ceiling framing it is often helpful to toggle Grid Snaps off. Object Snaps, however, should be toggled on. See *"To set the Snap Settings" on page 333 of the Floor Framing Tutorial*.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

As with floor framing, roof framing is an example of a drawing task that is made easier and more efficient by using a Saved Plan View created for that purpose.

To switch to a different saved plan view

1. Click the **Saved Plan View Control** drop-down, which is located in the top toolbar by default.
2. Select "Framing, Roof Plan View" from the drop-down list.
3. The current view window remains open, and now uses the Framing, Roof Plan View.
4. If it is not already open, select **View> Active Layer Display Options**. Note that the **Active Layer Set Options** side window reports that the "Framing, Roof Layer Set" is now active, and that it is similar in most ways to the other framing layer sets.
5. Switch to the Project Browser side window by clicking on its tab. If it is not open, select **View> Project Browser**. Next:
   - Click the arrow to the left of "Plan Views" to expand the category.
   - Right-click on the "Framing, Roof Plan View" and select **Edit View** from the contextual menu.
6. In the Saved Plan View Specification dialog:
   - On the GENERAL panel, select "2nd Floor" as the **Floor** that is used whenever this view is opened.
   - On the SELECTED DEFAULTS panel, notice that the names of the Saved Defaults associated with this view all begin with "Framing" and end with "Roof".
   - Click OK to close the dialog and apply your change.
7. When you are finished, **Save** your work.

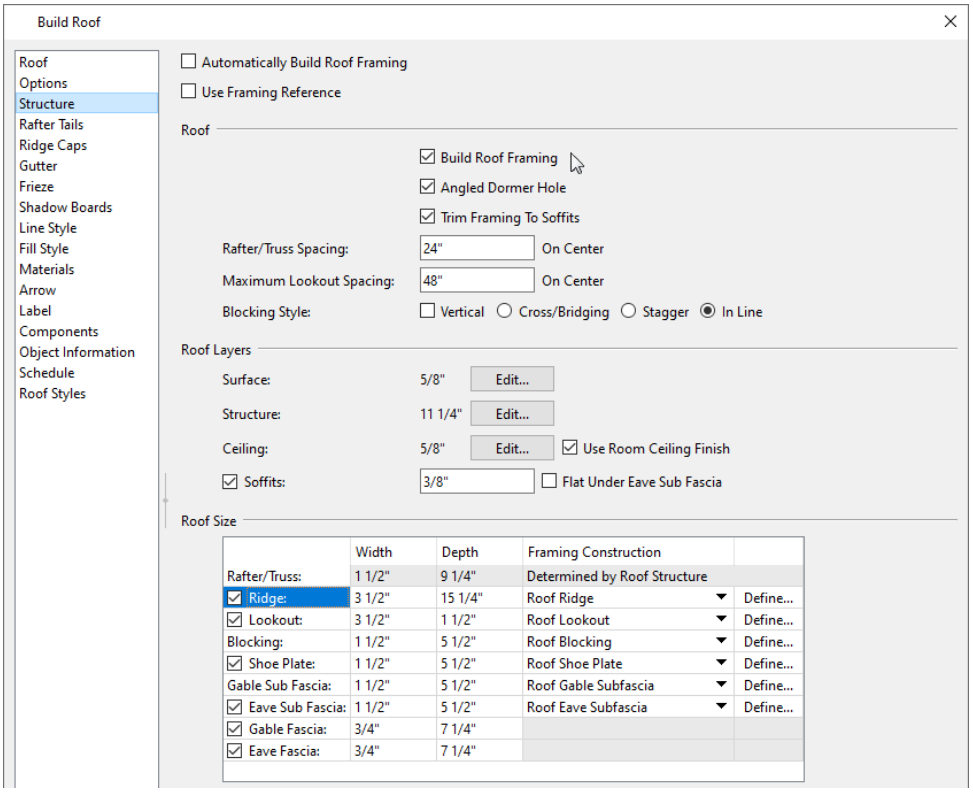
The settings in the "Framing, Roof Plan View" are typical of roof framing drawings and will make working on roof framing easier.

Generating Roof Framing

Roof defaults can be set in both the Framing Defaults and the Build Roof dialogs. The settings used to actually generate roof framing are those in each roof plane's specification dialog, regardless of whether they are using the defaults.

To set defaults for and generate roof framing

1. Select **Build> Roof> Build Roof** .
2. On the STRUCTURE panel of the Build Roof dialog:
   - Check **Use Framing Reference**.
   - Specify the **Rafter Spacing** as 16" On Center.
   - Under the Roof Layers heading, click the **Edit** button to the right of **Structure**.
3. In the Roof Structure Definition dialog:
   - Click in the Thickness field and increase this value to 11 1/4".
   - Notice that Rafter Construction is set to use the "Rafters" Default Framing Member.
   - Click the **Define** button and notice that "Rafters" are set to use the "Lumber" Framing Type.
   - Click OK to return to the Build Roof dialog.
4. Returning to the STRUCTURE panel:

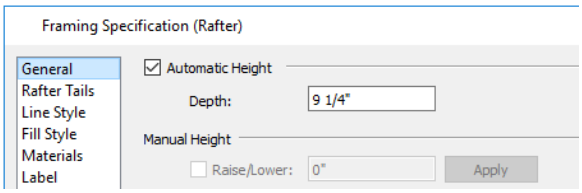


   - Specify the **Width** of the **Ridge** board as 3 1/2" and its **Depth** as 15 1/4".
   - Check the box beside **Build Roof Framing** and click OK.
5. Notice that a message warns that the changes made to the roof framing defaults will not affect the existing roof planes.
   - This will be addressed in the *Modifying Roof Framing on page 367* section, below.
   - Click OK to close the message box.

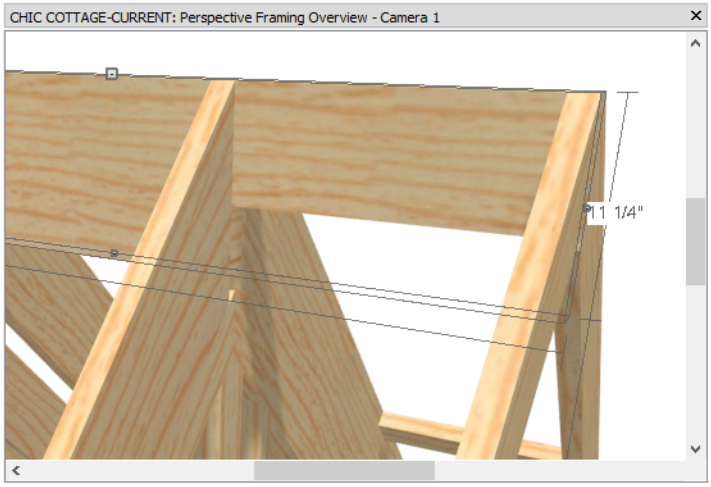
The meaning of the warning message becomes clear when the newly generated roof framing is examined. Roof framing can be viewed in both 2D and 3D views.

To examine roof framing

1. Click the **Select Objects** button, then click on a roof rafter to select it.
2. Click the **Open Object** edit button. On the GENERAL panel of the Framing Specification (Rafter) dialog, note that the **Depth** is 9 1/4" rather than the 11 1/4" specified above, then click Cancel.



3. Select **3D> Create Perspective View> Perspective Framing Overview**.
4. **Zoom** in on the ridge of the roof.
5. Click the **Select Objects** button, then click on the ridge board to select it. Notice that a Temporary Dimension reports its depth as 11 1/4" rather than the 15 1/4" specified above



6. With the ridge board selected, click the **Open Object** edit button. On the GENERAL panel of the Framing Specification (Rafter Ridge) dialog, confirm that the **Depth** is 11 1/4", then click Cancel.
7. Select **File> Close View** and **Save** your work.

The reason why the roof framing does not reflect the current defaults is that the roof framing is generated based on the current state of the roof planes in the plan - not on the defaults. The roof planes in this plan were created using earlier structural default settings and as a result, they have framing specifications that are different from the current defaults. In order to produce roof framing that does use the new defaults, the roof will need to be edited and the framing, rebuilt.

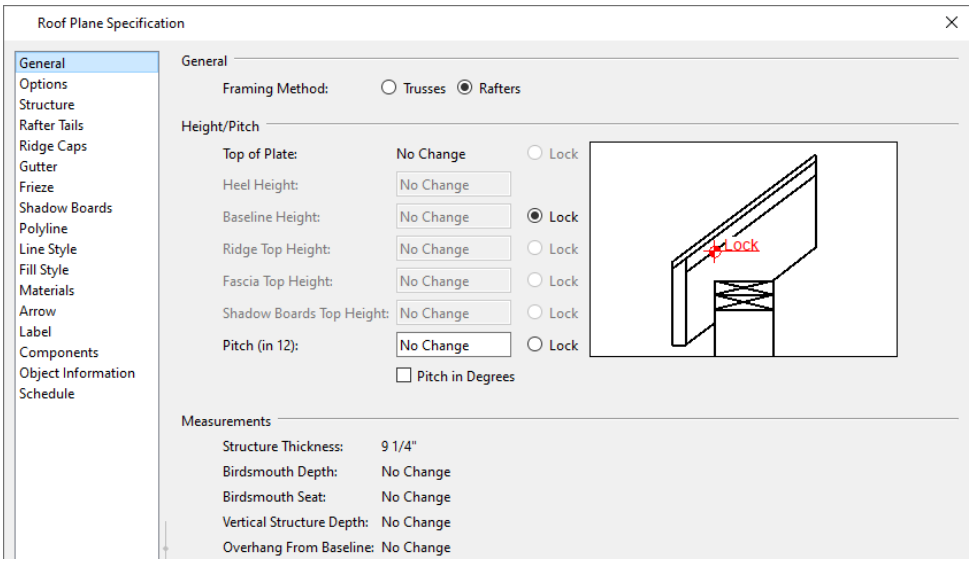
MODIFYING ROOF FRAMING

In order to apply changes made to the roof framing defaults to the roof already drawn in a plan, the roof must either be rebuilt, or edited. Since some of Chic Cottage's roof planes have been manually edited, it will be more efficient to edit the existing roof planes.

The Edit All Roof Planes tool allows you to open the Roof Plane Specification dialog shared by all roof planes in the current plan. A wide variety of style and structural settings can be modified, but bear in mind that changes to structure depth using this tool are not recommended because they can have unintended effects on roof height and connections between roof planes.

To modify the entire roof structure

1. Select **Build> Roof> Edit All Roof Planes** .
2. On the GENERAL panel of the Roof Plane Specification dialog:



3. Notice:
   - Most of the values are reported as "No Change". This is because this dialog is shared by all roof planes in the plan, as though they had been group-selected, and not all roof planes have the same height values.
   - The Baseline Height for all roofs is locked and a different height reference cannot be selected. This means that if the depth of the roof planes' Structure or Ceiling Layers is modified, the tops of the roofs will remain at the same heights but the bottom will change.
4. On the STRUCTURE panel, some settings can be modified without affecting roof depth:
   - Specify the **Rafter Spacing** as 16".
   - Specify the **Ridge Width** as 3 1/2".
   - Click OK to close the dialog, apply your changes to all roof planes.
5. Select **Build>Framing>Build Framing** .
6. In the Build Framing dialog, under the **Build Framing Once** heading, check the box next to **Roofs** and click OK.
7. Select a ridge board to confirm that it is 3 1/2" wide. See *To examine roof framing on page 367*, above.

A similar approach can be used to modify the framing for a single roof plane. An easy way to select a roof plane when roof framing displays is using the Roof Plane tool.

To modify a single roof plane's structure

1. Select **Build> Roof> Roof Plane** , then click on the roof plane over the Deck room to select it.
   - With the Roof Plane tool active, framing members and other types of objects cannot be selected: only roof planes.
2. Click the **Open Object** edit button, and on the GENERAL panel, notice:
   - The Top Plate Height is reported for reference, and that it is locked by default. In this example, it will remain locked.
   - When a single roof plane is selected, you can instead lock another Height reference to control which part of the roof plane adjusts when its depth is changed.
   - Notice too, that the Baseline Height is 122 13/16".

3. On the STRUCTURE panel of the Roof Plane Specification dialog:
   - Specify the **Rafter Spacing** as 24".
   - Click the **Edit** button to the right of **Structure** and specify the framing depth as 11 1/4".
   - Click OK to close the dialog and apply your changes to the selected roof plane.
4. Return to the GENERAL panel:
   - Notice that the roof plane's Top Plate Height did not change, while its Baseline Height increased from 122 13/16" to 124 7/8".
   - This means that the top/exterior surface of the roof plane is 1 15/16" higher than it was, while the bottom/interior did not move.
5. With the roof plane still selected, click the **Build Framing for Selected Object(s)** edit button.
6. Select a roof rafter over the Deck to confirm its size.
7. Remember to **Save** your work.

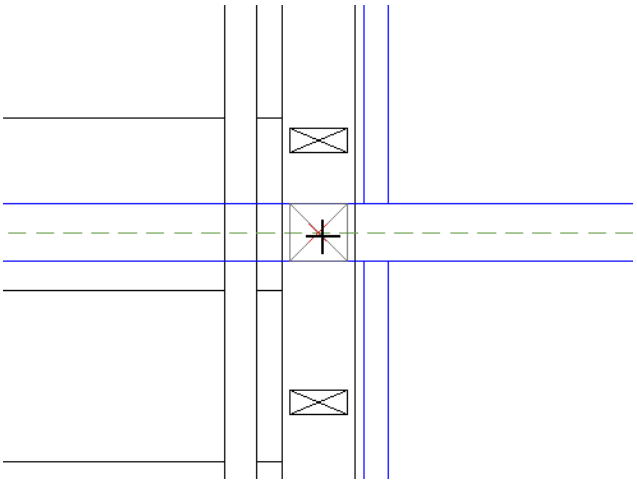
EDITING ROOF FRAMING

Like other types of framing, roof framing can be edited after it is created. Here, the ridge board will be divided in two and supported by posts where the two boards meet.

The default 3 1/2" square Posts will work well for this task. See *Adding Posts and Beams on page 338*.

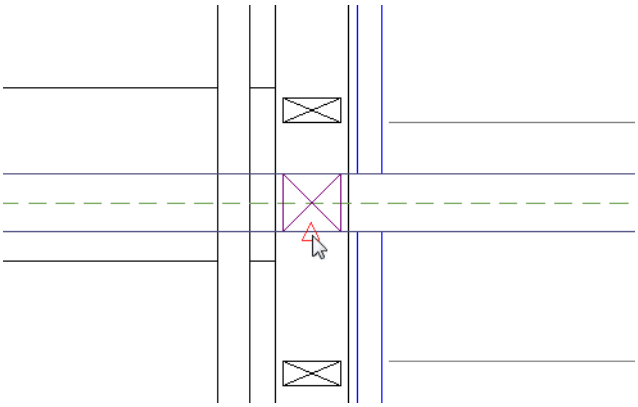
To break the ridge beam over a post

1. **Zoom** in on the vertical wall on the right side of the Stairwell on Floor 2.
2. Select **Build> Framing> Post**, then:

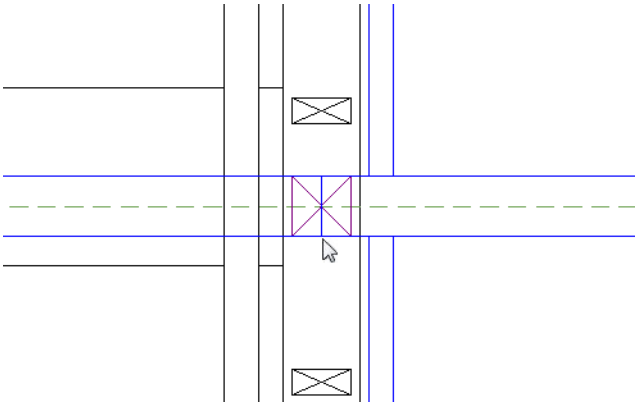


   - Move your mouse pointer over the point where the roof ridge passes over the center of the vertical wall.
   - When the **Intersection** Snap Indicator displays, click once to place a post that is centered in the wall and under the roof ridge.
3. Click the **Select Objects** button, then click on the horizontal ridge board that runs along the ridge of the roof.
   - If another object becomes selected instead, click the **Select Next Object** edit button.
   - When the ridge board is selected, the selected object will be described as a Rafter Ridge in the Status Bar.
4. Click the **Add Break** edit button, then:

- Move your mouse pointer over the bottom edge of the post.

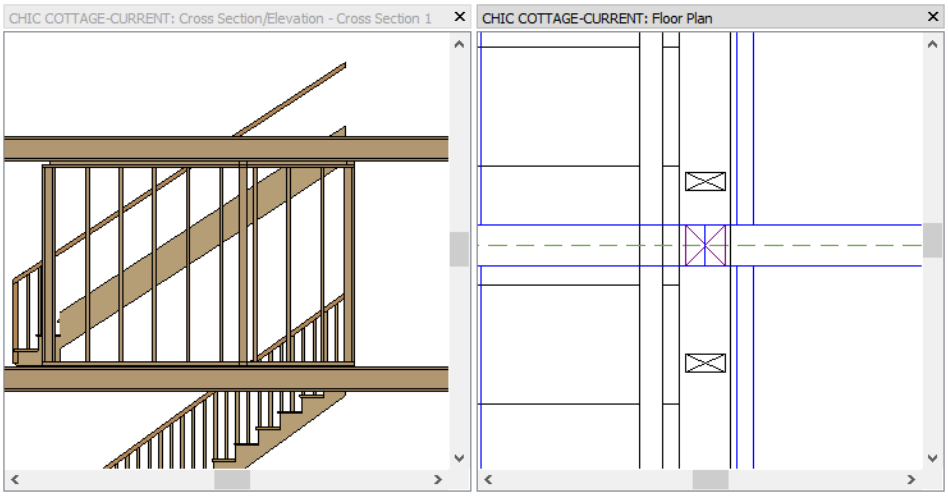


- When the **Midpoint** △ Snap Indicator displays, click once to break the ridge board in two along the center line of the post.

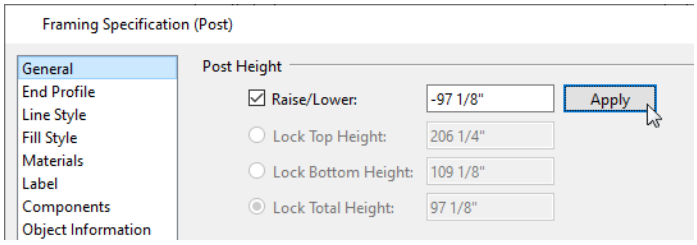


To stack load-bearing posts

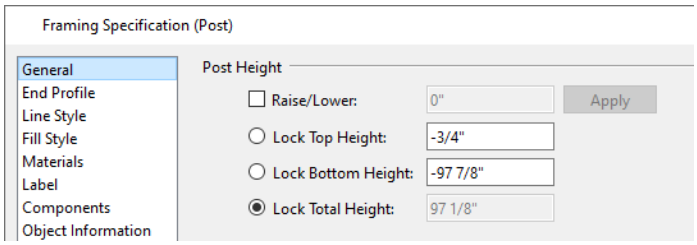
1. Select **3D> Create Orthographic View> Back Clipped Cross Section**, then click and drag a horizontal camera arrow pointed at the new post. Make sure that the camera arrow is perfectly horizontal and that it extends past the post.
2. In the **Active Layer Display Options** side window, select "3D Framing Set" as the active layer set. Notice that now, only framing objects and foundation walls display in the cross section view.
3. Select **Window> Tile Vertically** to tile the cross section and plan views side by side, then click in the plan view to make it the active window.



4. Click the **Select Objects** button and click on the post to select it. If necessary, use the **Select Next Object** edit tool, then:
   - Select **Edit> Copy**.
   - Go **Down One Floor** to Floor 1.
   - Select **Edit> Paste> Paste Hold Position** to create a copy of the post in the same location as original.
   - Notice that although a new post has been created, it cannot be seen in the cross section. This is because although it is on a different floor, it has the same absolute height as the original.
5. With the newly pasted post still selected, click the **Open Object** edit button. On the GENERAL panel of the Framing Specification (Post) dialog:

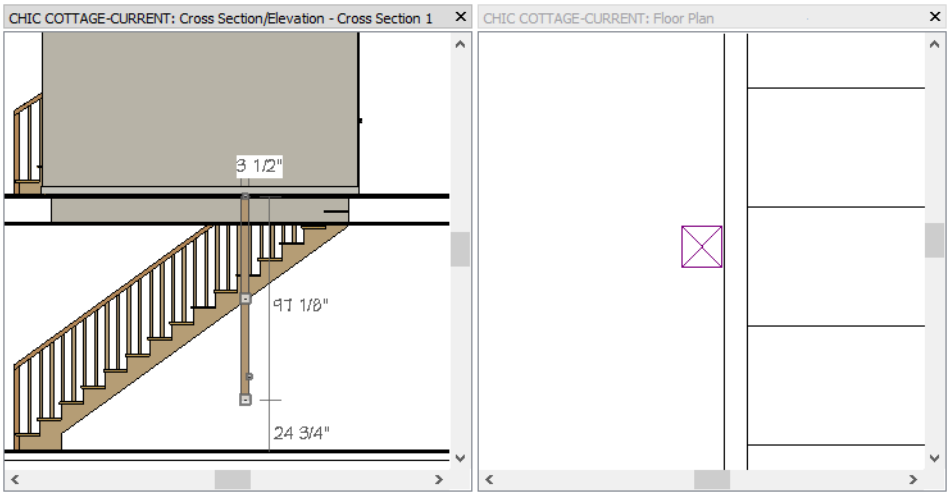


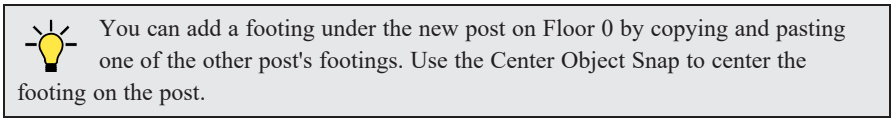
   - Notice that the **Top Height** is 206 1/4", which is the ceiling height for rooms on Floor 2.
   - Check the box beside **Raise/Lower** and type -97 1/8" in the text field.
   - Click the **Apply** button and notice that the **Top Height** is now 109 1/8". This is the height of the subflooring on Floor 2.
   - In the **Raise/Lower** field, type -3/4" and click the **Apply** button once more to align the top of the post with the floor joists, then click OK.
6. Go **Down One Floor** to Floor 0 and use **Paste Hold Position** to create one more post.
7. With the newly pasted post still selected, click the **Open Object** edit button. On the GENERAL panel of the Framing Specification (Post) dialog:



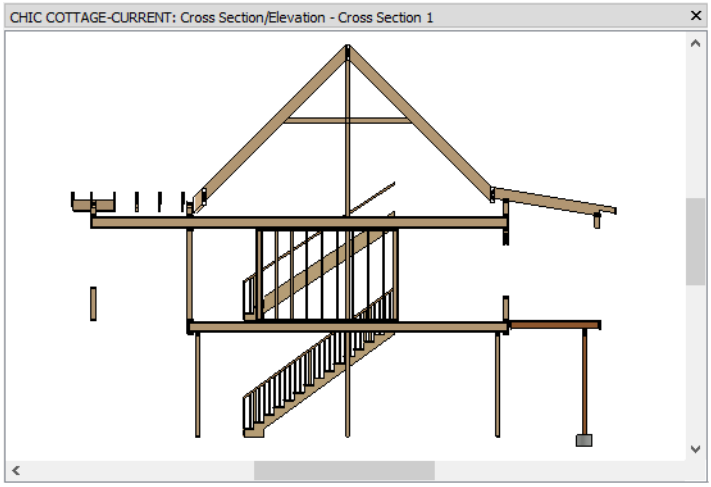
- Click the **Lock Total Height** radio button.
- Specify the **Top Height** as -3/4" to position the post's top at the same height as Floor 1's floor joists, then click OK.

8. In order to see the results in the cross section view, click in that view window to make it active and turn off the "Walls, Foundation" layer.
9. Select the post on Floor 0 and use its end edit handle to extend its bottom end downward until it snaps to the wall's bottom plate.




You can add a footing under the new post on Floor 0 by copying and pasting one of the other post's footings. Use the Center Object Snap to center the footing on the post.

10. Using their edit handles, edit the heights of the other two posts:



- Select the post on Floor 1 make sure it snaps to the post below it and the top of the floor framing above it.
- Select the post on Floor 2, snap its bottom end to the top of the post below it, and extend its top end upward so it snaps to the roof ridge rafter.

Displaying foundation walls in Framing Overviews is useful, so leaving the "Walls, Foundation" layer turned off in the 3D Framing Set not a good idea. A better solution is to place the interior wall with footings on a different layer.

To place a wall on a non-default layer

1. Click in plan view to make it the active view.
2. Go to Floor 0 and select the interior wall to the left of the stairs.
3. Click the **Open Object** edit button, and on the LAYER panel of the Wall Specification dialog, select "Walls, Normal" from the **Layer** drop-down list and click OK.
4. Use the Active Layer Display Options side window to turn the "Walls, Foundation" layer on in the 3D Framing Set.
5. When you are finished, close the Back Clipped Cross Section view and **Save** your work.

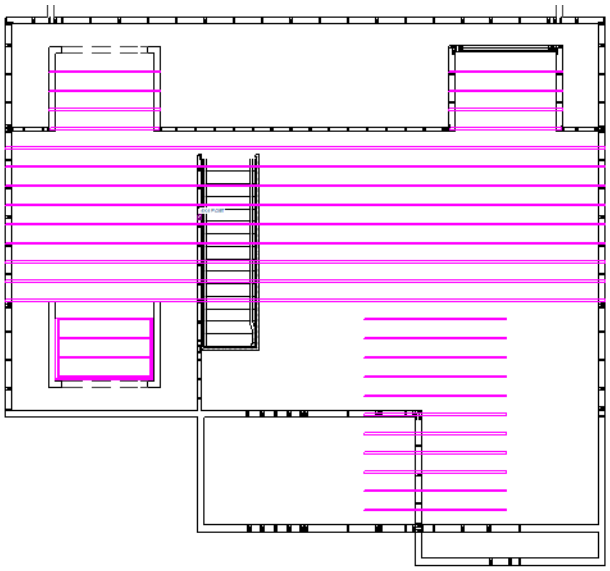
GENERATING CEILING FRAMING

On Floors 0 and 1, all of the ceilings are supported by floor platforms. There is no living space above Floor 2, so the ceiling joists do not need to be as deep as floor joists are.

Framing defaults can be set in the Framing Defaults dialog.

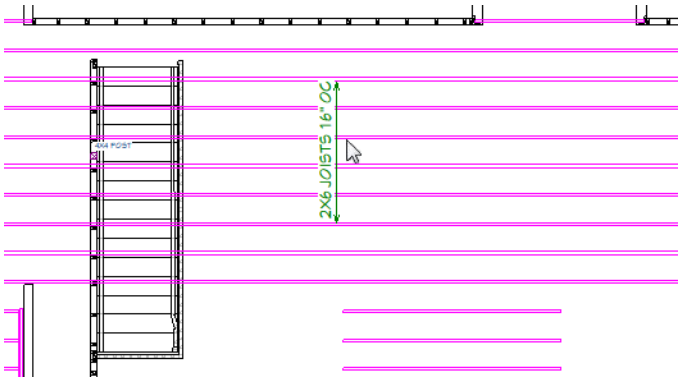
To customize joist direction

1. Begin by selecting "Framing, Ceiling Plan View" from the **Saved Plan View Control** drop-down, which is located in the top toolbar by default.
2. Next, go to Floor 2 and notice:



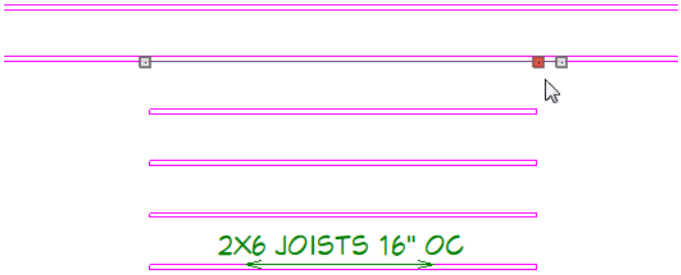
- Ceiling framing was generated earlier when **Automatically Build Floor and Ceiling Framing** was checked. See *"To generate floor and ceiling framing" on page 335 of the Floor Framing Tutorial*.
- Ceiling joists are all horizontally oriented and are only generated in the area where a flat, full-height ceiling is present.

3. Specify a vertical direction for the ceiling joists:

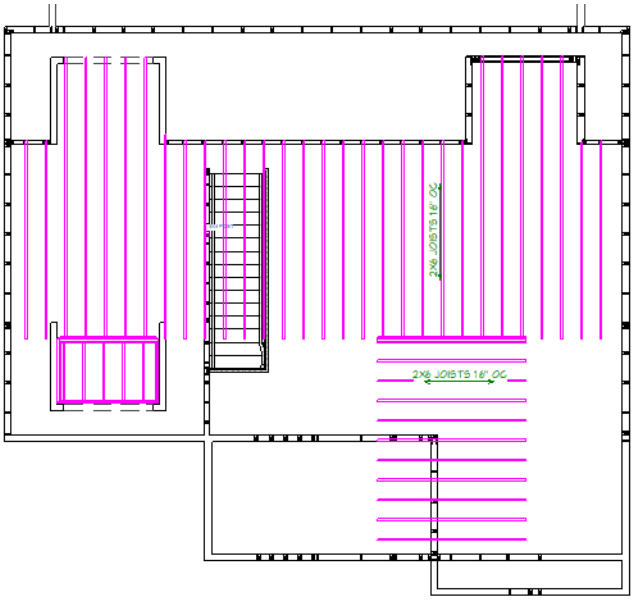


- Select **Build> Framing> Joist Direction** .
- Click and drag to draw a vertical Joist Direction Line to the right of the staircase.

4. Select **Build> Framing> Build Framing** and click the **Framing Defaults** button.
5. On the 2ND panel of the Build Framing dialog:
   - Check **Use Framing Reference**.
   - Make sure the **Spacing** is set to 16" on center.
   - Click OK.
6. Returning to the Build Framing dialog:
   - Under the Build Framing Once heading, select **Ceilings** and choose "Floor 2" from the drop-down list, then click OK.
7. Select **Build>Framing>Bearing Line** , then click and drag to draw a horizontal line along the bottom edge of the full-length joist just above the short joists.
8. Draw a horizontal **Joist Direction** line in the area of the short joists.



9. Select **Build> Framing> Build Framing** and build the ceiling framing for Floor 2 once more, as described above.



10. **Save** your work.

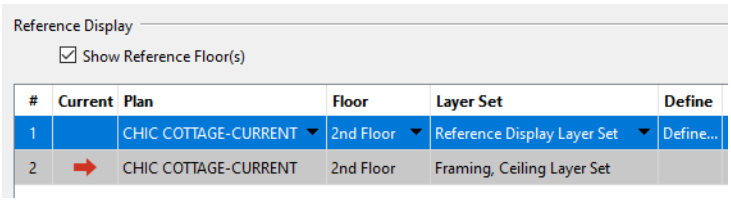
Editing Ceiling Framing

Ceiling joists can be edited in the same ways that floor joists can.

Here, the ceiling framing layout will be shifted so that the joists butt against the sides of the rafters rather than being aligned with their centers.

To customize the Reference Display

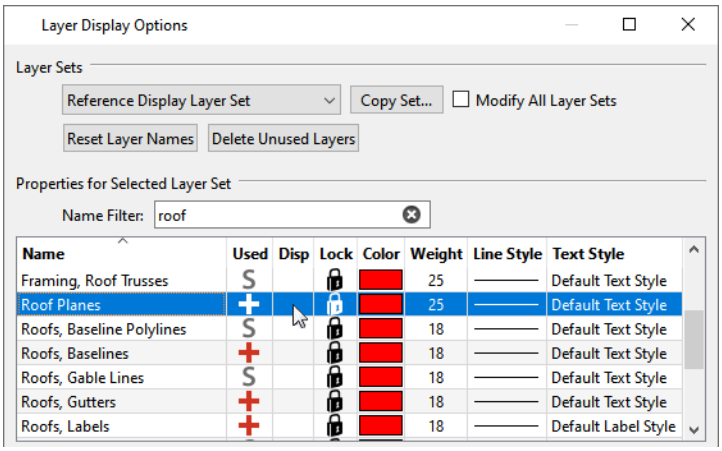
1. Select **Window> Fill Window** or **Zoom** out until the entire floor plan can be seen.
2. Select **Tools> Floor/Reference Display> Reference Display**.
3. Select **Tools> Floor/Reference Display> Change Floor/Reference** or click the toolbar button that reports the current floor level.
4. In the Change Floor/Reference dialog:



- Notice the table under the "Reference Display" heading. The Reference Display can be set to show a specific floor level of your choosing and use the layer set that you specify. It can even display information from another plan file.
- Row #1 is the Reference Display. Specify that it display the 2nd Floor.
- Click on the "Define" cell in row #1 to open the Layer Display Options dialog.

5. In the Layer Display Options dialog, notice that the "Reference Display Layer Set" is the selected Layer Set.

6. In the **Name Filter** field, type the word "roof", then:

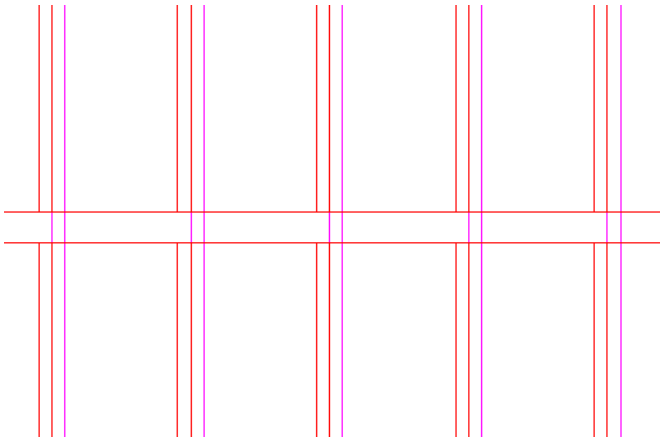


   - Turn on the display of the "Framing, Roof Rafters" layer.
   - Turn off the display of the "Roof Planes" layer.
   - Click OK to close the dialog and apply your changes.
7. Notice that roof rafters are now represented in the Reference Display, and that they are aligned with the ceiling joists.

The ceiling framing on Floor 2 can be easily selected while the Joist tool is active.

To shift the ceiling framing layout

1. Select **Build> Framing> Joist**, then hold down the ***Shift*** key and click and drag a rectangular selection marquee around the drawing.
2. When you release the mouse button, notice that the Status Bar reports the number of objects that are selected.
3. To confirm that all of the selected objects are ceiling joists, click the **Open Object** edit button:
   - Note that the title of the dialog that opens is Framing Specification (Ceiling Joist).
   - Click the Cancel button.
4. With the array of ceiling joists still selected, click the **Transform/Replicate Object** edit button. In the Transform/Replicate Objects dialog:
   - Check the box beside **Move**.
   - Specify the **X Delta** value as 1 1/2", then click OK.
5. **Zoom** in on the joists and confirm that they are now positioned against the sides of the rafters instead of being aligned with them.



6. Repeat steps 1-4 to offset the shorter horizontal joists 1 1/2" upward using the **Y Delta** setting in Transform/Replicate Object dialog.
7. When you are finished, toggle the **Reference Display** off again and **Save** your work.

Adding Annotations

With roof and ceiling framing in place, annotations can be added.

In the *Floor Framing* tutorial, the "Framing Floor Plan View" was active, annotations were added using "Framing Rich Text Defaults, Floor", and were placed on the "Text, Framing - Floor", layer. That layer was turned off, however, when the "Framing, Roof Plan View" was opened.

In addition to creating an uncluttered space for drawing roofs, another benefit of switching to the "Framing, Roof Plan View" is that annotations added while it is active will be placed on their own layer. This means that roof framing annotations will display in the roof framing plan but not in other views.

Notice that although the layer is turned on, no roof framing labels can be seen. This is because unlike Posts and Beams, most framing members do not have automatic labels. You can, however, create custom labels for any members that require them. Adding a fill color can also bring attention to certain members.

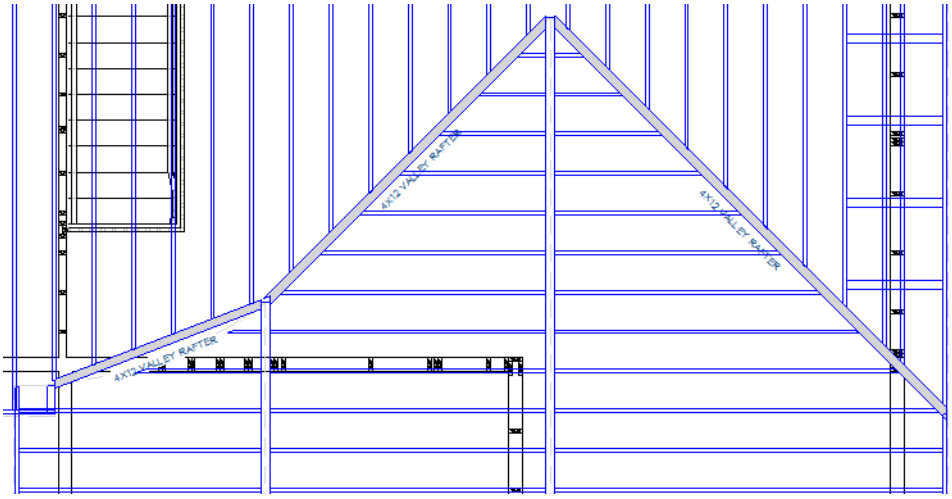
To annotate framing members using their labels

1. Select the "Framing, Roof Plan View" from the **Saved Plan View Control** drop-down list in the toolbars.
2. Use the Active Layer Display Options dialog to turn off the display of the "Framing, Direction Lines" layer so the Joist Direction Lines are not visible.
3. Click the **Select Objects** button, then group-select the valley rafters over the garage and porch:
   - Click on one of the valley rafters on either side of the vertical ridge over the Garage.
   - Hold down the Ctrl/Command key, then click on the other two valley rafters to add them to the selection set.
4. Click the **Open Object** edit button, and on the FILL STYLE panel of the Framing Specification (Rafter Ridge) dialog:
   - Select "Solid" from the Pattern **Type** drop-down list.
   - Click the **Color** bar and choose a grey color from the Select Color dialog.
5. On the LABEL panel of the Framing Specification (Rafter Ridge) dialog:
   - Select the **Specify Label** radio button.
   - Click the **Insert Macro** button and in the menu that opens, browse to and select **Object Specific> Nominal**

Size.

- When you click on Nominal Size, "%nominal_size%" is added to the text field.

6. Click after the inserted macro in the text field and type: VALLEY RAFTER.
7. Click OK to close the dialog.



8. If you want, you can select each valley rafter and use its Move Label edit handle to adjust the position of the label.
9. Remember to **Save** your work.

Additional annotations can be added using the Rich Text and Leader Line tools. If you wish, you can also switch to the "Framing, Ceiling Plan View" and add annotations using any of the techniques you have learned.

Creating File Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Roof Framing. Then, click OK.
3. Notice that Chic Cottage-Roof Framing is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Organizing Documents in the Project Browser

Before moving on to the Landscaping Tutorials, organize your Framing plans in a new folder.

To organize Plans using custom folders

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View>Project Browser** .
2. Right-click on the Chic Cottage Project and select **New Folder** from the contextual menu.
3. A new folder is created immediately below the Project level line item and an inline text editor is active.
4. Type a descriptive name for the folder and press the ***Enter*** key. Here, "Framing Tutorials" is used.
5. Click on the "Chic Cottage-Floor Framing.plan" to select it, then:
   - Hold down the ***Shift*** key and click on Chic Cottage-Wall Framing".
   - These two documents as well as the document listed between them are selected as a group.
6. Click and drag the selection to the "Framing Tutorials" folder. When the folder becomes highlighted, release the mouse button.'

REVIEW

This lesson describes the best practices for creating and editing roof and ceiling framing.

To switch to a different saved plan view *365*

To set defaults for and generate roof framing *366*

To examine roof framing *367*

To modify the entire roof structure *368*

To modify a single roof plane’s structure *368*

To break the ridge beam over a post *369*

To stack load-bearing posts *370*

To place a wall on a non-default layer *373*

To customize joist direction *373*

To customize the Reference Display *375*

To shift the ceiling framing layout *376*

To annotate framing members using their labels *377*

To save a plan revision *378*

Assessment Questions

Tutorial 21 - Roof and Ceiling Framing

When roof framing is generated, are the current framing defaults used, or the current roof plane specifications?

- The roof plane’s current specifications are used when roof framing is generated. In order for changes to the framing defaults to affect roof planes, they must be regenerated or redrawn.

What tool allows you to change the specifications of all roof planes at once?

- The Edit All Roof Planes tool lets you open the shared specification dialog for all roof planes in the current plan.

What edit tool allows you to rebuild the framing for an individual roof plane?

- The Rebuild Framing for Selected Object(s) edit button allows you to rebuild the framing for the selected object(s) only.

What tool allows you to create a copy of an object at the same location as the original?

- The Paste Hold Position tool creates a copy of an object at the same location as the original.

What edit tool can you use to move multiple selected objects a precise distance?

- The Transform/Replicate Object edit tool lets you move selected objects a precise distance along the X, Y, and/or Z planes.

Landscaping Tutorials

Chapter 6

The Landscaping Tutorials describe best practices for creating site plans and landscaping in Chief Architect:

In this tutorial you will learn about:

Plot Plans

A plot plan is essentially a map of a property's legal description. Plot plans, or site plans, usually have a North Pointer and can also include other features such as the location of buildings and setback lines.

Learning Objectives

This lesson describes best practices in Chief Architect for creating a plot plan. Concepts introduced include:

Productivity Tips *382*

Setting the Defaults *382*

Tracing a Lot Image *382*

Importing a DXF/DWG *383*

Using Plan Views *383*

Drawing a Lot Perimeter *383*

Adding Setback Lines *391*

Converting a Plot Plan into Terrain *393*

Defining the Direction of North *396*

Positioning the Structure *399*

File Management

This tutorial describes how to create a plot plan. Unlike other tutorials in this series, this process will be done in new plan rather than in CHIC COTTAGE-CURRENT.plan. This will allow the direction of North to be defined in two different ways: one, for the purposes of a site plan and one for all other purposes.

To save a new plan file

1. Select **File> New Plan** to open a new, blank plan.
2. Select **File> Save As**. In the Save Plan File dialog, browse to your Documents\Chic Cottage folder so that it is the Save location for your site plan file.
3. For the **File name**, type Chic Cottage-Plot Plan and click the **Save** button.

It is a very good idea to save your files often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create a plot plan, keep in mind these tips to improve your productivity.

Drawing and Editing

- Use the **Input Line** tool to create a series of lines with specific starting points, lengths and angles.
- Use the Concentric Edit Behavior to concentrically resize objects using in increments that you specify.

Interface

- The Dialog Number/Angle Style dialog controls how length and angle values are entered and display in dialogs and the Status Bar.
- Default Sets let you activate a set of defaults and layer settings for a specific purpose: for example, a plot plan.
- When drawing and editing a plot plan polyline, it may be helpful to turn off **Grid Snaps**. **Object Snaps**, however, should be left on.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When creating a plot plan, it is a good idea to set your CAD and Annotation Defaults in advance.

While the direction of North is typically straight up in a site plan drawing, that is not often the case in most floor plans. To allow the direction of North to be defined in two different ways: one, for the purposes of a site plan and one for all other purposes, create the site plan in a separate plan file.

A plot plan is an example of a plan view that requires text, dimensions, and other annotations to be drawn at a different scale than other views. You can easily switch to a layer set specifically for plot plans, and enable defaults that place text, dimensions, and other annotations on special layers for that purpose. See *To switch to a different saved plan view on page 383*.

Before drawing a plot plan, it is helpful to set the General CAD Defaults to meet your needs for this task. See *To set the CAD Defaults on page 383*.

Creating setback lines is easy to accomplish using the Concentric Edit Behavior. See *To create setback lines on page 391*.

Tracing a Lot Image

One fast and easy way to create a lot perimeter is to import an image of the lot and then trace over it. To see a demonstration of the process, see the "Trace a Terrain Lot Image to Create a Site Plan or Terrain Perimeter" tutorial video at video.chiefarchitect.com.

Importing a DXF/DWG

Often, plot plans and elevation data are available in DXF/DWG file format, which can be imported into Chief Architect.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

When drawing a plot plan, it is helpful to use a Saved Plan View with layer settings and defaults preset for that task. This is the case even when a plan file is created for a single use.

To switch to a different saved plan view

1. Click the **Saved Plan View Control** drop-down, which is located in the top toolbar by default.
2. Select "Plot Plan View" from the drop-down list.
3. The current view window remains open, and now uses the Plot Plan View.
4. If it is not already open, select **View> Active Layer Display Options**. Note that the **Active Layer Set Options** side window reports that the "Plot Plan Layer Set" is now active, and that:
   - The Terrain Perimeter created in the *Decks and Porches* tutorial displays. See *"To create a Terrain Perimeter" on page 115 of the Decks and Porches Tutorial*.
   - Doors, windows, and General Note callout shapes now display.
   - Roof framing and framing labels no longer display.
5. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser**.
6. Right-click on the Plot Plan View in the Project Browser and select **Edit View** from the contextual menu.
7. On the Selected Defaults panel of the Plan View Specification dialog, notice that the names of the Saved Defaults associated with this view all begin with "Plot Plan", then click Cancel.
8. When you are finished, **Save** your work.

The settings in the "Plot Plan View" are typical of site plan drawings and will make working on this task easier.

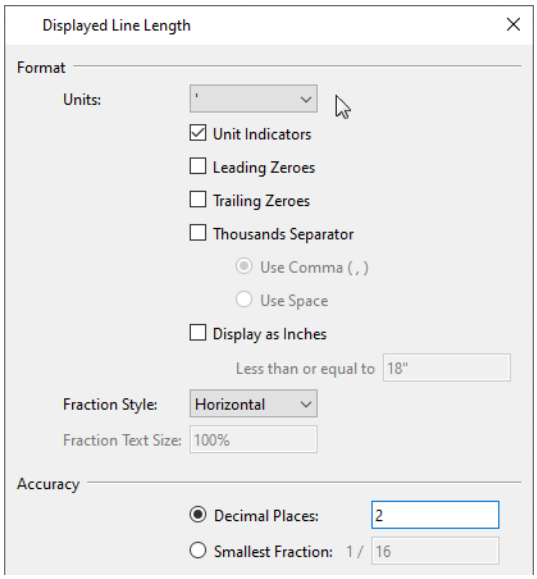
Drawing a Lot Perimeter

Plot plans can also be drawn using the CAD Tools. A plot plan can be drawn in plan view or, if you prefer, in a CAD Detail.

To set the CAD Defaults

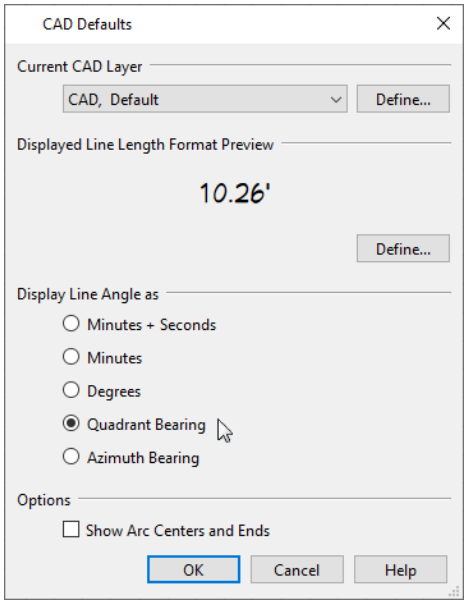
1. Select **Edit> Default Settings**, and in the Default Settings dialog, expand the CAD category, select "General CAD", and click the **Edit** button.
2. In the CAD Defaults dialog, click the **Define** button under the "Displayed Line Length Format Preview" heading.

3. In the Displayed Line Length dialog:



- Click the **Units** drop-down and choose either "ft" or the ’ sign from the list.
- Select the **Decimal Places** radio button and specify 2 as the number of decimals.
- Click OK.

4. Returning to the CAD Defaults dialog, select the **Quadrant Bearing** radio button located under the Display Line Angle as heading.

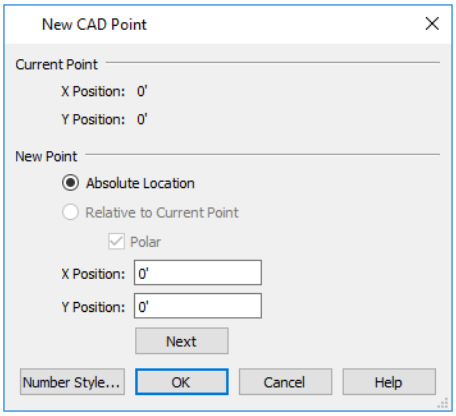


5. Click **OK**, then click **Done** to close both dialogs.

Before drawing a plot perimeter using the lot description, you need to indicate where you want the starting point to be located in your drawing area. Here, we will place it at the origin.

To define the starting point

1. Select **CAD> Points> Input Point** to open the New CAD Point dialog.



2. Select the **Absolute Location** radio button.
3. Specify both the **X** and **Y Position** of the point as 0. This will place the point at the origin of the drawing space: (0,0).
4. Click **OK** to close the dialog and create a point at (0,0). This is the Current Point that will serve as the Start Point for the first line of the plot plan.
5. Select **Window> Pan Window**, then click in the drawing area and drag up and to the right to bring the Current Point to the center of the view window.
6. For a better view of the plot lines as they are created, you can **Zoom** out a bit, as well.

With the starting point of the property description in place, the lines can be added using the Input Line tool.

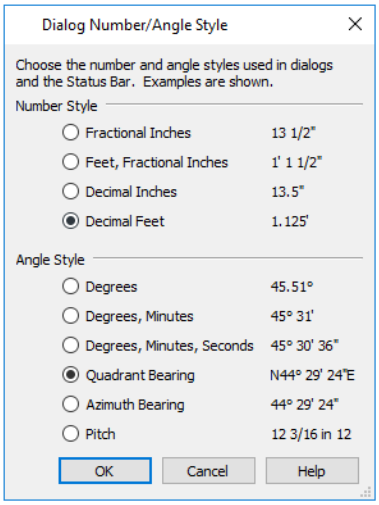
In this example, this lot description is used:

Distance	Bearing	Radius
155.69’	N 61 25 10 E	---
118.65’	S 28 29 35 E	---
154.37	N 49 59 11 E	---
150.00	---	450’

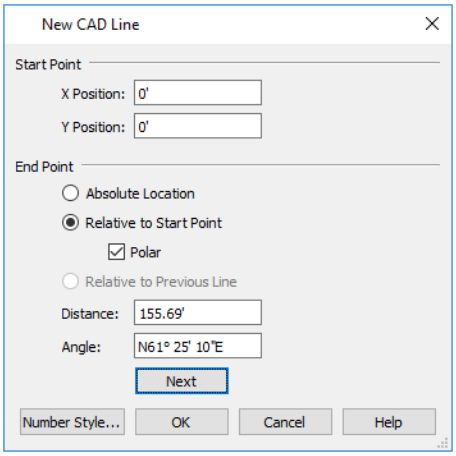
To create a plot plan polyline

1. Select **CAD> Lines> Input Line** to open the New CAD Line dialog.
   - Notice that the Start Point is at (0,0): the location of the Current CAD Point.
   - Click on the dialog’s title bar and drag it over to the side of the program window so it covers as little of the drawing window as possible.

2. Click the **Number Style** button and in the Dialog Number/Angle Style dialog:

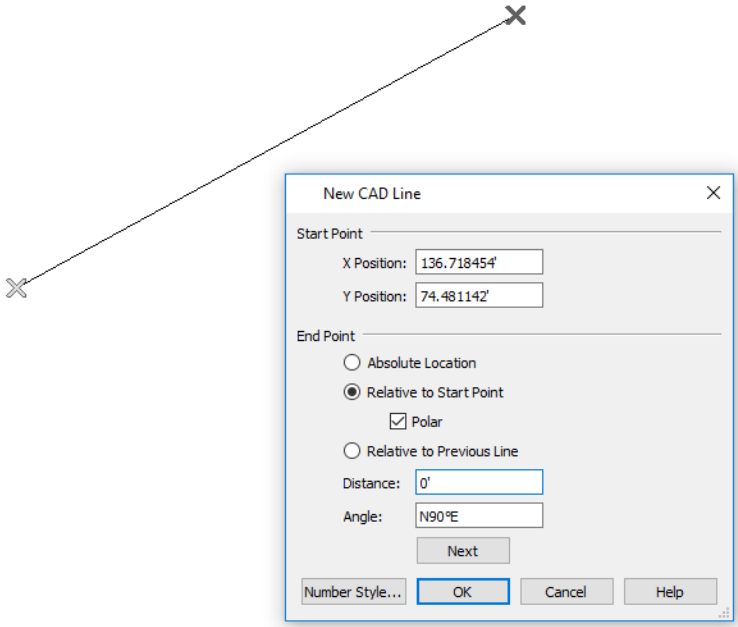


   - Select **Decimal Feet** as the Number Style;
   - Select **Quadrant Bearing** as the Angle Style.
   - Click **OK** to return to the New CAD Line dialog.
3. Select **Relative to Start Point** and check the box beside **Polar**.
4. Using decimal feet, enter the length of the first side of the property boundary's legal description in the **Distance** field.
5. Enter the direction of that line in the **Angle** field. To enter an angle using Quadrant Bearings, type:



   - The primary direction (N or S), followed by a space; then,
   - The angle in degrees, minutes, and seconds with a space after each value; then,
   - The secondary direction (E or W).
   - Press the ***Tab*** key and notice that the program adds degree, minute, and second symbols automatically.

6. Click **Next** and notice:



- The **Start Point** is no longer (0,0).
- In the drawing area, a line now extends out from the point at (0,0).
- If you have zoomed out far enough, you can also see that there is a new CAD Point at the end of the line. This is the new Current Point.

7. Enter the **Distance** and **Angle** of the next property line and click the **Next** button.
8. Enter the distance and bearing of the third line item, then click **OK** to close the New CAD Line dialog.

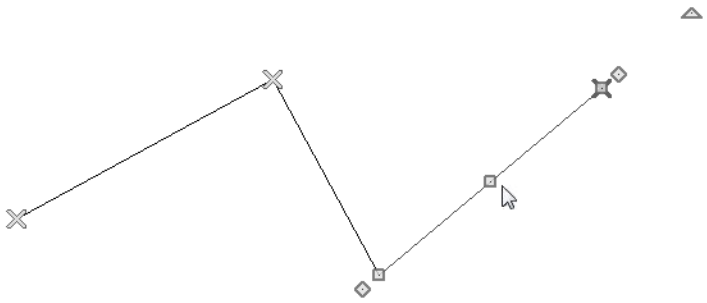
In many cases using lot descriptions created by a surveyor, the resulting polyline will be closed: with the end point of the last line the same as the start point of the first. Sometimes, though, it is not.

> Note: The angle of a given line can be described differently depending on which end is used as the start point. Some property descriptions proceed in the same direction around the perimeter, whereas some do not.

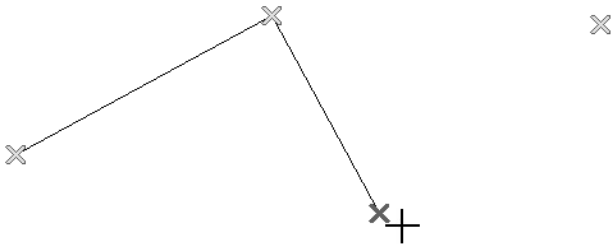
If you realize that a line is entered incorrectly or that its direction is reversed, you can easily correct the problem. Here, for example, the first two lines proceed in a clockwise direction around the perimeter while the third line is described in a counterclockwise direction.

To correct an error

1. If you see that a new line segment is incorrect, click **OK** to close the New CAD Line dialog.
2. Select **CAD> Lines> Disconnect Edges**, then:



   - Click on the incorrect segment to select it.
   - Notice that it is the only segment along the polyline to display edit handles.
3. Click the **Delete** button to remove the problem edge.
4. Select **CAD>Lines>Disconnect Edges** to toggle this tool off again.
5. Select **CAD> Point> Place Point**, then click at the end of the last correct line to create a new Current Point.



6. Select **CAD> Lines> Input Line** and continue entering data in the New CAD Line dialog.

If the direction of a lot line is reversed, simply enter the opposite direction letters to address it.

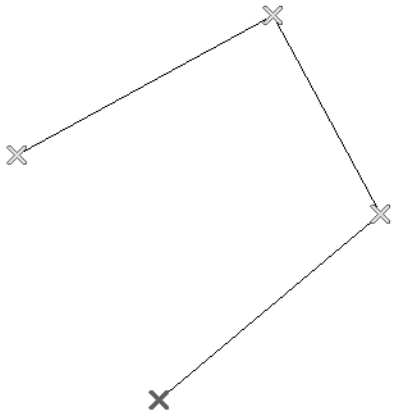
To reverse the direction of a property line

1. Select **CAD> Lines> Input Line**.
2. In the New CAD Line dialog, enter the **Distance** in decimal feet as normal.
3. Enter the reversed direction in the **Angle** field:
   - Type the reversed primary direction (S instead of N or N instead of S), followed by a space; then,
   - Enter the angle in degrees, minutes, and seconds with a space after each value; then,
   - Type the reversed secondary direction (W instead of E or E instead of W).
   - Here, S 49 59 11 W is entered instead of N 49 59 11 E, along with the same length of 154.37'.

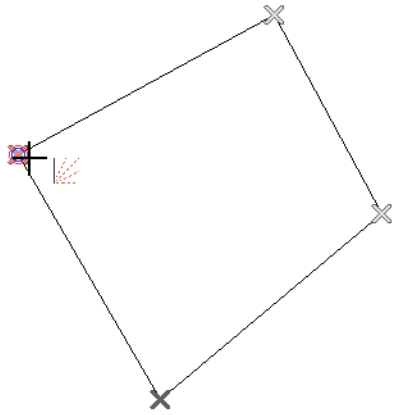
The easiest way to create a curved property line is to draw it manually.

To create a curved property line

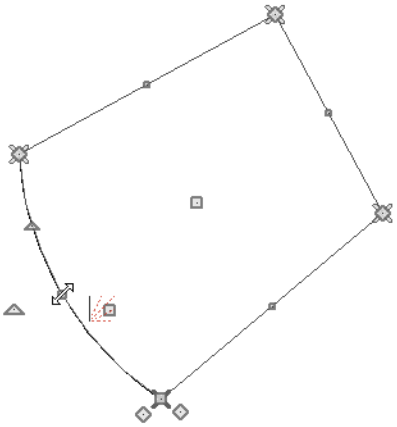
1. Use the **Input Line** tool to input all perimeter edges except for the curved edge, as described above.



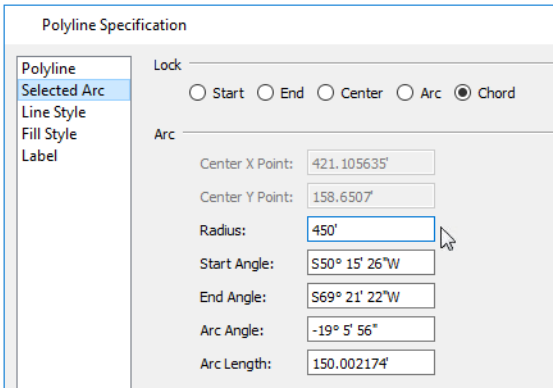
2. To ensure that the existing edges do not change length, temporarily toggle off Angle Snaps.
   - Select **Edit> Snap Settings> Angle Snaps** to remove the check mark from the tool icon.
   - Notice that the Angle Snaps icon now follows your mouse pointer to remind you that this important Snap Behavior is currently toggled off.
3. Select **CAD> Lines> Draw Line**, then move your mouse pointer over one the end points of the open polyline and drag a line to the other open end of the polyline.



4. Click on a property line to select it, then click the **Change Line/Arc** edit button to turn this line into an arc.



5. If necessary, use the triangular Reshape edit handle to make the arc curve in the same direction as the actual property edge. Here, the edge curves outward.
6. With the curved edge selected, click the **Open Object** edit button to open the Polyline Specification dialog.
7. On the SELECTED ARC panel:

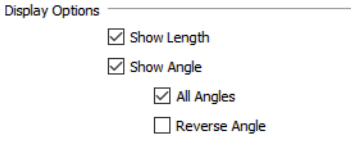


- Click the **Lock Chord** radio button.
- Specify the length of the **Radius**. Here, 450’ is used.
- Alternatively, the **Arc Length** could be entered.
- Click OK to close the dialog and apply your changes to the Selected Edge.

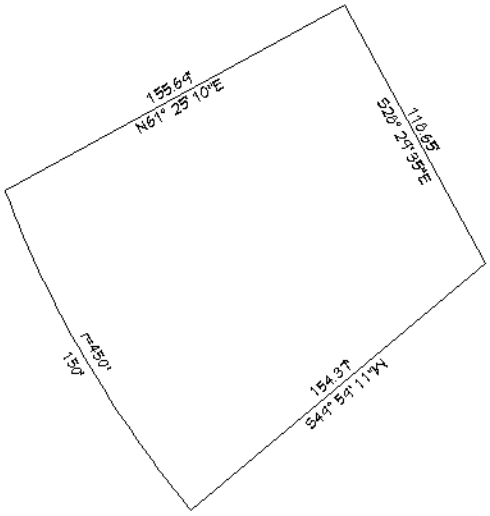
8. Select **CAD> Points> Delete Temporary Points** to remove the CAD points that were added as the plot plan was created.
9. Select **Edit> Snap Settings> Angle Snaps** to turn Angle Snaps back on.

To display line length, bearing, and radius

1. Click the plot plan polyline to select it, then click the **Open Object** edit button.
2. On the LINE STYLE panel of the Polyline Specification dialog:



- Check **Show Length**, **Show Angle**,
- Make sure that **All Angles** is checked, then click OK.



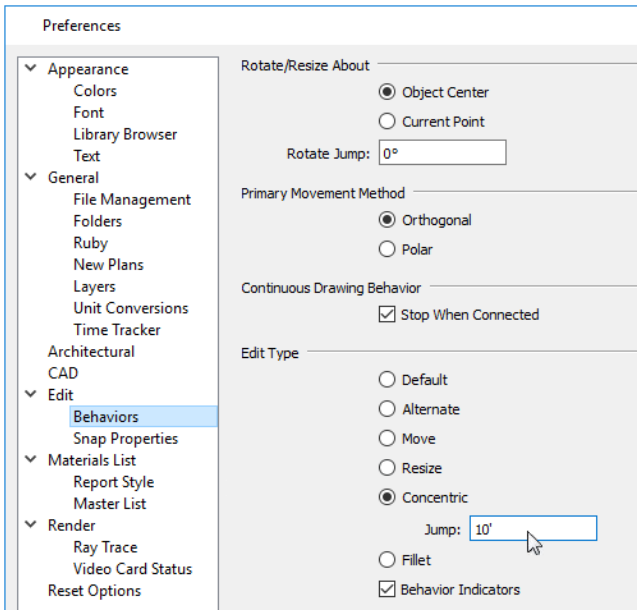
3. When you are finished, **Save** your work.

Adding Setback Lines

Setback lines can be added by creating a copy of the plot plan polyline that is resized using the Concentric Edit Behavior.

To create setback lines

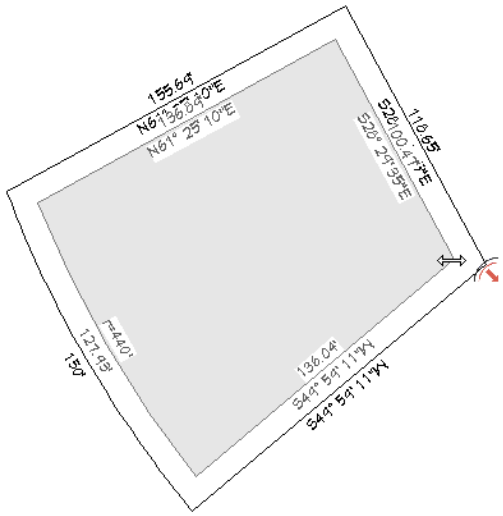
1. Select **Edit> Preferences** in Windows or **Chief Architect> Preferences** in macOS.
2. On the BEHAVIORS panel of the Preferences dialog:



- Select the **Concentric** radio button under the Edit Type heading.
- In the **Jump** field, type in the required setback distance, such as 10', and click **OK**.

- When you return to plan view, notice that the **Concentric** tool icon follows your mouse pointer, reminding you that this alternative behavior is active.

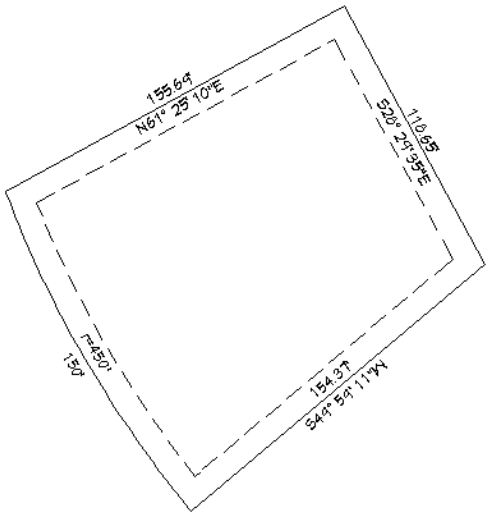
3. Click the **Select Objects** button, then click on the plot plan polyline to select it.
4. Click the **Copy/Paste** edit button, then:



- Move your mouse pointer over a corner edit handle,
- Click and drag towards the center of the polyline.
- When a second, inner polyline appears, release the mouse.

5. Select the inner polyline and click the **Open Object** edit button to open the Polyline Specification dialog. On the LINE STYLE panel:
   - Select a dashed line Style from the drop-down list
   - Under the "Display Options" heading, uncheck **Show Length** and **Show Angle**.

> You can also click the Library button to the right of the line Style and choose from a selection of task-specific line styles in the Library Browser.



6. Since you are finished entering data to create the plot plan, the number and angle styles can be reset to the original defaults:

- Click the **Number Style** button at the bottom left corner of the dialog.
- In the Dialog Number/Angle Style dialog, select **Fractional Inches** as the Number Style and **Degrees** as the Angle Style.
- Click OK to close both dialogs and apply your changes.

7. Finally, select **Edit> Edit Behaviors> Default** to restore the default edit behavior.

If you want, you can place the setback polyline on its own custom layer so that its display can be controlled independent of the perimeter polyline.

To place the setback polyline on a new layer

1. Select the setback polyline and click the **Open Object** edit button.
2. On the LINE STYLE panel of the Polyline Specification dialog, click the **Define** button to the right of the **Layer** drop-down list.
3. In the Layer Display Options dialog, which opens next, notice that the "CAD, Plot Plan" layer is selected in the layer table.
4. Click the **New** button below the layer table to open the New Layer Name dialog. Type a short, descriptive name such as "CAD, Setback Lines", then click OK.
5. Notice that the new "CAD, Setback Lines" layer is selected, then click OK to close the Layer Display Options dialog.
6. Returning to the Polyline Specification dialog, notice that the "CAD, Setback Lines" **Layer** is now assigned to the setback polyline, then click OK to close the dialog and apply your changes.

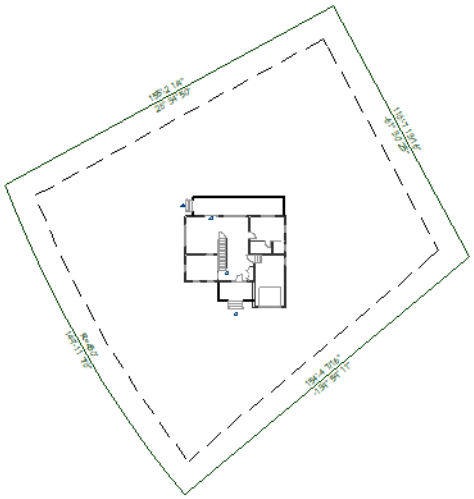
CONVERTING A PLOT PLAN INTO TERRAIN

The plot plan drawn above is a 2D CAD object that will be useful in a site plan. It can also be converted in to a 3D Terrain Perimeter in which you can model the lot's slope and landscaping.

So that the terrain and landscaping can be included in the same 3D model as the house, the plot plan perimeter must first be copied and pasted into the CHIC COTTAGE-CURRENT plan.

To copy the plot plan polyline

1. Click the **Select Objects** tool, then click on the plot plan perimeter to select it. Hold down the ***Shift*** key and click on the setback polyline to add it to the selection set.
2. With the two objects selected, select **Edit> Copy**.
3. Select **File> Open Plan** and open the plan file that your site plan is associated with.
4. Select **File> Open Recent Documents** and select CHIC COTTAGE-CURRENT to open it.
5. In plan view, go to Floor 1. See *"To navigate between floors levels" on page 49 of the Multiple Floors Tutorial*.
6. Notice that "Framing, Roof Plan View" is selected in the **Saved Plan View Control** drop-down, then select "Plot Plan View" instead.
7. Select **Edit> Paste> Paste** then click in the drawing area near the house to place a copy of the two polylines. The exact location isn't important at this time.



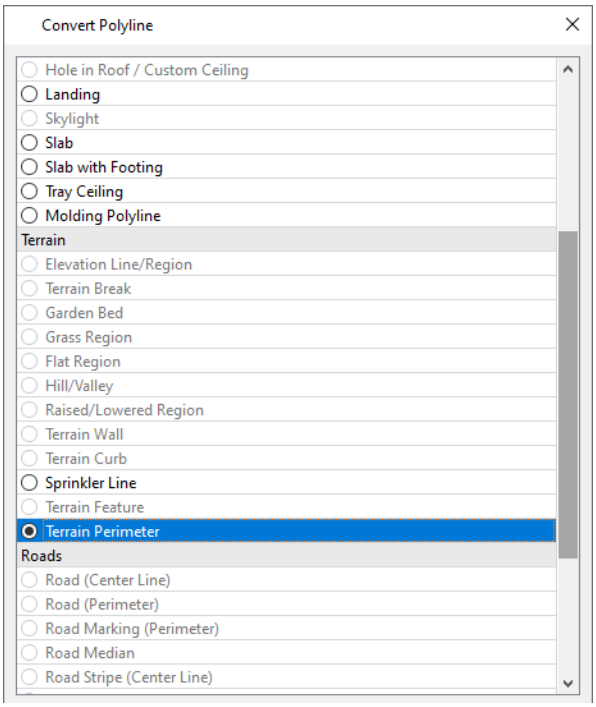
8. If you do not see both plot plan polylines, select **Window> Fill Window** or **Zoom** out until they come into view.
9. Notice that the line lengths and bearings are specified in feet and inches and degrees rather than decimal feet and Quadrant Bearings.
   - This is because the settings in the CAD Defaults dialog, including the line length and angle formats, are view-specific.
   - The angle style in particular affects more than just formatting, which will be discussed in a moment. See *Defining the Direction of North on page 396*, below.

If you would like to use the Plot Plan perimeter polyline as your Terrain Perimeter, you must first delete the existing Terrain Perimeter created in the *Decks and Porches* tutorial.

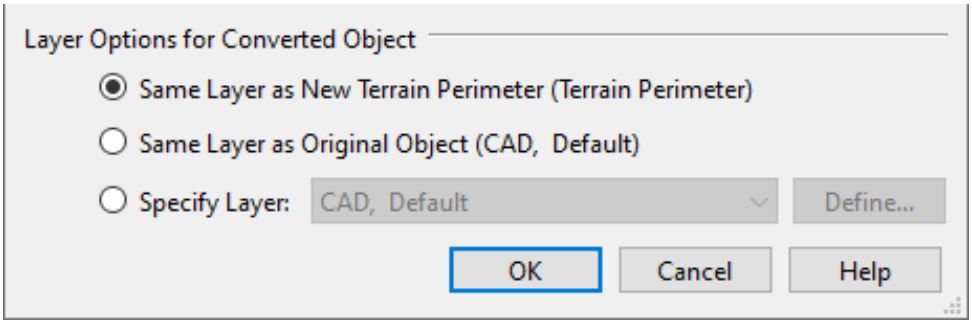
To convert to a Terrain Perimeter

1. Select the existing Terrain Perimeter and **Delete** it.
2. Select the newly pasted plot plan perimeter polyline and click the **Convert Polyline** edit button.

3. In the Convert Polyline dialog:



- Under the "Terrain" heading, select **Terrain Perimeter**.
- Under the "Layer Options for Converted Object" heading, make sure that **Default Layer for Converted Object Type (Terrain Perimeter)** is selected.





If the Terrain Perimeter option is greyed out, then a Terrain Perimeter already exists in your plan. You will need to locate and delete it before you can convert the polyline.

4. The Terrain Specification dialog will open next. On the LINE STYLE panel:
   - Notice that the terrain is on the "Terrain Perimeter" layer.
   - Click the **Define** button to the right of the **Layer** drop-down list.
   - In the Layer Display Options dialog, notice that "Plot Plan Text Style" is specified as the **Text Style** for this layer in the Plot Plan Layer Set, then click OK.
   - Since this is not a plot plan drawing, the edge length's and angles are not required. Uncheck **Show Length** and **Show Angle**.
   - Click OK once more to close the Terrain Specification dialog.
5. When you are finished, **Save** your work.

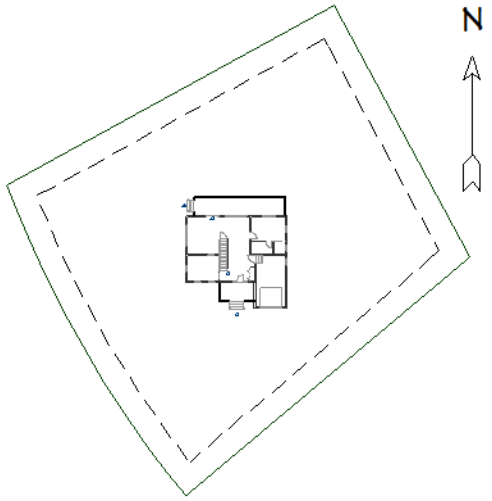
Defining the Direction of North

By default, North is assumed to be straight up on-screen, which is typical of most plot plans. Most building entrances do not face due South, however, so specifying a different direction for North is often necessary.

The North Pointer tool allows you to specify a different direction for North, and affecting the direction of sunlight and shadows, as well as where Quadrant Bearings are measured from.

To add a North Pointer

1. Select **CAD> North Pointer** , then click and drag to create a North Pointer.
2. The North Pointer should initially be drawn so that it points straight up on-screen.
3. Notice that the angle labels on the lot's sides do not change when the North pointer is drawn straight up.

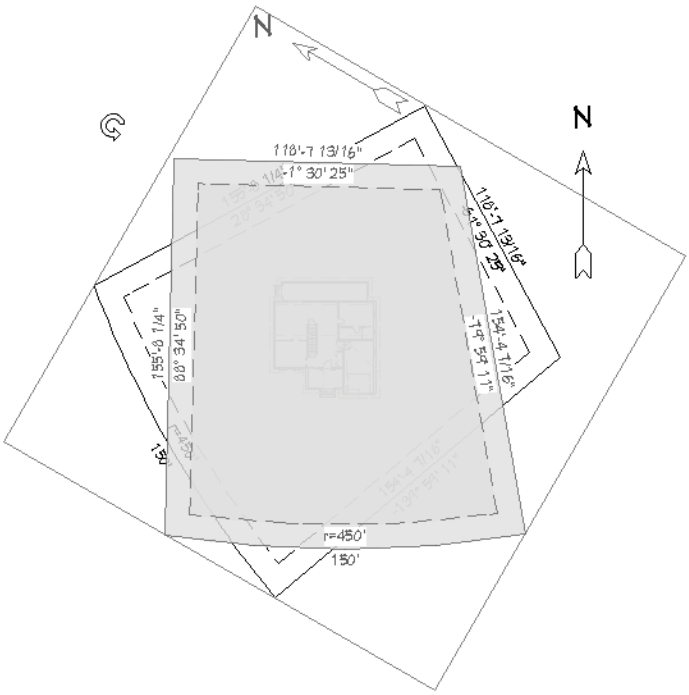


Currently, the back line of the lot is oriented at an angle on the right side of the polyline. It should, however, be parallel with the back of the house, or horizontal on-screen. The lot, setback lines, and North Pointer can be rotated together to achieve this.

To rotate the lot

1. Select the setback polyline, Terrain Perimeter, and North Pointer as a group:
   - Click the **Select Objects** button, then click on the setback polyline to select it.
   - Hold down the ***Shift*** key and click on the plot plan perimeter to add it to the selection set.
   - With the ***Shift*** key still pressed, click on the North Pointer to add it to the selection set, as well.
2. With these three objects selected, click the Rotate handle and drag in a counterclockwise motion until the back edge of the lot is approximately horizontal on-screen.

3. To override Angle Snaps, hold down the ***Ctrl/⌘*** key while dragging.



4. Notice that the angle labels on the lot's sides now report different angles.
   - This makes it easy to rotate the terrain to a particular angle relative to the structure.
   - If, however, you switch the Displayed Line Angle style back to Quadrant Bearing, however, the original bearings are still reported because they are measured relative to the North Pointer. See *To set the CAD Defaults on page 383*, above.

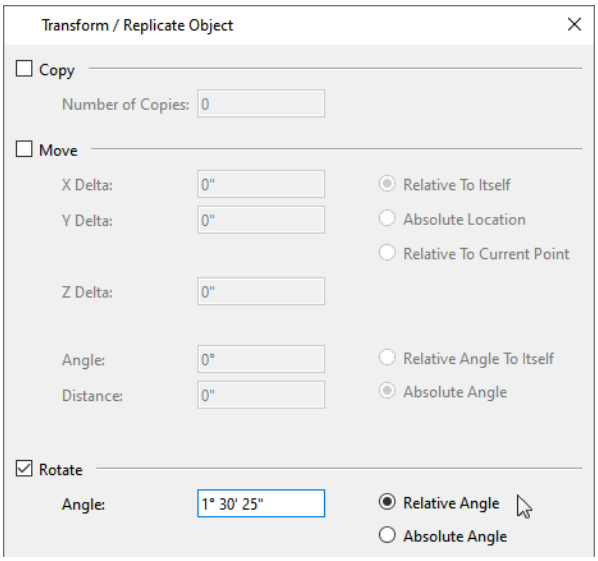
If you need to rotate the lot so that a particular edge is at an exact angle, use the Transform/Replicate Object edit tool.

In this example, the back lot line needs to be parallel to the back wall of Chic Cottage.

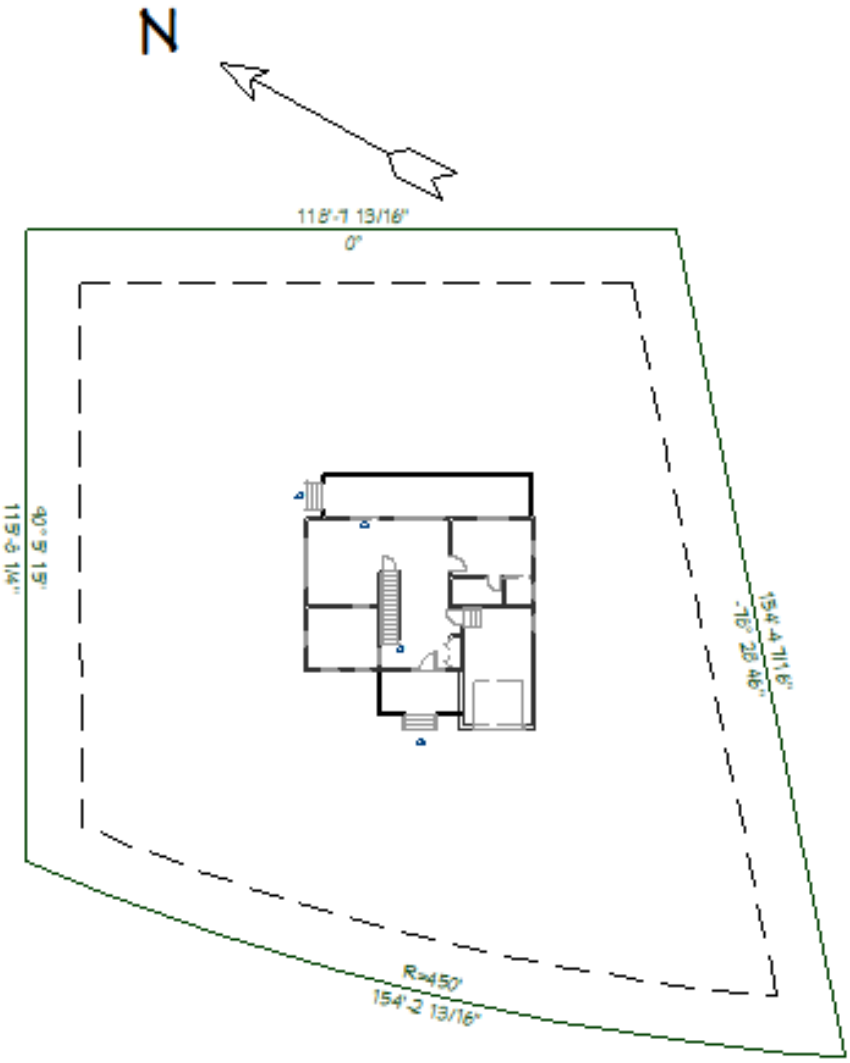
To rotate the lot to a specific angle

1. Make a note of the angle of the back lot line. Here, it is -1° 30’ 25".
2. Select the setback polyline, Terrain Perimeter, and North Pointer as a group, as described above, and click the **Transform/Replicate Object** edit button.

3. In the Transform/Replicate Object dialog:



- Check the box beside **Rotate**.
- Make sure the **Relative Angle** radio button is selected.
- Type 1 30 25 in the **Angle** field.
- Press the ***Tab*** key and confirm that the value updates to 1.506944°, then click OK.



4. Before moving on, be sure to **Save** your work.

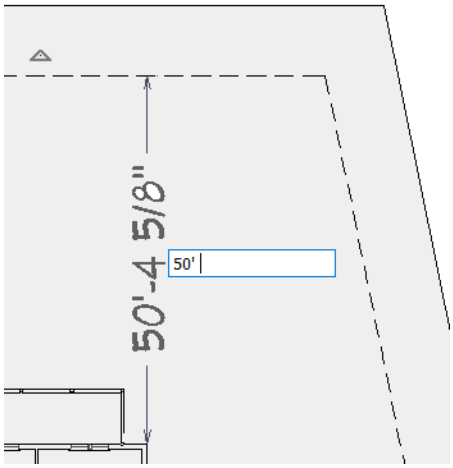
Positioning the Structure

If a point on the building needs to be located a particular distance from the lot line, or at a particular point relative to a lot corner, the lot lines can now be moved to meet that requirement. Here, the lot will be positioned so that the main roof at the back right corner is 50’ from the back setback line, and 30’ from the right setback line.

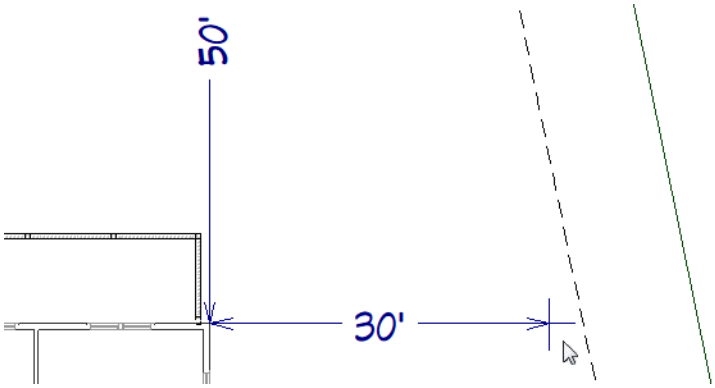
To position a structure using dimensions

1. **Zoom** in on the back right portion of the lot so that the back setback line and the back corner of the structure can be clearly seen.
2. Select **CAD> Dimensions> End to End Dimension**, then click and drag a dimension line from the corner of the structure to the setback line.
3. Click the **Select Objects** button, then click on the setback polyline to select it. Hold down the ***Shift*** key and click on the Terrain Perimeter to add it to the selection set.

4. With the two objects selected, click on the End to End Dimension line.

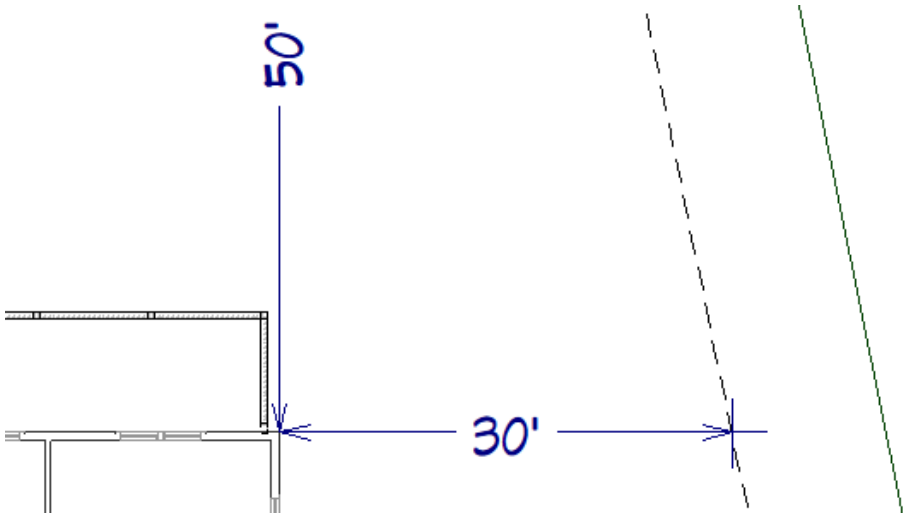


5. In the inline text field, type 50’ and press the ***Enter*** key.
6. Next, draw a dimension between the same building corner and the setback line to its right.
   - Because wall in question is not parallel to the setback line that it needs to be measured from, a different Dimension Tool must be used.
   - Select **CAD>Dimensions>End to End Dimension**, then click and drag a dimension line from the corner of the structure to the setback line.
   - Make sure that the dimension line is drawn horizontally.
   - When the mouse pointer reaches the setback line, an On Object snap indicator will display: release the mouse button.
   - Notice that in addition to a dimension line, a Point Marker is created where it meets the setback line. The dimension line is actually locating this marker and not the angled setback line.
7. Position the Point Marker 30' from the corner of the structure:



   - Click the **Select Objects** button, then click on the Point Marker to select it.
   - Next, click on the dimension line that locates the Point Marker.
   - In the inline text field, type 30’ and press the ***Enter*** key.
8. With the Point Marker still selected:
   - Click the **Copy/Paste** edit button.
   - Click and drag the Point Marker's Move edit handle located at its center horizontally to the right.
   - When the editing preview snaps to the setback polyline, release the mouse button to create a new Point Marker at that location.

9. ***Shift*** + select the new Point Marker, the setback polyline and the Terrain Perimeter as described in step 3, above, to select them as a group. Then:



   - Click the **Point to Point Move** edit button.
   - Click once on the new Point Marker.
   - Then click once on the original Point Marker to move the Terrain and setback to a point 30' from the back corner of the house.
10. When you are finished, **Save** your work.

When the wall in question is not parallel to the setback line that it needs to be measured from, a different Dimension Tool can be used.

Creating File Revisions

Saving revisions of your files allows you to develop different ideas for a project as well as create a history of your work that you can refer back to when needed.

Currently, there are two files open: Chic Cottage - Plot Plan and CHIC COTTAGE CURRENT. Chic Cottage - Plot Plan is a special file created specifically for the purpose of drawing a plot plan. Click on its tab to make it the current view, select **File> Save** and then **File> Close View**.

Next, with CHIC COTTAGE-CURRENT open, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File>Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Lot Lines. Then, click OK.
3. Notice that Chic Cottage-Lot Lines is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File>Close All Views**.

Review

This lesson describes the best practices for creating a plot plan. It also discussed the important default settings associated with drawing CAD objects. These defaults include Default Sets and CAD Defaults.

To save a new plan file *381*
To switch to a different saved plan view *383*
To set the CAD Defaults *383*
To define the starting point *385*
To create a plot plan polyline *385*
To correct an error *388*
To reverse the direction of a property line *388*
To create a curved property line *389*
To display line length, bearing, and radius *390*
To create setback lines *391*
To place the setback polyline on a new layer *393*
To copy the plot plan polyline *393*
To convert to a Terrain Perimeter *394*
To add a North Pointer *396*
To rotate the lot *396*
To rotate the lot to a specific angle *397*
To position a structure using dimensions *399*
To save a plan revision *401*

Assessment Questions

Tutorial 22 - Plot Plans

What is the name of the drawing tool that lets you define lines and arcs by entering their length and bearing?

- The Input Line tool to create a series of lines with specific starting points, lengths and angles. These lines can then be converted into arcs using the Change Line/Arc edit tool.

Where can you specify that the length values in dialog boxes be entered using feet instead of inches?

- To change the format used for length values in dialog boxes, click the Number Style button at the bottom of most dialogs to open the Number Style/Angle Style dialog.

In what dialog can you specify that the angles of polyline edges be described using Quadrant Bearings in plan view?

- The angle format of polyline edges is set in the CAD Defaults dialog.

What Edit Behavior is useful for creating setback lines?

- The Concentric Edit Behavior can be used to create a resized copy of the plot plan polyline that represents setback lines.

What edit tool allows you to change a CAD polyline into a Terrain Perimeter?

- The Convert Polyline edit tool allows you to change a regular CAD polyline into a variety of polyline-based objects such as a Terrain Perimeter.

What edit tool can be used to rotate the Terrain, setback lines, and North Pointer to a specific angle?

- The Transform/Replicate Object edit tool allows you to rotate a selected object or objects to a specific angle.

Terrain Elevation

Adding elevation data to a plan allows you to model sloping terrain.

Learning Objectives

This lesson describes best practices in Chief Architect for creating sloped terrain. Concepts introduced include:

File Management *403*

Productivity Tips *403*

Setting the Defaults *404*

Using Plan Views *405*

Adjusting the Building Pad Height *405*

Importing Elevation Data *406*

Drawing Elevation Data *406*

Controlling the Terrain’s Slope *409*

Adding a Retaining Wall *416*

Adding Annotations *418*

Creating Revisions *418*

File Management

At this point in the design process, both the Chic Cottage-Lot Lines and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Lot Lines was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to add elevation data to terrain, keep in mind these tips to improve your productivity.

Drawing and Editing

- The distance between two Elevation Lines with different Elevation values influences how steep the terrain not just between them but also beyond.

- Control the height of the building relative to the terrain using the Building Pad settings in the Terrain Specification dialog.

Content

- Site plans and elevation data are project-specific, but you can still leverage existing content to improve your efficiency by importing elevation data from DXF/DWG, text, and GPS files.

Interface

- An important angle like that of a lot line can be added to the list of Allowed Angles, making it easy to draw additional objects at that exact angle.
- Tiling 2D and 3D views is often helpful when drawing and editing Elevation Data.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***‘*** - Layer Display Options
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When creating adding elevation data to a plan, it is a good idea to set your CAD and Annotation Defaults in advance.

Before Elevation Data can be drawn or imported, a Terrain Perimeter must be created. See *"Converting a Plot Plan into Terrain" on page 393 of the Plot Plans Tutorial*.

When working with Elevation Data, it is helpful make sure Object Snaps are toggled on. Select **Edit> Snap Settings** and confirm that there is a small check mark in the icon to the left of **Object Snaps**  .

In the *Plot Plans* tutorial, a lot perimeter with accurately angled sides was created and then copied into the CHIC COTTAGE-CURRENT plan. When adding elevation data to this plan, being able to snap to those specific angles can be useful.

To specify Allowed Angles

1. Select **Edit> Default Settings**  and in the Default Settings dialog, click on "Plan" in the list then click the **Edit** button.
2. On the Angle/Grid panel of the General Plan Defaults dialog:
   - Under the Allowed Angles heading, check the box beside **Additional Angles**.
   - In the first **Additional Angles** field, type the angle of the angled perimeter line on the right side of the lot. This value can be entered as:
     - Quadrant Bearings as originally entered when the plot plan was created: S 49 59 11 W.
     - Degrees, Minutes and Seconds as shown in plan view: -78 28 46.
     - Degrees, as set in the current view's Dialog Number/Angle Style dialog: -78.479444.
   - Press the ***Tab*** key to update the information in the dialog and notice that the format of Degrees is applied.
3. Click OK and then Done to close both dialogs and apply your changes.

Using Plan Views

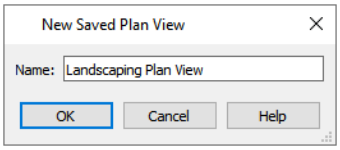
When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

Several different Saved Plan Views have been used in previous tutorials. Terrain and landscaping is another example of a drawing task that is made easier and more efficient by using a Saved Plan View created for that purpose.

In the *Chic Cottage Roof* tutorial, the Roof Plan View and Working Plan View were open at the same time and the two views' appearance and settings were compared. Then, the Working Plan View was closed and work was done in the Roof Plan View. See *"Using Plan Views" on page 138 of the Chic Cottage Roof Tutorial*.

To copy and customize a Saved Plan View

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser** .
2. Click on the arrow to the left of "Plan Views" to expand the category.
3. Make a copy of the "Plot Plan View":
   - Right-click on the "Plot Plan View" and select **Duplicate** from the contextual menu.
   - In the New Saved Plan View dialog, type a short, descriptive **Name** for the new view, such as "Landscaping Plan View" and click OK.



4. Notice that the new Saved Plan View opens in a second view window, and is the active view, then close the "Plot Plan View" view window.
5. If the Active Layer Display Options side window is not already open, select **View> Active Layer Display Options** .
   - Notice that the "Plot Plan Layer Set" is active, just as it is in the "Plot Plan View".
   - Click the **Copy Set** button and give the new layer set a short, descriptive name such as "Landscaping Layer Set".
6. With the new layer set now active:
   - Turn on the display of the "Terrain, Primary Contours" layer.
   - Turn off the display of the "Dimensions, Plot Plan" layer.
7. Select **Tools> Active View> Save Active View** so the "Landscaping Layer Set" remains associated with the "Landscaping Plan View".
8. **Save** your work.

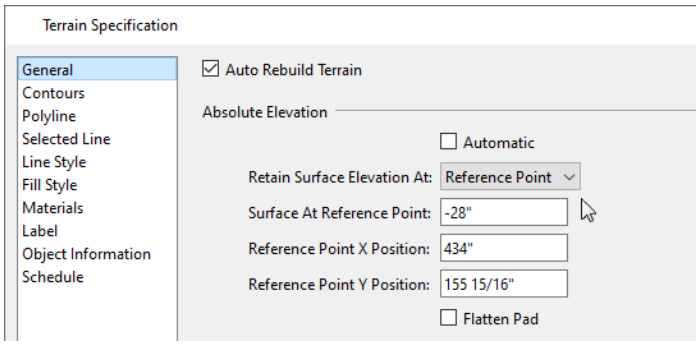
Adjusting the Building Pad Height

When a Terrain Perimeter was created in the *Decks and Porches* tutorial, the Building Pad Elevation was set 28" below the main floor level. See *"To create a Terrain Perimeter" on page 115 of the Decks and Porches Tutorial*.

That original terrain was deleted and replaced in the *Plot Plans* tutorial, but the original Building Pad Elevation places the terrain just below the garage floor and should still be used

To set the building pad elevation

1. Select **Terrain> Terrain Specification** .
2. On the GENERAL panel of the Terrain Specification dialog:



   - Under the Building Pad heading, uncheck **Automatic**.
   - Specify the **Subfloor Height Above Terrain** as 28", then click OK.
   - This will place the terrain 28" below the first floor's subfloor and about 1" below the slab floor in the Garage.
3. **Save** your work.

IMPORTING ELEVATION DATA

Elevation data for a given parcel is often available in electronic format from a surveyor or assessor's office. Importing this data can save considerable time in developing a 3D model of the terrain.

Elevation data can be imported from files of several different formats, as the "Importing Terrain Elevation Data" video explains at video.chiefarchitect.com.

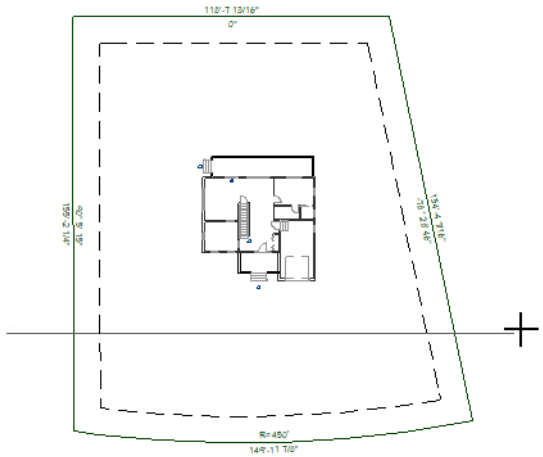
DRAWING ELEVATION DATA

Elevation data can be added to a plan using the Elevation Data Tools.

To draw an Elevation Line

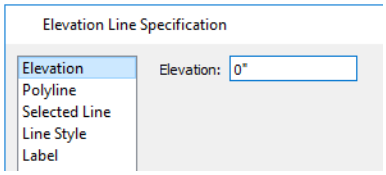
1. Go to Floor 1 and select **Window> Fill Window** or **Zoom** out until the Terrain Perimeter can be seen.
2. With the Terrain Perimeter selected, **Zoom** in on the front of the Garage.
   - The Terrain Elevation Reference Point has a small Move edit handle.
   - Click and drag this handle to the left to move the Reference Point to the center of the Garage door.

3. Select **Terrain> Elevation Data> Elevation Line**, then:



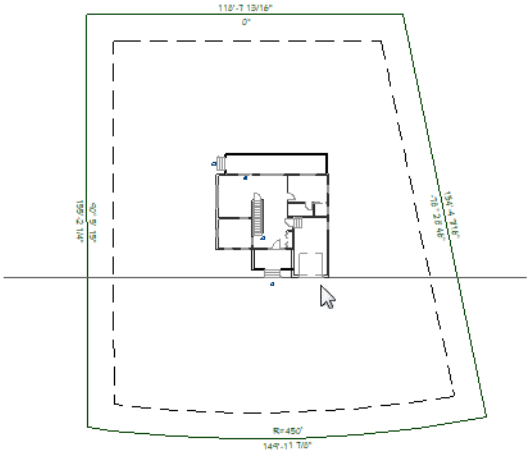
- Click and drag to draw a horizontal line across the entire Terrain Perimeter.
- Here, the line is drawn from left to right, placing the Start Point on the left and End Point on the right.
- The Elevation Line can snap to the edges of the Terrain Perimeter or it can extend past the edges.
- Here, the Elevation Lines extend past the edges because they are easier to see and select.

4. When prompted, click Yes to turn on the display of the "Terrain, Elevation Data" layer in the current view.
5. Select the Elevation Line and click the **Open Object** edit button.
6. On the GENERAL panel of the Elevation Line Specification dialog, note that its **Elevation** value is 0".



7. Because Elevation Data is often described using feet and inches, click the **Number Style** button and in the Number Style/Angle Style dialog:
   - Select **Decimal Feet** as the Number Style.
   - Click OK to close both dialogs.

8. With the Elevation Line still selected:

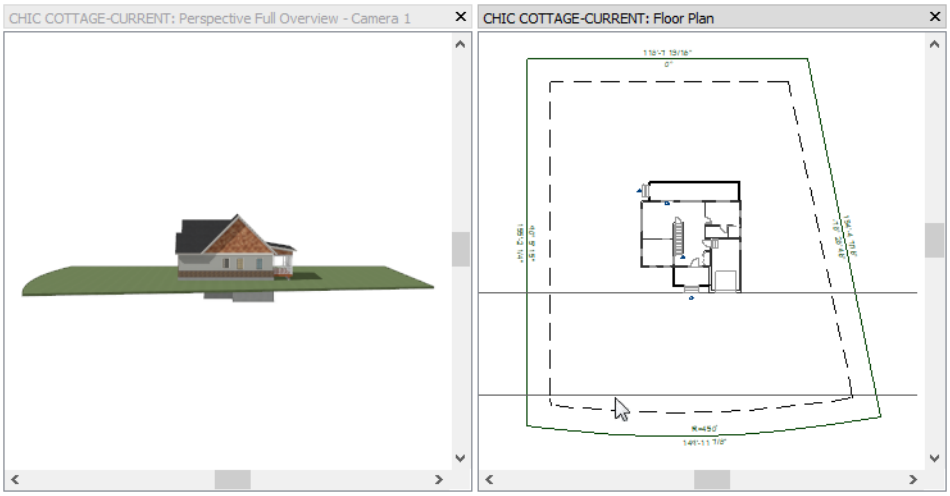


- Use its Move edit handle to snap it to the front wall of the Garage.
- Press the ***Down Arrow*** key once to move it 1" from the wall.

Sometimes, Elevation Data can be best worked on and understood when 2D and 3D views are tiled.

To create a slope

1. Select **3D> Create Perspective View> Perspective Full Overview** .
2. Select **Window> Tile Vertically** to tile the overview and plan views side by side.
3. Click and drag with the **Mouse-Orbit Camera** tool active to orbit the camera around to the right side of the model so you can better see the slope as it is created.
4. Click in the plan view to make it active, then click the **Select Objects** button and click on the Elevation Line to select it.
5. Create a copy of the Elevation Line:

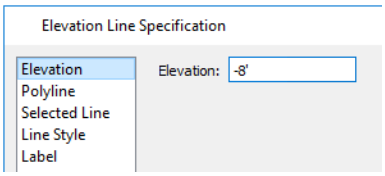


- Click the **Copy/Paste** edit button.
- Click the line's Move edit handle and drag downward towards the bottom of the Terrain Perimeter.
- When the mouse pointer is between the bottom setback line and the edge of the terrain, release the mouse button to

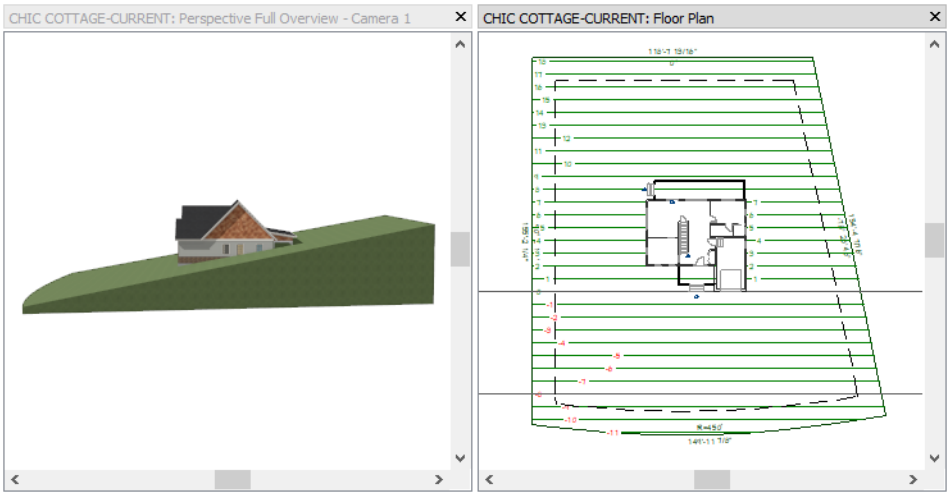
create a copy of the Elevation Line at that location.

- Notice that in the 3D Overview window, no change is made to the terrain's slope.

6. With the newly pasted Elevation Line selected, click the **Open Object** edit button.
7. On the GENERAL panel of the Elevation Line Specification dialog:



   - Note that like the original, its **Elevation** value is 0".
   - Change this value to -8'.
   - Click OK.
8. In the plan view window, notice that there are now evenly-spaced, horizontal contour lines displaying throughout the Terrain Perimeter.
9. In the Overview window, notice that the terrain features a single, continuous slope from the front of the lot to the back.



10. When you are finished, **Save** your work.

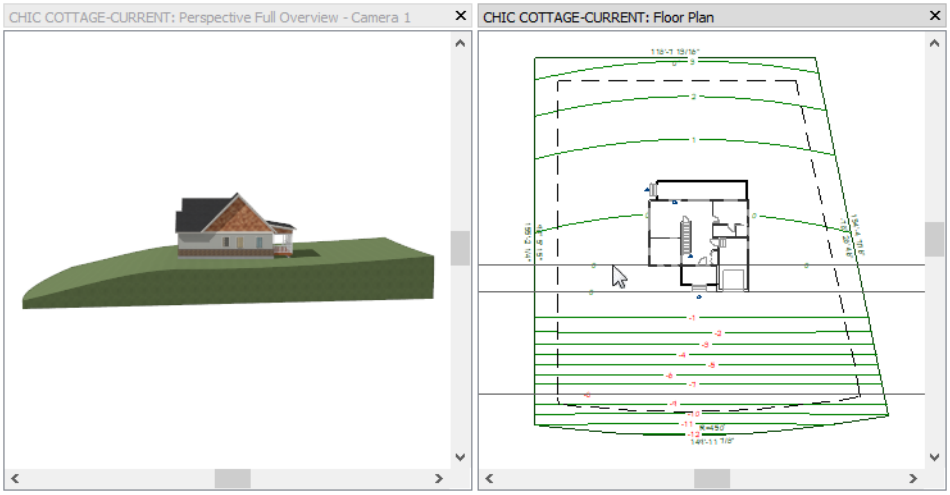
CONTROLLING THE TERRAIN'S SLOPE

To produce terrain that changes height, you simply need to add two pieces of Elevation Data with different Elevation values. To control the slope that is produced, however, you will need to add additional Elevation Data and modify the spacing and height.

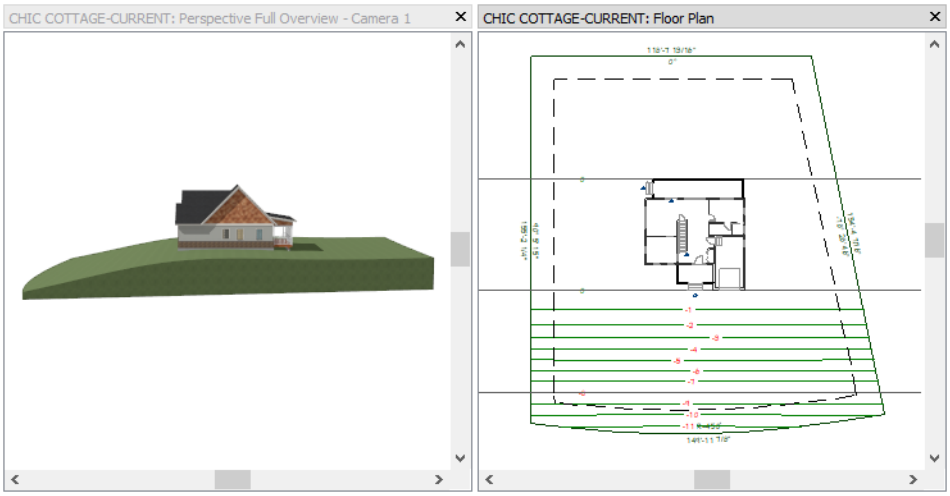
To create changes in slope

1. In the plan view window, select the original Elevation Line and make another copy of it:
   - Click the **Copy/Paste** edit button.
   - Click the line's Move edit handle and drag upward towards the back of the Porch.
   - When the mouse pointer reaches the back of the Porch, release the mouse button to create a copy of the Elevation Line at that location.

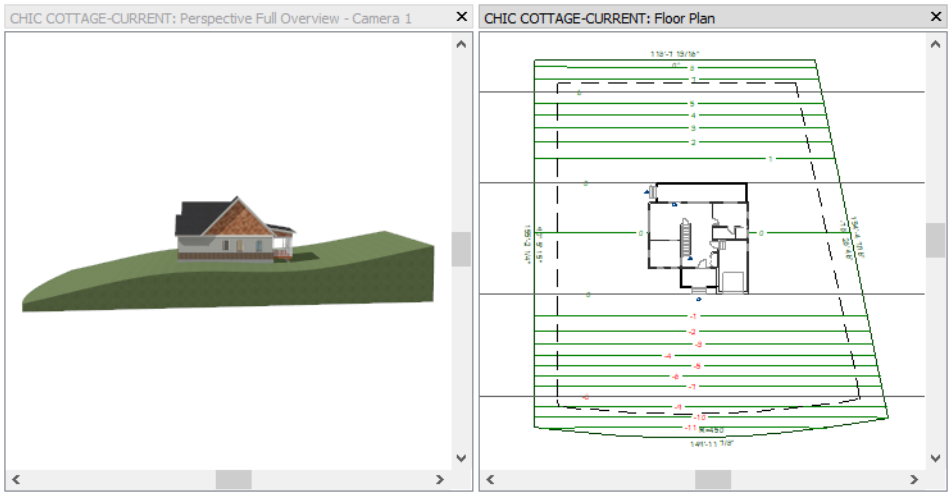
2. In the plan view window, notice:



   - The contour lines above the top two Elevation Lines are more spread out than those located below them.
   - The contour numbers indicate that the slope continues to climb upward towards the back of the lot.
3. In the 3D Overview window, note that the terrain's slope flattens out near the front of the house but slowly begins to increase in elevation again.
4. Move the Elevation Line from the back of the Porch to the back of the Deck and notice that the terrain flattens out around the house as well as at the back of the lot.



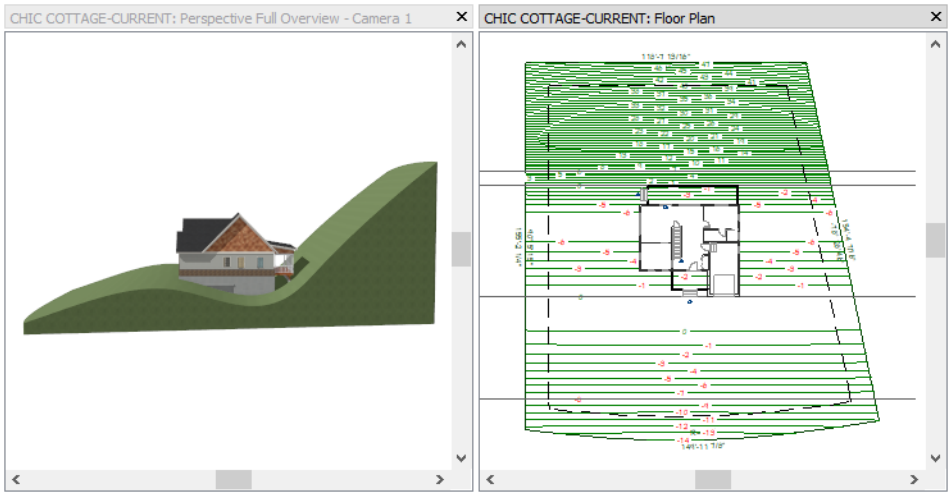
5. Create one more copy of the original Elevation Line near the top edge of the Terrain Perimeter and specify its **Elevation** as 6'.



The steepness of a slope is determined by the difference between two elevation lines and the distance between them.

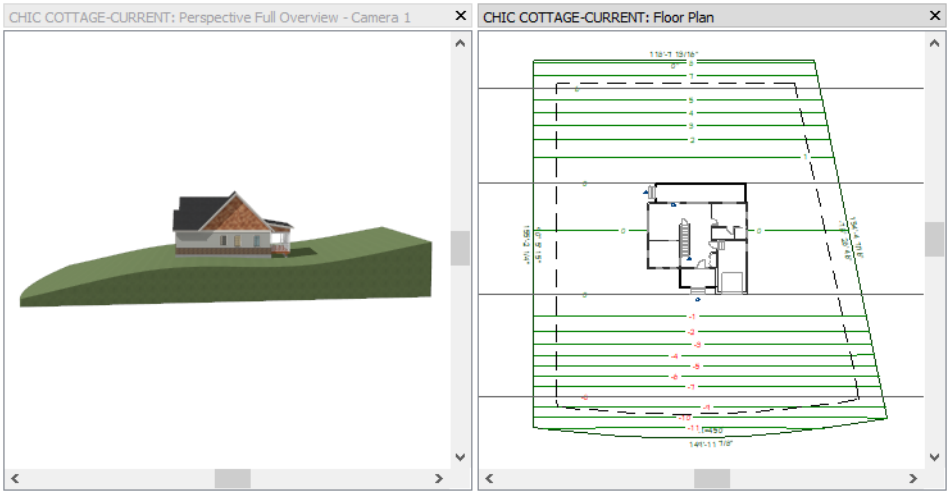
To control slope steepness

1. Select the Elevation Line near the top of the Terrain Perimeter and using its edit handles or Temporary Dimensions, move the new Elevation Line about 6’ from the back of the Deck.
2. Notice what happens:

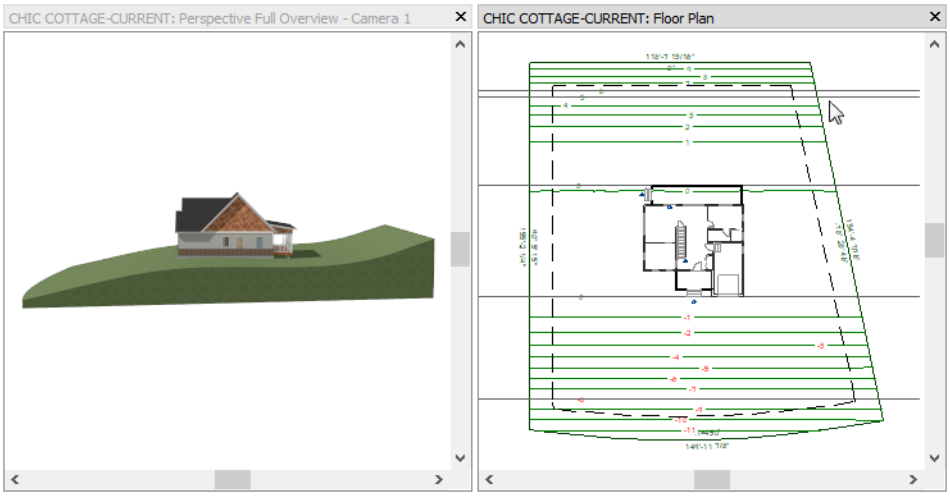


- The terrain increases in height by 6’ over a span of only 6’, which produces a steep slope from the Deck that continues to the back of the lot.
- In order to produce a smoothly curving terrain that passes through the two Elevation Lines at the back of the Deck as well as the two other Elevation Lines, a wave shape is created, with a trough located between the two Elevation Lines at 0’.

3. Now move the selected Elevation Line about 2’ down from the back setback line.



4. Create a copy of the back Elevation Line located between it and the back of the Deck.
5. With this new Elevation Line selected, specify its Elevation value as 5’ and position it 3’ from the back Elevation Line.



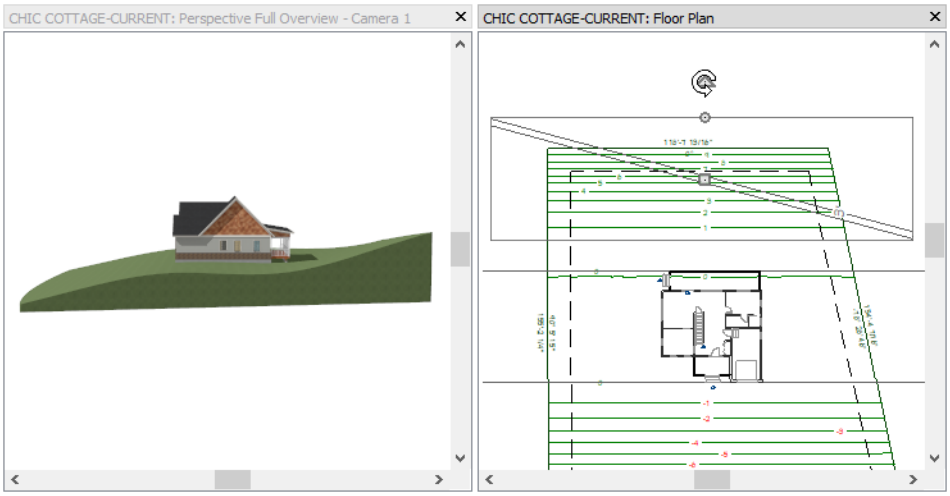
6. Notice that the slope steepness is shallow behind the Deck but increases near the back of the lot.

Slope direction can be modified by simply changing the angles of your Elevation Lines. There are a number of ways to do this.

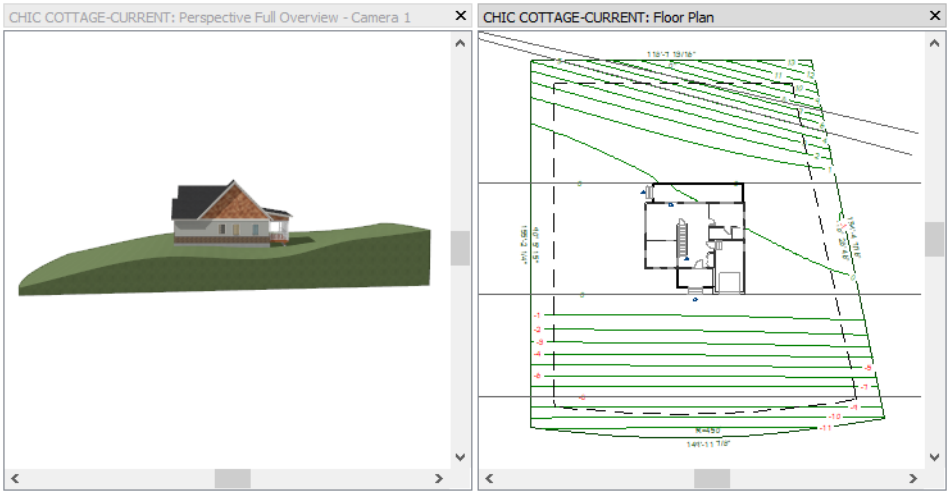
> To avoid conflicting data and unexpected results, Elevation Lines with different Elevation values should never touch or cross one another.

To set slope direction

1. Select and rotate the top two Elevation Lines as a group:



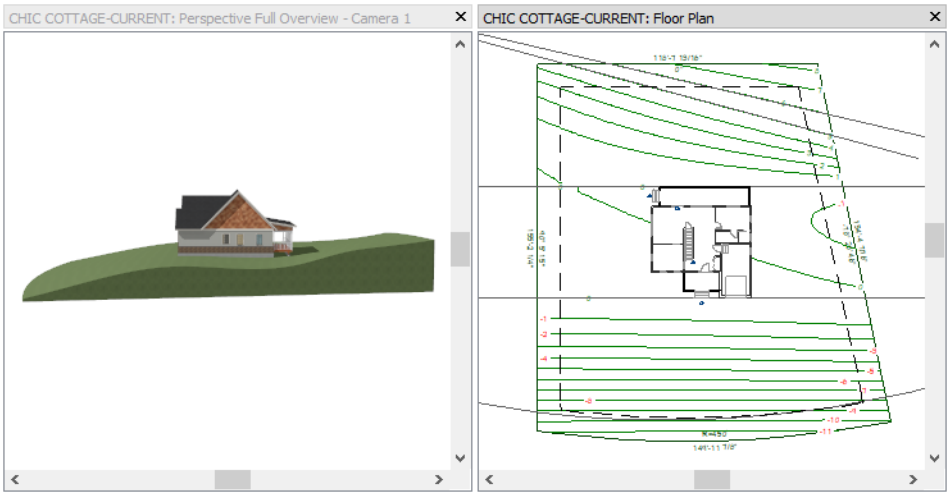
   - Click on the top Elevation Line.
   - Hold down the ***Shift*** key and click on the Elevation Line located below it.
   - Click and slowly drag the triangular Rotate edit handle in a clockwise direction.
   - Notice that the rotated angle is stated in the Status Bar, near the center.
   - When the selection is rotated to 15°, release the mouse button.
2. Select the top Elevation Line and move one of its ends:
   - Click and drag the square Resize handle located on the right end of the Elevation Line.
   - Drag upward until the line snaps at a 15° angle relative to its original orientation.
   - Now hold down the ***Ctrl/⌘*** key to override movement restrictions and drag downward.
   - When the Status Bar reports a value of around 13°, release the mouse button.
3. To specify a precise angle, click the **Open Object** edit button. On the SELECTED LINE panel of the Elevation Line Specification dialog:
   - Lock the **Start Point**.
   - Specify an **Angle** of -13° and click OK.



4. Select the bottom Elevation Line located near the front of the lot and make it parallel to the chord of the curved lot edge:
   - Click the **Make Parallel** edit button.
   - Move the mouse pointer over the bottom edge of either the Terrain Perimeter or the setback lines polyline, near either corner.
   - When the polyline becomes highlighted and a nearly horizontal, dashed alignment axis displays, click once.
5. To confirm that the line's angle matches that of the arc's chord, click the **Open Object** edit button.
   - Confirm that the **Chord Angle** equals the angle of the line, then click Cancel.
   - Note that the same angle can be described in one of two ways: using a positive value between 0° and 180°, or using a negative value between 0° and -180°.

To create a curved elevation line

1. Select the bottom Elevation Line located near the front of the lot and make it parallel to the chord of the curved lot edge:
   - Click the **Make Parallel** edit button.
   - Move the mouse pointer over the bottom edge of either the Terrain Perimeter or the setback lines polyline, near either corner.
   - When the polyline becomes highlighted and a nearly horizontal, dashed alignment axis displays, click once.
2. With the bottom Elevation Line still selected, click the **Change Line/Arc** edit button.
3. Click the arc's small triangular Reshape edit handle and drag downward to make the arc in a downward bow, similar to the bottom edge of the Terrain.

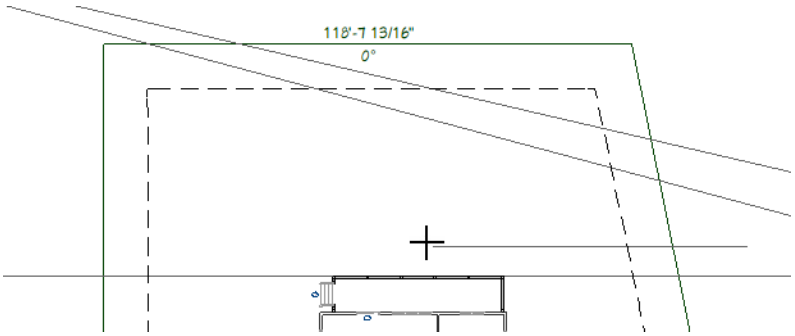


4. With the arc still selected, click the **Open Object** button.
5. On the SELECTED ARC panel of the Elevation Line Specification dialog:
   - Click the radio button beside **Chord** to Lock it.
   - Specify the **Radius** as 450', which is the same Radius as the bottom edge of the terrain, then click OK.

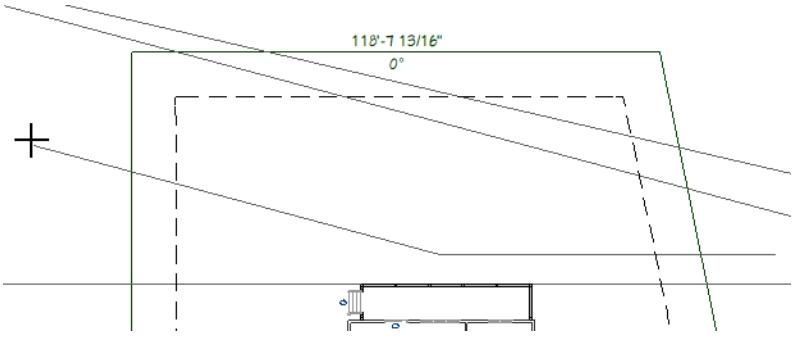
An Elevation Polyline is created when two or more Elevation Lines are snapped together. When an Elevation Polyline forms a closed shape, the result is an Elevation Region. There are several ways to create Elevation Polylines.

To create an Elevation Polyline

1. If it is not already open, select **View> Active Layer Display Options** . In the Active Layer Display Options side window:
   - In the **Search** field, type: Contours.
   - Select the "Terrain, Primary Contours" layer and click once in the "Disp" column to remove the check mark and turn off the layer.
2. Select **Terrain> Elevation Data> Elevation Line**, then:

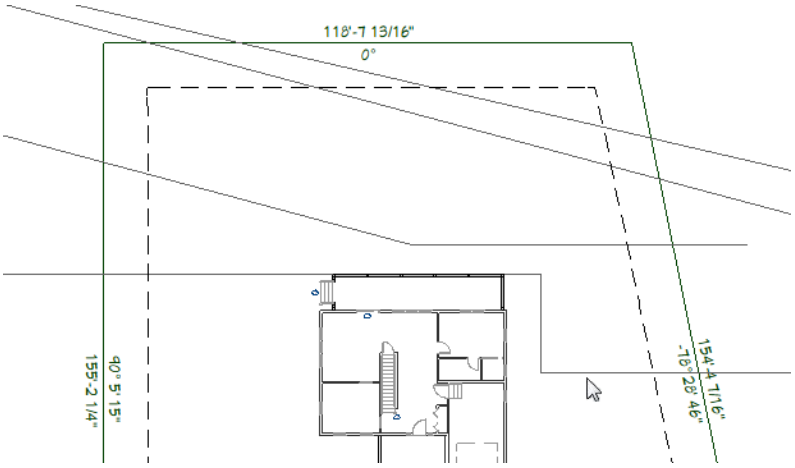


   - Move the mouse pointer to the right side of the Terrain Perimeter, between the Elevation Line at back of the Deck and the lowest end of the angled Elevation Lines.
   - Click and drag to draw a horizontal Elevation Line that ends in the middle of the terrain.
   - As you drag, notice that the Elevation Line's length and angle are reported in the Status Bar, and that a horizontal line drawn right to left is 180°.
3. With the **Elevation Line** tool still selected:



   - Move the mouse pointer over the left end of the new Elevation Line.
   - Click the diamond-shaped Same Line Type edit handle that displays just beyond the end of the line, and drag upward and to the left to draw an angled Elevation Line segment.
   - When the Status Bar reports that the angle of the new Elevation Line is 165° and the line extends through the edge of the Terrain Perimeter, release the mouse button.
   - A polyline with two segments is created. Its initial Elevation value is 0" and does not need to be changed.
4. Select the new Elevation Polyline and click the **Open Object** edit button. On the General panel of the Elevation Line Specification dialog:
   - Note that the Elevation value is greater than 0", which is the Elevation of the Elevation Line drawn near the Deck, and less than 5', which is the Elevation of the nearest angled Elevation Line.
   - The exact value depends on the new polyline's position relative to these two Elevation Lines.
   - Specify the Elevation value as 0" and click OK.

5. Click on the Elevation Line located at the back of the Deck to select it, then:



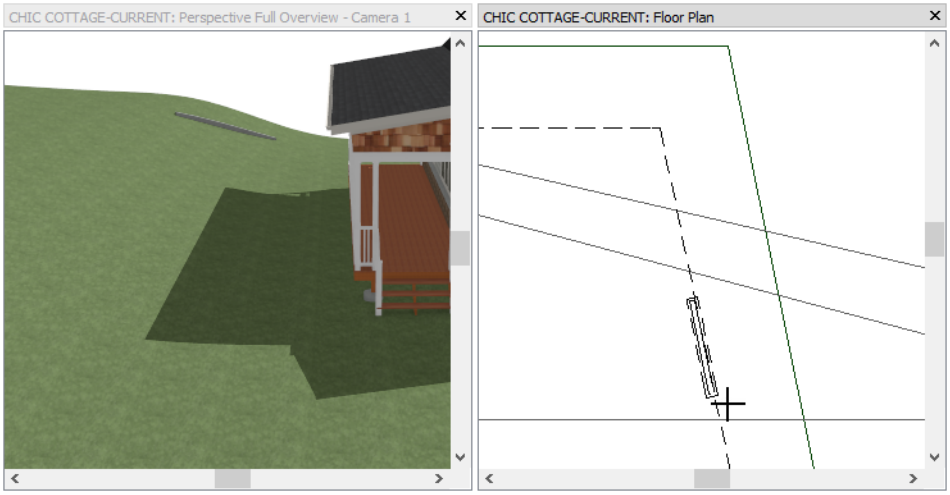
   - Click the **Add Break** edit button.
   - Move the mouse pointer over the right side of the line.
   - Click once to add a new corner and edit handle at that location.
6. Click on the square edit handle located to the right end of new corner and drag downward. When the new line segment reaches the middle of the house, release the mouse button.
7. When you are finished, **Save** your work.

Adding a Retaining Wall

Retaining Walls are different from other types of walls in that the Elevation Data on either side of them does not interact with each other.

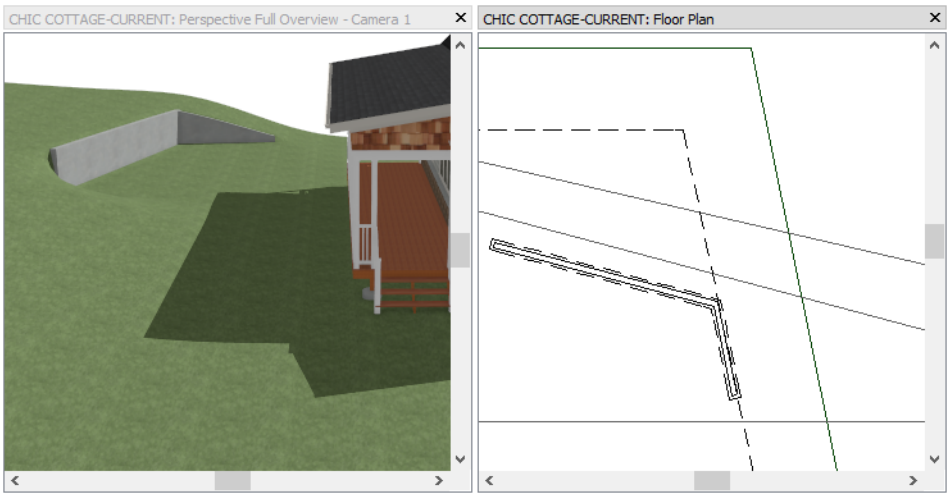
To draw a retaining wall

1. In the plan view window, **Zoom** in on the back right corner of the Terrain Perimeter.
2. Orbit the camera view as needed so the back right corner of the Terrain can be seen, as well.
3. Click in the plan view window to make it the active view and select **Terrain> Terrain Wall and Curb> Straight Retaining Wall**. Next:



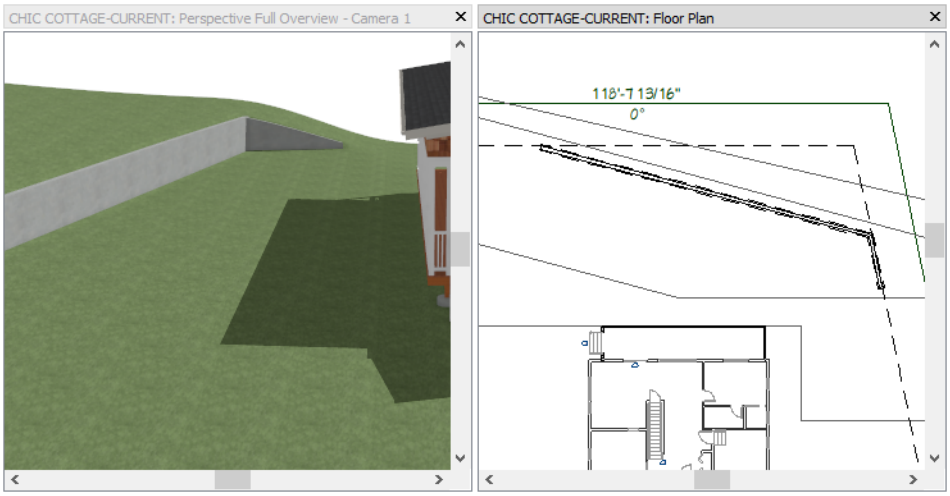
- Click on the setback polyline, just below the lowest angled Elevation Line.
- Drag in a downward direction, following the path of the setback line.
- Before the retaining wall preview outline reaches the horizontal Elevation Line, release the mouse button.

4. With the **Straight Retaining Wall** tool still selected:



- Move the mouse pointer over the top end of the new Retaining Wall.
- Click and drag upwards and to the left to draw a new angled Retaining Wall.
- When the Status Bar reports that the angle of the new wall is 15°, release the mouse button.

5. Select **Window> Fill Window** or **Zoom** out until entire top setback line can be seen.
6. Select the angled retaining wall, then click and drag its left end edit handle until it reaches the top setback line.

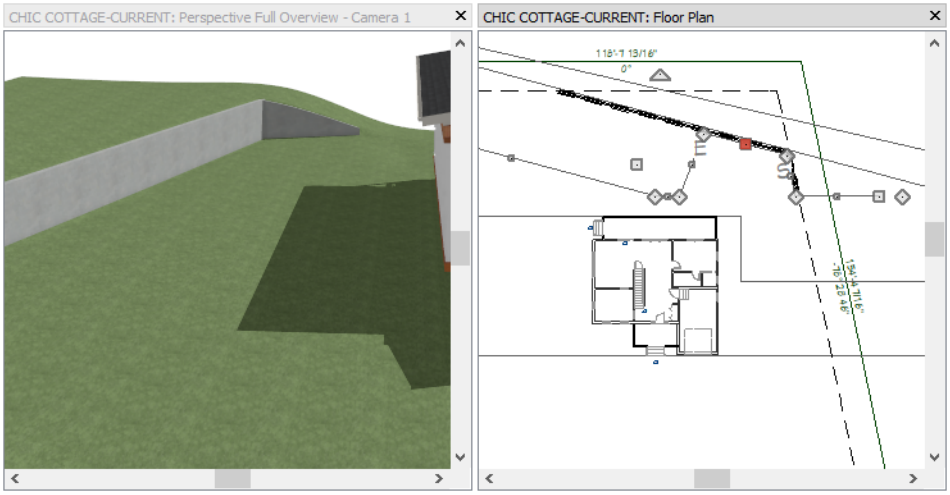


The default height of a retaining wall is determined by the height of the terrain on either side of it.

To specify a retaining wall's top and bottom heights

1. Click the **Select Objects** button, then click on the angled Elevation Line located just above the new Retaining Wall.
2. Click on the Temporary Dimension that reports how far the line is from the wall and in the inline text field, type 8" and press the ***Enter*** key.

3. Select the Elevation Polyline located just below the retaining wall and use the **Add Break** edit tool to add two new breaks to the line.
4. Move the polyline segment between the two breaks upward towards the Retaining Wall using its square Move Segment edit button.
5. Use the Elevation Polyline's edit handles to reshape it so that two edges are parallel to the retaining walls.
6. Use Temporary Dimensions to position those two edges 8" from the retaining walls.



7. Remember to **Save** your work.

Adding Annotations

The *Plot Plans* Tutorial explains how to create a plot plan complete with annotations in the form of lot line lengths and bearings, and setback lines. You can use any of the tools and techniques described in previous tutorials to add any additional annotations that you may need. For example:

- Use the Leader Line tool to add information about the Retaining Wall. See *"To use a text macro in rich text annotations" on page 316 of the Light Fixtures Tutorial*.
- Use a Dimension Line with Additional Text to annotate the setback lines. See *"To create a dimension line with additional text" on page 156 of the Chic Cottage Roof Tutorial*.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Terrain. Then, click OK.

3. Notice that Chic Cottage-Terrain is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

REVIEW

This lesson describes the best practices for adding elevation data to create sloped terrain. It also discussed the important default settings associated with drawing CAD objects. These defaults include Default Sets and CAD Defaults.

To specify Allowed Angles *404*

To copy and customize a Saved Plan View *405*

To draw an Elevation Line *406*

To create a slope *408*

To create changes in slope *409*

To control slope steepness *411*

To set slope direction *413*

To create a curved elevation line *414*

To create an Elevation Polyline *415*

To draw a retaining wall *416*

To specify a retaining wall's top and bottom heights *417*

To save a plan revision *418*

Assessment Questions

Tutorial 23 - Terrain Elevation

What dialog is the best place to make adjustments to the height of the terrain relative to the building?

- The height of the building pad can be specified on the General panel of the Terrain Specification dialog.

What is required in order to have terrain that slopes?

- To create a slope, at least two Elevation Data objects with different Elevation values must be present in the plan.

How can you turn on the display of contour lines in plan view?

- The display of the "Terrain, Primary Contours" layer can be turned on and off in the Layer Display Options dialog.

What is the name of the edit tool that changes a straight line into an arc?

- The Change Line/Arc edit button changes a selected line into an arc, or vice versa.

What is the name of the edit tool that lets you add a new edge to a line or polyline?

- The Add Break edit tool allows you to divide a line or polyline edge in two separate segments, creating a new corner edit handle between them.

What determines the height of a Retaining Wall?

- The default height of a retaining wall is determined by the height of the terrain on either side of it.

Driveways, Sidewalks, and Roads

Roads, sidewalks, and driveways are an important aspect of a landscaping plan.

Learning Objectives

This lesson describes best practices in Chief Architect for creating roads, driveways, and sidewalks. Concepts introduced include:

File Management *420*

Productivity Tips *420*

Setting the Defaults *421*

Using Plan Views *421*

Drawing a Road *421*

Adding a Driveway *427*

Creating Sidewalks *428*

Adding Annotations *431*

Creating Revisions *432*

File Management

At this point in the design process, both the Chic Cottage-Terrain and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Terrain was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to draw roads, driveways, and sidewalks, keep in mind these tips to improve your productivity.

Drawing and Editing

- Road objects only display in 3D views where they cross the Terrain Perimeter.
- To override movement restrictions and make fine adjustments as you draw or edit, hold down the ***Ctrl/⌘*** key.

Interface

- The Number Style/Angle Style dialog controls how length values are entered and display in dialogs and the Status Bar. When working with large objects like a road, it can be helpful to set the Dialog Number Style as Feet and Fractional Inches instead of Fractional Inches.
- When drawing and editing road objects, it is usually helpful to make sure that **Object Snaps**  are toggled on.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When drawing road objects, it's a good idea to begin by setting the Road, Driveway, and Sidewalk Defaults to meet your needs.

Using Plan Views

When a plan file is first opened, a single plan view window is active. Plan files can support multiple Saved Plan Views with customized settings for a range of purposes and it is a good idea to consider which plan view to work in for each task.

The Landscaping Plan View is well suited for adding hardscaping to a plan. See *"To copy and customize a Saved Plan View" on page 405 of the Terrain Elevation Tutorial*.

Drawing a Road

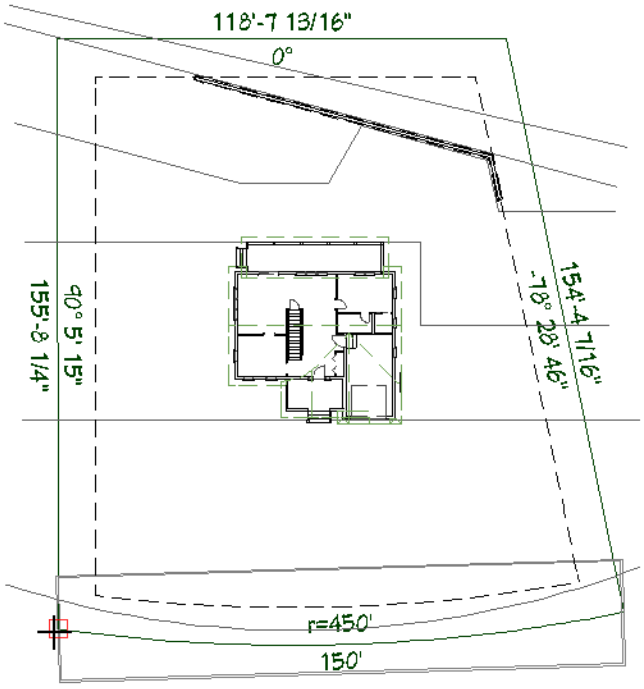
The location of roads is an important consideration when developing a landscaping plan and are typically included in site maps, as well.

To set the road defaults

1. Select **Edit> Default Settings**  . In the Default Settings dialog, click the arrow beside "Terrain" to expand the category, select "Road" and click the **Edit** button.
2. On the General panel of the Road Defaults dialog, specify the **Width** as 28'.
3. On the Curb panel, note that roads can generate raised curbs along their edges and that those curbs can cut driveways and sidewalks.
4. Click OK and then Done to close both dialogs.

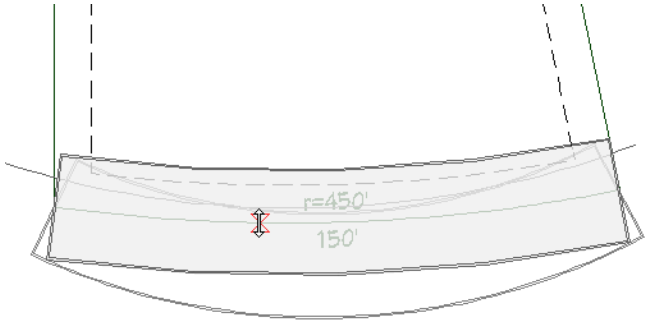
To draw and edit a road

1. Go to Floor 1 and select **Window> Fill Window** or **Zoom** out until the Terrain Perimeter can be seen.
2. Select **Terrain> Road> Straight Road**, then:



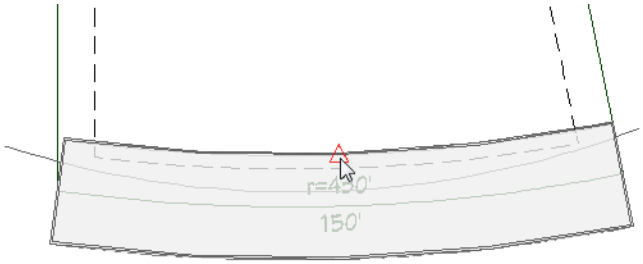
- Move the mouse pointer over the bottom right corner of the Terrain Perimeter.
- Click and drag to the left to draw a road across the bottom of the Terrain Perimeter.
- Move the mouse pointer over the lower left corner, and when a **Midpoint** △ Snap Indicator displays and the Road preview outline angles downward slightly, release the mouse button.

3. Click on the road to select it, then click the **Change Line/Arc** edit button. Next:

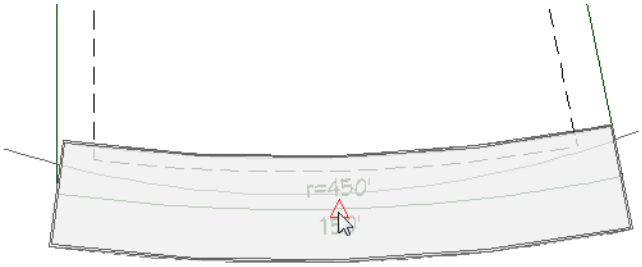


- Click the arc's triangular Reshape edit handle and drag it toward the curved edge of the Terrain Perimeter.
- When you see the **On Object** ⧖ Snap Indicator, release the mouse button.

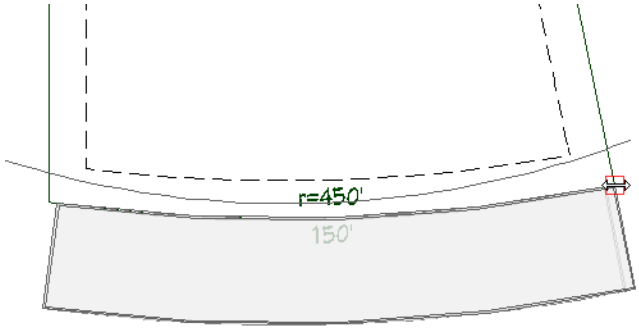
4. With the road still selected, click the **Point to Point Move** edit button, then:



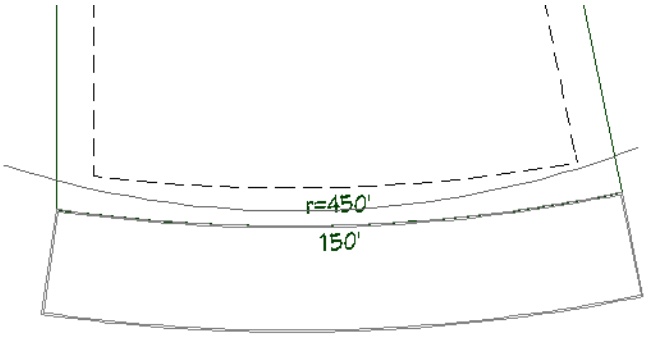
- Move your mouse pointer over the top edge of the road.
- When the **Midpoint** △ Snap Indicator displays, click the mouse button.



- Move the mouse pointer over the curved edge of the Terrain Perimeter.
- When the **Midpoint** △ Snap Indicator displays, click the mouse button.



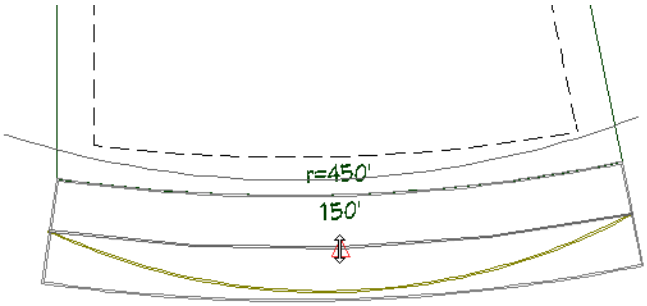
5. Click the road's right end edit handle and drag to the right:
   - Move the mouse pointer over the bottom right corner of the Terrain Perimeter.
   - When the **Endpoint** □ Snap Indicator displays, release the mouse button.



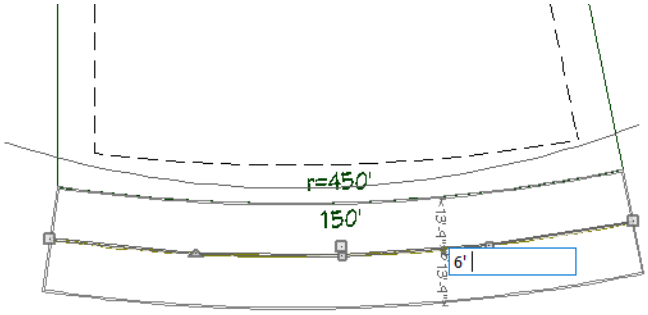
Road stripes are often found along the center line of a road, but can be placed anywhere within a road. Here, a road stripe will mark out a bike lane.

To add a road stripe

1. Select **Terrain> Road> Road Stripe**, then click and drag from the midpoint on the left side of the road to the midpoint on the right.
2. Click on the new road stripe to select it and click the **Change Line/Arc** edit button.
3. Click and drag the triangular Reshape edit handle towards the center of the road. When the **Midpoint** Snap Indicator displays, release the mouse button.



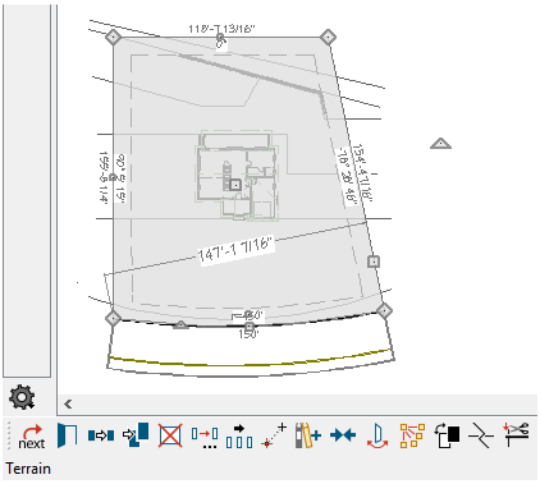
4. With the Road Stripe still selected:
   - Click on the Temporary Dimension that reports how far the Road Stripe is from the bottom edge of the road.
   - In the inline text field, type 6’ and press the ***Enter*** key.



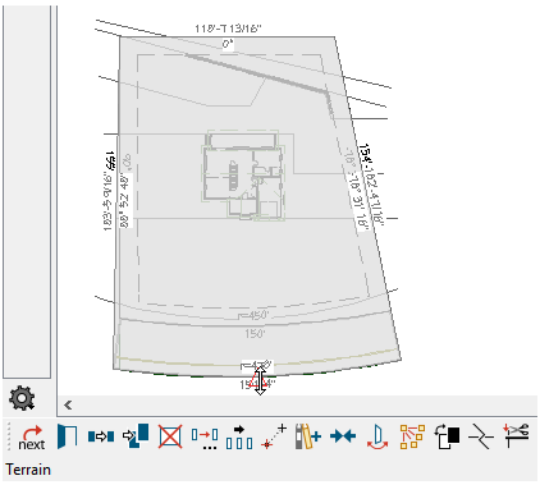
In order to display in 3D views, the road must be located inside the Terrain Perimeter.

To display a road in 3D views

1. Click the **Select Objects** button, then click on the Terrain Perimeter to select it.
2. Create a copy of the Terrain Perimeter in the same location as the original:
   - Click the **Copy/Paste** edit button.
   - Click the **Paste Hold Position** edit button.
   - A copy of the Terrain Perimeter is created in the same location as the original, and is selected.
   - Since only one Terrain Perimeter can exist in a plan, the new copy is a CAD polyline.
3. With the newly created polyline selected, click the **Open Object** edit button. On the **Line Style** panel of the Polyline Specification dialog, select "CAD, Plot Plan" from the **Layer** drop-down list and click OK.
4. Select Terrain Perimeter again.

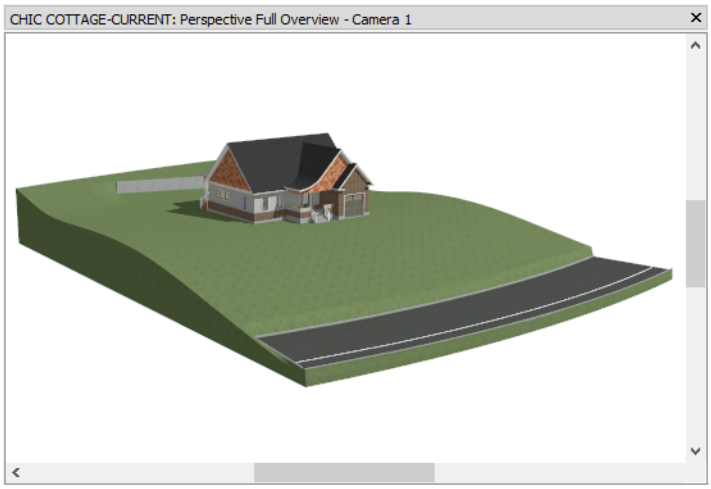


   - If the copied polyline becomes selected instead, click the **Select Next Object** edit button.
   - The type of object that is currently selected is stated on the left side of the Status Bar. The Terrain Perimeter will be described as "Terrain", while the copied polyline will be described as a "Special Polyline".
5. Click the small Resize edit handle on the curved edge and drag downward until the curved polyline edge snaps to bottom edge of road.



6. With Terrain still selected, click the **Open Object** edit button. On the LINE STYLE panel of the Terrain Specification dialog, uncheck **Show Length** and **Show Angle**, click OK.

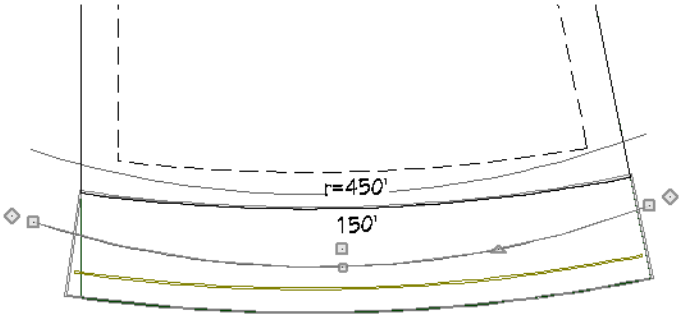
7. Create a **Perspective Full Overview** to see the results.



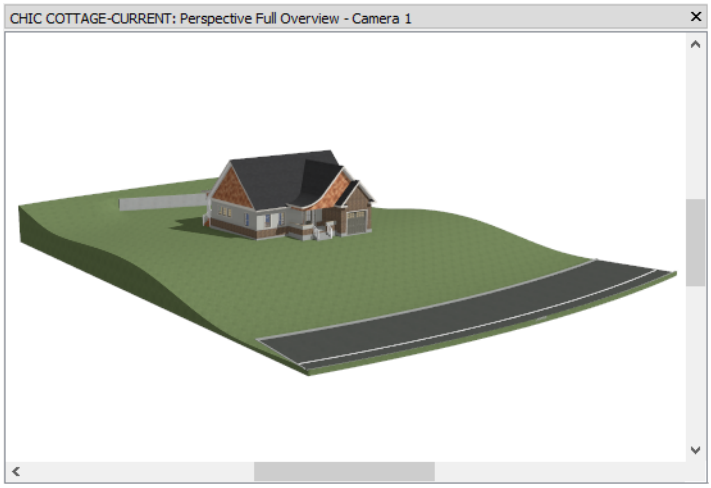
Roads are flat across their width and measure their height from the height of the terrain along their center line.

To control road height

1. Select **Window> Swap Views**, to return to plan view without closing the overview camera.
2. Select the curved Elevation Line located near the bottom of the plot plan polyline. Next:



   - Click the **Copy/Paste** edit button.
   - Click and drag the Elevation Line's Move edit handle downward.
   - When the mouse pointer is positioned near the center of the road, release the mouse button to create a new curved Elevation Line at that location.
3. Select **Window> Swap Views**, to return to the overview and notice that the slope down to the road is more gradual now.



4. Click the **Select Objects** button, then select the road and click the **Open Object** edit button.
5. On the GENERAL panel of the Road Specification dialog, note that the **Height** is 1" and click Cancel.
6. When you are finished, select **File> Close View** and **Save** your work.

ADDING A DRIVEWAY

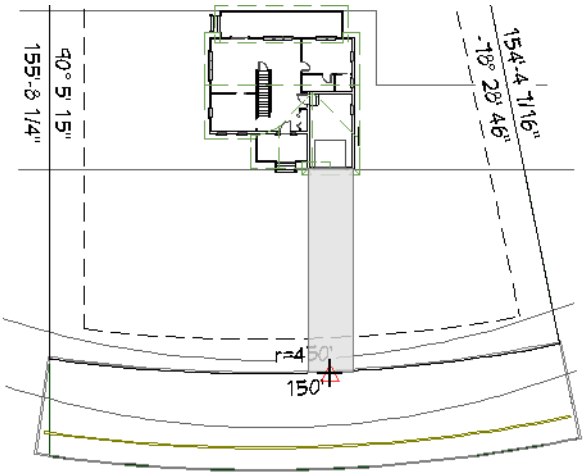
A driveway can now be added to the plan.

To set the driveway defaults

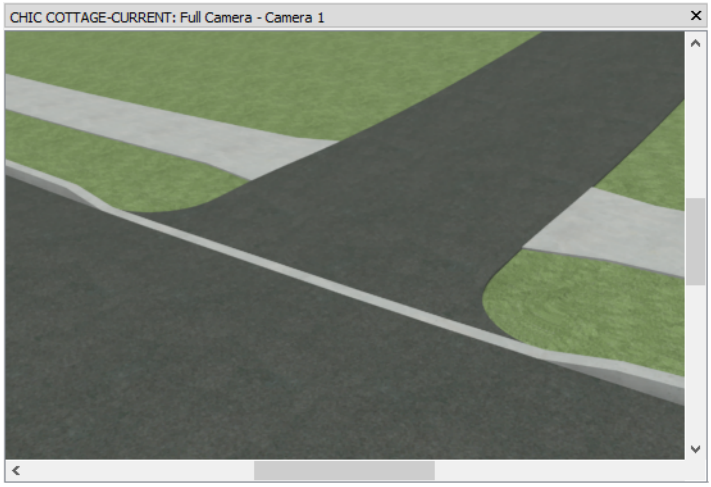
1. Select **Edit> Default Settings**. In the Default Settings dialog, click the arrow beside "Terrain" to expand the category, select "Driveway" and click the **Edit** button.
2. On the GENERAL panel of the Driveway Defaults dialog:
   - Specify the **Width** as 13’.
   - Under the Flare heading, check the box beside **End** and specify the **Width** as 3’.
3. On the MATERIALS panel, select the "Driveway" component in the list on the left, then click the **Select Material** button.
4. On the LIBRARY MATERIALS panel of the Select Material dialog, search for and select the "Blacktop 1" material, then click OK.
5. Click OK and then Done to close both dialogs and apply your changes.

To draw a driveway

1. Select **Terrain> Driveway> Straight Driveway** then:
   - Move your mouse pointer in front of the Garage.
   - When the **Midpoint** △ Snap Indicator displays, click and drag straight down.



2. When the driveway preview outline reaches the road, release the mouse button and create a driveway.
3. Create a **Camera** view near the intersection of the driveway and the road to see the results.



CREATING SIDEWALKS

Sidewalks can be generated using two different tools in Chief Architect.

To set the sidewalk defaults

1. Select **Edit> Default Settings**. In the Default Settings dialog, click the arrow beside "Terrain" to expand the category, select "Sidewalk" and click the **Edit** button.
2. On the GENERAL panel of the Sidewalk Defaults dialog, specify the **Width** as 60" or 5'.
3. Click OK and then Done to close both dialogs and apply your changes.

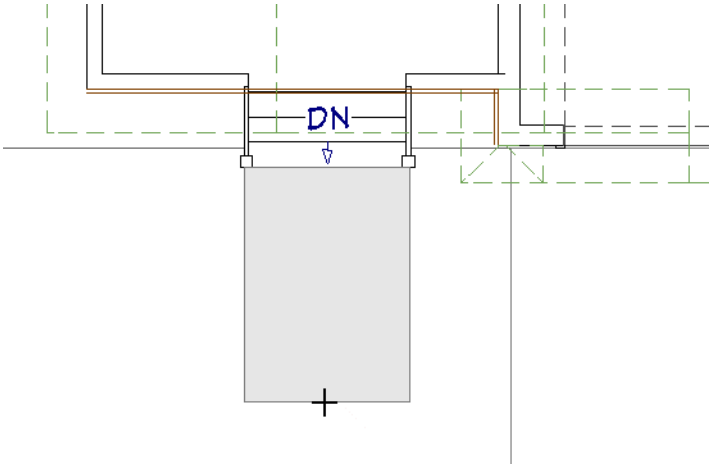
To generate automatic sidewalks

1. Click the **Select Objects** button, then click on the road to select it.
2. Click the **Auto Generate Sidewalks** edit button.
3. In the Automatically Generate Sidewalks dialog, specify the **Offset from Road** as 60" and click OK.

4. Create a **Perspective Full Overview** and notice that the sidewalk on the far side of the road does not display in 3D views because it is located outside the Terrain Perimeter.
5. Select **File> Close View** to return to plan view.

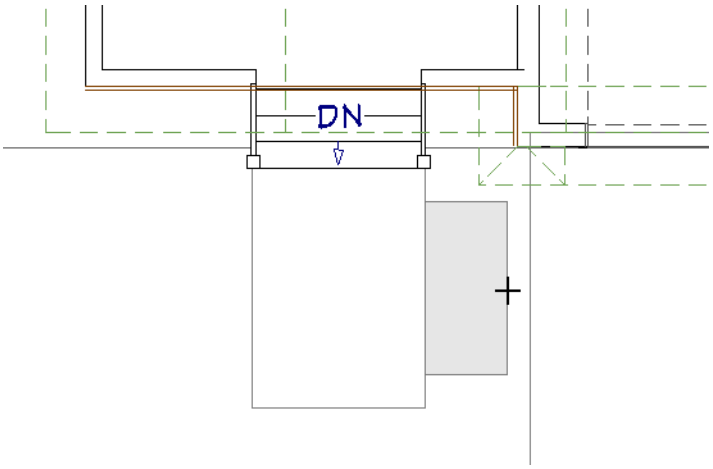
To draw a sidewalk

1. **Zoom** in on the area around the front porch stairs.
2. Select **Terrain> Terrain> Straight Sidewalk**, then:



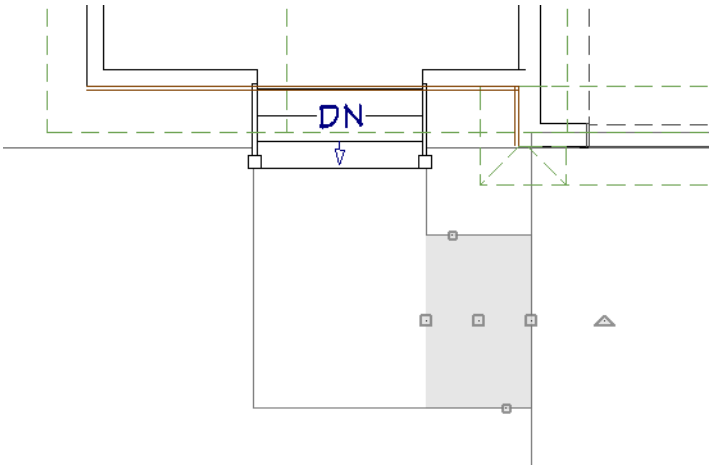
- Move your mouse pointer over the bottom edge of the stairs.
- When a **Midpoint** △ snap indicator displays, click and drag straight down several plan feet to draw a sidewalk.

3. Click along the sidewalk's right side and drag to draw a second segment towards the driveway.



4. Click on the horizontal sidewalk segment to select it, then click and drag its Move edit handle downward until it snaps

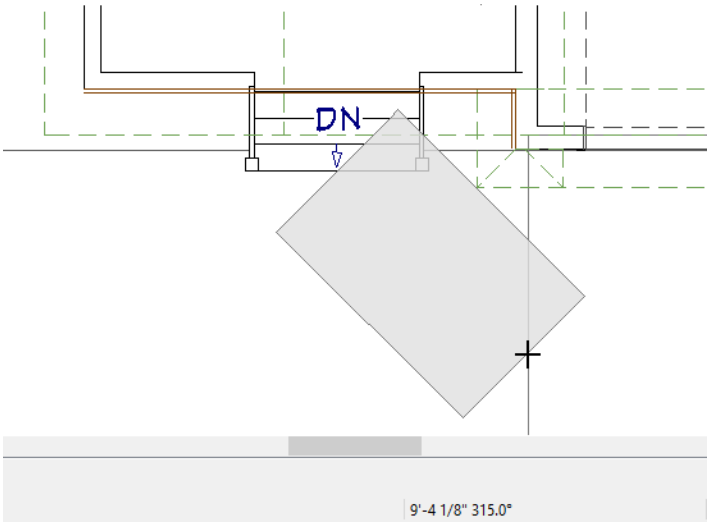
to the bottom edge of the vertical segment.



A curved sidewalk can be created instead of an L-shape with straight sides.

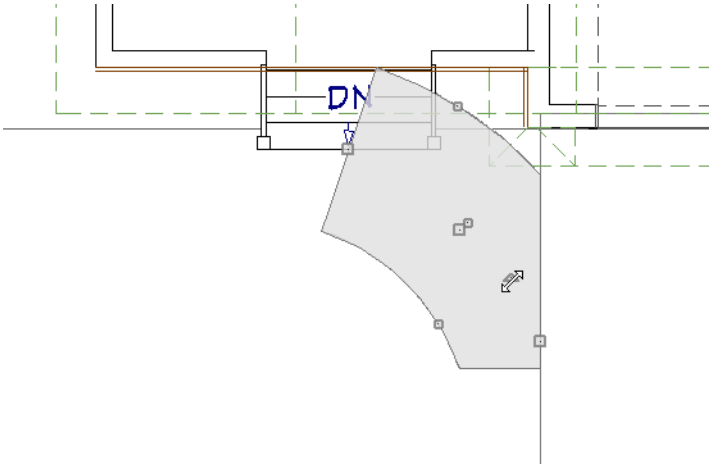
To create a curved sidewalk

1. Begin by selecting the two sidewalk segments created above and **Deleting** them.
2. Select **Terrain> Sidewalk> Straight Sidewalk**, then:

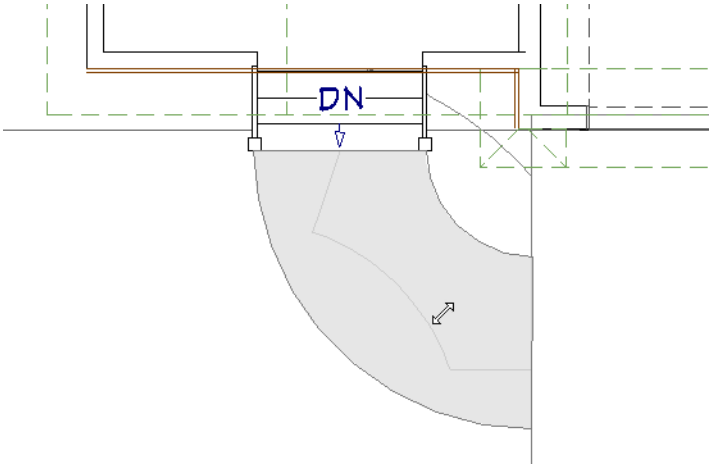


- Move your mouse pointer over the bottom edge of the stairs.
- When a **Midpoint** snap indicator displays, click and drag at an angle, down and towards the right until it reaches the left edge of the driveway.
- Notice the Status Bar reports the angle of the sidewalk as it is being drawn. When the Status Bar reports and angle of 315°, release the mouse button.

3. Select the newly drawn sidewalk and click the **Change Line/Arc** edit button. Then:



- Click the arc's triangular Reshape edit handle and drag it down and to the left.
- When the top edge becomes a horizontal line and the right edge becomes a vertical line, release the mouse button.
- To override movement restrictions and make fine adjustments to the sidewalk's arc, hold down the ***Ctrl/⌘*** key while you drag the Reshape edit handle.



4. When you are finished, **Save** your work.

Adding Annotations

The *Plot Plans* Tutorial explains how to create a plot plan complete with annotations in the form of lot line lengths and bearings, and setback lines. You can use any of the tools and techniques described in previous tutorials to add any additional annotations that you may need. For example:

- Insert a street name for the Road object using its label. See *"To specify an automatic label" on page 295 of the Appliances and Fixtures Tutorial*.
- Add information about the driveway and front sidewalk using Rich Text. See *"To set the Snap Settings" on page 333 of the Floor Framing Tutorial*.
- Create a custom hardscaping schedule with information about the sidewalk, driveway, and retaining wall. See *Creating Schedules on page 290*.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy**.
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Hardscape. Then, click OK.
3. Notice that Chic Cottage-Hardscape is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Review

This lesson describes the best practices for generating and editing roads, driveways, and sidewalks.

To set the road defaults *421*

To draw and edit a road *422*

To add a road stripe *424*

To display a road in 3D views *425*

To control road height *426*

To set the driveway defaults *427*

To draw a driveway *427*

To set the sidewalk defaults *428*

To generate automatic sidewalks *428*

To draw a sidewalk *429*

To create a curved sidewalk *430*

To save a plan revision *432*

Assessment Questions

Tutorial 24 - Driveways, Sidewalks, and Roads

Where can you set the default for whether driveways cut the curb on roads?

- You can specify raised curbs along roads and whether or not the curbs cut driveways and sidewalks on the Curb panel of the Road Defaults dialog.

Where must road objects be located in order to be seen in 3D views?

- Only the portions of road objects that are located within the Terrain Perimeter can be seen in 3D views.

Where can you specify that driveways have flares at their ends?

- Driveway flares can be specified on the General panel of the Driveway Defaults and Driveway Specification dialogs.

What edit tool changes a straight road object into one with a curve?

- The Change Line/Arc edit button changes a selected line-based object into an arc, or vice versa.

Landscaping Design

With the elevation data and hardscaping in place, planting areas can be created.

Learning Objectives

This lesson describes best practices in Chief Architect for creating planting areas. Concepts introduced include:

To modify a custom Layer Set *435*

To set the material defaults for Garden Beds *435*

To create and edit a Garden Bed *436*

To create a planting border *439*

To align the planting border edges with other objects *441*

To set the fencing defaults *443*

To draw and customize fencing *443*

To place a gate *444*

To search using the Plant Chooser *445*

To browse the Plants library category *447*

To modify plant images *448*

To block plants into groups *448*

To save a plan revision *450*

File Management

At this point in the design process, both the Chic Cottage-Hardscape and CHIC COTTAGE-CURRENT Plans contain the same information, so you could open either one and continue working. However, Chic Cottage-Hardscape was created specifically to serve as a revision or archive file so it will be left unchanged.

To continue working on the Chic Cottage design, open CHIC COTTAGE-CURRENT via the Recent Documents List, Project Browser, or File menu as described in the Interior Walls Tutorial. See *File Management on page 28*.

It is a very good idea to save your progress often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to draw terrain features and place plants, keep in mind these tips to improve your productivity.

Drawing and Editing

- The Selected Edge of a polyline-based object can be edited in a variety of ways using the edit tools.
- To override movement restrictions and make fine adjustments as you draw or edit, hold down the ***Ctrl/⌘*** key.

Content

- A selection of plant images is available for download from the Chief Architect 3D Library. Select **Library> Get Additional Content** to launch your default web browser to that page.

Interface

- The Status Bar at the bottom of the program window reports useful information like the angle an object is being drawn at and what type of object is selected.
- When drawing and editing a plot plan polyline, it may be helpful to turn off **Grid Snaps**. **Object Snaps**, however, are often very helpful.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***3*** - Break edit tool
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + Z*** - Undo
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. Adding landscaping features, there are several defaults to bear in mind.

Before drawing Fencing, it is a good idea to set the Fencing Defaults to meet your needs. See *To set the fencing defaults on page 443*.

When drawing Garden Beds, setting the default material for "Dirt" in the Material Defaults dialog can be helpful. See *To set the material defaults for Garden Beds on page 435*.

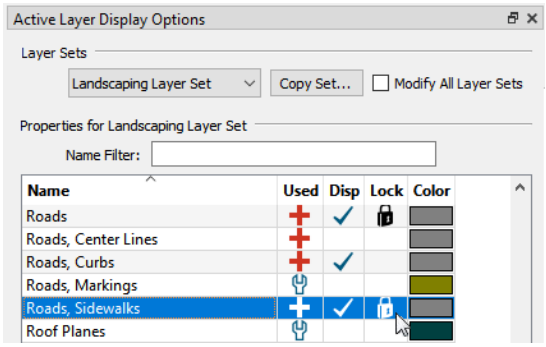
The default material for generic Terrain Features can also be set; however, Terrain Features use the "Foundation/Slab" material default, which is also the default for slabs and foundation wall footings, so it is best to leave as a concrete material.

Using Plan Views

In the *Terrain Elevation* tutorial, a custom Landscaping layer set was created. This layer set can be modified to make it even better suited for working on landscaping drawings.

To modify a custom Layer Set

1. If it is not already open, select **View> Active Layer Display Options** .
2. In the Active Layer Display Options side window:



- Lock "Roads" and "Roads, Sidewalks" layers.
- Turn off the "Terrain, Elevation Data" layer.

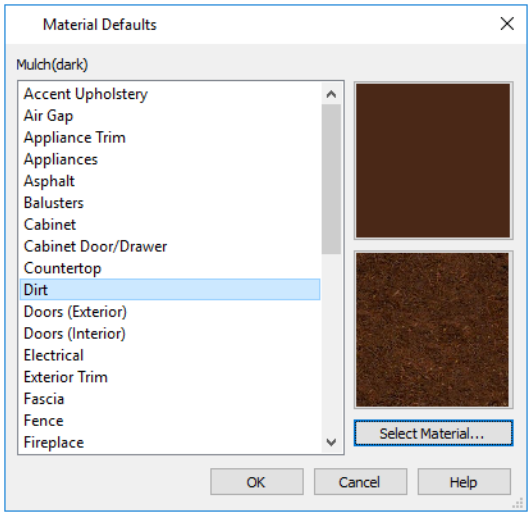
3. **Save** your work.

Creating Terrain Features

Terrain Features are used to apply special materials over the surface of the terrain - from paving to mulch to water.

To set the material defaults for Garden Beds

1. Select **Edit> Default Settings** . In the Default Settings dialog, select "Materials" and click the Edit button.
2. In the Material Defaults dialog, select the "Dirt" component from the list on the left and click the **Select Material** button.
3. On the Library Materials panel of the Select Material dialog:
   - The content is filtered by **Type** so that it only lists Materials and is additionally filtered to show the selected material's "Mulch" **Folder** located at Core Catalogs> Materials> Landscaping and Roadways> Bark and Mulch> Mulch.
   - In the Folders panel, click the arrow to the left of the "Bark", "Mulch", or "Recycled Mulch" folder and choose a material for your Garden Beds and click OK.
   - Here, "Mulch - Dark" is used.

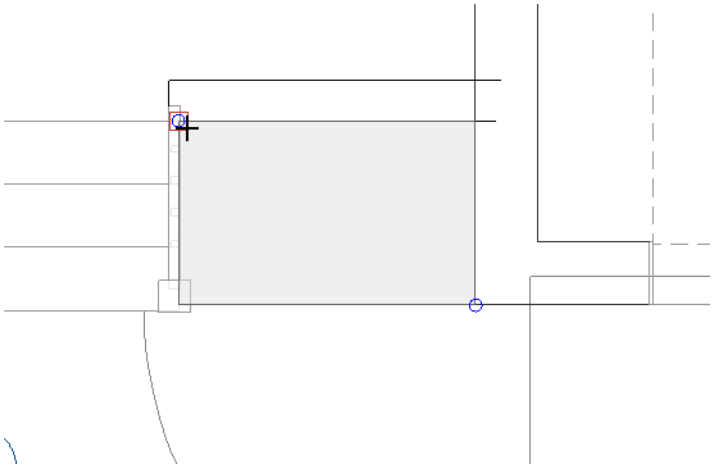


4. Click OK and then Done to close both dialogs.

Garden Beds and other Terrain Features are closed polyline-based objects and can be drawn and edited like other closed polylines.

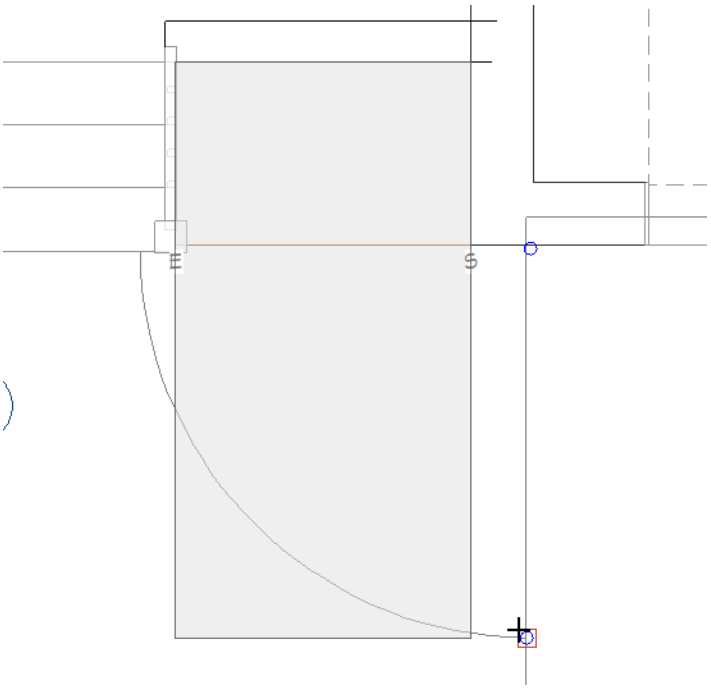
To create and edit a Garden Bed

1. **Zoom** in on the right side of the front porch stairs.
2. Select **Terrain> Garden Bed> Polyline Garden Bed**, then:



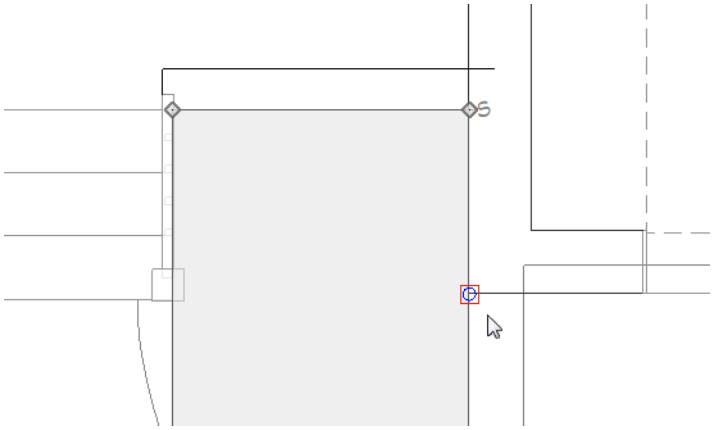
- Move your mouse pointer over the bottom left corner of the Garage.
- Click and drag up and to the left until the mouse pointer snaps to the back right corner side of the stairs, where they meet the porch railing wall.

3. Click on the Garden Bed polyline to select it, then:



- Click the square edit handle that displays on the bottom edge.
- Drag the handle downwards and to the right to the top right corner of the sidewalk.
- When the **Endpoint** snap indicator displays, release the mouse button.

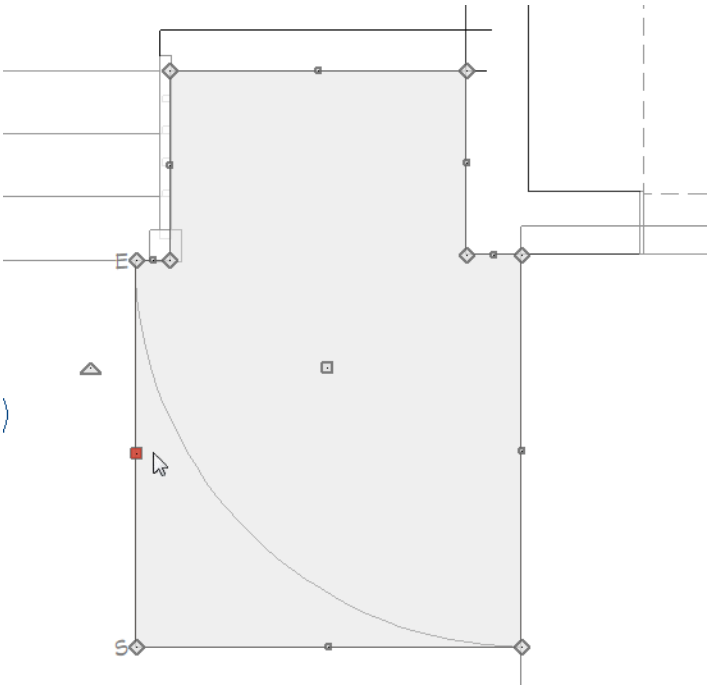
4. Click the **Add Break** edit button, then:



- Click once on the right vertical edge of the Garden Bed, where it meets the corner of the Garage.
- A new diamond-shaped corner edit handle is created at that point.

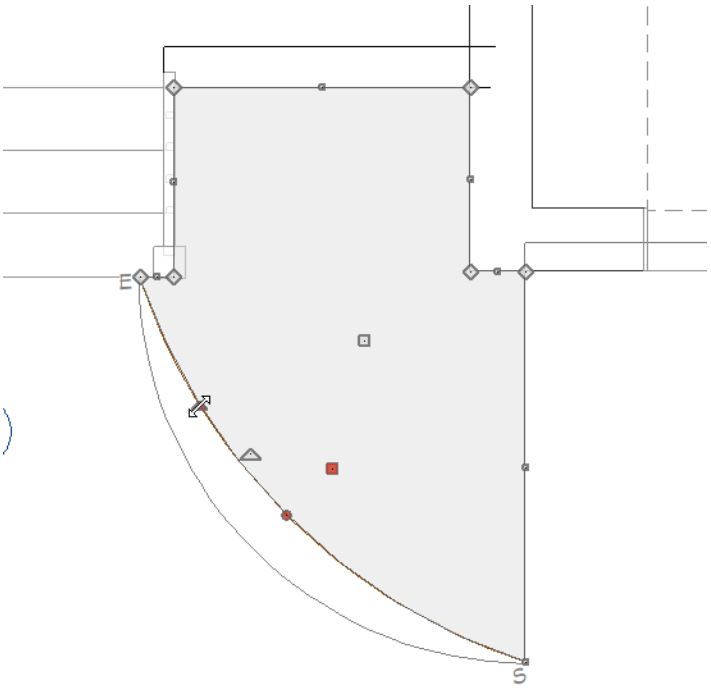
5. Select the square Move Edge edit handle that displays below the new corner handle and drag to the right until the Garden Bed edge snaps to the driveway.

6. Repeat this process on the left side of the Garden Bed:



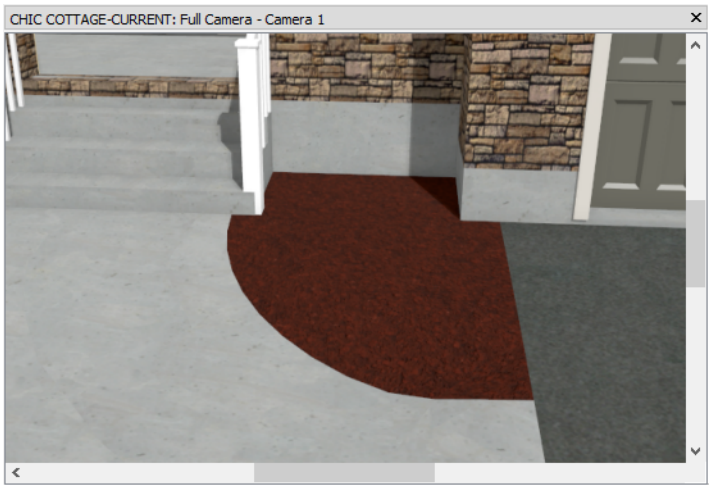
- Use the **Add Break** edit tool to add a new corner on the left side of the Garden Bed meets the bottom right corner of the stairs.
- Select the square Move Edge edit handle that displays below the new corner handle and drag to the left until the Garden Bed edge snaps to right corner of the sidewalk.

7. Click the diamond-shaped edit handle located at the Garden Bed's lower left corner and drag it to the right until it snaps to the lower right corner, eliminating the bottom horizontal edge.
8. Click on the angled edge of the Garden Bed to make it the Selected Edge, then:



- Click the **Change Line/Arc** edit button.
- Click the triangular Reshape Arc edit button that displays along the curved edge.
- Drag downward until the curved edge snaps to the inside curve of the sidewalk.

9. The results can be seen in a camera view.

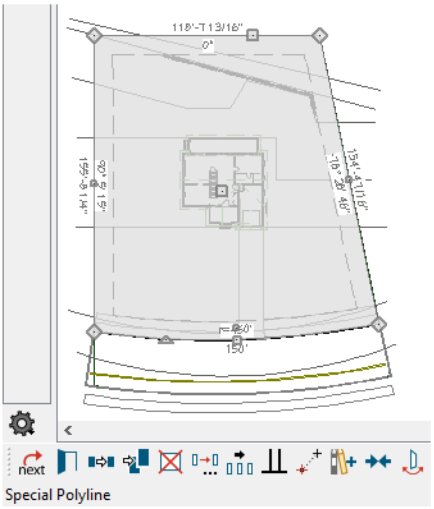


10. Select **File> Close View** to return to plan view.

A generic Terrain Feature can also be created using the Convert Polyline edit tool. To save time, existing objects are used to produce the desired shape.

To create a planting border

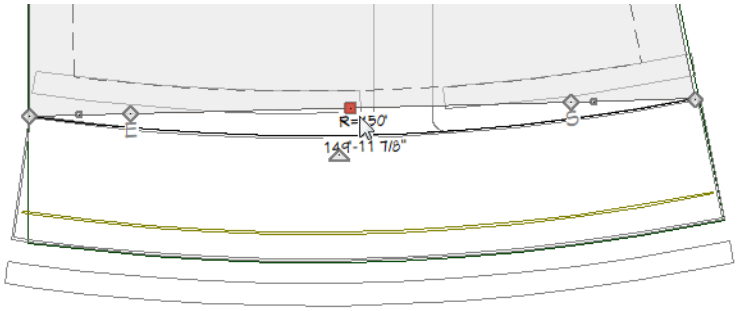
1. Click the **Select Objects** button, then click on the Plot Plan polyline.



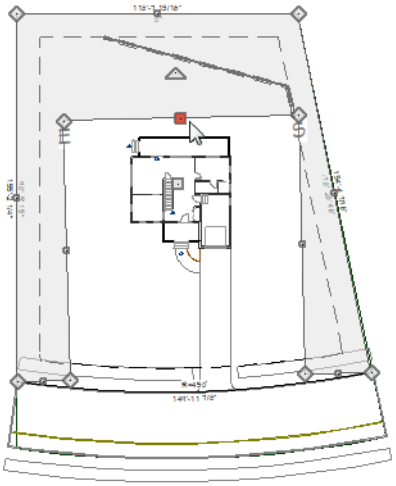
- You can check the left side of the Status Bar at the bottom of the program window to confirm that a Standard Polyline is selected.

2. With the Plot Plan polyline selected, create an identical copy placed at the same location as the original:
   - Click the **Copy/Paste** edit button.
   - Click the **Paste Hold Position** edit button.

3. With the new polyline selected, click the **Convert Polyline** edit button. In the Convert Polyline dialog, select the radio button beside **Garden Bed** and click OK.
4. In the Garden Bed Specification dialog, the default values set above are in place, so click OK.
5. With the Garden Bed still selected, straighten the curved edge adjacent to the road:
   - Click on the curved edge to make it the Selected Edge.
   - Click the **Change Line/Arc** edit button.
6. Add two new corner edit handles along the bottom edge of the Terrain Feature:



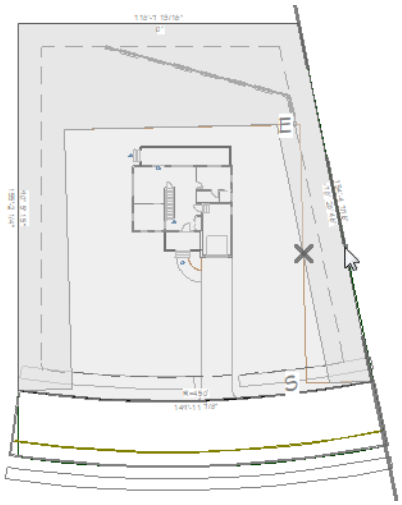
   - Click the **Add Break** edit button, then click the **Sticky Mode** edit button.
   - Click on the bottom edge of the Terrain Feature, near the left vertical property line.
   - Click once more on the bottom edge, this time near the right vertical property line.
   - Click the **Main Edit Mode** edit button.
7. Click the square edit handle located between the two new corner handles and drag upward past the back Deck railing of the house.



Additional edit tools along with Object Snaps can be used to align the Selected Edge of the Terrain Feature with other objects in the drawing such as the setback lines and Retaining Walls.

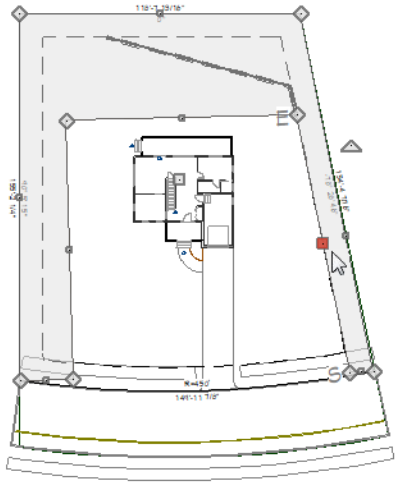
To align the planting border edges with other objects

1. Click on the inside vertical edge on the right side of the Terrain Feature to make it the Selected Edge.
2. Click the **Make Parallel/Perpendicular** edit button.

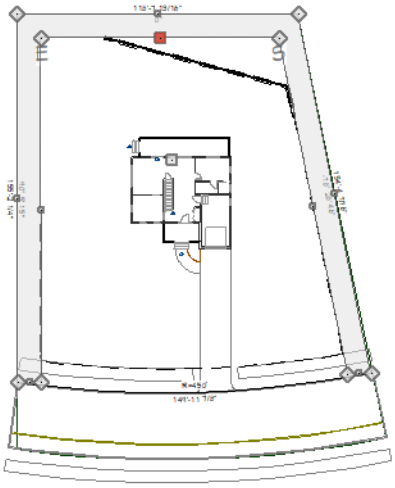


- Move the mouse pointer over the angled setback line on the right.
- When the special lot lines polyline becomes highlighted and a dashed alignment axis line displays along its right edge, click once.
- The angle of the Selected Edge changes, becoming parallel with the lot edge line.

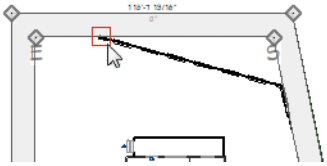
3. Click the Selected Edge's square move handle and drag it until it snaps to the angled setback line.



4. Repeat steps 1-3 to align the other two inside edges of the Terrain Feature with the back and left setback lines.

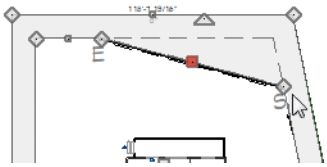


5. Add an extra inside edge that follows the back Retaining Wall:



- With the Terrain Feature still selected, click the **Add Break** edit button.
- Click once on the inside edge that follows the back setback line, near the end of the back Retaining Wall.
- A new diamond-shaped corner edit handle is created at the point where you click.

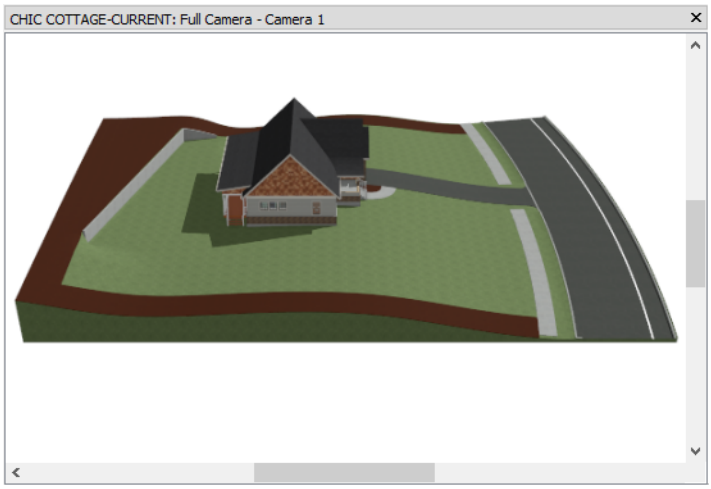
6. Click on the inside corner edit handle on the right side of the Terrain Feature, located behind the back Retaining Wall, then:



- Drag downward until the corner snaps to the back corner of the Retaining Walls.
- Release the mouse button.

7. Using the edit handles, pull the bottom edges on each side of the polyline back so they do not extend past the sidewalk.

8. Create a **Camera** view to see the results.



9. When you are finished, select **File> Close View** and **Save** your work.

Drawing Terrain Walls and Fencing

Like Terrain Features but unlike regular walls, Terrain Walls and Fences follow the contours of the terrain.

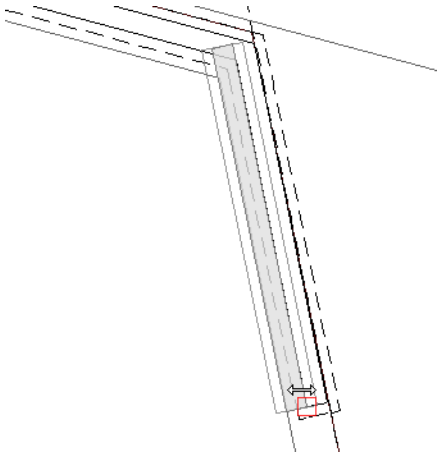
To set the fencing defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog. Click the arrow to the left of "Walls" to expand the category, select "Fencing", then click the **Edit** button.
2. On the Newels/Balusters panel of the Fencing Defaults dialog:
   - Specify the **Railing Height** as 72".
   - Specify the **Newels/Posts Width** as 5 1/2".
   - Specify the **Newels/Posts Height** as 74".
   - Click the **Library** button to the right of the **Type** drop-down list for Panels.
3. In the Select Library Object dialog:
   - Notice that the dialog opens with the current panel selected in the library tree list.
   - Browse to Core Catalogs> Architectural> Fences and Railings> Ironwork and select the "Pole" panel from the list.
   - Click OK.
4. On the Rail Style panel of the Fencing Defaults dialog:
   - Check the boxes beside **Include Top Rail** and **Include Bottom Rail**.
   - Check **Raise/Lower Bottom** and leave the distance at 4".
5. On the Rails panel:
   - Select "Top Rail" in the rail profiles table.
   - Specify the **Height** and **Width** as 5 1/2" and 1 1/2", respectively.
   - Select "Bottom Rail" in the table and assign the same **Height** and **Width** values as the Top Rail.
6. Click OK and then Done to close both dialogs and apply your changes.

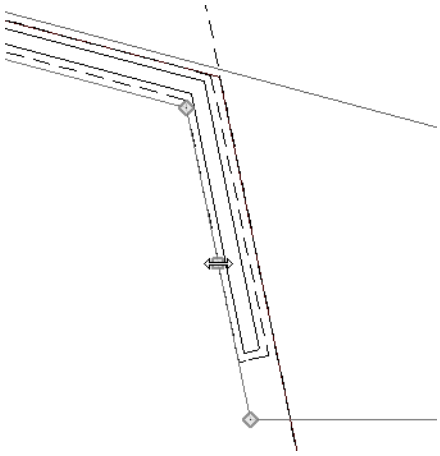
To draw and customize fencing

1. Select **Build> Fencing> Straight Fencing** then click and drag along the left vertical setback line, from the sidewalk up to the back setback line.

2. Draw two more fences along the back and right angled setback lines.
3. **Zoom** in on the back right corner of the lot and:
   - Notice that the fence drawn along the setback line has replaced the angled Retaining Wall at that location. This is because two wall objects cannot be drawn at the same location in Chief Architect.
   - Select **File> Undo** until the Retaining Wall is restored.
4. Click on the angled Retaining Wall near its bottom end to select it, then:



   - Click on the Move edit handle that displays along the wall's edge at the point where you clicked.
   - Avoid the small square Move handles that display on the footing edges.
   - Drag slowly towards the left.
   - When an **Endpoint** Snap Indicator displays at the original location of the wall's bottom left corner, release the mouse button.
5. Click the **Select Objects** button, then select the Elevation Polyline that follows the angled Retaining Wall's low side. Use its Move edit handle to position it just outside the Retaining Wall's footing line.



Because fencing is simply a special type of wall, a gate can be added just the way a door can.

To place a gate

1. Select **View> Library Browser** to open the Library Browser.
2. In the Core Catalogs, browse to Architectural> Fences & Railings> Gates and select a gate. Here, the "Wrought Iron Gate (arched)" is used.

3. Click on the back fence near the left corner to place the selected gate at that location.
4. Select the gate and click the **Open Object** edit button.
5. On the GENERAL panel of the Interior Door Specification dialog:
6. Specify the **Height** as 72".
7. Specify the **Floor to Bottom** as 4", then click OK.

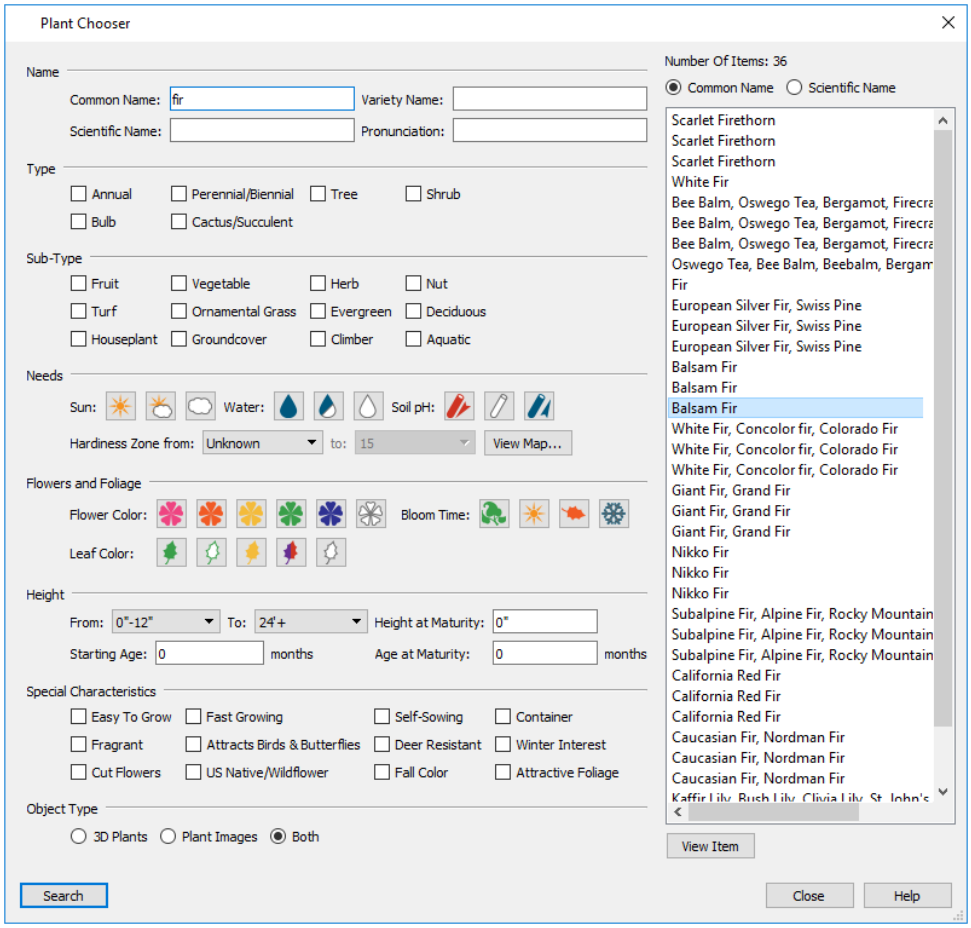
PLACING PLANTS

Plants are represented using image objects that offer a high degree of realism without significantly increasing the surface count of the 3D model.

The Plant Chooser allows you to search the plants in the library using a variety of parameters, including the plant's common name.

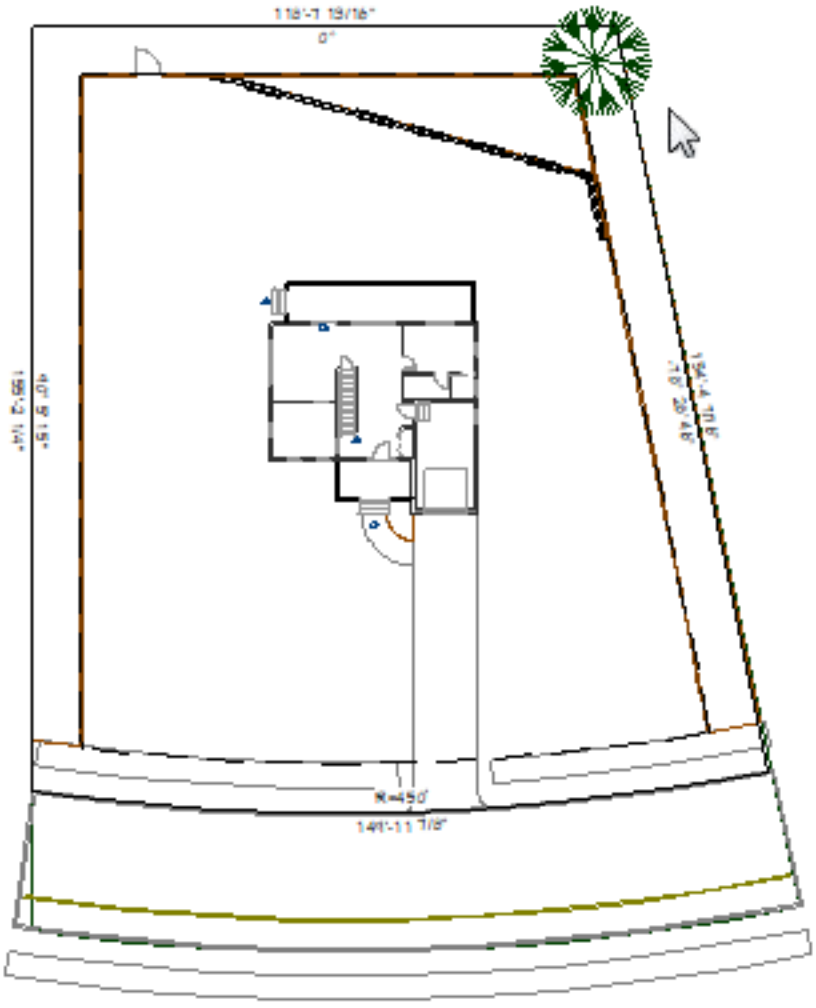
To search using the Plant Chooser

1. If it is not already open, select **View> Library Browser** to open the Library Browser.
2. Click the **Plant Chooser** button in the toolbar at the bottom of the Library Browser.
   - Alternatively, you can select **Terrain> Plant> Plant Chooser** from the program menu.
3. In the Plant Chooser dialog:



- Type “fir” in the **Common Name** field.
- Click the **Search** button at the bottom left corner.
- The search results are listed on the right side of the dialog.

4. Above the search results, select the **Common Name** radio button.
5. Select a Balsam Fir from the search results and notice:
   - The selected item is now shown in the Library Browser's Folders panel and is selected there, as well.
   - If you move the mouse pointer into the drawing area, the pointer displays the Plant icon and a placement preview of the selected tree's 2D plan symbol follows it.
6. Still in the Plant Chooser dialog:
   - Click the **View Item** button below the search results to open the Plant Information dialog, where you can read size and growing information about the selected plant.
   - Click OK to return to the Plant Chooser dialog, then click the **Close** button to close it as well.
7. With the plant in the **Library Browser** still selected for placement, click once to place a copy of the selected tree image at that location.



- When the mouse pointer is located within the area of the planting border Garden Bed, the Plant icon and placement preview will be replaced by the Replace from Library icon. If you click, copies of the selected tree

will be distributed within the Garden Bed.

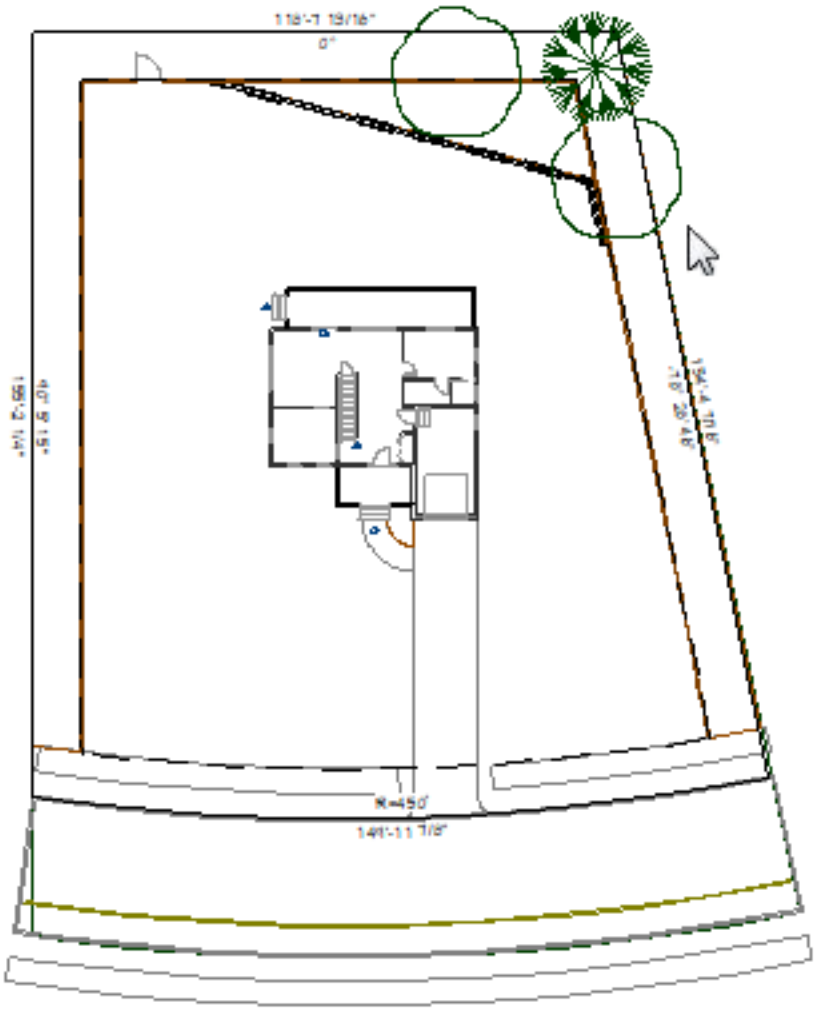
- For a single tree within the planting border, click outside its area to place the selected tree at that location, then select and move it to the desired location.
- Here, the tree is moved to the top right corner of the terrain.

8. You can continue clicking to place more copies of the selected tree if you wish, or choose a different drawing tool.

You can also browse directly in the Library Browser and select plants for placement in your plan.

To browse the Plants library category

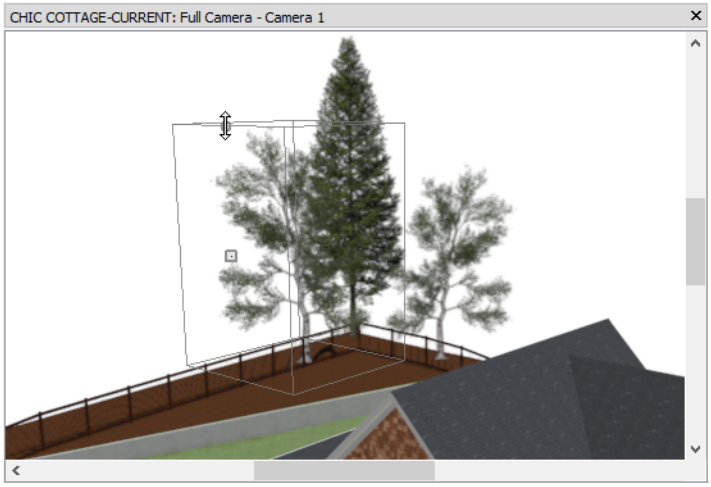
1. In the Folders panel of the Library Browser, expand the Core Catalogs and browse to Plants> Trees> Deciduous.
2. Note the many tree species to choose from. Many of these folders contain subfolders with different varieties of that species.
3. Browse to Betula> Betula papyrifera and select the adult paper birch tree for placement.
4. Position two copies of the selected tree at the back right corner of the lot, in the planting area behind the retaining walls.



Plants can be edited in both floor plan and 3D views. Making minor changes to plants can make multiple instances of the same image look more natural.

To modify plant images

1. Select **3D> Create Perspective View> Perspective Full Overview** and **Orbit** the camera so the trees can be clearly seen.
2. Click the **Select Objects** button, then click on one of the birch trees to select it.
3. Click the **Open Object** edit button, and on the IMAGE panel of the Plant Image Specification dialog, check the box beside **Reverse Image** and click OK.
4. With the tree image still selected:

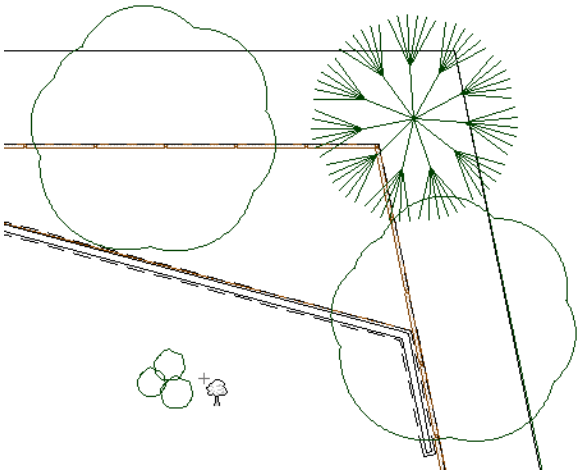


- Notice that it has two edit handles: a Move handle at its center and a Resize handle along its top edge.
- Click and drag the resize handle upward to make the image larger or downward to make it smaller.

Some plants look best when clustered into groups.

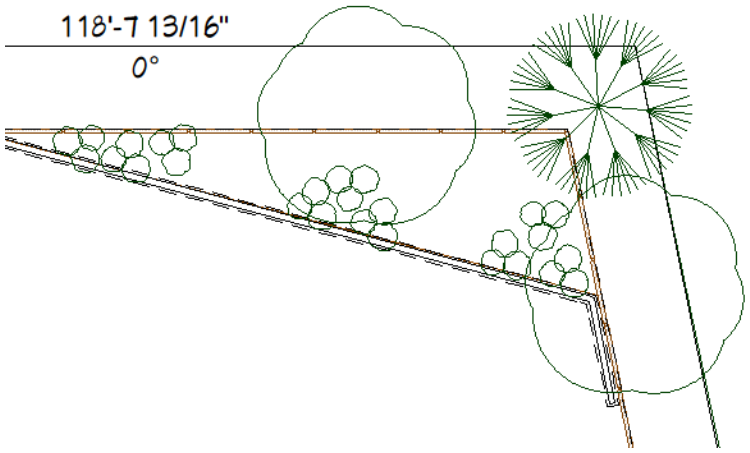
To block plants into groups

1. Use the Plant Chooser or browse the library to find the Evergreen Shrub named "Rhododendron (cream)".
2. Place three instances of this shrub in an open space, away from other objects.



3. Edit the three plant images as described above.

4. When they look the way you want them to, select them as a group:
   - Click the **Select Objects** button, then click on one rhododendron to select it.
   - Hold down the ***Shift*** key, then click on the other two rhododendrons to add them to the selection set.
   - The total number of selected objects will be stated on the left side of the Status Bar.
5. With the three rhododendrons selected, click the **Make Architectural Block** edit button.
6. The selected architectural block has two edit handles: a square Move handle and triangular rotate handle. Move the block into the planting area behind the Retaining Walls and rotate it as you see fit.
7. Use the **Copy/Paste** edit button to make additional copies of this architectural block along the length of the angled Retaining Wall, rotating each of them to a different angle.



8. Select one of the blocks and click the **Explode Architectural Block** edit button. The individual plants can now be edited individually.
9. When you are finished, **Save** your work.

Adding Annotations

The *Plot Plans* tutorial explains how to create a plot plan complete with annotations in the form of lot line lengths and bearings, and setback lines. You can use any of the tools and techniques described in previous tutorials to add any additional annotations that you may need. For example:

Add Rich Text to describe the privacy fence. See *"To set the Snap Settings" on page 333 of the Floor Framing Tutorial*.

Create a Plant Schedule. See *"To add door and window schedules" on page 99 of the Doors and Windows Tutorial*.

Creating Revisions

Saving revisions of your documents allows you to develop different ideas for a project as well as create an archive or history of your work that you can refer back to when needed.

When you are finished working in a document and are ready to close it, **Save** your work. Before closing it, though, create a copy of the file with a different name that indicates what it contains so you can distinguish it from other revisions.

To save a plan revision

1. Select **File> Make a Copy** .
2. In the New Plan dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Landscaping. Then, click OK.
3. Notice that Chic Cottage-Landscaping is now listed in the Project Browser in the Chic Cottage Project but is not open.
4. Select **File> Close All Views**.

Organizing Documents in the Project Browser

Before moving on to the Layout Tutorials, organize your Landscaping plans in a new folder.

To organize Plans using custom folders

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View>Project Browser** .
2. Right-click on the Chic Cottage Project and select **New Folder** from the contextual menu.
3. A new folder is created immediately below the Project level line item and an inline text editor is active.
4. Type a descriptive name for the folder and press the ***Enter*** key. Here, "Landscaping Tutorials" is used.
5. Click on the "Chic Cottage-Hardscape.plan" to select it, then:
   - Hold down the ***Shift*** key and click on Chic Cottage-Terrain".
   - These two documents as well as the two documents listed between them are selected as a group.
6. Click and drag the selection to the "Landscaping Tutorials" folder. When the folder becomes highlighted, release the mouse button.'

Review

This lesson describes the best practices for adding planting areas to a landscaping plan.

To modify a custom Layer Set *435*

To set the material defaults for Garden Beds *435*

To create and edit a Garden Bed *436*

To create a planting border *439*

To align the planting border edges with other objects *441*

To set the fencing defaults *443*

To draw and customize fencing *443*

To place a gate *444*

To search using the Plant Chooser *445*

To browse the Plants library category *447*

To modify plant images *448*

To block plants into groups *448*

To save a plan revision *450*

Assessment Questions

Tutorial 25 - Landscaping Design

Where are the default materials for Garden Beds and regular Terrain Features set?

- The default materials for Garden Beds and regular Terrain Features are set in the Material Defaults dialog:
  - The default material for Garden Beds is the "Dirt" material.
  - The default material for regular Terrain Features is the "Foundation/Slab" material.

What edit tool creates a copy of an object at the same location as the original with one click?

- The Copy and Paste in Place edit tool creates a copy of an object in the same location as the original.

What edit tool lets you change the angle of an object or an object edge to match that of another object?

- The Make Parallel/Perpendicular lets you change the selected object or selected edge’s angle to match that of another.

What dialog lets you search the Library for the common names of plants?

- The Plant Chooser dialog allows you to search for plants using a variety of criteria, including the common name.

Layout Tutorials

Chapter 7

The Layout Tutorials describe best practices for creating layout files in Chief Architect for producing construction documents:

In this tutorial you will learn about:

Layout Page Templates

The first step in creating an effective layout template file is to create the required page templates.

Learning Objectives

This lesson describes best practices in Chief Architect for creating and assigning layout page templates. Concepts introduced include:

File Management *452*

Productivity Tips *453*

Setting the Defaults *453*

Specifying Layout Page Templates *453*

Assigning Page Templates *456*

Assigning Page Titles *457*

Creating a Page Numbering Convention *458*

Inserting Layout Pages *459*

Creating File Revisions *461*

File Management

A given Project is likely to have numerous archives saving the drawing at various stages of progress as well as different design options and revisions. In contrast, a single Layout is sufficient for most Projects. With this in mind, open Chic Cottage.layout. There are a number of ways to do this:

- In the Dashboard window, click on its name in the list of Recent Documents.
- Select **File> Recent Documents** from the program menu and click on its name in the submenu.
- Double-click on its name in the Projects panel of the Project Browser.
- Right-click on its name in the Project Browser and select **Open** from the contextual menu.
- Select **File> Open Plan/Layout**  from the program menu.
- Right-click on a Project or Folder in the Project Browser's Project panel and select **Open All Plans/Layouts** from the contextual menu to open all documents saved within it.

It is a very good idea to save your files often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create layout page templates, keep in mind these tips to improve your productivity.

Content

- Layout page templates should be set up as part of your layout template files so that they are ready for use whenever you begin a new layout.

Interface

- The Project Browser side window lists the pages of the current layout file and provides a convenient way to organize and access them.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***F6*** - Fill Window
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. There are no default settings that come into play when setting up and assigning layout page templates; rather, this information will serve as the part of the default setup in your layout template files.

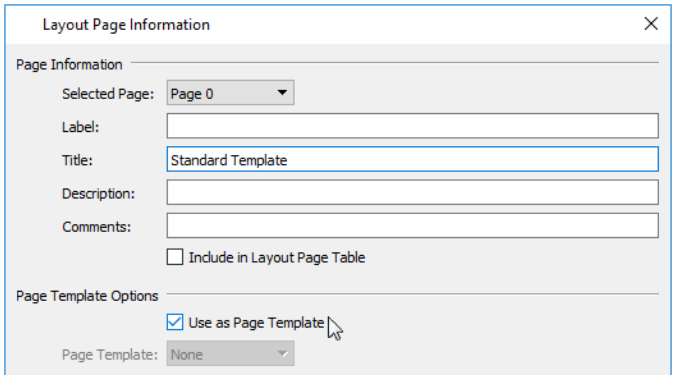
Specifying Layout Page Templates

Layout Page Templates allow you to create one or more title blocks and borders and then assign them to the layout pages of your choice. Unlike regular pages with content, Layout Page Templates do not print as part of a print range.

In this example, two Page Templates will be specified: one for the cover sheet and general notes, and one for the sheets that follow it.

To specify a page template

1. Select **Tools> Layout> Page Down** to go to 0.
2. Select **Tools> Layout> Edit Page Information**, and in the Layout Page Information dialog:

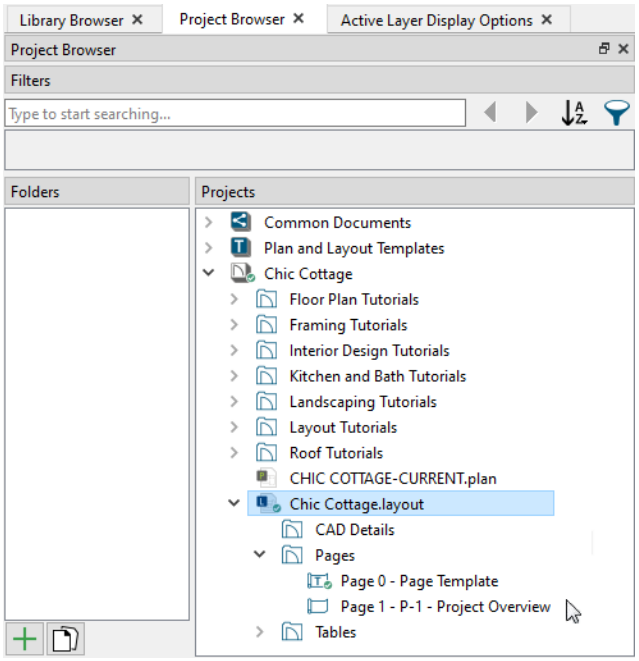


- Notice that the current Title is Page Template.
- Change the **Title** to "Standard Template".
- Confirm that **Use as Page Template** is checked under the Page Template Options heading.
- Click **OK** to close the dialog and apply your changes.

Page templates can also be specified in the Project Browser, which is docked to the right side of the program window by default.

To specify a page template in the Project Browser

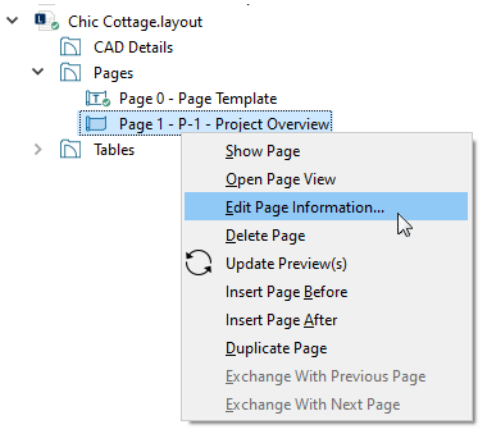
1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View> Project Browser**.
2. In the Projects panel, click the arrow next to Chic Cottage.layout to expand its contents.



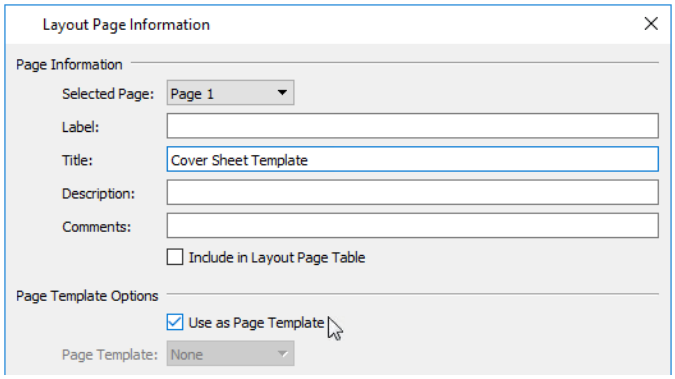
- Click the arrow next to the "Pages" folder to expand a list of the pages in Layout that are currently in use. In a new Layout created using an installed template, only Pages 0 and 1 will be listed.
- Notice the icons beside each page:
  - Page 0's icon identifies it as a page template. A small green check mark indicates that it is the currently open page, as well.
  - Page 1's icon identifies it as a page with content.

> Page 1 is listed as a page with content because it has a piece of text on it.

3. Right-click on Page 1 in the Project Browser and select **Edit Page Information**.

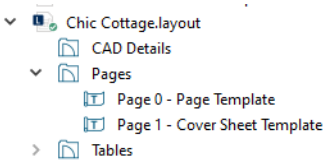


4. In the Layout Page Information dialog:



- Delete the information in the **Label** field.
- Change the **Title** to "Cover Sheet Template".
- Check the box beside **Use as Page Template** and click **OK**.

5. In the Project Browser, notice that Page 1's icon has changed and now indicates that it is a Page Template rather than a page with content.



6. When you are finished, **Save** your work.

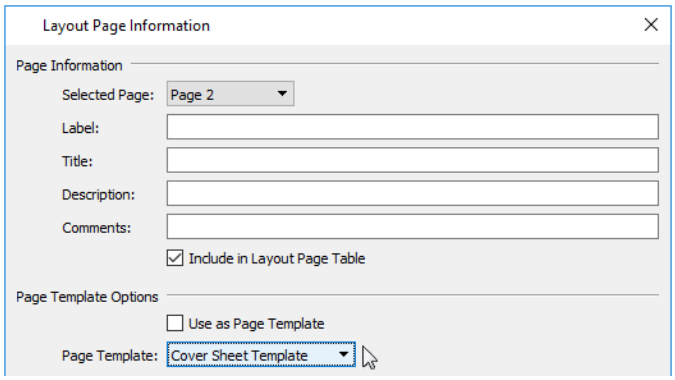
Using the same steps, you can set aside layout pages for any additional Page Templates that you might need for different disciplines and sheet types.

Assigning Page Templates

Once multiple Page Templates have been created, they can be assigned to non-template pages: either blank or with content. You can wait and do this when you actually send views to layout for a project, or you can save time and set aside pages for specific purposes beforehand.

To assign the Cover Sheet Template

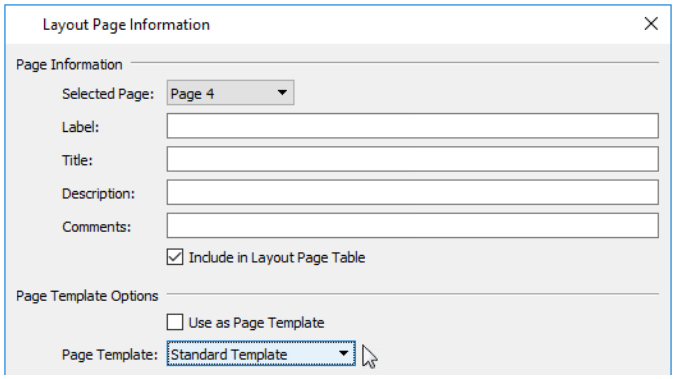
1. Select **Tools> Layout> Edit Page Information** .
2. In the Layout Page Information dialog, select "Page 2" from the **Selected Page** drop-down list and then:



- Under the Page Template Options heading, click arrow next to the **Page Template** and select "Cover Sheet Template" from the drop-down list.

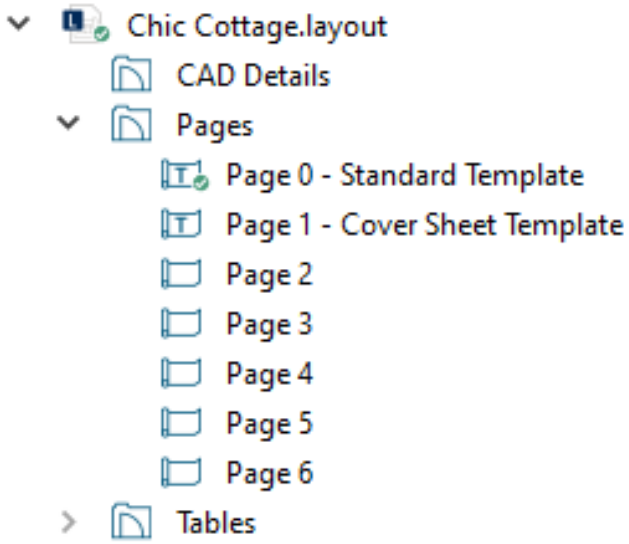
To assign the Standard page template

1. Still in the Layout Page Information dialog, select "Page 3" from the **Selected Page** drop-down list, then choose "Standard Template" from the **Page Template** drop-down list.



2. Repeat this process to assign the "Standard Template" to pages 4, 5, and 6.
3. Click OK to close the dialog and apply your changes.

4. In the Project Browser, notice that pages 2 - 6 are now listed and are identified as blank pages.



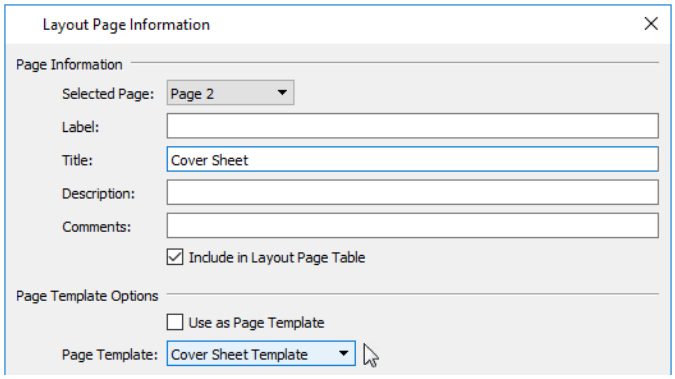
5. When you are finished, remember to **Save** your work.

Assigning Page Titles

A short, descriptive page title lets you identify the purpose that each layout page has been set up for.

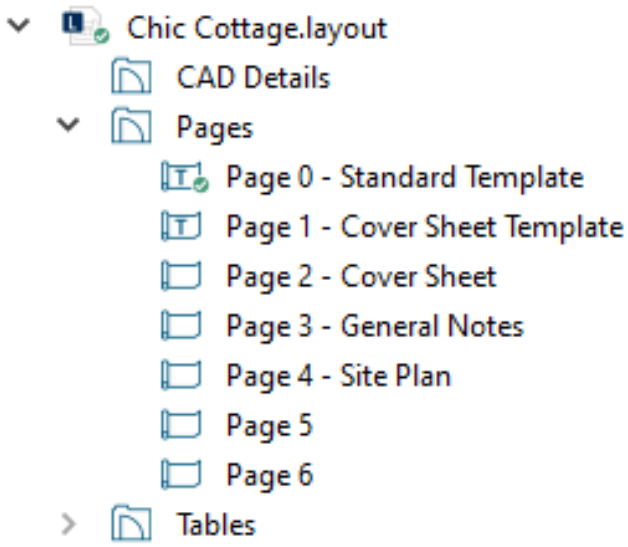
To assign page titles

1. Select **Tools> Layout> Edit Page Information** .
2. In the Layout Page Information dialog:



   - Select "Page 2" from the **Selected Page** drop-down list.
   - Specify the **Title** as Cover Sheet.
3. Next, select "Page 3" from the **Selected Page** drop-down list and specify its **Title** as General Notes.
4. Next, select "Page 4" from the **Selected Page** drop-down list and specify its **Title** as Site Plan.
5. Click OK to close the dialog and apply your changes.

6. In the Project Browser, notice that pages 2 - 4 now have titles.



7. When you are finished, remember to **Save** your work.

The remaining layout pages can be assigned Titles when their Page Numbers are assigned.

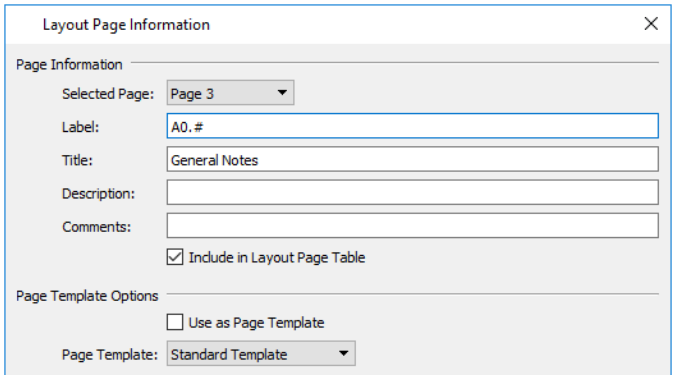
Creating a Page Numbering Convention

There are a number of ways to include page numbers on layout pages. The most versatile uses the Page Label and allows you to set up custom page numbering conventions using the Layout Page Information dialog.

In your own layout template file, you can assign sheet numbers that you typically use in advance and use the numbering convention of your choice. Here, a fairly typical variation of the US National CAD Standard page numbering convention is used.

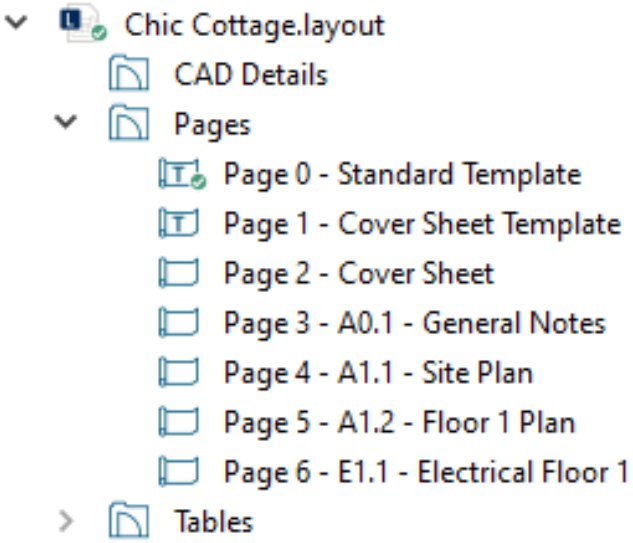
To assign page numbers

1. Select **Tools> Layout> Edit Page Information** .
2. In the Layout Page Information dialog, select "Page 3" from the **Selected Page** drop-down list and then:



- Note that its **Title** is General Notes.
- Specify the **Label** as A0.#.

3. Select "Page 4" from the **Selected Page** drop-down list, then:
   - Note that its **Title** is Site Plan.
   - Specify the **Label** as A1.#.
4. Select "Page 5" from the **Selected Page** drop-down list, then:
   - Specify its **Title** as Floor 1 Plan.
   - Specify the **Label** as A1.#.
5. Select "Page 6" from the **Selected Page** drop-down list, then:
   - Specify that its **Title** as Electrical Floor 1.
   - Specify the **Label** as E1.#.
6. Click OK to close the dialog and apply your changes.
7. In the Project Browser, notice that A0, A1, and E1 are all treated as separate prefixes.



If you type a pound sign # in the Label field, the characters before it will be treated as a numbering prefix, and the # will be replaced by the current page number on the layout sheet.

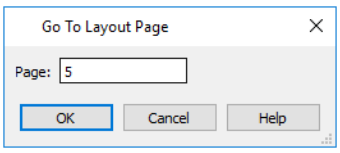
8. When you are finished, remember to **Save** your work.

Inserting Layout Pages

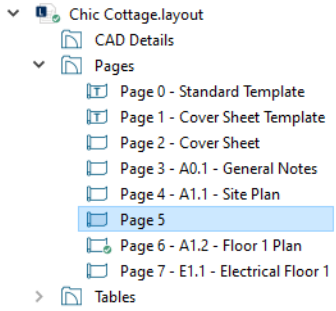
If you need to add additional disciplines, types, and/or pages, they can be easily inserted at any time: either in a specific project or in your layout template file.

To insert new layout pages

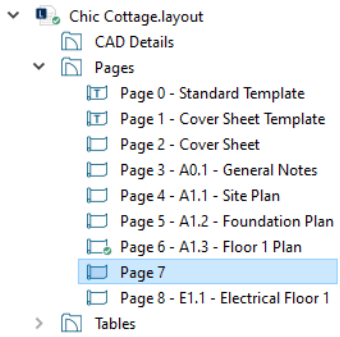
1. Select **Tools> Layout> Change Layout Page** or click the button that reports the current page number and go to page 5, which was set aside for the Floor 1 Plan.



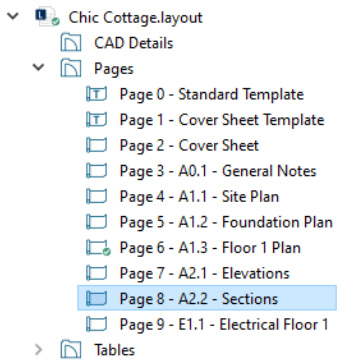
2. Select **Tools> Layout> Insert Page Before** to add a page before the current page. The original page 5 will move to page 6, and will become the active page.
3. In the Project Browser, notice that page 5 has no sheet number or title.



4. Right-click on page 5 in the Project Browser and select **Edit Page Information** from the contextual menu. In the Layout Page Information dialog:
   - Notice that the new page's Label and Title are blank.
   - Specify the **Label** as A1.#.
   - Specify the **Title** as Foundation Plan.
   - Confirm that the Page Template is "Standard Template", then click OK.
5. Right-click on page 6 in the Project Browser and select **Insert Page After**. Page 6 is unchanged, the new page becomes page 7, and the original page 7 becomes page 8.



6. Right-click on the new page 7 and select **Edit Page Information**. In the Layout Page Information dialog:
   - Specify the **Label** as A2.#.
   - Specify the **Title** as Elevations.
   - Confirm that the Page Template is "Standard Template", then click OK.
7. Use the **Insert Page After** command to add a new page after page 7.
   - Notice that the list of pages grows by one and that page 8 is listed as a blank page.
8. Right-click on page 8 and select **Edit Page Information**. In the Layout Page Information dialog:
   - Specify the **Label** as A2.#.
   - Specify the **Title** as Sections.
   - Confirm that the Page Template is "Standard Template", then click OK.



9. Remember to **Save** your work.

Once your Page Templates have been defined as such, you can create a border and title block for each that matches how it will be used. See *Title Blocks and Borders on page 462*.

Creating File Revisions

Saving revisions of your files allows you to develop different ideas for a project as well as create a history of your work that you can refer back to when needed. Although in most cases, Layouts do not require revisions, you can create a history of your work developing Chic Cottage.layout.

To save a layout progress document

1. When you are ready to save a revision, **Save** your work.
2. Select **File>Make a Copy**.
3. In the New Layout dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Page Templates. Then, click OK.
4. Notice that Chic Cottage-Page Templates is now listed in the Project Browser in the Chic Cottage Project but is not open.
5. Select **File>Close All Views**.

Review

This lesson describes the best practices for setting up page templates in a layout file.

To specify a page template *454*
To specify a page template in the Project Browser *454*
To assign the Cover Sheet Template *456*
To assign the Standard page template *456*
To assign page titles *457*
To assign page numbers *458*
To insert new layout pages *459*
To save a layout progress document *461*

Assessment Questions

Tutorial 26 - Layout Page Templates

What is the name of the side window that lists all of the pages of the current layout file?

- The Project Browser side window lists the pages of the current layout file and provides a convenient way to organize and access them.

What are three categories of pages that are listed in this side window?

- Page templates, blank pages, and pages with content are listed in the Project Browser side window.

What information should be included on a page template?

- Layout Page Templates should include any information that you would like to display identically on multiple pages: typically, title blocks and borders.

What is the name of the dialog in which you can assign sheet titles to layout pages?

- Sheet, or page, titles can be specified in the Layout Page Information dialog for each layout page.

What character can you type into a page's Label to set up custom page numbering conventions?

- If you type a pound sign # in the Label field, the characters before it will be treated as a numbering prefix, and the # will be replaced by a numeral 1 on the first page with that particular prefix in its Label, and will increase the number by one on every page that follows if it too has the identical prefix in its Label.

Title Blocks and Borders

This tutorial describes tools and techniques for creating title blocks and borders for construction documents.

Learning Objectives

This lesson describes best practices in Chief Architect for creating title blocks and borders for construction documents. Concepts introduced include:

File Management *463*

Productivity Tips *463*

Setting the Defaults *464*

Setting up the Drawing Sheet *464*

Drawing a Layout Border *465*

Creating a Title Block *467*

Adding Title Block Text *470*

Using Text Macros *473*

Including a Revision Table *477*

Creating a Cover Sheet Template *478*

Creating File Revisions *483*

File Management

This tutorial continues where the *Layout Page Templates* tutorial left off. At this point, both the Chic Cottage.layout and Chic Cottage-Page Templates.layout documents contain the same information, so you could open either one and continue working. However, Chic Cottage-Page Templates.layout was created specifically to serve as a record of your work progress so it will be left unchanged. With this in mind, open Chic Cottage.layout. There are a number of ways to do this:

- In the Dashboard window, click on its name in the list of Recent Documents.
- Select **File> Recent Documents** from the program menu and click on its name in the submenu.
- Double-click on its name in the Projects panel of the Project Browser.
- Right-click on its name in the Project Browser and select **Open** from the contextual menu.
- Select **File> Open Plan/Layout** from the program menu.
- Right-click on a Project or Folder in the Project Browser's Project panel and select **Open All Plans/Layouts** from the contextual menu to open all documents saved within it.

It is a very good idea to save your files often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to create layout page templates, keep in mind these tips to improve your productivity.

Drawing and Editing

- The **Center Object** edit tool can be used to center text and other CAD objects inside CAD polylines.
- Text Macros can be added to report page numbers and other information automatically.

Content

- Import an image of your company logo to display in your construction documents.
- Create one or more layout template files that can be used whenever you begin a new layout.
- Interface
- When designing a layout title block and border, it is helpful to have Grid Snaps toggled on.
- The Grid Snap Unit also determines how far a selected object is Nudged when the ***Arrow*** keys are pressed.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Spacebar*** - Select Objects
- ***Arrow*** keys - Nudge selected object
- ***F6*** - Fill Window
- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Although Temporary Dimensions are toggled off in most of the images in this tutorial, it is assumed that they are on for the purposes of following the steps. Select View> Temporary Dimensions and confirm that there is a check mark in lower right corner of the tool icon.

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When creating a layout title block and border, there are several defaults of particular importance.

Before drawing a title block and border, you need to define the size and shape of the Drawing Sheet. See *Setting up the Drawing Sheet on page 464*.

Grid Snaps are very useful when drawing and positioning CAD objects for a layout title block. You can set the Grid Snap Unit in the General Layout Defaults dialog. See *To set the Grid Snap Unit and Nudge distance on page 466*.

It is a good idea to set the default line style, weight, and other attributes of CAD objects that you draw on the layout sheet prior to drawing them. See *To set the default CAD line weight and style on page 466*.

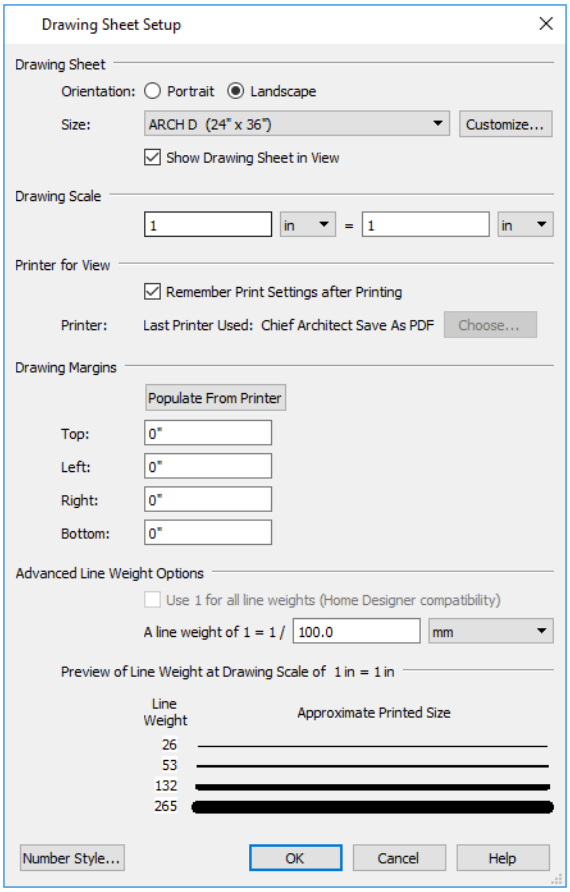
Before adding text to the layout, be sure that the Rich Text Defaults are set to meet your requirements. See *To set the Rich Text Defaults on page 470*.

Setting up the Drawing Sheet

Before sending views to layout, it is recommended that you set up your drawing sheet and then use the CAD, Text, and editing tools to create a border and title block for your layout pages on one or more Page Templates. For information about the Drawing Sheet,

To set up the layout sheet

1. Select **File> Print> Drawing Sheet Setup** to open the Drawing Sheet Setup dialog.



2. Specify the **Orientation** and **Size** of the **Drawing Sheet**.
3. The **Drawing Scale** for layout files should always be 1 in = 1 in (1 mm = 1 mm in metric files).
4. You can also specify the drawing sheet's **Margins** if you want.
5. Click **OK** when you are finished.
6. Select **Window> Fill Window** so that you can see the entire drawing sheet.
7. When you are finished, select **File> Save**.

Drawing a Layout Border

The layout template files that are installed with Chief Architect have a title block and border already drawn in them on Layout Page 0, which is the default Layout Page Template. You can use these as they are, modify them to suit your needs, or delete them and create your own.

Although the CAD and Text objects that make up an existing layout border can be edited, it is sometimes easier to simply create a new border from scratch.

It is often helpful to toggle Grid Snaps off when working certain tasks in a plan file. When working in layout, on the other hand, Grid Snaps should almost always be toggled on.

To set the Grid Snap Unit and Nudge distance

1. Select **Edit> Default Settings**, and in the Default Settings dialog click on "Layout" and click the **Edit** button.
2. In the General Layout Defaults dialog:
   - Make sure that **Use Snap Grid/Units** is checked.
   - Set the **Grid Snap Unit** to be 1/8" and click OK.

To delete an existing layout border

1. Select **View> Drawing Sheet** to turn off the display of the Drawing Sheet. This will prevent the Drawing Sheet from being selected when the title block and border are group-selected.
2. Select **Tools> Layout> Page Down** to go to Page 0 and **Zoom** out so you can see the entire title block and border.
3. Click the **Select Objects** button, then click and drag to draw a rectangular selection marquee around the entire drawing. When you release the mouse button, all of the objects within the selection marquee will be selected as a group.
4. Select **Edit> Delete**, click the **Delete** edit button, or press the ***Delete*** key to delete the entire title block and border.
5. Select **View> Drawing Sheet** to turn the display of the Drawing Sheet back on.

   As an alternative to deleting an existing title block and border, you can select **Tools> Layout> Page Up** to go to an empty page and draw a new one there. That page should then be specified as a Page Template. See *"Layout Page Templates" on page 452 of the Layout Page Templates Tutorial*.

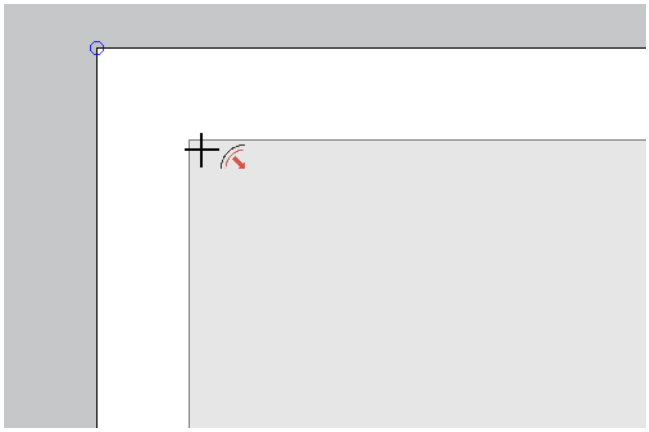
To set the default CAD line weight and style

1. Select **Tools> Layer Settings> Display Options**.
2. In the Layout Page Display Options dialog:
3. Click on the "CAD, Default" layer to select it and notice that its attributes can be edited below the list of layers.
4. The default **Line Weight** of 18 and the solid **Line Style** are typical for CAD lines on a construction sheet, so click Cancel to close the dialog without making any changes.

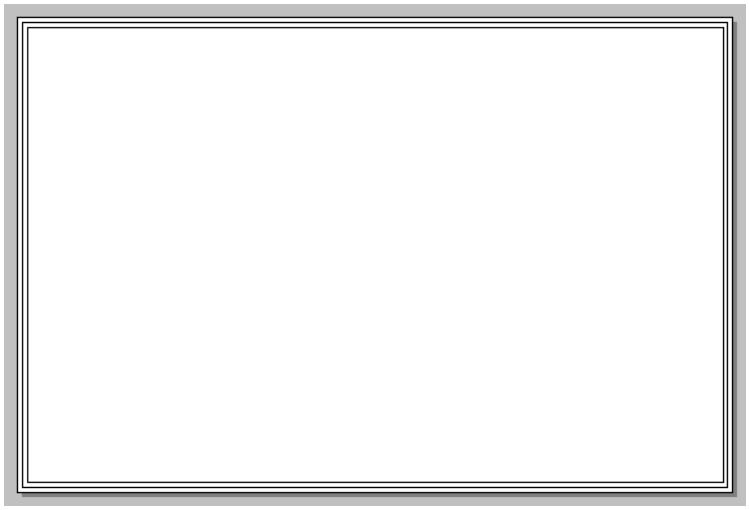
To create a new layout border

1. Make sure that **Object Snaps** are enabled, particularly **Endpoint** ☐ Snaps.
2. Select **Edit> Preferences**, then go to the BEHAVIORS panel of the Preferences dialog.
   - Under the **Edit Type** heading, select **Concentric**.
   - Specify the **Jump** value as the distance you would like your border to be drawn from the edge of the drawing sheet.
   - Here, 1/8" is used.
3. Click OK to close the dialog and make the **Concentric Edit Behavior** active and notice that the mouse pointer displays the Concentric icon, reminding you that this non-default behavior is active.
4. Select **CAD> Boxes> Rectangular Polyline**, then click and drag a rectangle beginning at one corner of the drawing sheet and ending at the opposite corner.
   - Watch for the red snap indicators that will display at each corner when **Endpoint** ☐ Snaps are enabled.
5. Click on the rectangular polyline to select it, then:
   - Look at left side of the Status Bar to confirm that a Standard Polyline is selected.
   - If the Sheet Boundary is selected instead, click the **Select Next Object** edit button.

6. **Zoom** in on one corner of the polyline, then click and slowly drag a corner edit handle towards its center.



- When you reach the specified **Concentric Jump** distance, the polyline's preview outline will resize so that its edges are that distance from the drawing sheet edges.
- Continue dragging inward and the preview outline will resize again each time you reach the next Concentric Jump increment.
- When you reach the desired Concentric Jump increment, release the mouse button.
- You can create a double border in a similar manner. With the polyline still selected:
- Click the **Copy/Paste** edit button.
- Click and drag one of the corner edit handles towards the center. A concentric copy of the polyline is made when you reach the **Concentric Jump** distance.



7. When you are finished, it is a good idea to restore the **Default Edit Behavior**. To do this, select **Edit> Edit Behaviors> Default**.
8. Before moving on, remember to **Save** your work.

You can adjust the line weight, style and color for any CAD object in its specification dialog.

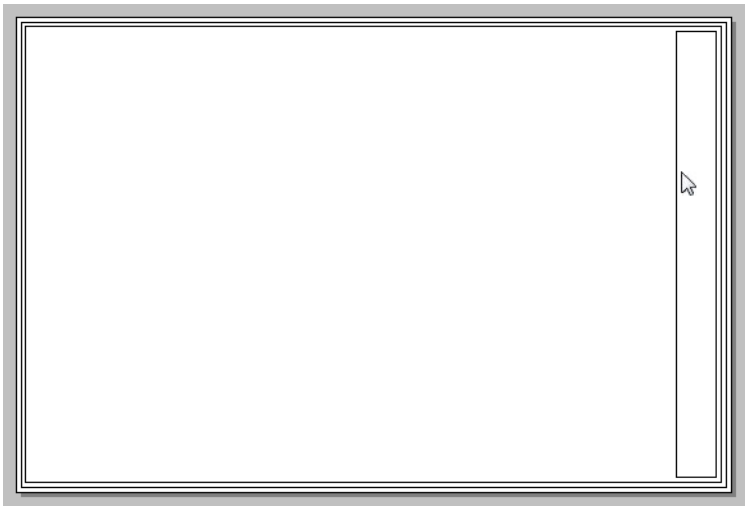
If you would like, you can fillet the corners of the border polylines using the Fillet Lines edit tool.

Creating a Title Block

With the border drawn, a title block can be added. Here, a vertical title block is added to the right side of the sheet.

To create a title block frame

1. Select the inner border polyline created above and create a concentrically resized copy inside it:
   - **Zoom** in on one corner of the polyline.
   - Click the **Copy/Paste** edit button.
   - This time, hold down the C key, which is the temporary hotkey for the Concentric edit behavior.
   - Click and drag one of the corner edit handles towards the center. A concentric copy of the polyline is made when you reach the **Concentric Jump** distance.
   - Here, two Concentric Jumps are used to resize the polyline by 1/4".
2. With the newly created polyline selected, click on its left vertical edge to make it the Selected Edge.
3. Click on the Temporary Dimension that reports how far the Selected Edge is from the polyline's opposite vertical edge.
4. In the inline text field, type 2" and press the ***Enter*** key.

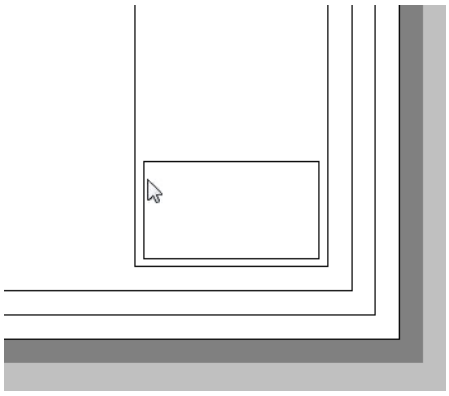


With the title block's area defined, separate frames can be created for the information it will contain.

To add a title block component frame

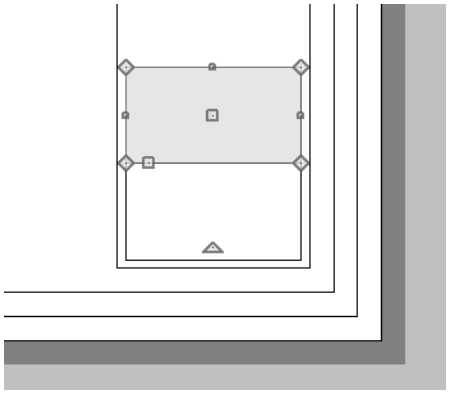
1. Select the title block frame and create a concentrically resized copy inside it:
   - **Zoom** in on one corner of the polyline.
   - Click the **Copy/Paste** edit button.
   - Hold down the ***C*** key to enable the Concentric edit behavior.
   - Click and drag one of the corner edit handles towards the center, and release the mouse button when you reach the **Concentric Jump** distance of 1/8".
2. Click on the top horizontal edge of the new polyline to make it the Selected Edge, then:
3. Click on the Temporary Dimension that reports how far the Selected Edge is from the polyline's bottom horizontal edge.

4. In the inline text field, type 1" and press the ***Enter*** key.



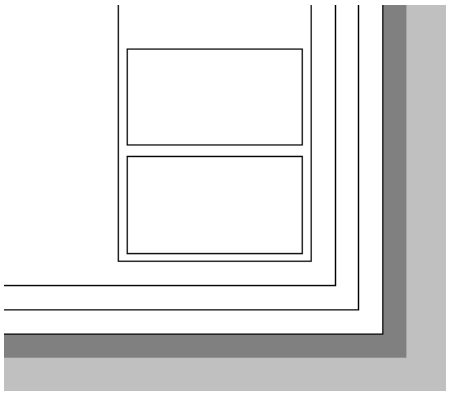
To replicate component frames

1. Select the component frame and click the **Copy/Paste** edit button.
2. Click the **Point to Point Move** edit button, then:
   - Click once on the lower left corner of the component frame.
   - Click once on the upper left corner of the component frame.
   - A copy of the frame is created, and is positioned so that its lower left corner is snapped to the upper left corner of the original.

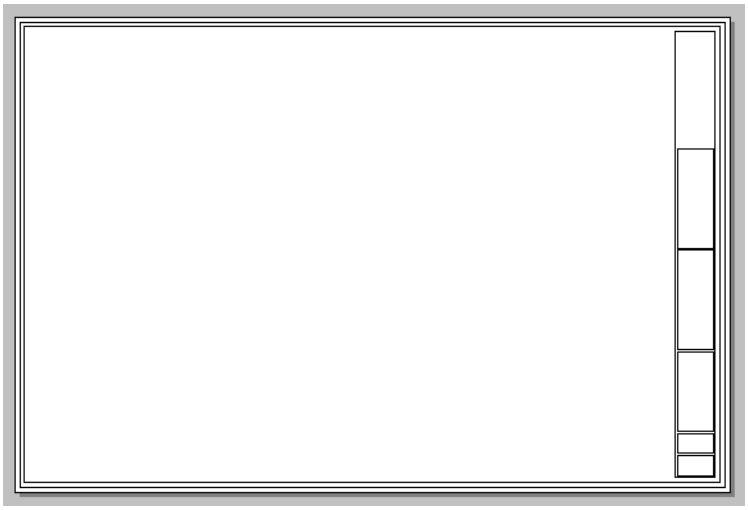


3. With the new component frame selected, press the ***Up Arrow*** key one time to nudge it upward 1/8".

> The Nudge distance is equal to the file's Grid Snap Unit.



4. Create a third component frame above the first two using the same process.
5. Make the third frame 4" in height using Temporary Dimensions.
6. Repeat these steps to create:
   - A fourth frame 5" in height.
   - A fifth frame 4" in height.
   - A blank space at the top of the title block frame will remain.



When you are finished, remember to **Save** your work.

Adding Title Block Text

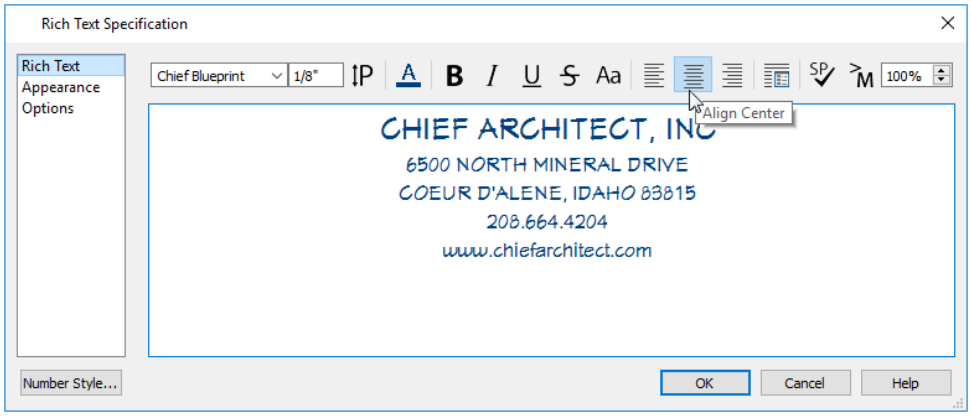
Text can now be created and centered with in the title block frames.

To set the Rich Text Defaults

1. Select **Edit> Default Settings** to open the Default Settings dialog. Click the arrow to the left of "Text, Callouts and Markers" to expand the category, select "Rich Text", then click the **Edit** button.
2. In the Saved Rich Text Defaults dialog, click the **Edit** button.
3. On the Rich Text panel of Rich Text Defaults dialog:
   - You can specify the default font that you want to use as well as its size. Here, the "Chief Blueprint" font sized at 1/8" is used.
   - Although you can specify special styles like Bold and Italic, it is usually best to not enable these by default.
   - You can type in the text field; however, whatever is entered in the defaults dialog will appear in all newly created Rich Text objects and is not recommended.
4. Click OK and then Done to close both dialogs and apply your changes.

To add company information

1. Select **CAD> Text> Rich Text**, then click in an empty space on the right side of the drawing sheet.
2. On the RICH TEXT panel of the Rich Text Specification dialog:

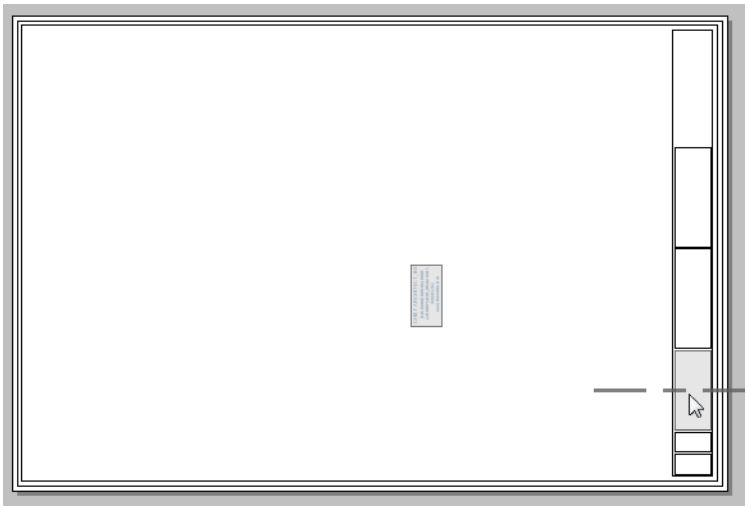


   - Begin by clicking the **Align Center** button.
   - In the main text field, type your company name and contact information.
   - To change the size of the company name, highlight it with the mouse and then type the desired size in the text field above. Here, 3/16" is used instead of 1/8".
   - Click **OK** to close the dialog and create the text at the point where you clicked.
3. Use the triangular Rotate edit handle to rotate the selected objects 90° to the right, so the text faces the right side of the sheet.



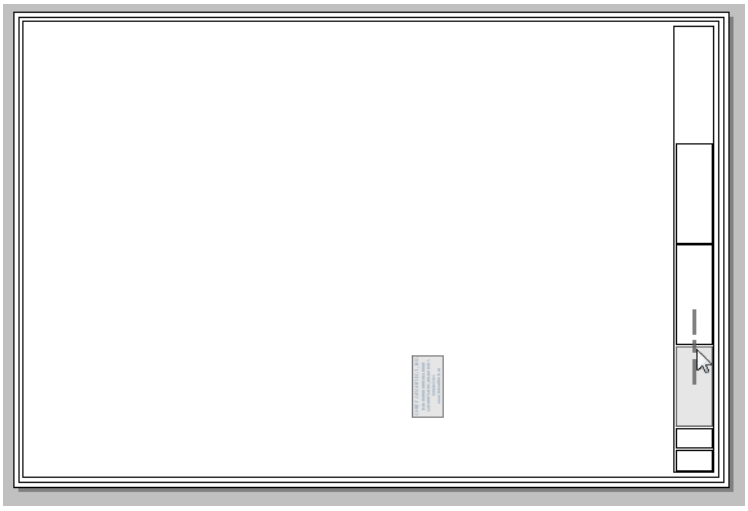
To center text in a frame

1. Click the **Center Object** edit button, then:

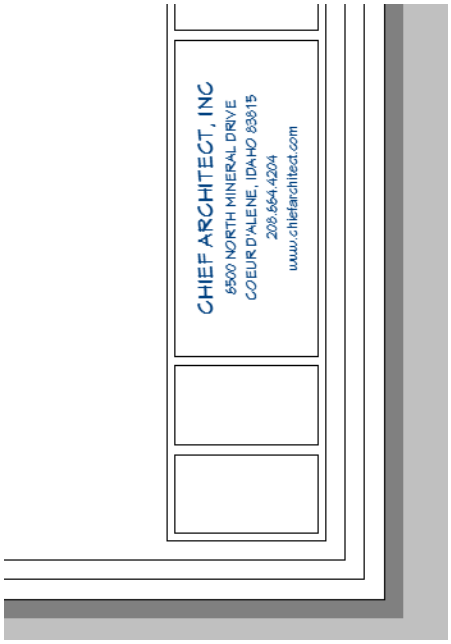


- Move your mouse pointer over left side of the 4" high frame, just above the two 2" frames.
- When a horizontal centering axis displays, click once to center the text relative to the 4" frame.

2. With the text still selected, click the **Center Object** edit button once more. Next:



- Move your mouse pointer over the top edge of the 4" high frame.
- When a vertical centering axis displays, click once to center the text relative to the 4" frame.



Project information can be added to the 5" high frame located just above the company information.

3. When you are finished, remember to **Save** your work.

USING TEXT MACROS

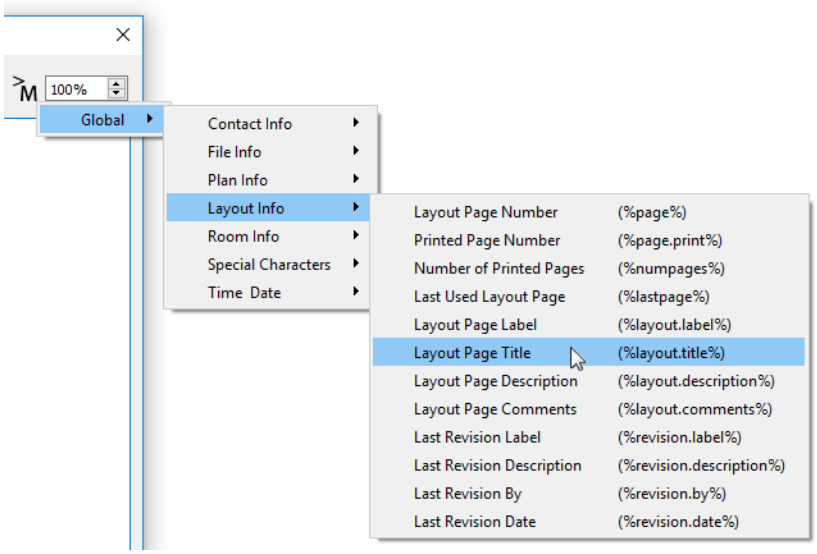
Text Macros can be used to automatically populate the text with information like the sheet title, sheet number, and the current date.

Each of your layout pages can be assigned its own unique Title, which will display dynamically using the same text object. For more information, see *Layout Page Templates on page 452*.

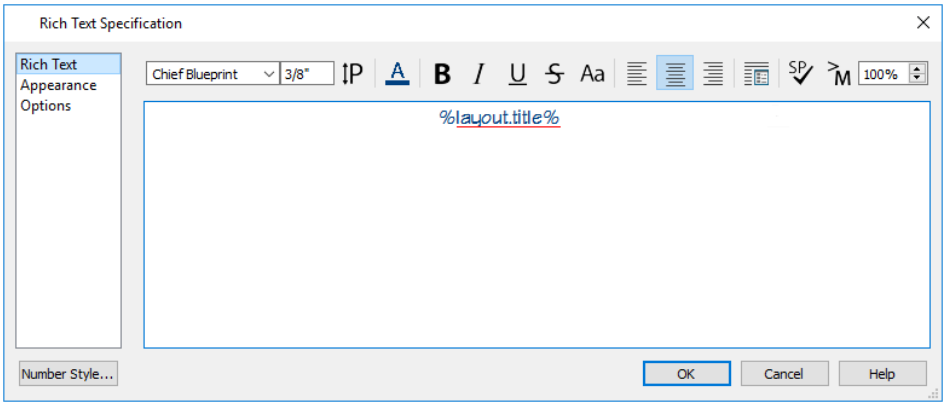
To add a sheet title

1. Create a **Rich Text** object to the left of the title block.
2. On the TEXT panel of the Rich Text Specification dialog:

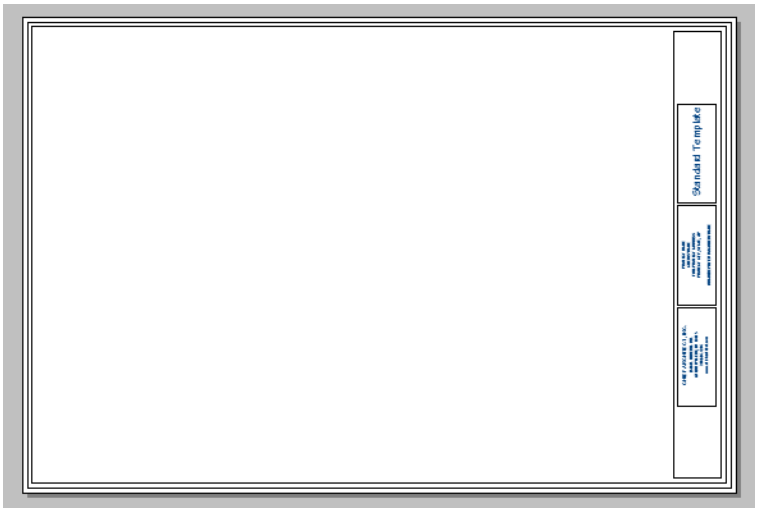
3. Click the **Align Center** button.
   - Increase the text size to 1/4".
   - Click the **Insert Macro** button.



   - Browse to **Global> Layout Info** and select "Layout Page Title".



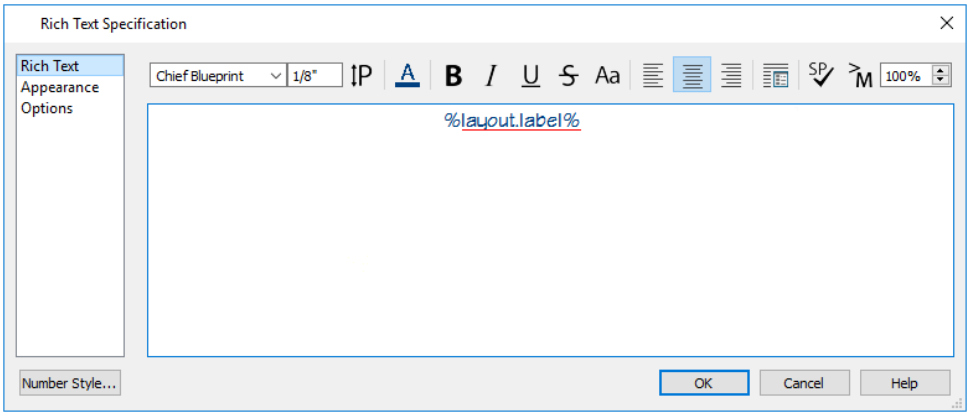
   - Note that the Text object now contains the macro: %layout.title%, then click OK.
4. Notice that the Text object now says "Standard Template". This is the title that was assigned to Page 0 in the *Layout Page Templates* tutorial. See *"To specify a page template" on page 454 of the Layout Page Templates Tutorial*.
5. Rotate the text so it faces to the right.
6. Use the **Center Object** edit tool to center the text inside the frame located just above the project information, as described in *To center text in a frame on page 472*.



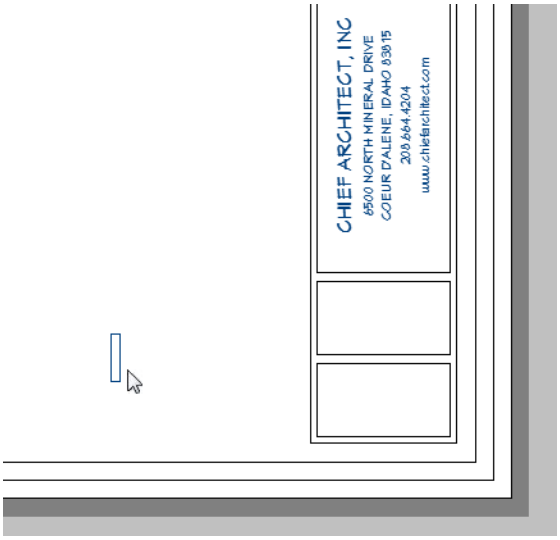
There are a number of page number macros, but the most versatile is used here and will allow you to set up custom page numbering conventions using the Layout Page Information dialog.

To add a sheet number

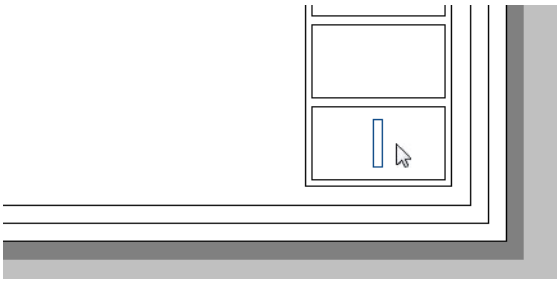
1. Select **CAD> Text> Rich Text**, then click in an empty space in the drawing sheet.
2. On the TEXT panel of the Rich Text Specification dialog:



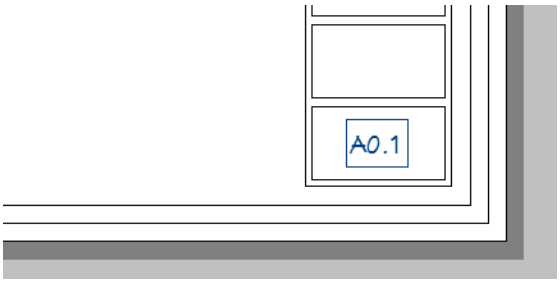
   - Specify the text size as 1/4".
   - Click the **Align Center** button.
   - Click the **Insert Macro** button.
   - Browse to **Global> Layout Info** and select "Layout Page Label".
   - Note that the Text object now contains the macro: %layout.label%.
3. On the APPEARANCE panel, check **Border**, then click OK.
4. Notice that only the Text object's border displays. This is because the current page does not have a Label specified in the Layout Page Information dialog like it does a Title.



5. Use the **Center Object** edit tool to center the text inside the frame located at the bottom of the title bar, as described in *To center text in a frame on page 472*.



6. Go to Page 3 and note that the %layout.label% is now displaying as "A0.1". This is the page number for the General Notes, created in *"To assign page numbers" on page 458 of the Layout Page Templates Tutorial*.

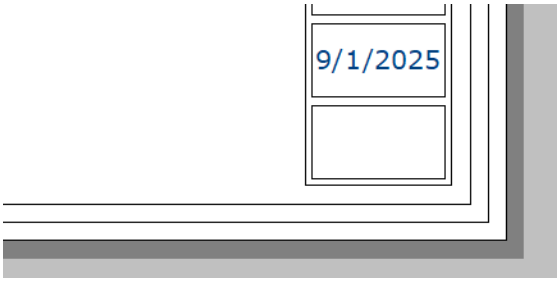


7. Go back to Page 0, select the layout label text object, and click the **Open Object** edit button.
8. On the APPEARANCE panel of the Rich Text Specification dialog, uncheck **Border** and click OK.

To add the current date

1. With the layout label text still selected, click the **Copy/Paste** edit button.
2. Click the **Point to Point Move** edit button, then:
   - Click on the top right corner of the frame around the selected text.
   - Click on the top right corner of the frame directly above.
   - A copy of the Text is created, centered in the frame above the original.
3. With the newly pasted Text still selected, click the **Open Object** edit button.

4. On the RICH TEXT panel of the Rich Text Specification dialog:
   - Delete the existing macro text
   - Click the **Insert Macro** button.
   - Browse to **Global> Time Date** and select "Short Date".
   - Note that the Text object now contains the macro: %date.short% and click OK.
5. The Text object now reports the current date.



6. When you are finished, remember to **Save** your work.

INCLUDING A REVISION TABLE

Revisions can be added to any page, and can be listed in a Revision Table.

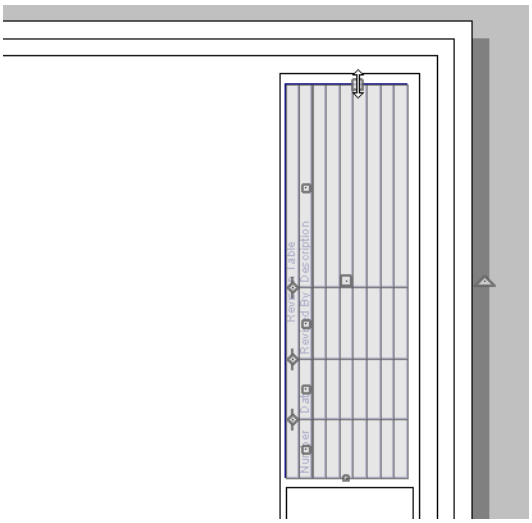
To place a revision table

1. Select **Tools> Layout> Layout Revision Table**, then click in the middle of the drawing sheet to place a Revision Table at that location.

Revision Table			
Number	Date	Revised By	Description

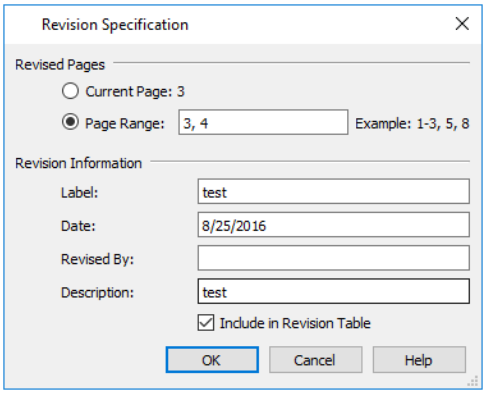
2. Select the Revision Table and rotate it 90° using its edit handle.
3. Click the **Point to Point Move** edit tool:
   - Click on the lower left corner of the Revision Table.
   - Click on the upper left corner of the border around the sheet title.
4. With the Revision Table still selected, press the Up Arrow key once to move it up 1/8".
5. With the Revision Table still selected, click the **Open Object** edit button. On the GENERAL panel of the Revision Table Specification dialog, specify the **Minimum Rows** as 7, then click OK.
6. Click the Resize edit handle that displays along the top edge of the Revision Table and drag upwards until it is 1/8"

from the title block frame.



To add a revision to a page

1. To go Page 3 and select **Tools> Layout> Edit Page Information** .
2. In the Layout Page Information dialog, under the Page Revisions heading, click the **New** button.
3. In the Revision Specification dialog:



   - Specify the **Page Range** as 3,4.
   - Add a brief label and description, then click OK.
4. Notice that the new revision is listed under the Page Revisions heading for Pages 3 and 4.
5. Click OK and note that the Revision Table on Pages 3 and 4 displays the new revision, while on the other pages, it does not.
6. Return to Page 3 and select **Edit> Undo** to remove the test revision from Pages 3 and 4.
7. Remember to **Save** your work.

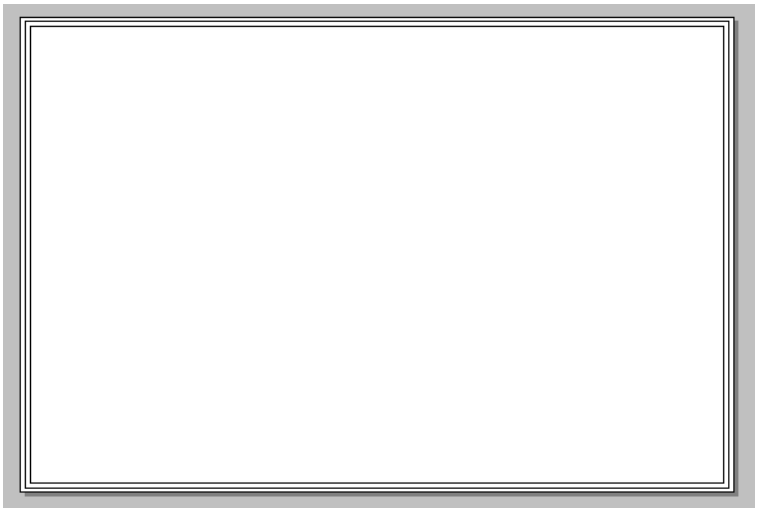
Creating a Cover Sheet Template

A variation of the title block and border can be created for use on the cover sheet. See *"To assign the Cover Sheet Template" on page 456 of the Layout Page Templates Tutorial*.

In this example, the Cover Sheet Template will use the same border as the Standard Sheet Template, but not the title block. It will instead feature the project name and address, a sheet index, a space for a large presentation view.

To copy the border

1. Select **Tools> Layout> Page Down** to go to Page 0.
2. **Zoom** in on the top left corner of the Drawing Sheet.
3. Click the **Select Objects** button, then click on the outer border polyline to select it.
4. Hold down the ***Shift*** key and click on the inner border polyline to add it to the selection set.
5. Select **Edit> Copy**.
6. Select **Tools> Layout> Page Up** to go to Page 1.
7. Select **Edit> Paste> Paste Hold Position**.
8. Note that the new border is positioned inside the Drawing Sheet exactly like the original.

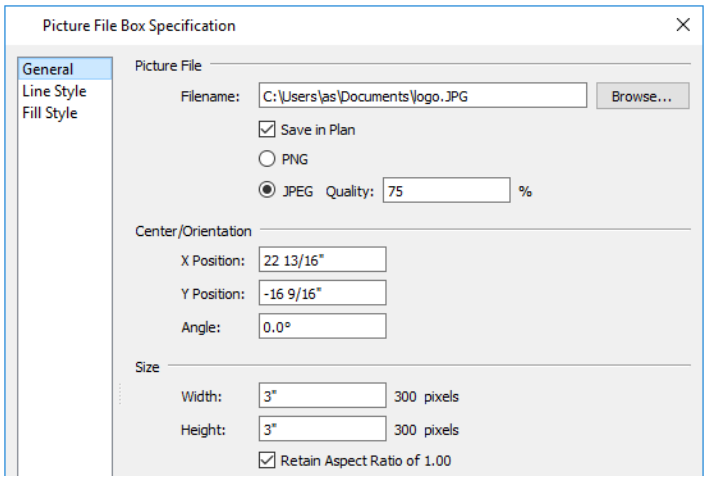


A company logo can be added to the title block by importing and embedding an image.

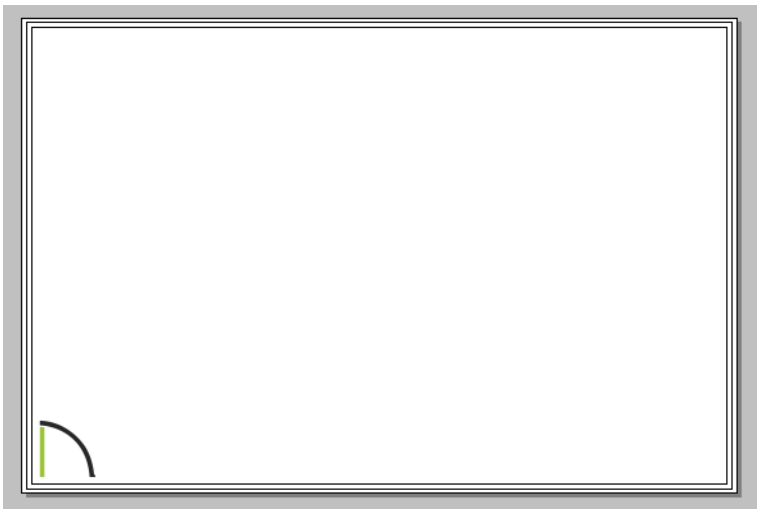
To import a logo image

1. Zoom in on the space where you would like to display a logo or other image.
2. Select **File> Import> Import Picture**.
3. In the Import Picture File dialog, browse to a company logo or other image file saved on your computer, select it, and click the **Open** button.
4. The imported picture will fill the extents of the current view, and can be edited.
5. Click the **Select Objects** button, then click on the imported picture to select it.

6. Click the **Open Object** edit button, and on the GENERAL panel of the Picture File Box Specification dialog:



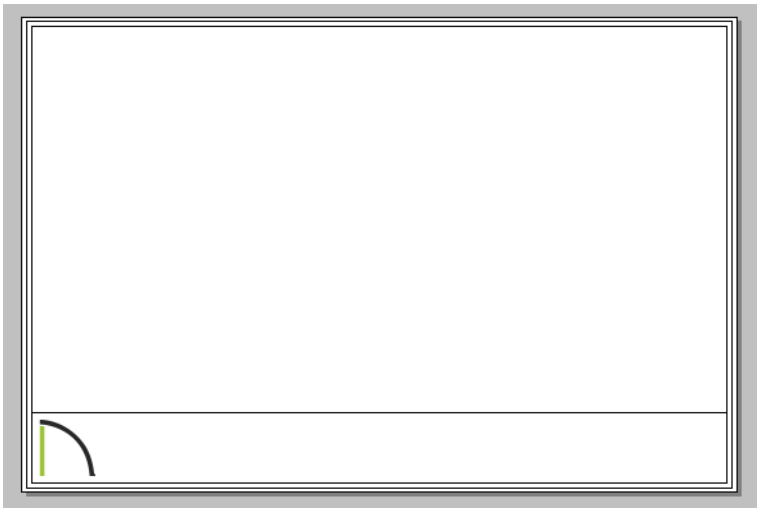
   - Check the box beside **Save in Plan**.
   - Under the Size heading, make sure that **Retain Aspect Ratio of** is checked.
   - Specify the desired **Height** and **Width**.
   - Here, a square image is sized at 3" x 3".
   - Click OK to close the dialog.
7. With the picture still selected, click the **Point to Point Move** edit button, then:
   - Click on the lower left corner of the image.
   - Click on the lower left corner of the inner border polyline.
8. Press the ***Up Arrow*** key twice, and the ***Right Arrow*** key twice to nudge the image 1/4" in from the border polyline.



Company and project information can be positioned and oriented using the same techniques used to create the standard page template. See *Adding Title Block Text on page 470*.

To create a title bar

1. Select **CAD> Lines> Draw Line**, then click and drag to draw a horizontal line across the length of the inner border polyline anywhere above the imported picture.



2. Click on the line, then move it down until it snaps to the top edge of the imported picture.
3. With the line still selected, press the ***Up Arrow*** key twice to create a 1/4" gap between it and the picture.
4. Place **Rich Text** objects with company and project information.

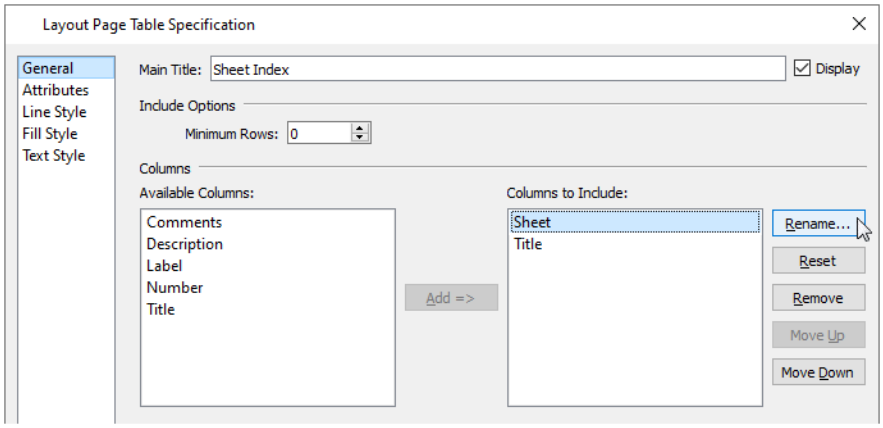


5. Here, the company information is centered along the right vertical edge of the imported logo image. It is **Aligned Left** and positioned 1/4" to the right of logo.
6. The project information is located 1/4" to the left of the inner border polyline, and is **Aligned Right**.

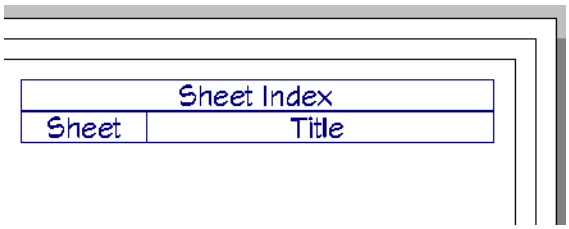
To add a sheet index

1. Select **Tools> Layout> Layout Page Table**, then click once in the drawing area to create a layout page table at that location.
2. Click on the new table to select it, then click the **Open Object** edit button.
3. On the GENERAL panel of the Layout Page Table Specification dialog, specify the table's **Name**. Here, "Sheet Index" is used.

4. Also on the GENERAL panel, organize and name the **Columns to Include**:



   - Select "Description" and click the **Remove** button.
   - Select "Comments" and click the **Remove** button.
   - Select "Label" and click the Rename button.
   - In the Schedule Column Name dialog, type "Sheet" and click OK.
5. On the ATTRIBUTES panel of the Layout Page Table Specification dialog, select "Centered" from the **Alignment** drop-down list.
6. On the TEXT STYLE panel:
   - Select a **Font** from the drop-down list.
   - Specify the desired **Character Height**. Here, 1/4" is used.
   - Click OK.
7. With the table still selected, use the edit handles to resize the columns as you wish.
8. Use the **Point to Point Move** edit button and ***Arrow*** keys to position the table in the top right corner of the border.



Because the non-template pages of the layout are currently blank, no pages are listed in the table. When views, text, or CAD are added to each page, the table will become populated.

All of the text in a Layout Page Table uses the same Text Style. To create a title with a larger font, use a separate Rich Text object.

To create a custom layout page table title

1. Select the Layout Page Table, then click the **Open Object** edit button.
2. On the GENERAL panel of the Layout Page Table Specification dialog, uncheck the box beside **Display**, to the right of the **Main Title** text field, then click OK.
3. With the table still selected, use its edit handles to move downward on screen to make room for a text object above it.
4. Select **CAD> Text> Rich Text**, then click in the drawing area, near the Layout Page Table.

5. On the RICH TEXT panel of the Rich Text Specification dialog:
   - Specify the desired font size. Here, 5/8" is used.
   - Click the **Align Center** button.
   - Type the desired title, then click OK.
6. Use the edit handles, Point to Point Move and Center Object edit tools to position the table and its custom title as desired.



7. When you are finished, **Save** your work.

The left side of the cover sheet can now be used for one or more presentation views, while the right side will be used by the Sheet Index as it expands to list sheets.

CREATING FILE REVISIONS

Saving revisions of your documents allows you to develop different ideas for a project as well as create a history of your work that you can refer back to when needed. Although in most cases, Layouts do not require revisions, you can create a history of your work developing Chic Cottage.layout.

To save a layout progress document

1. When you are ready to save a revision, **Save** your work.
2. Select **File>Make a Copy**.
3. In the New Layout dialog, type a the name of the project followed by a short description of the current state of the drawing such as Chic Cottage-Title Block. Then, click OK.
4. Notice that Chic Cottage-Title Block is now listed in the Project Browser in the Chic Cottage Project but is not open.
5. Select **File>Close All Views**.

ORGANIZING DOCUMENTS IN THE PROJECT BROWSER

Just like Plans, Layouts can be organized in their own folder.

To organize Layouts using a custom folder

1. Click on the Project Browser side window tab to make it the active side window. If it is not open, select **View>Project Browser**

 .

2. Right-click on the Chic Cottage Project and select **New Folder** from the contextual menu.
3. A new folder is created immediately below the Project level line item and an inline text editor is active.
4. Type a descriptive name for the folder and press the ***Enter*** key. Here, "Layout Tutorials" is used.
5. Click on the "Chic Cottage-Page Templates.layout" to select it, then:
   - Hold down the ***Shift*** key and click on Chic Cottage-Title Block.layout".
   - The two documents become selected as a group.
6. Click and drag the selection to the "Layout Tutorials" folder. When the folder becomes highlighted, release the mouse button.'

REVIEW

This lesson describes the best practices for creating custom layout borders and title blocks.

To set up the layout sheet *465*

To set the Grid Snap Unit and Nudge distance *466*

To delete an existing layout border *466*

To set the default CAD line weight and style *466*

To create a new layout border *466*

To create a title block frame *468*

To add a title block component frame *468*

To replicate component frames *469*

To set the Rich Text Defaults *470*

To add company information *471*

To center text in a frame *472*

To add a sheet title *473*

To add a sheet number *475*

To add the current date *476*

To place a revision table *477*

To add a revision to a page *478*

To copy the border *479*

To import a logo image *479*

To create a title bar *480*

To add a sheet index *481*

To create a custom layout page table title *482*

To organize Layouts using a custom folder *483*

Assessment Questions

Tutorial 27 - Title Blocks and Borders

What are two things that the Snap Grid Unit controls?

- The Snap Grid Unit controls the interval at which objects are drawn, resized, and moved.
- It also controls how far they are Nudged using the arrow keys on the keyboard.

What are three ways to enable the Concentric Edit Behavior?

- The Concentric Edit Behavior can be enabled on the Behaviors panel of the Preferences dialog.
- The different Edit Behaviors can also be enabled in the menus at Edit> Behaviors.
- It can also be enabled temporarily by holding down the C key on the keyboard.

What edit tool lets you align an object along an axis that runs through another object's side?

- The Center Object edit tool allows you to align a selected object along an axis that runs along another object's side or its midline.

What edit tool lets you snap the corner of one object to a point on another object?

- The Point to Point Move edit tool lets you move an object by clicking on a point on that object, then clicking on a different point somewhere else, including on another object.

How do you specify two different font sizes in a single Rich Text object?

- To change the size of part of the text, highlight it with the mouse on the Text panel of the Rich Text Specification dialog and then type the desired size in the text field above.

Describe how a company logo can be added to a layout page.

- A company logo can be added to the title block by importing and embedding an image. Select File> Import> Import Picture to do this.

Name two uses for text macros on a layout page.

- The layout page title macro, %layout.title%, will report the current page's title.
- There are also a variety of page number macros.

What are two types of tables that are available for use in layout files?

- Layout Revision Tables and Layout Page Tables are the two types of tables available in layout files.

Sending Views to Layout

With a layout template file set up, views can now be sent to layout and arranged on pages for printing.

Learning Objectives

This lesson describes best practices in Chief Architect for sending views to layout. Concepts introduced include:

File Management *486*

Productivity Tips *486*

Setting the Defaults 487
Sending Plan Views to Layout 487
Sending Section and Elevation Views to Layout 492
Sending Perspective Views to Layout 499
Printing Layout Files 501
Creating File Revisions 501

File Management

This tutorial continues where the *Title Blocks and Borders* tutorial left off. At this point, both the Chic Cottage.layout and Chic Cottage-Title Block.layout documents contain the same information, so you could open either one and continue working. However, Chic Cottage-Title Block.layout was created specifically to serve as a record of your work progress so it will be left unchanged. With this in mind, open Chic Cottage.layout. There are a number of ways to do this:

- In the Dashboard window, click on its name in the list of Recent Documents.
- Select **File> Recent Documents** from the program menu and click on its name in the submenu.
- Double-click on its name in the Projects panel of the Project Browser.
- Right-click on its name in the Project Browser and select **Open** from the contextual menu.
- Select **File> Open Plan/Layout**  from the program menu.
- Right-click on a Project or Folder in the Project Browser's Project panel and select **Open All Plans/Layouts** from the contextual menu to open all documents saved within it.

It is a very good idea to save your files often as you work, and this guide reminds you to do so regularly.

Productivity Tips

As you learn how to send views to layout, keep in mind these tips to improve your productivity.

Drawing and Editing

- When set up correctly, layer sets like the Plot Plan Set and Electrical Set can meet your needs while working and also when sending views to layout for printing.

Interface

- Use the information in the Project Browser to send different types of views to the correct layout page quickly.

Keyboard Hotkeys

- ***F1*** - Help for the current context
- ***Ctrl/⌘ + U*** - Send to Layout
- ***Spacebar*** - Select Objects
- ***Arrow*** keys - Nudge selected object
- ***F6*** - Fill Window
- ***Ctrl/⌘ + Tab*** - Select Next Tab

- ***Ctrl/⌘ + E*** - Open Object edit tool
- ***Ctrl/⌘ + S*** - Save

Setting the Defaults

In Chief Architect, the initial attributes of most objects can be specified prior to actually drawing them using Default Settings. Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing. When sending views to layout, there are several defaults of particular importance.

Before sending views to layout, it is a good idea to create a layout template that meets your needs, including the proper sheet size, page organization, and a title block with your company information. See *Layout Page Templates on page 452* and *Title Blocks and Borders on page 462*.

Views sent to layout may use different scales. To save time, make sure that the Drawing Scale that you expect to use most frequently is set as the default in the plan. See *To set the default Drawing Scale for plan views on page 487*.

The Drawing Scale of the layout file itself, however, should always be 1 in = 1 in. See *"To set up the layout sheet" on page 465 of the Title Blocks and Borders Tutorial*.

Each view sent to layout is contained in a Layout Box. You can set the Layout Box Defaults to use Line and Fill Styles that meet your needs. You can also set up the defaults for Layout Box labels so they report the information you need. See *Sending Views to Layout on page 485*.

Sending Plan Views to Layout

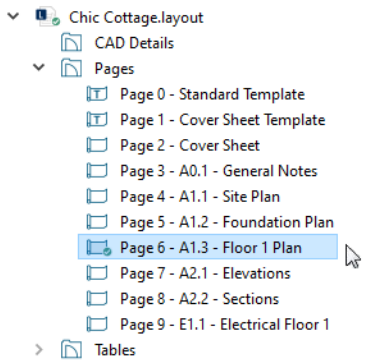
Most construction documents have multiple plan views sent to layout for a variety of purposes. Here, two examples, a site plan and electrical plan, will be sent.

To set the default Drawing Scale for plan views

1. Open the CHIC COTTAGE-CURRENT.plan.
2. Select **File> Print> Drawing Sheet Setup** .
3. In the Drawing Sheet Setup dialog:
   - Specify the **Drawing Scale** as the most common scale that your layout views will use.
   - Here, 1/4 in = 1 ft will be used.
   - Click OK to close the dialog and apply your change.
4. **Save** your work.

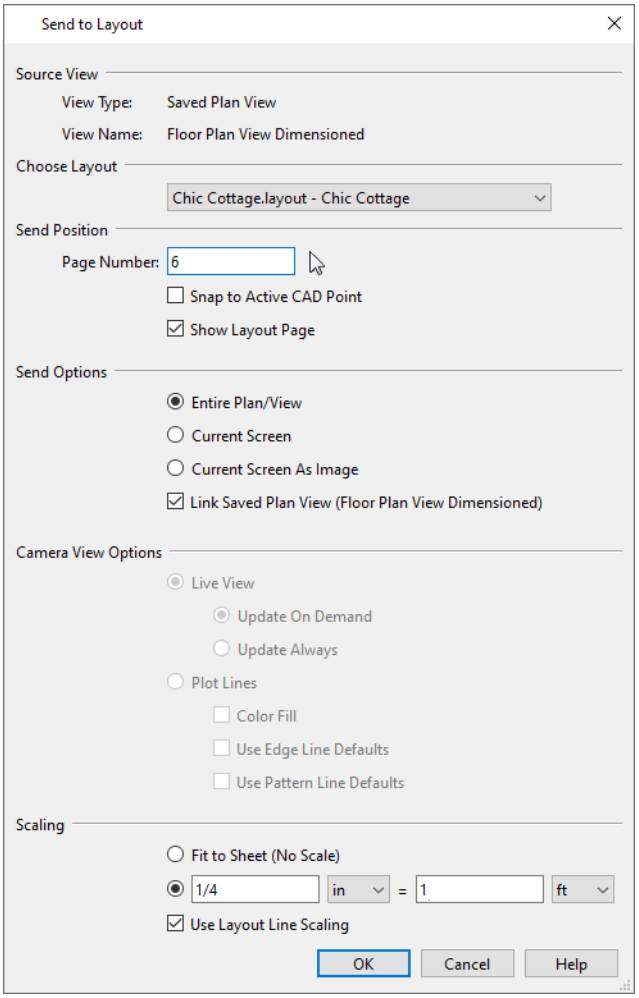
To send plan views to layout

1. Click the **Saved Plan View Control** drop-down, which is located in the top toolbar by default, and select "Floor Plan View Dimensioned" from the drop-down list.
2. Select the Project Browser side window by clicking on its tab. If it is not open, select **View> Project Browser** . Next:



- Click the arrow next to the "Pages" folder to expand the list of your customized layout pages.
- As you send views to layout, refer to this list to determine which page to send each view to. The floor plan for Floor 1, for example, should be sent to Page 6.

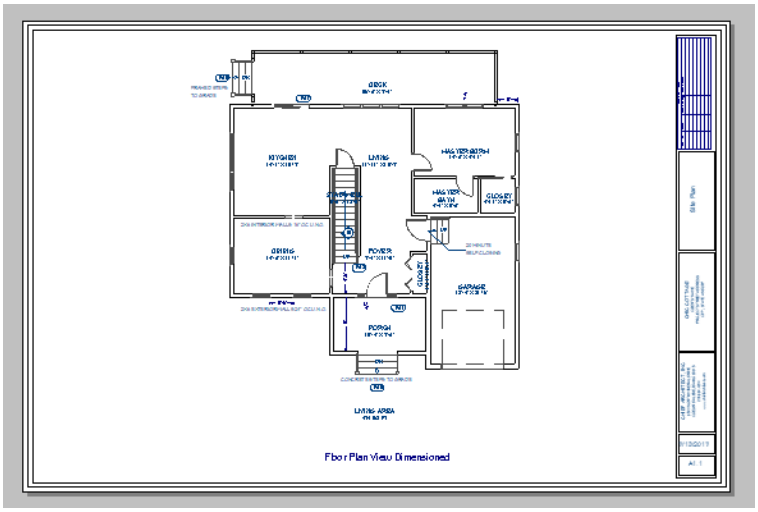
3. Select **File> Send to Layout** to open the Send to Layout dialog:



- Under Choose Layout, notice that Chic Cottage.layout, is selected as the destination layout file.
  - This is because it is saved directly under the Chic Cottage Project.
  - Click the arrow and note that the Layouts in the Layout Tutorials are also available, as is a "New Layout" option.
  - Keep Chic Cottage.layout selected and continue.

- Under Send Position, type **Page Number** 6 and confirm in the Project Browser that this page is set up for the Floor 1 Plan.
- Leave **Show Layout Page** checked so that when you click **OK**, the layout window will become active.
- Under Send Options, select **Entire Plan/View**.
- Make sure that **Link Saved Plan View** is checked. This means that once sent to layout, the view will show information as specified for the "Floor Plan View Dimensioned" saved plan view.
- Under Scaling, notice that the default scale of 1/4 in = 1 ft is used by default.

4. Click **OK** to send the view to the center of the specified layout page.

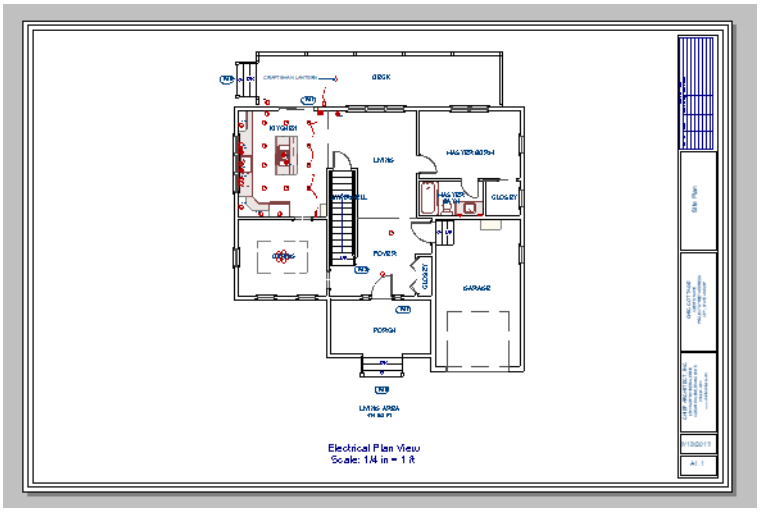


Notice that the layout box has a label underneath it that reports its name. This label can be customized. See *To customize a layout box label on page 497*, below.

To send more plan views to layout

1. Select **Window> Select Next Tab** to return to plan view.
2. Click the **Saved Plan View Control** drop-down and select "Electrical Plan View" from the list.
3. Refer to the Project Browser to confirm that Page 9's description is "Electrical Floor 1".
4. Select **File> Send to Layout** to open the Send to Layout dialog:
   - CHIC COTTAGE.layout is still selected as the destination layout file.
   - Specify **Page Number** 9 as the Send Position.
   - Confirm that **Link Saved Plan View** is checked.
   - Note that the Scaling is still set to the default of 1/4 in = 1 ft.

- Click OK to send the view to the specified page.

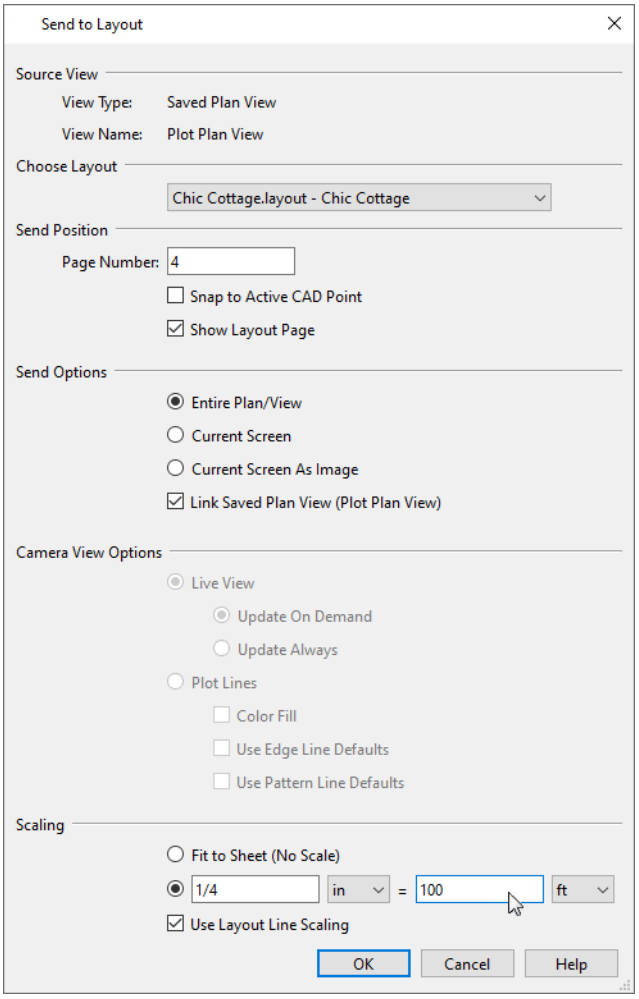


Additional plan views can be sent to layout in a similar manner. A site plan is also a type of plan view, but uses a different drawing scale than other plan views.

To send a site plan to layout

1. Click the **Saved Plan View Control** drop-down and select "Plot Plan View" from the list.
2. Select **Window> Fill Window** .

3. Select **File> Send to Layout** to open the Send to Layout dialog:



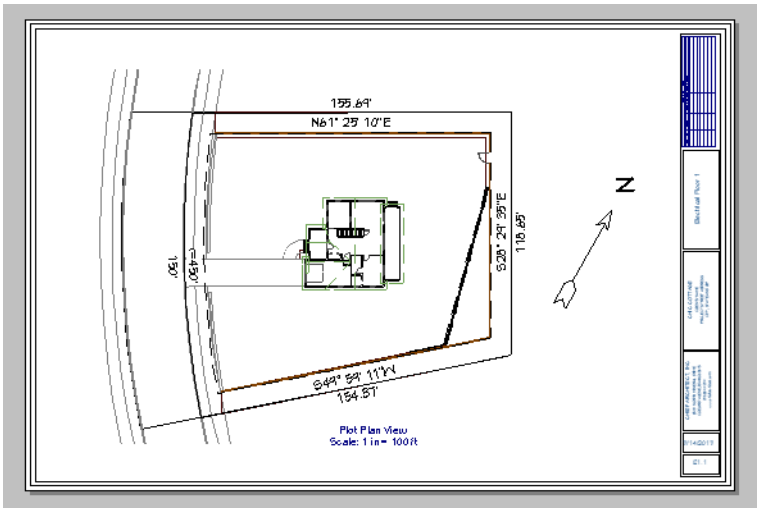
- As before, Chic Cottage.layout is selected as the destination layout file.
- Under Send Position, type **Page Number** 4 and confirm in the Project Browser that this page is set up for the Site Plan.
- Leave **Show Layout Page** checked so that when you click **OK**, the layout window will become active.
- Under Send Options, select **Entire Plan/View**.
- Confirm that **Link Saved Plan View** is checked. This means that once sent to layout, the view will show information as specified for the "Plot Plan View" saved plan view.
- Under Scaling, notice that the default scale of 1/4 in = 1 ft is used by default. Site plans are typically a lot larger than a floor plan, though, so specify 1 ft = 100 ft instead.

4. Click **OK** to send the view to the center of the specified layout page.
5. A message will warn you that the view is too large to fit on the page at the specified scale. Click OK.

It’s not uncommon to move, rotate, and/or resize a view once it is on the layout page.

To rotate, resize, and move a layout view

1. Click on the plot plan layout view on the layout page to select it, then rotate it 90° clockwise:
   - Move your mouse pointer over the large triangular Rotate handle.
   - Click and drag the handle in a clockwise direction around the outside of the layout view.
   - When the view box has a portrait orientation and the road is located on the left side of the page, release the mouse button.
2. With the view still selected, crop its extents:
   - Click and drag the small Resize handles located on each side of the view inward to make the view smaller.
   - You can use Temporary Dimensions to make fine adjustments to the view box's size.
3. With the view still selected, center the view inside the sheet border:
   - Click the **Center Object** edit button.
   - Move the mouse pointer over the top edge of the large inner border polyline surrounding the plot plan view.
   - When the inner border polyline becomes highlighted and a dashed vertical centering axis displays at the midpoint of its top edge, click once.
   - The door becomes aligned with the center of the Room Divider.
   - Repeat these steps to center the view along the left edge of the white Drawing Sheet.
4. Click and drag the small Move Label edit handle to move the view's label from the left side of the view to the bottom center.



5. When you are finished, **Save** the work you have done so far in the layout file.

You can use the Text Tools to add a legal lot description, directions to the site, and any other notes that you may need on a site plan page directly onto the Layout page.

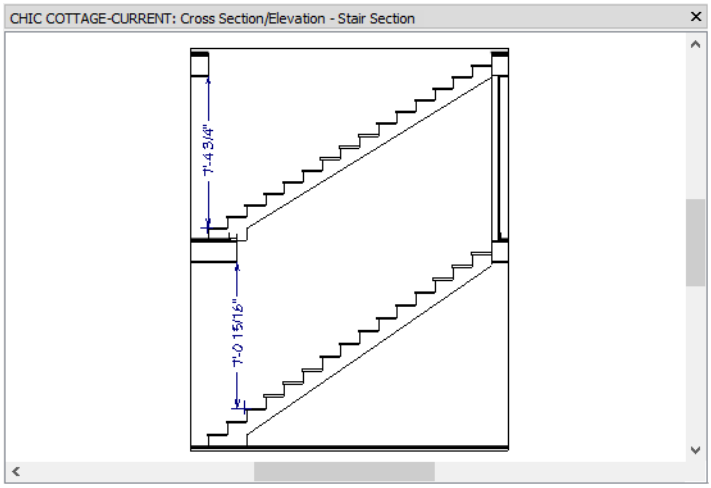
Sending Section and Elevation Views to Layout

Cross Section/Elevation, **Back Clipped Cross Section** and **Wall Elevation** views can also be sent to layout.

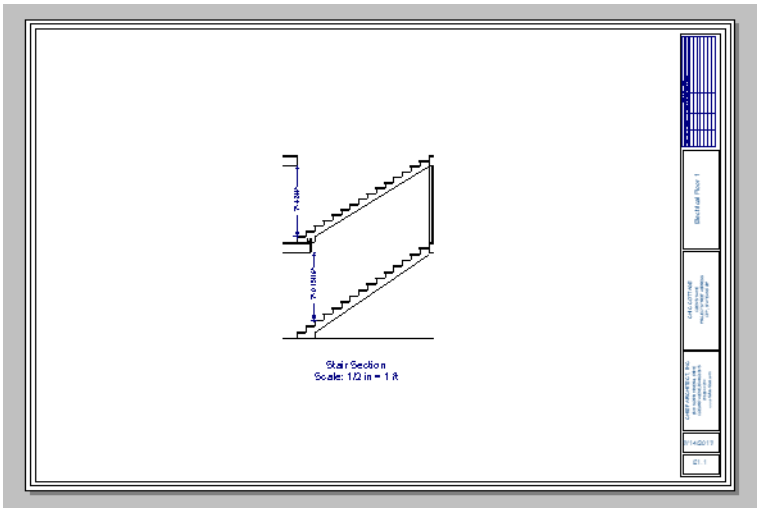
Saved cross section/elevation views are listed in the Project Browser and can be sent to layout at any time.

To send a section view to layout

1. In the **Project Browser**, under the "CHIC COTTAGE-CURRENT.plan" heading:
   - Click the arrow next to the "Cross Sections" folder to expand the list of saved cross section/elevation views.
   - Notice that the "Stair Section" created in the *Interior Stairs* tutorial is listed, as is the Wall Elevation created in the *Appliances and Fixtures* tutorial. See *"Working in Cross Section Views" on page 66 of the Interior Stairs Tutorial*.
2. Right-click on the saved "Stair Section" and select **Open View** from the contextual menu.



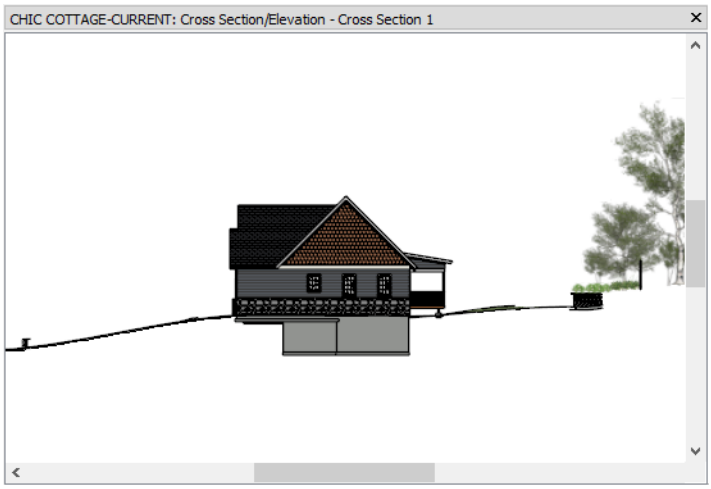
3. Select **File> Send to Layout** to open the Send to Layout dialog:
   - Confirm that CHIC COTTAGE.layout is still selected as the destination layout file.
   - Specify **Page Number** 8 as the Send Position and confirm in the Project Browser that this page is set up for Sections.
   - Change the Scaling to 1/2 in = 1 ft.
   - Click OK to send the view to the specified page.



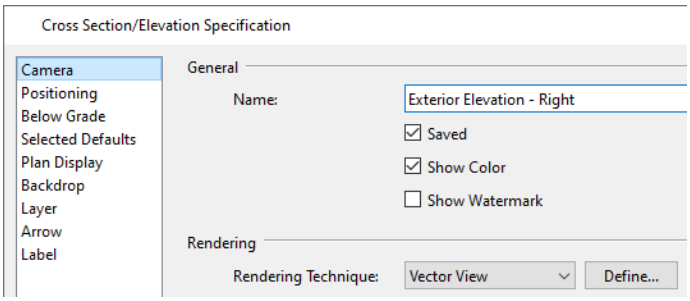
To send an elevation view to layout

1. Select **3D> Create Orthographic View> Back Clipped Cross Section**, then create an elevation view of the right side of the structure:

- Click to place the camera location in the terrain, outside the roof overhang area.
- Make sure that the camera's line of sight extends into but not past the front porch stairs.
- Make sure that the camera's line of sight is perfectly horizontal.



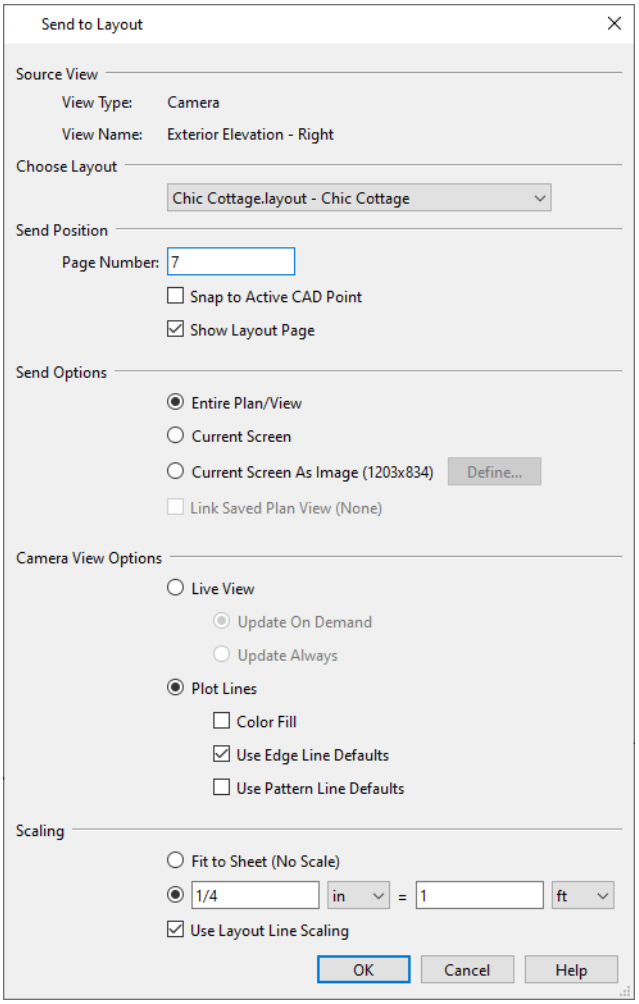
2. **Zoom** in and use the CAD and Text tools to add any annotations that the view might require, such as roof heights, pitches, material specifications, or other notes.
3. Select **3D> Edit Active View**, and in the Cross Section/Elevation Specification dialog:



- Give the view a short, descriptive **Name** such as "Exterior Elevation - Right".
- Notice that the **Saved** check box under the Name field becomes checked automatically.
- Click OK.

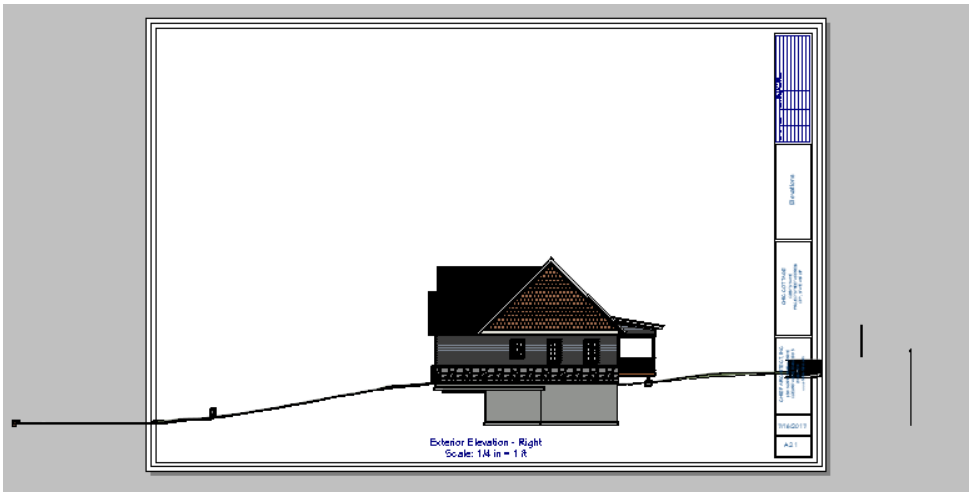
4. Now is a good time to **Save** the Plan, so your new elevation camera is saved in the file.

5. Select **File> Send to Layout** to open the Send to Layout dialog.



- Confirm that CHIC COTTAGE.layout is still selected as the destination layout file.
- Select **Page Number** 7 as the Send Position and confirm in the Project Browser that this page is set up for Elevations.
- Select the **Plot Lines** radio button and check the box beside **Color Fill**.
- Under Scaling, use the default 1/4 **in** = 1 **ft** drawing scale.
- Click OK to send the view to layout.

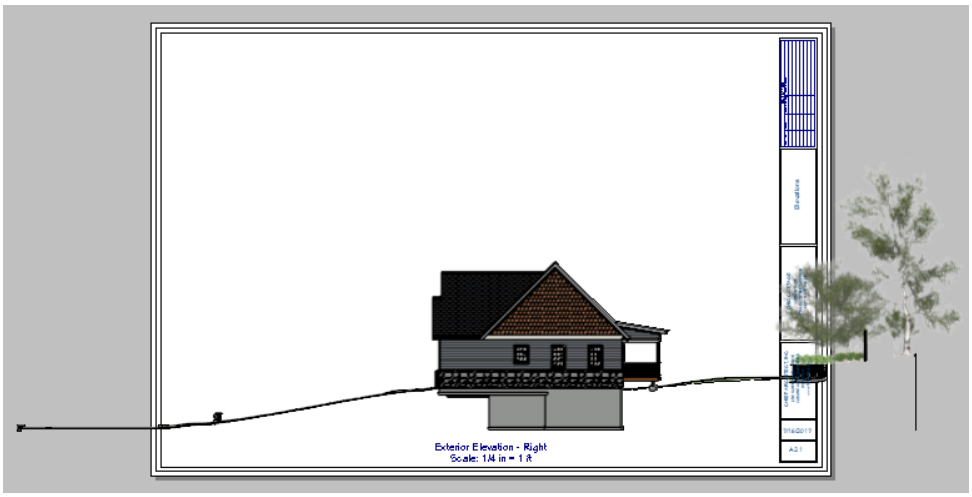
6. An Information message will inform you that the view is too large to fit on the drawing sheet. The layout box can be resized to fit the page in a moment, so click OK.



Notice that images like trees are not included in Plot Line views sent to layout.

To change a layout view's Camera View Options

1. Click on the elevation view on the layout page to select it, then click the **Open Object** edit button.
2. On the LINKED VIEW panel of the Layout Box Specification dialog:
   - Notice that information about the view that the selected box is linked to is reported and can be changed if need be.
   - Under "Camera View Options", select the **Live View** radio button and click OK.



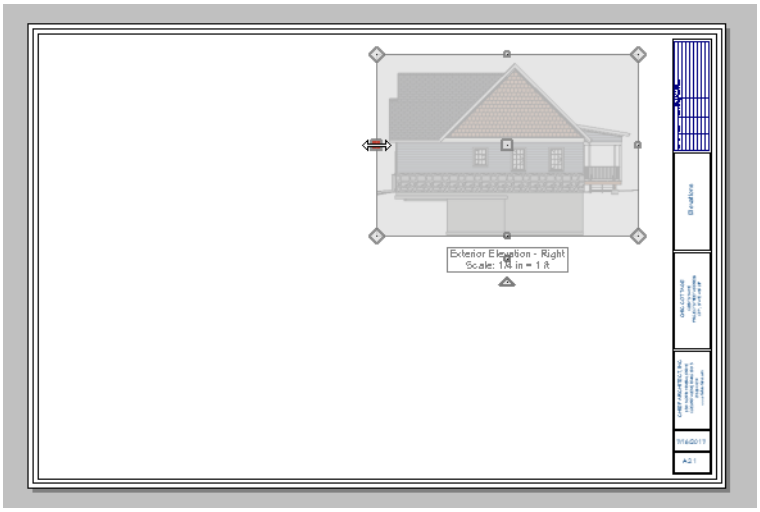
Live Views offer a number of benefits; however, they must be linked to a saved camera view. If the Exterior Elevation - Right camera were deleted, its layout view box would be empty.

All views sent to layout can be moved, cropped, and even rotated.

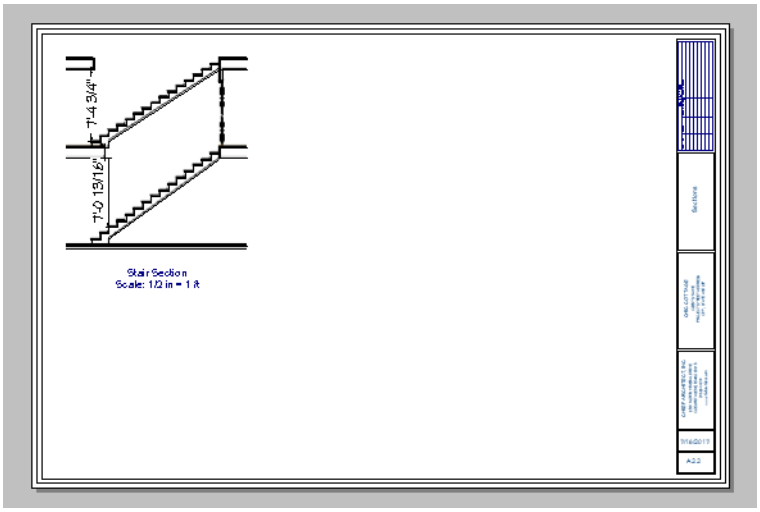
To crop and move a layout box

1. Click on the elevation view on the layout page to select it.
2. Click and drag the view box's left, right, and top edges inward so the box only displays the house and a few plan feet of the terrain on either side.

3. Click and drag the square Move edit handle at the view box's center to position it in one corner of the layout page.



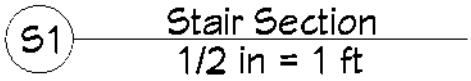
4. You can go to page 8 and move the Stair Section view, as well.



In construction documents, it is common for section and elevation views to have callout labels that include both an identifier for the view along with the page where information relevant to that view can be found in a plan view.

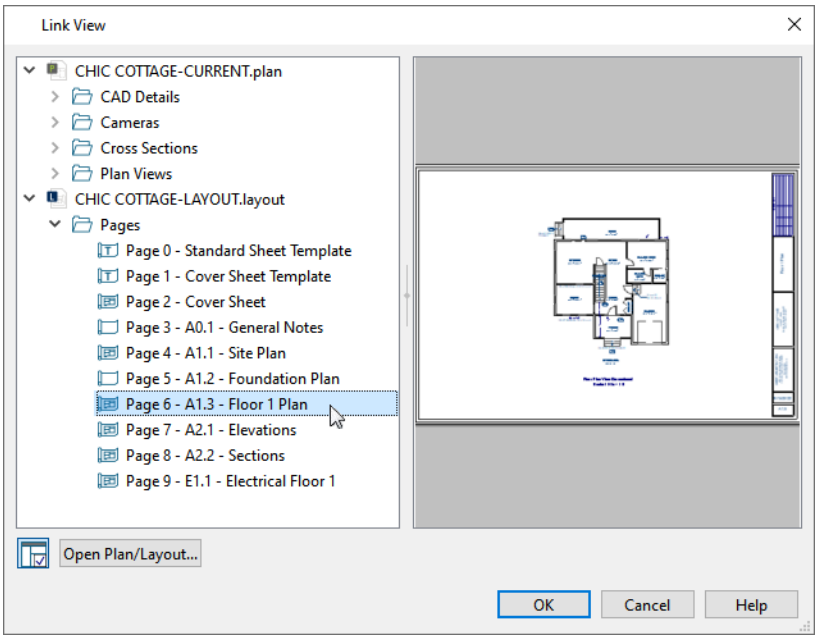
To customize a layout box label

1. Select the Stair Section view and click the **Open Object** edit button.
2. On the LABEL panel of the Layout Box Specification dialog:
   - Notice that layout box labels can use callouts, markers, or regular text.
   - Click the **Edit** button to the right of the **Use Callout** radio button.
3. The Callout Label Specification dialog provides numerous ways to customize both label information and style. On the CALLOUT panel, notice that the preview pane on the right shows a callout with cross section line and several pieces of text:

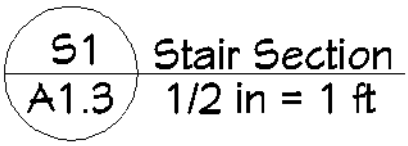


- The text inside the shape is the **Callout Label** set on the CALLOUT panel, which is using the %referenced_view_callout_label% macro. This reports the Stair Section's callout label: "S1".
- The **Text Above Line** is set on the ATTRIBUTES panel and uses the %automatic_label% macro. This reports the view's name, "Stair Section", which was set in the *Interior Stairs on page 60* tutorial.
- The **Text Below Line** is also set on the ATTRIBUTES panel and uses the %box_scale% macro. This reports the scale that was assigned to the view when it was sent to layout.

4. The callout shape can also include a second line of text below the Callout Label. Still on the CALLOUT panel:
   - Check the **Automatic** box to the right of the **Text Below Line** setting, which is currently blank.
   - Additional text will be added to the callout shape when the label is linked to a view.
5. On the LINK panel, click the **Link** button.
6. In the Link View dialog, which opens next:



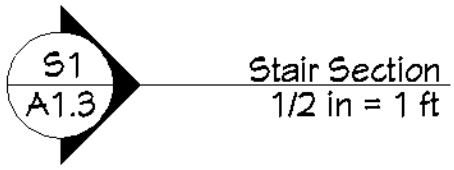
   - In the tree list on the left, under "Chic Cottage.layout", click the arrow next to "Pages".
   - Click on "Page 6 - A1.3 - Floor 1 Plan", then click OK.
7. Returning to the Callout Label Specification dialog, the preview now shows two rows of text in the callout shape. The Text Below Line is now present, and reports the Page Label of layout page that the callout is linked to.



8. On the ATTRIBUTES panel, under "Callout Arrows" heading:
   - Select the **Large** radio button.
   - Check the box beside **Filled**.

- Set the **Number of Arrows** to 1.
- The arrow's direction can be adjusted using its edit handle in a moment.

9. You may also want to:
   - Increase the **Cross Section Line Length** to better accommodate the arrow.
   - Change the **Alignment** of the **Text Above Line** to "Away From Callout".
   - When you are satisfied with the appearance of the callout, click OK.



10. Returning to the LABEL panel of the Layout Box Specification dialog, notice that the Position **Reference** is "Bottom Center". You can choose a different Reference from the drop-down list if you wish, then click OK.
11. When you are finished, **Save** the work you have done so far in the layout file.

Once a full size cross section/elevation view has been cropped and moved, there is typically room to send additional views to the same page if you wish.

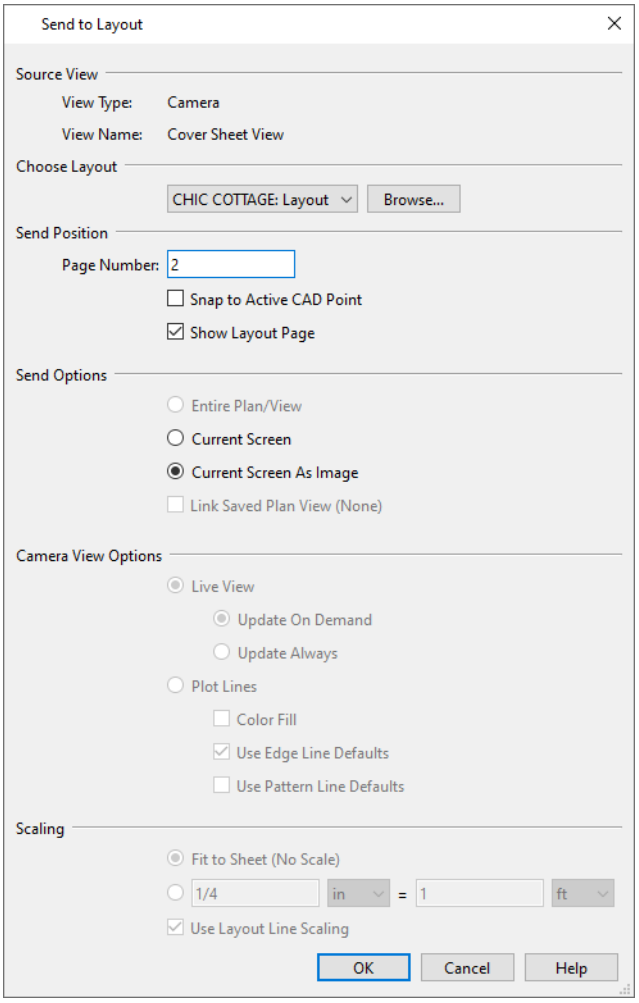
SENDING PERSPECTIVE VIEWS TO LAYOUT

Perspective views add visual appeal and clarity to your documentation. Sending a presentation view as a static image rather than a dynamic view allows you to easily control its size.

To send a perspective view to layout

1. Return to plan view.
2. Select **3D> Create Perspective View> Full Camera** and create a 3D view.
3. Orbit the camera to an angle that you like, then select **3D> Edit Active View**.
4. On the CAMERA panel of the Perspective Full Camera Specification dialog, type a short, descriptive **Name** for the camera, such as "Cover Sheet View" and click OK.

5. Select **File> Send to Layout** to open the Send to Layout dialog.



- Confirm that CHIC COTTAGE.layout is still selected as the destination layout file.
- Specify **Page Number** 2 as the Send Position and confirm in the Project Browser that this page is set up for the Cover Sheet.
- Under Send Options, select the **Current Screen as Image** radio button.
- Notice that nearly all of the options available for the previous views sent to layout are now unavailable.
- Click OK to send the view to the specified page.

6. Click the **Select Objects** button, then click on the view sent to page 2 to select it.
   - Notice that in the Status Bar, it is described as a Picture File Box rather than a Layout Box.

7. Use the box's edit handles to resize and crop the image as needed:



   - Click and drag a corner Resize handle to change the size of the picture box while maintaining its aspect ratio.
   - Click and drag a side Reshape handle to crop the extents of the picture within the box.
8. When you are finished, **Save** the layout file.

Repeat this process for any other camera views you may want to send to layout. Or, try using a different Rendering Technique such as Technical Illustration or Hand Drawn Lines.

Printing Layout Files

Layout files can be printed on a local printer or plotter, or to a PDF file. A PDF, or Portable Document Format file saves all of the printable information associated with a document such as a layout and makes it available for both viewing and printing without using the software originally used to create it. PDFs are easy to create and provide you with an efficient way to share your work with others or send documents to a print service.

Chief Architect has a built-in PDF writer, which you can select as your printer in any of the program's Print dialogs. Alternatively, you can print to PDF using a PDF writer installed on your computer.

To print to PDF

1. Select **File> Print> Print** .
2. In the Print Layout dialog:
   - Select "Chief Architect Save as PDF" from the **Destination Name** drop-down list.
   - Make sure that the **Paper Size** is ARCH D (24" x 36").
   - Confirm that all the other settings in the dialog meet your needs.
   - Click the **Save as PDF** button.
3. In the Choose PDF File Name dialog:
   - Specify a short, descriptive File name such as CHIC COTTAGE FINAL.
   - Navigate to your Documents directory and open the Chic Cottage folder to make it the save location, then click the **Save** button.

Creating File Revisions

Saving revisions of your files allows you to develop different ideas for a project as well as create a history of your work that you can refer back to when needed. Generally speaking, there are few reasons to create revisions of a layout file. It's not

common for your page organization to require radical changes. And, because most views sent to layout update automatically, they are a reflection of the current state of the working drawing.

If, however, you create more than one final version of a plan, multiple versions of the layout may be required as well. For example, if you were to create construction drawings for Chic Cottage with dormers as well as without, you might need two layouts: CHIC COTTAGE and CHIC COTTAGE DORMERS.

REVIEW

This lesson describes the best practices for sending views to layout.

To set the default Drawing Scale for plan views *487*

To send plan views to layout *487*

To send more plan views to layout *489*

To send a site plan to layout *490*

To rotate, resize, and move a layout view *492*

To send a section view to layout *493*

To send an elevation view to layout *493*

To change a layout view's Camera View Options *496*

To crop and move a layout box *496*

To customize a layout box label *497*

To send a perspective view to layout *499*

To print to PDF *501*

Assessment Questions

Tutorial 28 - Sending Views to Layout

Where do you set the default drawing scale for all views sent to layout from a given plan file?

- Views sent to layout may use different scales. To save time, make sure that the Drawing Scale that you expect to use most frequently is set as the default in the plan. This is done in the plan file's Drawing Sheet Setup dialog.

How is the information in the Project Browser helpful when sending views to layout?

- As you send views to layout, you can refer to the list of layout pages to determine which page to send each view to. The page number can then be specified in the Send to Layout dialog.

What is one difference between Live Views and Plot Line views sent to layout?

- Images are included in Live Views sent to layout, but not Plot Line views.
- Live Views, however, must be linked to a saved camera view whereas Plot Line views do not. If a Live View's originating view is deleted, its layout view box would be empty.

What kind of view sent to layout can be resized using its corner edit handles?

- The Current Screen as Image option in the Send to Layout dialog produces a static picture box rather than a view linked to the model. Picture boxes can be resized and their contents will get larger or smaller.

- When a layout box is resized, on the other hand, its contents are cropped.

Where can you specify the template file used when a new layout is created?

- You can specify the default layout template file used when a new layout is created on the New Plans panel of the Preferences dialog.

Assessment Questions Answer Key

Floor Plan Tutorials

Tutorial 1 - Exterior Walls

Why is it good practice to create file revisions?

- Saving revisions of your files allows you to develop different ideas for a project as well as create a history of your work that you can refer back to when needed.

What are default settings and why are they important?

- The initial attributes of most objects can be specified prior to actually drawing them using Default Settings.
- Setting defaults early can improve efficiency and also helps to avoid introducing errors into the drawing.

Name a setting that is associated with a Saved Plan View.

- The floor level, Default Set (Layer Set and Saved Defaults), and Reference Floor are all part of a Saved Plan View.

What important defaults should you set up before drawing exterior walls?

- Before drawing the exterior walls of a plan, set the defaults for the Exterior Wall and other Wall Tools.
- The Floor/Ceiling Platform Defaults, structural Floor 1 Defaults, and Auto Exterior Dimension Defaults should be set in advance, as well.

Why are structural defaults considered critical?

- Structural defaults are considered critical because they affect the overall height of the structure.

What is room definition and why is it important?

- When walls completely enclose an area, room definition is established. Floor and ceiling platforms are automatically created within it and a Living Area label that states the enclosed area’s size is created.

What are two different ways to move walls?

- Walls can be moved using dimension lines: Select a wall, click on a dimension line that reports its distance from another wall, then type in the desired distance and press the Enter key.
- A selected wall can be also moved by clicking and dragging its Move edit handle.

When creating a new Wall Type, why might you specify a unique color for the Main Layer?

- Giving a Wall Type’s Main Layer a distinct color helps distinguish your new custom Wall Type from other walls.

What can you see in a cross section view that camera views do not show?

- In a cross section view, you can see structural information like floor platform depth and wall thickness.

How do you change the appearance of some of the characters in a Rich Text object?

- Highlight the characters that you want to customize so they are selected, then make the desired changes.

What is one way to prevent a word or abbreviation from being flagged as misspelled?

- Add the word or abbreviation to the program’s dictionary.

Tutorial 2 - Interior Walls

What are some reasons that is it helpful to specify Room Types?

- Rooms in Chief Architect are given special attributes when they are assigned a Room Type. For example, porches use a concrete floor material and have a ceiling and roof, while decks use floor planking and have no ceiling or roof.

What are two differences between the "Kitchen" and "Garage" Room Types?

- Kitchens have floor finish layers and framed floor platform by default, while Garages have a slab floor with no finish.

Where can you change the information that displays at the bottom of room labels?

- You can change the room size information that displays in a room label in the Layer Display Options dialog. The "Interior Area", "Interior Dimensions", and "Standard Area" layers control what information displays underneath the room name.

How are Room Dividers useful?

- The Room Divider tool can be used to define rooms without creating an actual, physical wall.
- Once separated, the rooms can be assigned separate traits like different ceiling heights or flooring materials.

What is the thickness of a Room Divider?

- By default, Room Dividers have a thickness of 0".

How do Auto Exterior Dimensions and Interior Dimensions locate walls differently?

- The Interior Dimension tool always locates exterior walls on their interior sides, while Auto Exterior Dimensions and other dimension tools locate exterior walls on their exterior sides.

What are two ways to delete dimension lines?

- Dimension lines can be deleted individually using the Delete edit button or key on the keyboard.
- They can also be deleted in groups using the Delete Objects dialog

What type of snapping helps you align two walls so they are collinear?

- Object Snaps, and particularly Intersection Snaps can be used to make walls collinear.

What edit tool allows you to adjust how wall layers meet at an intersection?

- The Edit Wall Layer Intersection edit tool presents an edit handle for each wall layer, letting you adjust how each one builds into an intersection with another wall.

Tutorial 3 - Multiple Floors

When building a new floor, why is it beneficial to derive the new floor plan from an existing floor?

- This option produces a second floor shell using the same Wall Types as the exterior walls on the top living floor of the plan. It is usually faster to automatically generate the perimeter walls and then edit them as needed than it is to draw them manually.

What are two ways to switch from one floor to another?

- You can click the Up One Floor and Down One Floor buttons, or the Change Floor/Reference button.
- Floors can also be navigated in the Project Browser side window.

What is the name of the tool that lets you view the location of objects on another floor without going to that floor?

- The Reference Floor Display toggle is found in the Tools> Reference Floors submenu and on the toolbar. The keyboard hotkey is F9.

What are two ways to align walls between floors?

- The Align With Wall Above and Align With Wall Below edit tools will align a selected wall that is slightly out of alignment.
- You can also copy a wall and paste a duplicate at the same location on a different floor using the Paste Hold Position command.

How can you tell which floor level is shown in the current plan view?

- The floor level in the current view is reported in the Change Floor/Reference button, which is located between the Up One Floor and Down One Floor buttons on the toolbar.

What two attributes of a "Garage" Room Type are created when the foundation is generated?

- When a stem wall foundation is generated, stem walls and a curb are created around the Garage slab.
- On Floor 0, "S" Markers indicate where the stem wall top height changes.
- In addition, the Garage room on Floor 1 inherits its concrete floor and curbs from the room below it on Floor 0.

What does an "S" marker along a foundation wall mean?

- "S" Markers indicate where changes to stem wall top heights occur: for example, where basement walls meet garage curbs.

What type of view is recommended for creating schedules?

- CAD Detail views are a great place to organize 2D-only information like schedules.

What are three ways that text style settings can be assigned to an object like a schedule?

- Text style settings can be applied to an object by layer, by assigning a Text Style to the object, or by specifying custom style settings.

How do you adjust the width of a schedule column?

- Click and drag a small diamond shaped Resize Columns edit handle located in the Title row of the schedule, above each vertical column divider line.

Tutorial 4 - Interior Stairs

If you draw interior stairs on Floor 1, what floor level do those stairs try to snap to?

- Stairs are drawn in an upward direction, from the current floor to the floor above, and locate floor platforms automatically. So stairs drawn on Floor 1 build upward, seeking Floor 2.

What Room Type is a Stairwell?

- A stairwell is an interior room that has been assigned the Room Type “Open Below” so that it has no floor platform. The Stairwell for a given staircase is always found on the floor above the stairs.

What tool can you use to create a Stairwell automatically?

- Select the staircase that requires a Stairwell and click the Auto Stairwell edit button.

In what kind of view can you check the headroom of a staircase?

- Structural considerations like headroom clearance can be measured in a Backclipped Cross Section view or regular Cross Section/Elevation view.

What edit tools are used to create a stacked staircase?

- Copy an existing staircase, go Down One Floor or Up One Floor, and use Paste Hold Position to make a copy of the original exactly below or above the original.

Why is it sometimes helpful to turn off layers as you work?

- In spaces where objects are drawn close together or over the top of one another, it is helpful to turn the display of some objects off. You can do this by turning off those objects' layers.

What annotation tools can be used to create a floor plan note list?

- Notes and Note Schedules can be used to create a dynamic list of plan notes.

What are two ways to access and managed the CAD Details saved in a plan?

- The Project Browser side window and CAD Detail Management dialog both provide access and management options for CAD Details.

Tutorial 5 - Doors and Windows

What are the different ways to specify or change the hinge side of a door? The swing side?

- You can change the hinge and swing side of a door as it is being placed by moving the mouse while holding the mouse button.
- Once a door is created, hinge and swing side can be modified using the edit handles as well as the Change Opening/Hinge Side and Change Swing Side edit tools.

What are three examples of door and window attributes that are found in the Library?

- Hardware, door style, and materials can all be selected in the Library.

What are the different ways to change the width of a door or window?

- Door and window width can be changed using the edit handles and in the object's specification dialog.

What tool can be used to create multiple windows at once?

- The Transform/Replicate Object edit tool lets you replicate objects like windows at regular intervals.

What edit tools are useful for creating identical windows on either side of a door or window?

- The Copy/Paste and Reflect About Object edit tools allow you to create identical windows on either side of a door.

Where do you specify how Auto Exterior Dimensions locate doors and windows?

- You can specify how Auto Exterior Dimensions locate doors, windows, and interior walls in the Auto Exterior Dimension Defaults dialog.

Where do you control the appearance of callout labels?

- You can specify whether objects like windows and doors use schedule callout labels, as well as their appearance, on the Labels panel of the Schedule Specification dialog.

What is an example of an object attribute that can be reported in both a schedule and a text object with an arrow attached to that object?

- The Comments that can be specified on the Object Information panel of many specification dialogs can be listed in the Comments column of a schedule as well as inserted into a text object using the %comment% Referenced Object macro.

What tool lets you create a Rich Text object attached to a text line with arrow?

- The Leader Line tool lets you create a Rich Text object along with a segmented line with arrow.

What button can you click in the Rich Text Specification dialog to insert dynamic information about an object into the text?

- The Insert Macro button lets you insert dynamic text macros into text objects.

Tutorial 6 - Decks and Porches

What are two ways that Deck Railing walls are different from other types of railings?

- Deck Railings use a single layer Wall Type so there is no siding material on the sides of deck platforms.
- When a room is enclosed by Deck Railings, it is assigned the "Deck" room type automatically.

What are two structural differences between Deck and Porch rooms?

- Deck rooms have a framed floor platform and no roof or ceiling, while Porches have a slab floor, a ceiling, and a roof.

What are the names of the two dimension line edit handles that let you add extension lines to new objects?

- The Add Extension Line edit handle is diamond-shaped and displays near the Move handle. It can be used to add an extension anywhere along the length of the dimension line.
- There is a circular Add Segments edit handle just beyond each end of a dimension line that lets you lengthen the dimension line.

How do you remove an extension line from a dimension line?

- Click the diamond-shaped Extension Line End handle, drag it away from the marked object and any other objects it might locate instead, and release the mouse button.

How do you specify whether a room is included in the total Living Area?

- You can specify whether a selected room is included in the Living Area calculation on the General panel of its Room Specification dialog.
- You can also set whether each Room Type is included or not in the Room Type Defaults dialog.

Where can the deck plank gap and width be set?

- Deck plank gap and width can be set on the Deck panel of the Deck Room Defaults dialog.
- These settings can be modified for a selected Deck room on same panel of the Room Specification dialog.

What tool is used to create deck and porch stairs?

- The Straight Stairs tool can be used to create deck and porch stairs. Stairs can be customized to create a variety of different styles.

What are two ways to change the numbering of Notes and the associated line items in a key note list?

- One way is to select a line item in a key note list or other schedule and click and drag its small square Move Row edit handle upward or downward.
- The other way is to select the Note or other object in the drawing itself and click the Move Up in Schedule or Move Down in Schedule edit button.

ROOF TUTORIALS

Tutorial 7 - Basic Roof Styles

What kind of roof does the program automatically generate by default?

- When roofs are automatically generated, a roof plane is built over every exterior wall in the plan that does not have another wall drawn above it. The result is referred to as a hip roof.

Where is the Auto Rebuild Roofs check box located?

- Auto Rebuild roofs is located on the Roof panel of the Build Roof dialog.

Where can you specify that an automatic roof plane be assigned a non-default pitch?

- Non-default roof directives are set on the Roof panel of the Wall Specification dialog.

What roof directive do the two side walls of a shed roof require?

- The two sides of a shed roof should have Full Gable Wall checked on the Roof panel of the Wall Specification dialog.

What settings are modified to produce an automatic gull wing roof?

- To create a gull wing roof, the end walls are specified as Full Gable Walls. The bearing walls have an Upper Pitch and its Start Height specified.

What edit tool allows you to divide a wall into two separate segments?

- The Add Break edit tool allows you to divide a wall into two separate walls.

Tutorial 8 - Chic Cottage Roof

Name one or more reasons why switching to the Roof Plan View is helpful for working on roofs?

- Information that is not relevant to roofs, such as room labels and general text, is not visible or in the way.
- Walls are unfilled and wall lines are lighter in color, making roof planes stand out more clearly.
- Text is placed on the "Text, Roofs" layer in this view.

What edit tool is used to set the roof directives for the side walls of a shed roof?

- The Change to Gable Wall(s) edit button lets you specify a selected wall as a Full Gable Wall, which is the setting the two sides of a shed roof should have.

What edit tool allows you to add a new corner to a roof plane?

- The Add Break edit tool lets you add new corners to roof planes and other CAD-based object.

What edit tool allows you to join two roof planes along a valley, hip, or ridge?

- The Join Roof Planes edit tool lets you join two roof planes so that they meet along a geometrically correct valley, hip, or ridge line.

By default, what determines the initial height of a roof over a structure?

- By default, roof height is based on the ceiling heights of the rooms below.

In what dialog are automatic roof returns specified?

- Automatic roof returns are specified on the Roof panel of the Wall Specification dialog. They are only created when the wall is specified as a Full Gable Wall.

What layer are dimensions created on in the Roof Plan View?

- In the Roof Plan View, dimensions are placed on the "Dimensions, Roof" layer.

How do you specify a non-default number format for a dimension line?

- On the Primary Format panel of the Dimension Line Specification dialog, uncheck "Use Default Formatting" and then specify the Unit and other formatting options.

Tutorial 9 - Dormers

What is the difference between an Auto Floating Dormer and an Auto Dormer?

- An Auto Floating Dormer is a non-structural dormer that rests on top of the roof, while an Auto Dormer's walls build down to the floor platform of the room below.

What setting should be applied to an interior wall that separates a living area from an Attic room?

- A wall separating an Attic room from another room type should be specified as a Knee Wall on the Roof panel of the Wall Specification dialog.

In what dialogs can you set the defaults for manually drawn roof planes?

- The defaults for manually drawn roofs, as well as automatically generated roofs, are set in the Roof Defaults dialog.
- Roof defaults can also be set in the Build Roof dialog, which is nearly identical to the Roof Defaults dialog.

What drawing tool can be used to create a hole in a roof plane?

- The Roof Hole tool can be used to draw a hole within the area of a single roof plane.

What edit tool can be used to make the roof planes over a dormer meet the edges of a roof hole?

- The Join Roof Planes tool can be used to join roof plane edges with the edges of a roof hole just as it can with the edges of another roof plane.

What option in the Rich Text Defaults dialog helps you set the size of text when it is printed?

- The Print Size button on the Rich Text panel of the Rich Text Defaults lets you specify text size based on the desired size when printed at a specific scale.

What two edit tools can be used to create copies of annotations on both sides of a feature in a plan?

- The Copy/Paste and Reflect About Object edit tools can be used to create identical copies of annotations on both sides of an object center or object edge.

Interior Design Tutorials

Tutorial 10 - Custom Ceilings

In what dialog should a lowered ceiling be defined?

- A lowered ceiling can be specified in the Ceiling Finish Definition dialog.

How does a lowered ceiling affect the structure of a room?

- You can define a lowered or dropped ceiling without affecting the top heights of the walls by modifying the Ceiling Finish Definition.

What supplies the surface of a cathedral ceiling?

- A cathedral ceiling is created using the underside of the roof above the room.

Name two tools that can be used to create a tray or coffered ceiling.

- A standard tray or coffered ceiling can be easily created using the Tray Ceiling Polyline tool in many cases.
- In situations where this tool cannot be used, Soffits can be placed around the perimeter of a room.

What two edit tools can be used to create identical objects on either side of a room?

- The Copy/Paste and Reflect About Object edit tools can be used to create identical objects on either side of a room.

Tutorial 11 - Finish Materials

What Material Painter mode is best for applying a paint color to all interior walls in a plan?

- The Material Painter Plan Mode will replace all instances of a particular material with a new material. In a plan where no walls have been previously painted, all or nearly all wall drywall surfaces will be replaced.

What are two ways to assign a paint color to all the walls of a particular room?

- A custom color can be assigned to a specific room in the Room Specification dialog or using the Material Painter's Room Mode.

What tool lets you apply multiple attributes from one object to another similar object?

- The Object Eyedropper tool allows you to select attributes belonging to one object and then apply them to another, similar object.

How is a Wall Material Region different from a Wall Covering?

- Wall Coverings can be used in addition to a wall’s surface material to create accents like wallpaper border or wainscoting.
- Unlike a Wall Covering, Wall Material Regions do more than just apply a material to the surface of a wall: they actually replace the wall surface layer with a different material. They also have depth and can extend out past the surface of a wall.

What is the name of the dialog where the default floor finish for all rooms can be set?

- The default floor finish can be set in the Floor/Ceiling Platform Defaults dialog click the Floor Finish Edit button to open the Floor Finish Definition dialog.

How can you tell if a room is set to use the default floor finish material?

- On the Structure panel of the Room Specification dialog, the Default check box to the right of the Floor Finish Edit button will be checked if it is set to use the default floor finish for its Room Type.

Tutorial 12 - Room Moldings

In what dialog can you specify the default room moldings for a plan?

- The default base, crown and chair rail moldings can be specified by floor in Floor Defaults dialogs.

How do you select the Exterior Room in plan view?

- In plan view, click just outside of an exterior wall using the Select Objects tool. If the wall or another object becomes selected, click the Select Next Object edit button until the left side of the Status Bar reports that the Exterior Room is selected and a band around the entire outside of the structure becomes highlighted.

What type of object can be used to create a horizontal band around a building's exterior?

- A Molding Polyline around the exterior of the structure can be used to create a horizontal band. An easy way to create it is using the Create Room Molding Polyline edit tool.

What type of snapping behavior allows you to align an object as it is drawn with another nearby object that already exists?

- Extension Snaps allow you to align an object with a snap point on another object.

What Schedule tool allows you to create a schedule of interior moldings?

- The Room Schedule tool creates schedules that are set to list a variety of room attributes such as moldings.

Tutorial 13 - Interior Furnishings

How do the Material Defaults affect furnishing objects placed from the Library Browser?

- Some furnishing objects in the library have been assigned particular materials to complement the object's design and initially use those materials regardless of the overall style of the plans they are placed into. Some furnishings, however, inherit the default materials furniture and upholstery that can set differently for each plan in the Material Defaults dialog.

What are two ways to find an object in the Library Browser?

- To get an idea of what options are available, you can browse the contents of the Library.
- When you know what you want to find in the Library, you can save time by searching.

What edit tool lets you substitute all instances of an object with a different object from the library?

- You can replace a library object in your plan with a different item from the Library using the Replace From Library edit tool. This can be particularly helpful if you have multiple copies of the same object and would like to replace them all at once.

What key on the keyboard lets you move an object through another object, overriding movement restrictions

- The Ctrl key allows you to override movement restrictions when moving or resizing objects.

What is an Architectural Block?

- Architectural Blocks are groups of objects like furniture and accessories that are blocked together so they can be placed, moved, rotated and even deleted as though they were a single object.

What feature in the program can you use to customize how information like object sizes is reported?

- The NumberFormatter Ruby class allows you to specify the unit of measurement used in a macro.

What feature allows you to create a custom schedule column?

- The Custom Object Fields tool allows you to create object attributes that can be listed in custom schedule columns.

What two things must you do to include an Architectural Block in a schedule?

- To include an Architectural Block in a schedule, it must have Treat as One Object and Include in Schedule checked in the Architectural Block Specification dialog.

What edit tool lets you locate a particular object listed in a schedule?

- The Find Object in Plan edit tool locates the object associated with a selected line item in a schedule.

What setting lets you remove an object from a schedule?

- The Include in Schedule check box found in a variety of different objects' specification dialogs, on the Schedule panel.

KITCHEN AND BATH TUTORIALS

Tutorial 14 - Cabinet Styles

What are two ways that cabinet doors and drawers can be assigned to a cabinet?

- Cabinet doors and drawers can be assigned on the Door/Drawer panel of the Base Cabinet Specification dialog.
- They can also be assigned directly from the Library: select a door or drawer and then click on a cabinet in the drawing area.

What type of object is used to add counter edge profiles and light rails to cabinets?

- Counter edge profiles and light rails can be added to cabinets using moldings assigned on the Moldings panel of the Cabinet Specification dialog.

What option in the Cabinet Specification dialog lets you create a set of drawers next to a door?

- On the Front/Sides/Back panel, click the Split Vertical button to divide a face item into two identical items, side by side.

What does the Set as Default edit tool do?

- The Set as Default edit tool lets you apply the settings in a selected object's specification dialog to the defaults for that type of object.

What tool lets you assign certain properties of one object to another object in the plan?

- The Match Properties edit tool lets you apply specific attributes assigned to one object to another object.

What defaults can you use to help ensure that all cabinets use the same materials?

- Assigning Material Defaults to objects like cabinets helps ensure that they use the same materials in the current plan.

Tutorial 15 - Cabinet Layout

What edit tool can be used to align a cabinet with another object, such as a window?

- Use the Center Object edit tool to center objects like cabinets relative to windows, other cabinets, or other objects.

What two edit tools can be used to create identical cabinets on either side of cabinet?

- The Reflect About Object edit tool lets you move a cabinet to the other side of another cabinet; use with the Copy/Paste edit tool to create identical cabinets on either side.

How do you remove the dashed lines between cabinet boxes in plan view?

- Turn off the display of the "Cabinets, Module Lines" layer in the current plan view.

What tool allows you to create a counter that is independent of any base cabinet?

- The Generate Custom Countertop edit tool creates an independent custom countertop over a selected cabinet.

What tool can be used to create an island that can be selected and edited like a single object?

- The Make Architectural Block edit tool groups a set of selected object into an architectural block which can be moved, rotated, or deleted as a single object.

What is the primary purpose of the Soffit tool?

- The Soffit tool is meant to be used to fill in the space between wall or full height cabinets and the ceiling.

Tutorial 16 - Appliances and Fixtures

What are the two broad categories of appliance fixtures that describe how they are placed?

- Freestanding appliances can be placed as independent objects.
- Built-in cabinets are designed to be inserted into cabinets, either in the front or in the countertop.

How can a cabinet drawer be removed?

- On the Front/Sides/Back panel of the Base Cabinet Specification dialog, click on the drawer in the preview pane, then click the Delete button.

What tool can be used to position one object relative to a point on another object?

- The Point to Point Move edit tool lets you move an object by clicking on a point on that object, then clicking on a different point somewhere else, including on another object.

What setting lets you flip features like opening handles from one side of a fixture to the other?

- On the General panel of the Fixture Specification dialog, check or uncheck the box beside Reverse Symbol.

What camera tool creates an elevation view of a single room?

- The Wall Elevation tool creates an elevation view of one wall in the room that the camera is created in.

What tool allows you to create dimensions around the sides of an elevation view?

- The Auto Elevation Dimensions tool creates dimensions above, below, and on both sides of the model in a cross section or elevation view.

What are two ways to remove an extension from a dimension line?

- Both methods use the Move Extension Line edit handle: click and drag this handle to move an extension line to the location of another extension line, or click and drag it away from the dimension line entirely.

Where do object labels get their appearance from?

- Object labels get their appearance from the Text Style that is assigned to their layer. Appliance labels, for example, get their Text Style from the "Fixtures, Labels" layer by default.

What are two ways to move or rotate an object label?

- Object labels have their own Move and Rotate edit handles.
- You can also specify a label’s position and orientation in its object’s specification dialog, on the Label pane.

Tutorial 17 - Light Fixtures

How does the Light tool behave differently depending on where you click?

- The Light tool will place a different fixture, depending on where you click: when you click on a wall, an interior or exterior sconce will be placed; when you click in the middle of a room, a ceiling mounted fixture will be placed; if you click outside of a structure, a path light will be created.

What are two ways you can get a dimension line to locate a light fixture?

- Dimension lines can be drawn directly from a light fixture to another object.
- A dimension line can also be drawn between two objects, and then an extension line can be added to the dimension line, locating the light fixture as well.

What are two edit tools that can be used to create an evenly spaced set of ceiling lights?

- The Transform/Replicate Object and Multiple Copy edit tools can both be used to create evenly spaced sets of ceiling lights.

What edit tool lets you efficiently create an array or grid of ceiling lights?

- The Multiple Copy tool lets you create an array of objects like ceiling lights.

What edit tool lets you create a schedule of objects located in a specific room?

- The Create Schedule from Room edit tool lets you create a schedule of objects that are located in the currently selected room.

Tutorial 18 - Electrical Objects

How does the Outlet tool behave differently depending on where you click?

- The Outlet tool will place a different outlet type, depending on where you click:
  - Click on a wall in an interior room to place a standard 110V outlet.
  - Click on a wall in an exterior room or on the building’s exterior to place a weatherproof outlet.
  - Click in the middle of a room to place a floor mounted outlet.

What settings allow you to recess a wall-mounted outlet into the surface of its owner wall?

- The Cuts Floor/Ceiling/Wall setting on the Options panel of the Electrical Service Specification dialog along with the Cut Depth and Insert Dept settings allow you to inset an outlet into a wall.

How do you create multi-gang Switches?

- Multiple single switches positioned side-by-side on a wall can be grouped into ganged electrical blocks using the Make Ganged Electrical Block edit tool. Multi-gang outlet can also be created using this tool.

What tool can be used to connect Switches to Lights and Outlets?

- The Connect Electrical tool can be used to draw splines connecting switches to lights and outlet.

Where can you specify whether an outlet is floor or ceiling mounted?

- Where an outlet mounts is specified on the Options panel of its Electrical Service Specification dialog.

Why is it recommended that you not regenerate a wall outlet's 2D Block?

- Outlets and other electrical objects are represented in plan view using standard 2D symbols. If an outlet's CAD Block is regenerated, the result will be based on a top-down view of its wall plate, which is not normally used in plan views.

FRAMING TUTORIALS

Tutorial 19 - Floor Framing

What does a Framing Reference Marker do?

- A Framing Reference Marker specifies the point where framing layout is measured from. Before generating framing, it is a good idea to place a Framing Reference Marker.

When working on framing, what is helpful about switching to the Framing, Floor Plan View?

- The Framing Layer Set becomes active, so unnecessary objects like wall layers and cabinets no longer display.
- Most of the Active Defaults' names begin with the word "Framing", which means that they are set up for use specifically in framing plans and will create objects on layers that only display when the Framing Layer Set is active.

How does the presence of soffits against the ceiling affect lowered ceiling framing?

- The ceiling finish layers, including lowered ceiling framing, do not generate anywhere a soffit touches the ceiling surface.

What determines the direction of automatically generated joists?

- By default, floor and ceiling joists will generate in whatever direction results in the shortest spans. The Joist Direction Line tool can be used to specify joist direction regardless of span. Interior bearing walls and bearing beams can change the direction of shortest span.

What effect does an interior bearing wall have on the floor framing in Chic Cottage?

- The interior bearing wall on Floor 0 causes the floor joists to change direction and bear on that wall instead of the horizontal exterior walls. Lowered ceiling framing is not affected.

What is the difference between the two floor beams drawn in Chic Cottage?

- One beam is drawn at the same height as the floor joists and one is drawn lower, so the joists bear directly on top of it.

What edit tool can be used to adjust the lengths of multiple joists?

- The Trim Objects edit tool allows you to trim framing members to the edge of a selected object.

Tutorial 20 - Wall Framing

What are the two types of wall framing object that can be seen in plan view?

- Wall studs and headers are the only types of wall framing that can be seen in plan view.

Where should wall stud spacing be set in most cases?

- Wall stud spacing should be set in the Wall Type Definition.

Where is the default rough opening size for doors and windows set?

- Door and window rough openings are specified in their respective defaults dialogs, and can be customized in their individual specification dialogs.

What can you do to prevent objects on a particular layer from being selected?

- If you lock a layer in the Layer Display Options dialog, objects on that layer cannot be selected.

What are two ways that manually edited wall framing can be protected when other wall framing needs to be rebuilt?

- You can rebuild framing in a selected wall only by clicking the Build Framing for Selected Object(s) edit button.
- You can also check the box beside Retain Wall Framing on the Structure panel of the Wall Specification dialog to prevent the selected wall's framing from being rebuilt.

How is wall Blocking drawn?

- Wall Blocking can only be drawn in a Wall Detail view using the Blocking tool.

How do you get a dimension line to display two dimension labels instead of one?

- A second label can be specified on the Secondary Format panel of the Dimension Line Specification dialog.

What Dimension tool allows you to create a dimension line with segments that all measure from the same point?

- The Running Dimension tool creates dimension lines that measure all segments from the same beginning point.

Tutorial 21 - Roof and Ceiling Framing

When roof framing is generated, are the current framing defaults used, or the current roof plane specifications?

- The roof plane's current specifications are used when roof framing is generated. In order for changes to the framing defaults to affect roof planes, they must be regenerated or redrawn.

What tool allows you to change the specifications of all roof planes at once?

- The Edit All Roof Planes tool lets you open the shared specification dialog for all roof planes in the current plan.

What edit tool allows you to rebuild the framing for an individual roof plane?

- The Rebuild Framing for Selected Object(s) edit button allows you to rebuild the framing for the selected object(s) only.

What tool allows you to create a copy of an object at the same location as the original?

- The Paste Hold Position tool creates a copy of an object at the same location as the original.

What edit tool can you use to move multiple selected objects a precise distance?

- The Transform/Replicate Object edit tool lets you move selected objects a precise distance along the X, Y, and/or Z planes.

LANDSCAPING TUTORIALS

Tutorial 22 - Plot Plans

What is the name of the drawing tool that lets you define lines and arcs by entering their length and bearing?

- The Input Line tool to create a series of lines with specific starting points, lengths and angles. These lines can then be converted into arcs using the Change Line/Arc edit tool.

Where can you specify that the length values in dialog boxes be entered using feet instead of inches?

- To change the format used for length values in dialog boxes, click the Number Style button at the bottom of most dialogs to open the Number Style/Angle Style dialog.

In what dialog can you specify that the angles of polyline edges be described using Quadrant Bearings in plan view?

- The angle format of polyline edges is set in the CAD Defaults dialog.

What Edit Behavior is useful for creating setback lines?

- The Concentric Edit Behavior can be used to create a resized copy of the plot plan polyline that represents setback lines.

What edit tool allows you to change a CAD polyline into a Terrain Perimeter?

- The Convert Polyline edit tool allows you to change a regular CAD polyline into a variety of polyline-based objects such as a Terrain Perimeter.

What edit tool can be used to rotate the Terrain, setback lines, and North Pointer to a specific angle?

- The Transform/Replicate Object edit tool allows you to rotate a selected object or objects to a specific angle.

Tutorial 23 - Terrain Elevation

What dialog is the best place to make adjustments to the height of the terrain relative to the building?

- The height of the building pad can be specified on the General panel of the Terrain Specification dialog.

What is required in order to have terrain that slopes?

- To create a slope, at least two Elevation Data objects with different Elevation values must be present in the plan.

How can you turn on the display of contour lines in plan view?

- The display of the "Terrain, Primary Contours" layer can be turned on and off in the Layer Display Options dialog.

What is the name of the edit tool that changes a straight line into an arc?

- The Change Line/Arc edit button changes a selected line into an arc, or vice versa.

What is the name of the edit tool that lets you add a new edge to a line or polyline?

- The Add Break edit tool allows you to divide a line or polyline edge in two separate segments, creating a new corner edit handle between them.

What determines the height of a Retaining Wall?

- The default height of a retaining wall is determined by the height of the terrain on either side of it.

Tutorial 24 - Driveways, Sidewalks, and Roads

Where can you set the default for whether driveways cut the curb on roads?

- You can specify raised curbs along roads and whether or not the curbs cut driveways and sidewalks on the Curb panel of the Road Defaults dialog.

Where must road objects be located in order to be seen in 3D views?

- Only the portions of road objects that are located within the Terrain Perimeter can be seen in 3D views.

Where can you specify that driveways have flares at their ends?

- Driveway flares can be specified on the General panel of the Driveway Defaults and Driveway Specification dialogs.

What edit tool changes a straight road object into one with a curve?

- The Change Line/Arc edit button changes a selected line-based object into an arc, or vice versa.

Tutorial 25 - Landscaping Design

Where are the default materials for Garden Beds and regular Terrain Features set?

- The default materials for Garden Beds and regular Terrain Features are set in the Material Defaults dialog:
  - The default material for Garden Beds is the "Dirt" material.
  - The default material for regular Terrain Features is the "Foundation/Slab" material.

What edit tool creates a copy of an object at the same location as the original with one click?

- The Copy and Paste in Place edit tool creates a copy of an object in the same location as the original.

What edit tool lets you change the angle of an object or an object edge to match that of another object?

- The Make Parallel/Perpendicular lets you change the selected object or selected edge's angle to match that of another.

What dialog lets you search the Library for the common names of plants?

- The Plant Chooser dialog allows you to search for plants using a variety of criteria, including the common name.

LAYOUT TUTORIALS

Tutorial 26 - Layout Page Templates

What is the name of the side window that lists all of the pages of the current layout file?

- The Project Browser side window lists the pages of the current layout file and provides a convenient way to organize and access them.

What are three categories of pages that are listed in this side window?

- Page templates, blank pages, and pages with content are listed in the Project Browser side window.

What information should be included on a page template?

- Layout Page Templates should include any information that you would like to display identically on multiple pages: typically, title blocks and borders.

What is the name of the dialog in which you can assign sheet titles to layout pages?

- Sheet, or page, titles can be specified in the Layout Page Information dialog for each layout page.

What character can you type into a page's Label to set up custom page numbering conventions?

- If you type a pound sign # in the Label field, the characters before it will be treated as a numbering prefix, and the # will be replaced by a numeral 1 on the first page with that particular prefix in its Label, and will increase the number by one on every page that follows if it too has the identical prefix in its Label.

Tutorial 27 - Title Blocks and Borders

What are two things that the Snap Grid Unit controls?

- The Snap Grid Unit controls the interval at which objects are drawn, resized, and moved.
- It also controls how far they are Nudged using the arrow keys on the keyboard.

What are three ways to enable the Concentric Edit Behavior?

- The Concentric Edit Behavior can be enabled on the Behaviors panel of the Preferences dialog.
- The different Edit Behaviors can also be enabled in the menus at Edit> Behaviors.
- It can also be enabled temporarily by holding down the C key on the keyboard.

What edit tool lets you align an object along an axis that runs through another object's side?

- The Center Object edit tool allows you to align a selected object along an axis that runs along another object's side or its midline.

What edit tool lets you snap the corner of one object to a point on another object?

- The Point to Point Move edit tool lets you move an object by clicking on a point on that object, then clicking on a different point somewhere else, including on another object.

How do you specify two different font sizes in a single Rich Text object?

- To change the size of part of the text, highlight it with the mouse on the Text panel of the Rich Text Specification dialog and then type the desired size in the text field above.

Describe how a company logo can be added to a layout page.

- A company logo can be added to the title block by importing and embedding an image. Select File> Import> Import Picture to do this.

Name two uses for text macros on a layout page.

- The layout page title macro, %layout.title%, will report the current page's title.
- There are also a variety of page number macros.

What are two types of tables that are available for use in layout files?

- Layout Revision Tables and Layout Page Tables are the two types of tables available in layout files.

Tutorial 28 - Sending Views to Layout

Where do you set the default drawing scale for all views sent to layout from a given plan file?

- Views sent to layout may use different scales. To save time, make sure that the Drawing Scale that you expect to use most frequently is set as the default in the plan. This is done in the plan file's Drawing Sheet Setup dialog.

How is the information in the Project Browser helpful when sending views to layout?

- As you send views to layout, you can refer to the list of layout pages to determine which page to send each view to. The page number can then be specified in the Send to Layout dialog.

What is one difference between Live Views and Plot Line views sent to layout?

- Images are included in Live Views sent to layout, but not Plot Line views.
- Live Views, however, must be linked to a saved camera view whereas Plot Line views do not. If a Live View's originating view is deleted, its layout view box would be empty.

What kind of view sent to layout can be resized using its corner edit handles?

- The Current Screen as Image option in the Send to Layout dialog produces a static picture box rather than a view linked to the model. Picture boxes can be resized and their contents will get larger or smaller.
- When a layout box is resized, on the other hand, its contents are cropped.

Where can you specify the template file used when a new layout is created?

- You can specify the default layout template file used when a new layout is created on the New Plans panel of the Preferences dialog.