# Chief Architect® X3
# User's Guide

***Professional Design & Drafting Software***

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## Appendix A: End User License Agreement

Chapter 1:

# Installation

This chapter will help you get started with the program. In this chapter you will learn:

- What's Included with the Software
- System Requirements
- Downloading Chief Architect
- Installing Chief Architect
- Installing Your Optional Hardware Lock
- Starting Chief Architect
- Program Updates
- Deactivating Chief Architect Licenses
- Uninstalling Chief Architect

## What's Included with the Software

Your Chief Architect purchase includes the following:

- Chief Architect Program DVD (optional purchase if program was downloaded)
- Password Key or Hardware Lock (optional)
- Chief Architect Getting Started Guide
- Your Product Key, or software license activation code

## System Requirements

In order to install and run Chief Architect, your computer system must meet the following minimum requirements:

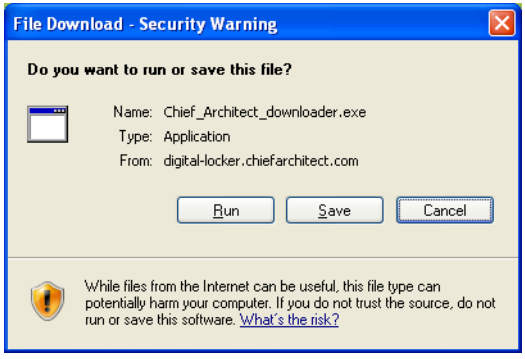
- Windows® 7/Vista/XP
- 2.4 GHz processor
- 5 GB of disk space
- 2 GB of memory
- 256 MB of dedicated video memory, OpenGL 2.0 or higher
- High speed Internet for registration, video access, content downloads
- DVD drive (if software purchased on DVD)

For more information about system recommendations, visit our Web site at www.chiefarchitect.com.

## Downloading Chief Architect

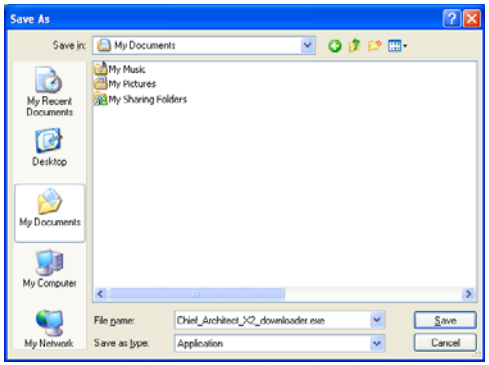
To download and install Chief Architect X3, you will first download the Chief Architect download Manager, and then use it to download the Chief Architect X3 installer.

1. Log in to your online Chief Architect account and browse to the Digital Locker page.
2. Click the Download button.

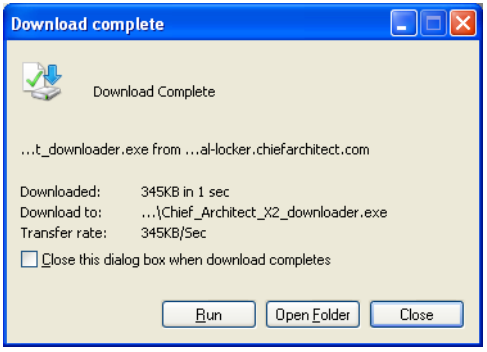



3. In the **File Download - Security Warning** dialog that opens, click **Run**.

4. If you prefer, you can instead click **Save**. In the Save As dialog, select an easy to find **Save in** location on your computer, such as My Documents or your Windows Desktop, then click **Save**.




5. The **Download Complete** dialog will display when the file is finished downloading. Click the **Run** button.



6. An **Internet Explorer - Security Warning** message may display next. If it does, click the **Run** button to continue.


7. The **Save To - Chief Architect Downloader** dialog will open next.
   - Click the **File** button if you would like to select a different location on your computer to save the Chief Architect installer.
   - Click **OK** to begin the download.

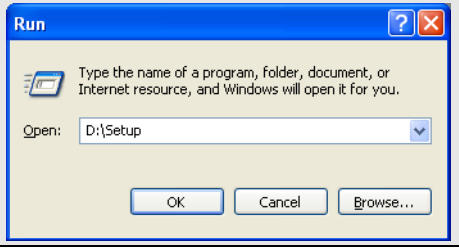
8. The **Chief Architect Downloader** progress dialog will open next. The installer is over 350 MB, so may take some time to download, depending on your Internet connection.
   - The **Saving To** section of the dialog box states the location on your computer where the installer is being saved and its name.
   - The **Progress** section indicates how much of the installer has been downloaded thus far, how fast it is being downloaded and estimates how much more time will be needed.
9. If you wish, click the **Options** button and choose whether to:
   - **Run This Program When Done** downloading. This option is selected by default. Click to uncheck it if you prefer to run the installer at a later time.
   - **Finish Downloading Later**. Select this option to stop the download. You can later resume where you left off by double-clicking on either the Download Manager acquired in steps 2 and 3 above or the Finish Downloading Chief Architect X3 shortcut created on your Windows Desktop. This shortcut is created only when this option is chosen and is deleted when the download is completed.
   - Use **Proxy Server Settings**. Choose this option only if you use a proxy server.
10. You can click the **Pause** button to temporarily halt the download. You can then click the **Resume** button to continue it.
11. You can also click the **Cancel** button to cancel the download entirely. The downloader will ask you if you would like to finish later: click **Yes** to Finish Download Later, as described above; click **No** to cancel the download and start again later.

## Installing Chief Architect

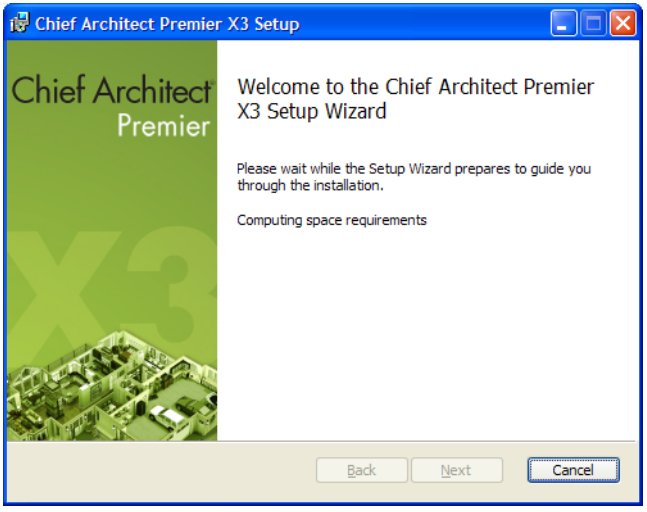
When the file is completely downloaded, the Setup Wizard will launch automatically.

If you have an Chief Architect Program DVD, insert it into your DVD drive. The Chief Architect installer will launch.

Note: If the Chief Architect installation window does not open, you can open it manually. Click the Start button, then click the Run…option. Type D:\Setup (assuming your DVD drive is drive D) and press Enter or click OK.



## Setup Wizard Welcome




1. Depending on whether or not you have installed the program on this computer before, the text in this window may vary. Click **Next** to continue.

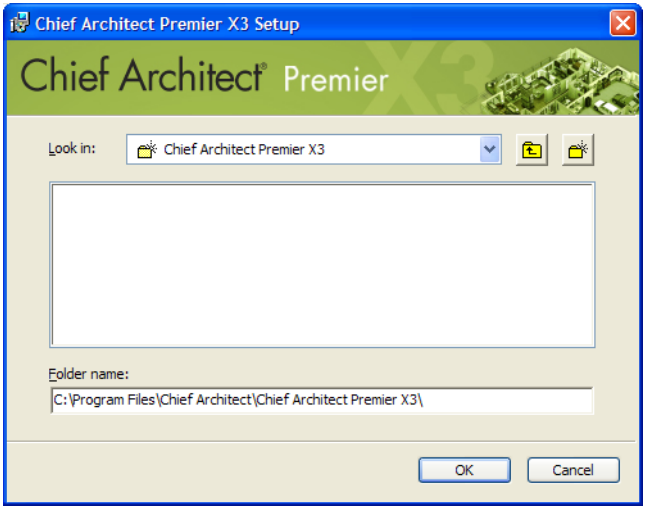
## Setup Maintenance


2. If you have installed the program before, this window will display, allowing you to reinstall or uninstall the program. If you are installing the program for the first time, this window will not display.

## License Agreement

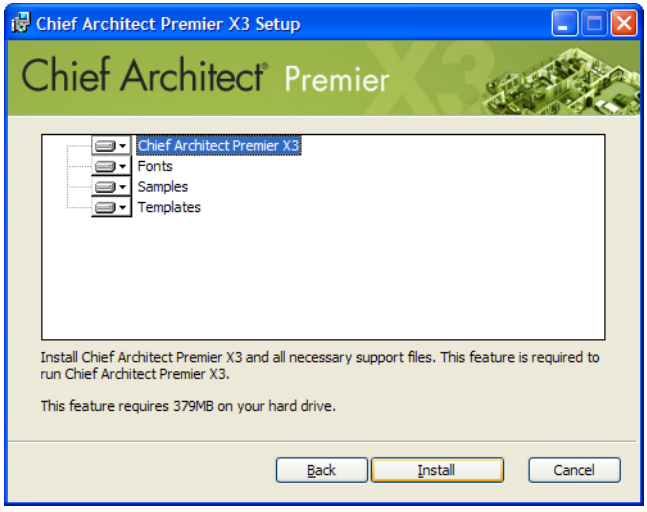

3. Read the License Agreement carefully. You must check the box beside **I accept the terms and conditions of this license agreement** before installing. See “End User License Agreement” on page 231 of the User’s Guide.
   - Click the **Advanced** button if you’d like to specify a non-default installation location or exclude supplementary content from being installed.
   - Click **Install** to begin installing the software. The Setup Wizard will begin copying files to your hard disk. This may take a few minutes.

## Choose Destination Location



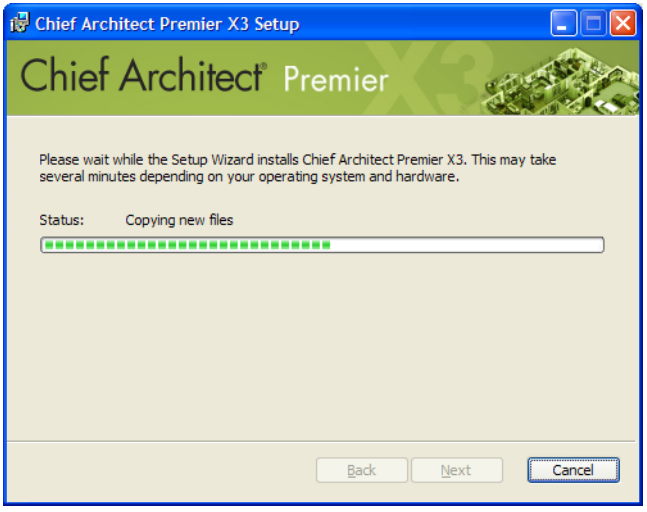

4. This window appears only if you click the **Advanced** button, and then the **Change** button, in the previous windows. Choose the destination folder for the program. By default, the program installs in the C:\Program Files\Chief Architect directory, in a folder with the same name as your program version.
   - If you prefer a different location, click drop-down arrow to the right of the **Look in:** location and navigate to the desired location on your hard drive.
   - You can also type the full pathname of the installation directory in the **Folder name:** field.
   - Click **OK** to proceed to the next window.

## Choose Items to Install




5. You can use this window to specify what features you wish to install.
   - Click on a line item to select it. Information about its contents and hard drive space requirements displays beneath the list of features.
   - Click the drop-down arrow beside a line item to specify how it is installed. By default, **Entire feature will be installed** is selected for all line items.
   - Select **Entire feature will be unavailable** to prevent the selected feature from being installed. When this option is selected, a red X will display beside the line item's drop-down arrow.
   - Click **Install** to install the program and supplemental content as specified.

## Install




6. The Setup Wizard will begin copying files to your hard disk after a few moments and a green progress bar in this window will show the status of this process. This may take a few minutes.

## Setup Wizard Complete


7. When all files have been copied, this dialog will display. Click **Finish** to launch Chief Architect.

## Installing Your Optional Hardware Lock

If you do not have hardware lock security for your Chief Architect license, skip this section and proceed to the Starting Chief Architect section of the instructions.

USB Hardware Locks

HASP Super Pro

### Your Hardware Lock

If you have hardware lock security, the hardware lock is your key for operating Chief Architect. You will not be able to operate Chief Architect unless this lock is attached to the computer you wish to launch the program on, so please take care of it.

### Before Installing Your Lock

⚠ Do not plug the hardware lock into your computer until you have completed the preceding Chief Architect installation instructions.

### Installing Your Lock

1. Attach your lock to any available USB port.
2. Your computer should detect the lock and install it automatically.
3. Launch Chief Architect.

## Starting Chief Architect

If you have plan and layout files created in previous versions of Chief Architect, be sure to read “Before You Begin” on page 1143 before you open any of these files in Chief Architect X3.

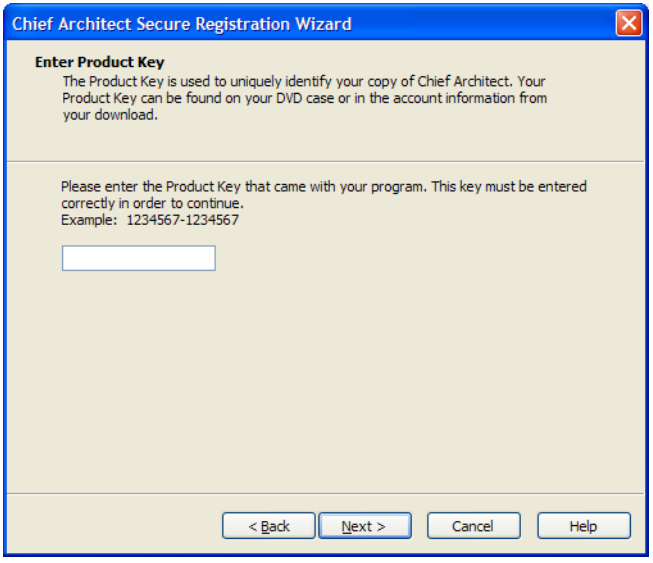
You can use the Start menu or the shortcut on your desktop to start Chief Architect. When you launch the program for the first time, the Registration Wizard will open.

Take a moment to complete the Registration Wizard, which authenticates your right to use this product and gathers information which may be used to notify you of free updates and other important information. Please be assured that Chief Architect Inc never sells or shares this information with other parties.

## Registration Wizard

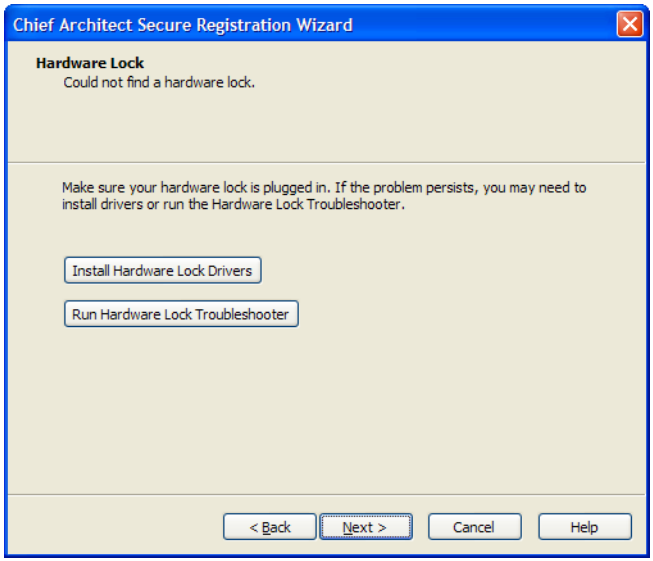

1. In the Welcome window, click **Next** to continue.

## Enter Product Key



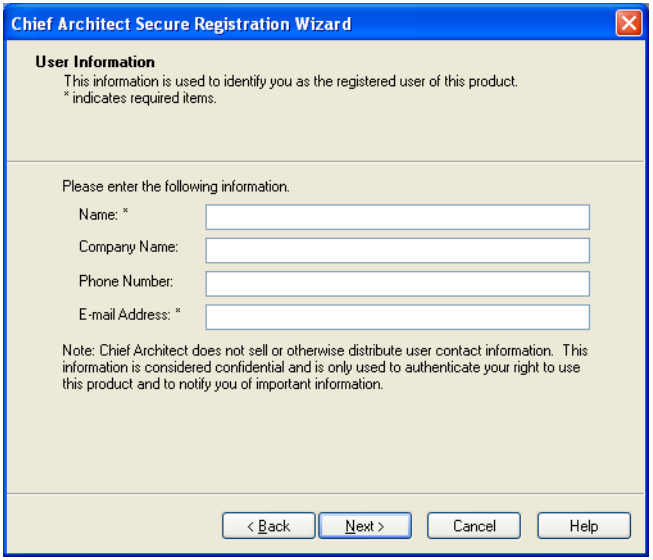
2. Enter your Product Key, which is located in the account information from your download or on a sticker inside your DVD case.

## Hardware Lock



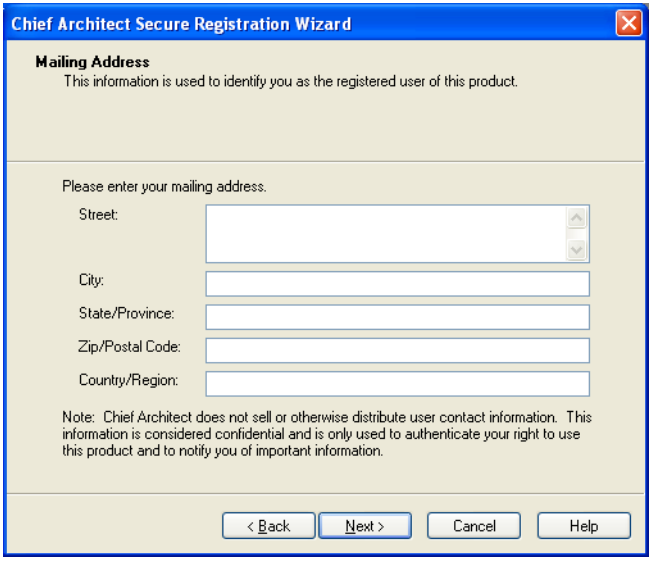

3. If your program license uses hardware lock security, and either your hardware lock is not plugged in or a driver for the lock is not detected, this window will appear.
   - Make sure that your hardware lock is plugged into the computer and is lit up and click **Next**.
   - If this window remains open, click the **Install Hardware Lock Drivers** button to install the most current driver for your lock. Then click **Next**.
   - If, with the new driver installed, this window is still present, click the **Run Hardware Lock Troubleshooter** for more information.

## User Information



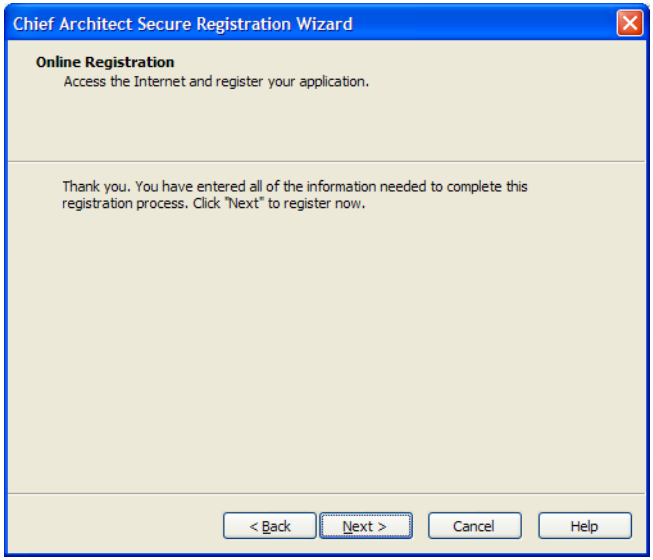

4. Enter your contact information. When you click **Next**, you will be asked to confirm your e-mail address.

## Mailing Address



5. Enter your mailing address and click **Next** to continue.

## Online Registration

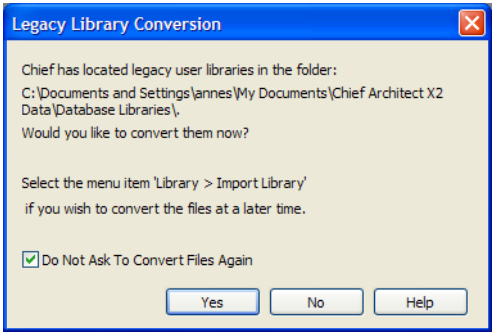



6. Click the **Next** button to register online.

## Completing the Registration Wizard

7. To complete the Registration Wizard:
   - Write down your **Emergency Transfer Password** and store it in a safe location. This information does not display if you have hardware lock security.
   - Click **Print Registration Information** to print a copy of the registration for your own records.
   - Click **Finish** to close the Registration Wizard and launch Chief Architect.

### Legacy Library Conversion

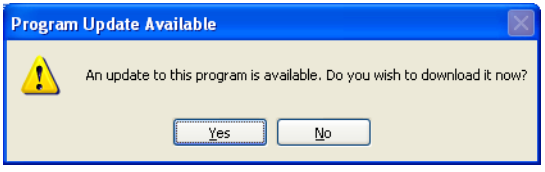



8. If you have custom libraries on your computer that you created using Chief Architect X2, this dialog will display. To convert these custom libraries for use in version X3, click **Yes**. For more information about converting legacy libraries, see "Legacy Library Conversion" on page 726.

## Program Updates

From time to time, Chief Architect releases Chief Architect program updates that are available for download free of charge from the Chief Architect Web site, www.chiefarchitect.com.

When a program update is available, this dialog will display when the program is opened:




- Click **Yes** to open your default Internet browser to the **Program Updates** section of the Chief Architect Web site.
- Click **No** to launch Chief Architect.

At any time, you can select **Help> Download Program Updates** from the Chief Architect menu to launch your default Web browser to the **Program Updates** section of the Chief Architect Web site.

If you prefer that the program not check for program updates every time it launches, you can disable this feature in the **Preferences** dialog. See “General Panel” on page 83.

## Deactivating Chief Architect Licenses

A license of Chief Architect can only be active on one computer at any given time. If you have been running the software on one computer and wish to run it on a different computer, you must deactivate your license on.the first computer.

An active Internet connection is required to deactivate a Chief Architect license.

***To deactivate a Chief Architect license***

1. Launch Chief Architect on the computer where the license is active.
2. Select **Help> Deactivate License** from the menu.
3. A message will confirm that you wish to deactivate the license. Click **Yes**.
4. After a pause, a second message will inform you that the license has been deactivated.

If you are using hardware lock security, you do not need to deactivate your license. Instead, attach the lock to the computer you wish to use before launching Chief Architect. See “Your Hardware Lock” on page 17.

## Uninstalling Chief Architect

There are two ways that Chief Architect can be removed from your computer: from the Control Panel and using the Setup Wizard on the program disk. Please note that if you do not have an active Internet connection, your license will not become deactivated.

***To remove the program using the Control Panel***

1. Double-click the Computer icon on your desktop (in Windows XP, “My Computer”).
2. Open the Control Panel.
3. Double-click Programs (in Windows XP, “Add or Remove Programs”).
4. Find Chief Architect and click **Remove**.

***To remove the program using the Setup Wizard***

1. Place the disc in the DVD drive and select **Install** Chief Architect from the Chief Architect startup window.
2. On the Setup Maintenance page, select **Uninstall** and click **Next**. A message will display, asking if you would like to remove the selected application and its components.

3. Click **Yes** to remove Chief Architect.

Chapter 2:

# House Design Tutorial

This House Design Tutorial shows you how to get started on a design project. The tutorials that follow continue with the same plan. When we are finished, we will have created a sample plan named “Oceanside” that can be downloaded from our web site at www.chiefarchitect.com.

In this tutorial you will learn about:

- Before You Begin
- Getting Started
- Setting Floor Defaults
- Drawing Walls
- Creating Dimension Lines
- Adjusting Wall Positions
- Creating Rooms
- Creating a 3D View
- Adding Floors
- Adding Stairs
- Adding a Roof
- Improving Structural Support
- Placing Doors and Windows

## Before You Begin

Chief Architect may look differently on your screen than it does in the following tutorials.

- Screen captures are taken from a smaller window to optimize image quality, so the size and proportion of your interface may be different.
- Some features such as the Reference Grid have been turned off to optimize image quality. For more information, see "General Plan Defaults Dialog" on page 70 of the Reference Manual.
- Because toolbars can be customized, their default layout and location may differ. For more information, see "Toolbar Customization Dialog" on page 114 of the Reference Manual.
- As the program is updated, features may be added or removed. If you are using the latest version of Chief Architect, you may see buttons and/or menu items that have been added or removed since this tutorial was written. For more information, see "Program Updates" on page 22.
- Depending on your operating system and Windows system settings, dialogs and toolbars may appear differently than they do in the tutorials.

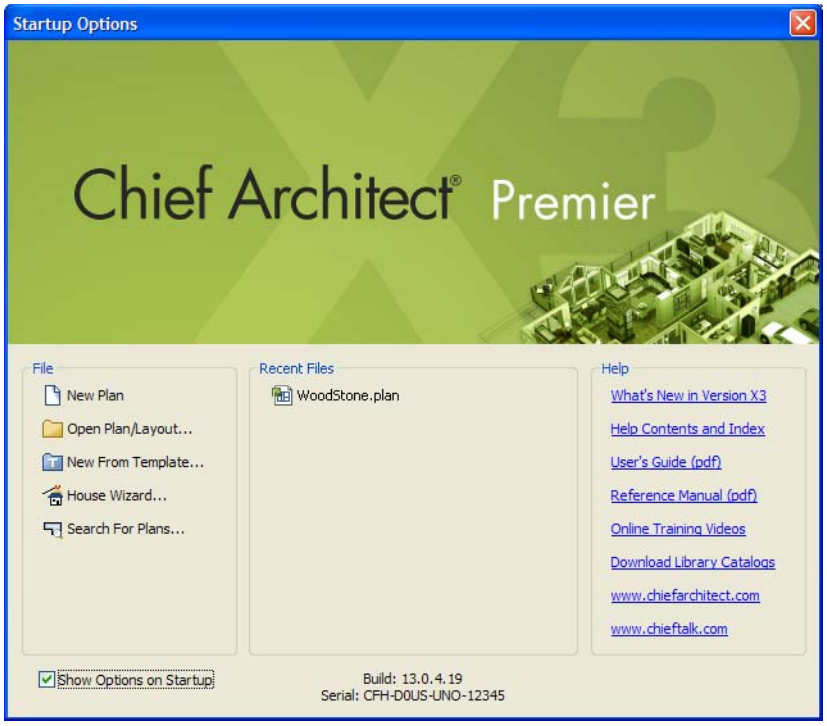
## Getting Started

We'll start with a new, blank plan.

***To start Chief Architect***

1. Click the Windows Start button.
2. Select Programs> Chief Architect>, select the name of the Chief Architect program version you have, and click to start the program.

3. When the program launches, the **Startup Options** window displays.




- Click **New Plan** to open a new, blank plan.
- If you have disabled the Startup Options at startup or already have the program open, you can select **File> New Plan** to open a new, blank plan.
- For more information, see “Startup Options” on page 28 of the Reference Manual.

4. It is wise to save your work, and save it often, as you proceed.

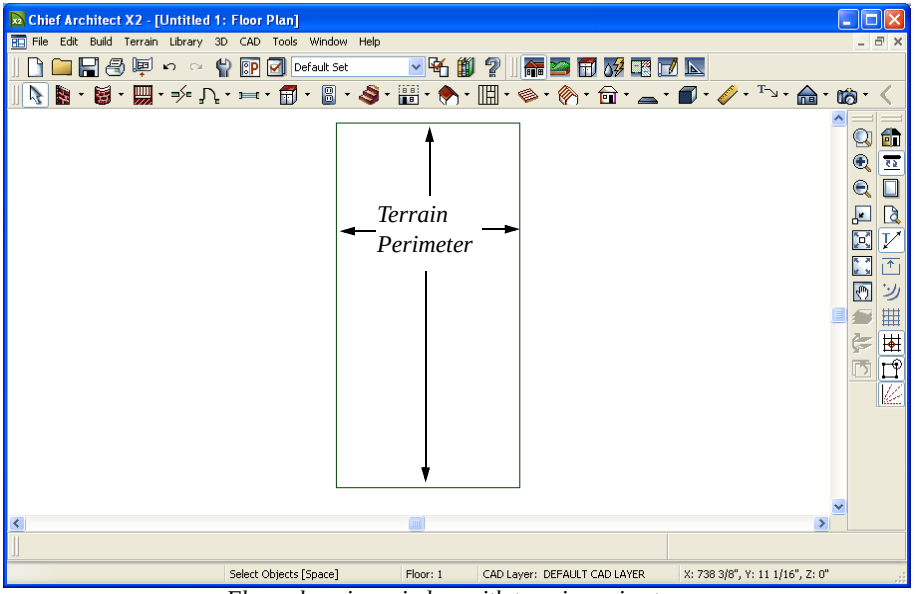
- Select **File> Save** from the menu to open the **Save Plan File** dialog
- Specify the location on your computer where you would like to save the plan.
- Enter a name for your plan.
- Click **Save**.

***To create and resize a terrain perimeter***

1. Select **Terrain> Create Terrain Perimeter** from the menu or click the corresponding toolbar button. See “Toolbar Arrangement” on page 114 of the Reference Manual.

- If this menu option is not available in a given plan file, a terrain perimeter already exists.

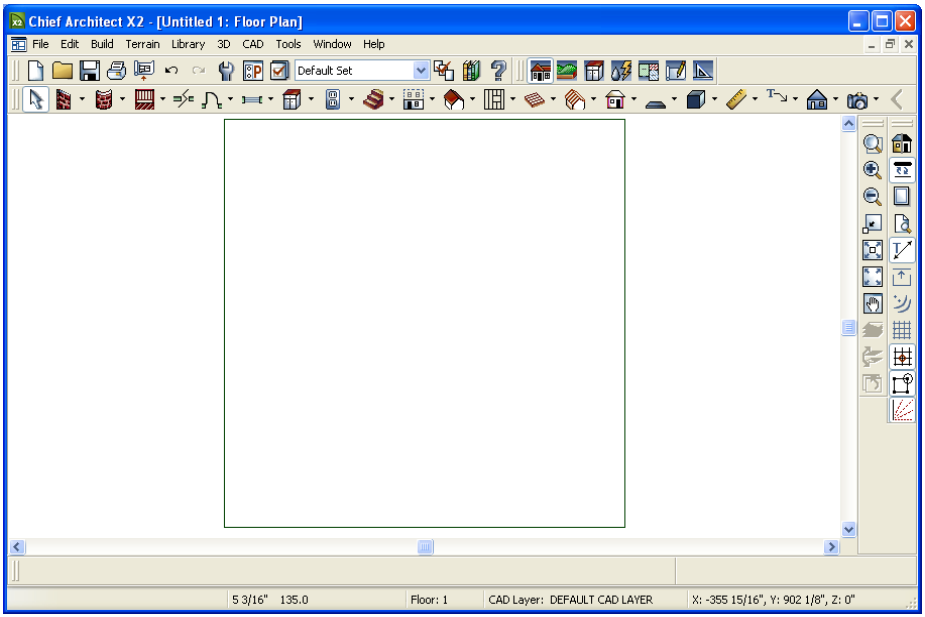
2. Select **Window> Fill Window** to fill the screen with the terrain perimeter.




*Floor plan view window with terrain perimeter*

3. Select **CAD> Dimension> Display Temporary Dimensions** and make sure temporary dimensions are turned on for display. A check is displayed next to the item in the submenu instead of the toolbar button icon when it is enabled.
4. Select the terrain perimeter by clicking on either of the vertical edges. Notice that a temporary dimension displays, indicating that the selected edge of the terrain perimeter is 50 feet from the opposite edge.
5. Press the Enter key on your keyboard and repeat this step for the adjacent edge of the terrain perimeter, creating a square that is 150 feet by 150 feet.

6. Click **Window> Fill Window** to fill the screen with the terrain perimeter.




The Reference Grid, or Virtual Graph Paper, is a visual aid that helps create a sense of scale when drawing. Grid squares are 12 inches per side. The Reference Grid is turned off for these tutorials but can be turned on or off in the Plan Defaults dialog. See “General Plan Defaults Dialog” on page 70 of the Reference Manual.

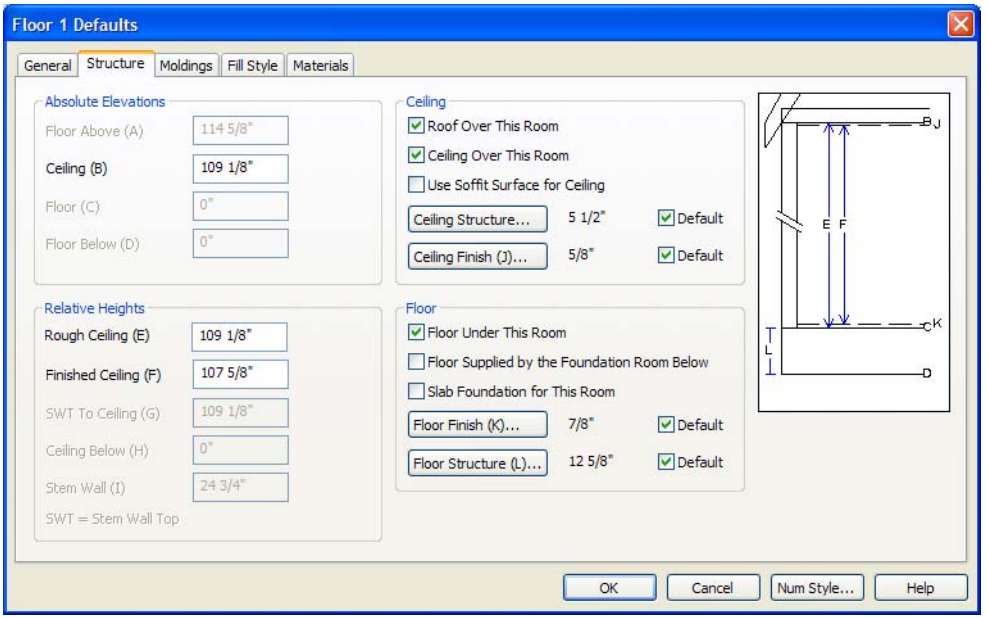
## Setting Floor Defaults

Default settings determine the initial characteristics of objects when they are first drawn. Before we draw walls and create rooms, we should set the floor defaults. For more information, see “Floor Defaults Dialog” on page 374 of the Reference Manual.

***To set the Floor Defaults***

1. Select **Edit> Default Settings** to open the **Default Settings** dialog.

2. Select **Floor** in the tree view and click the **Edit** button to open the **Floor 1 Defaults** dialog.




3. On the Structure tab, note the **Ceiling Height**. The initial value is 9 feet (9') or 108 inches. We will leave this value unchanged for this tutorial.
4. Click OK to close the **Floor 1 Defaults** dialog.
5. Click Done to close the **Default Settings** dialog.

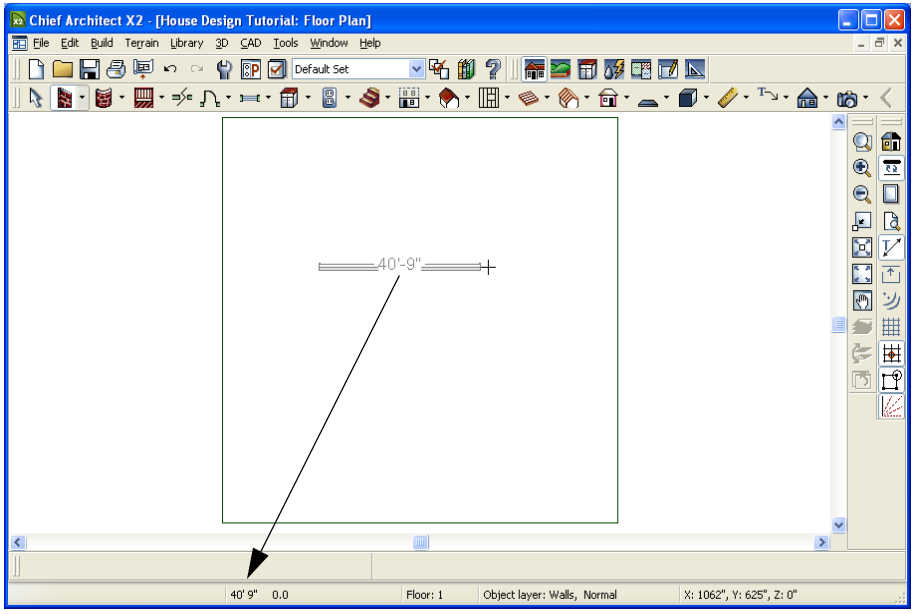
## Drawing Walls

We'll start by drawing some exterior walls. When drawing walls, do not try to size or position them precisely - they can be more easily positioned after they are created. For more information, see "Walls, Railings, & Fencing" on page 231 of the Reference Manual.

***To draw exterior walls***

1. Select **Build> Wall> Straight Exterior Wall** from the menu or click the corresponding toolbar button.
2. Click and drag from left to right to draw a wall. Walls can be drawn in two ways:

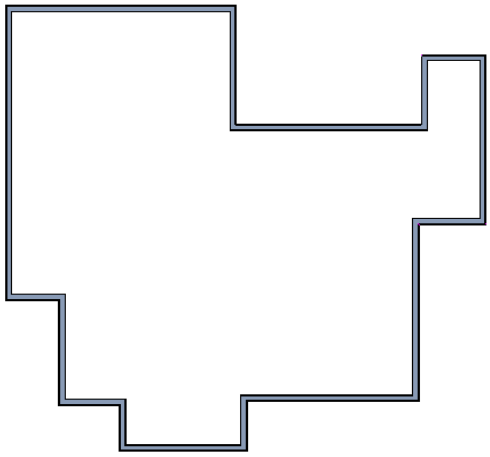
- If you first click using the left mouse button, each wall section will end when the mouse button is released. Place the pointer over an existing wall end and click and drag to create a new connected wall section.
- If you initially click using the right mouse button, you will draw continuously connected walls until you click both mouse buttons simultaneously (or press the Esc key). See “Continuous Wall Drawing” on page 246 of the Reference Manual.




*Wall length is indicated in the Status Bar as the wall is drawn*

3. There are a couple things to notice as you draw a wall.
   - The wall’s length displays in two places: above the wall and in the Status Bar at the bottom of the screen.
   - Wall angles are restricted to increments of 15° when Angle Snaps are on. Select **Edit> Snap Settings> Angle Snaps** and make sure they are turned on for this tutorial. See “Snap Behaviors” on page 141 of the Reference Manual for more information.
4. 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 it is helpful to keep the final size of the structure in mind as you draw. The overall length of this building's sides is 44', both horizontally and vertically.
- It is important that exterior walls (and any other wall types with an interior side and an exterior side) are drawn clockwise to ensure the proper orientation of wall surfaces.
- When the walls enclose an area completely, a Living Area label is created. See "Living Area" on page 291 of the Reference Manual.
- Keep the building within the terrain perimeter. It doesn't have to be perfectly centered because both the terrain perimeter and the entire building can be moved later.

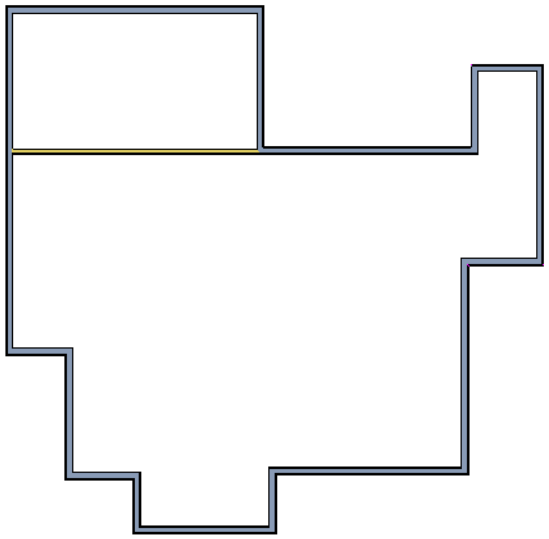


Interior walls are drawn the same way that exterior walls are.

***To draw interior walls***

1. Select **Build> Wall> Straight Interior Wall** from the menu or click the corresponding toolbar button.

2. Draw an interior wall as shown in the following image.



If you use the wrong wall tool to draw a wall, you don't need to delete it. Instead, you can easily change its wall type.

***To change a wall's type***

1. Select a wall with the incorrect wall type and click the **Open Object** edit button to open the **Wall Specification** dialog. See "Wall Specification Dialog" on page 269 of the Reference Manual.
2. On the Wall Types tab, click the **Wall Type** drop-down list and select the correct wall type
3. Click **OK** to close the dialog and change the selected wall to the correct wall type.

***To delete a wall***

1. While the **Select Objects** tool is active, click on a wall with the pointer to select it.
2. Press the **Delete** key or click the **Delete** edit button.

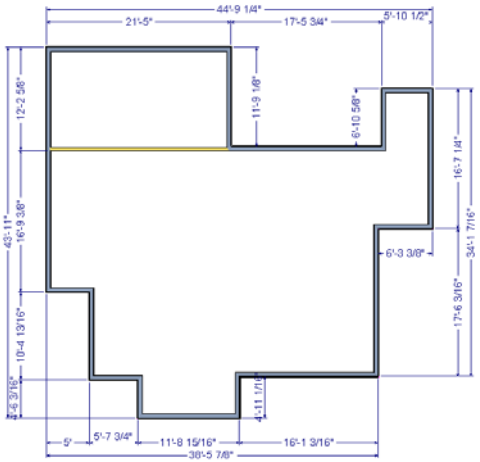
## Creating Dimension Lines

Dimension lines locate walls, openings in walls, and other objects. In Chief Architect, you can generate automatic exterior dimension lines and draw a variety of manual dimensions such as

interior dimensions, point to point dimensions, baseline dimensions, and angular dimensions. For more information, see "Dimensions" on page 859 of the Reference Manual.

***To create automatic exterior dimension lines***

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

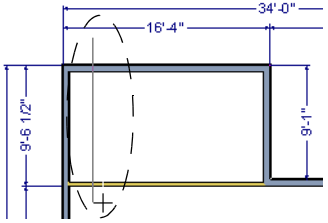



2. For a closer view of a certain area, click the **Zoom** tool, click and drag a box around the area you want to see in detail, and release the mouse button. That area fills the screen. For more information, see "Zoom & View Tools" on page 769 of the Reference Manual.
3. To return to the previous zoom factor, select **Window> Undo Zoom** .
4. If you can't see all the exterior dimension lines at once, select **Window> Fill Window Building Only** to center your plan on screen.

***To draw an interior dimension line***

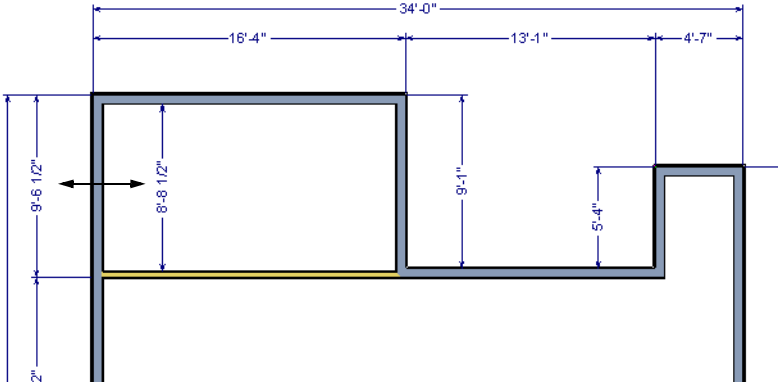
1. Select **CAD> Dimension Lines> Interior Dimension** .

2. Click and drag a line that intersects the interior wall and other walls you want to locate.




3. Release the mouse button to display the interior dimension.

> Note: The Automatic Exterior Dimensions tool does not affect interior dimension lines.

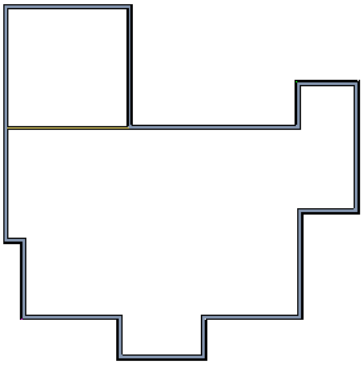



*Because interior dimensions and exterior dimensions can locate different wall surfaces, sometimes two dimension lines may appear to offer different measurements of the same distance.*

> Note: Interior Dimensions locate the main layers of walls by default rather than wall surfaces. See “Wall Type Definitions Dialog” on page 265 of the Reference Manual. This and other dimension defaults can be specified in the Dimension Defaults dialog. See “Manual Dimension Defaults Dialog” on page 861 of the Reference Manual.

***To delete all dimensions at once***

1. Select **Edit> Delete Objects** to open the **Delete Objects** dialog. See "Delete Objects Dialog" on page 218 of the Reference Manual.
2. Select the **All Rooms On This Floor** radio button, check **Dimensions**, and click OK.



## Adjusting Wall Positions

Now we'll adjust the spacing of walls with more precision. For more information about using dimensions to relocate objects with accuracy, see "Moving Objects Using Dimensions" on page 883 of the Reference Manual.

***To adjust the spacing of the exterior walls***

1. Let's begin by selecting **Window> Fill Window Building Only** so we can see the entire building.
2. Click the **Select Objects** tool then click on an exterior wall to select it.
3. 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.
4. As you move the wall, the dimension lines that indicate how far it is from other walls will update. Use these dimensions to position the wall accurately.

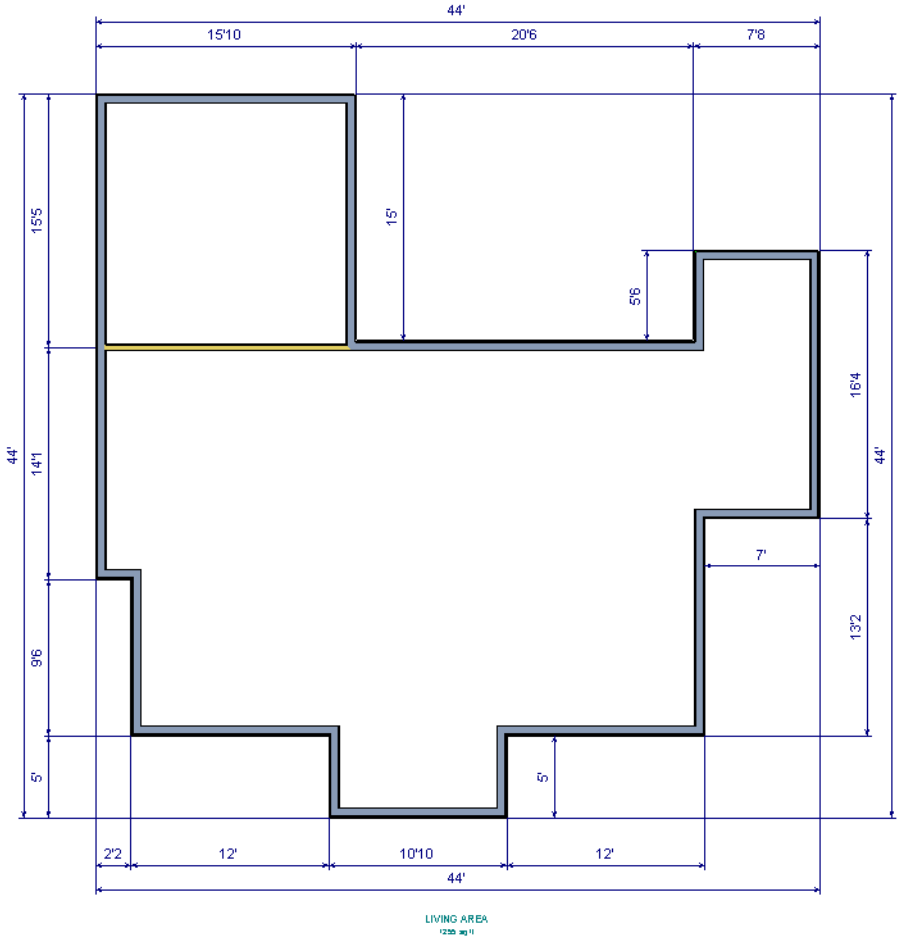
If you have difficulty positioning a wall at the desired location because it jumps over that location as you move it, try zooming in on it by scrolling with your mouse wheel or by using either the **Zoom** or **Zoom In** tool. You can also use the **Accurate Move** edit tool to slow your mouse movement.

***To use the Accurate Move edit tool***

1. Click on the wall that you wish to move more slowly and with greater accuracy.
2. Click the **Accurate Move** edit button.
3. Click and drag the Move edit handle to the desired position.

Your mouse will move more slowly for this edit only. The next time you want to move or resize the wall slowly, you will need to click the **Accurate Move** edit button again.

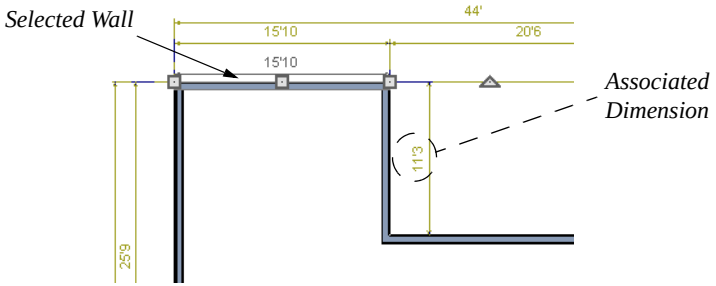
When you are finished, the dimensions of your model should match those in the following image.



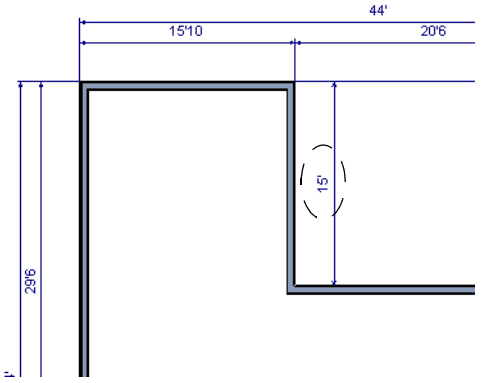
Another way to position walls and other objects with accuracy is by clicking on dimensions.

***To use the Move Object Using Dimension tool***

1. Click the **Select Objects** button, then click on a wall that you want to move.
2. Click on a dimension line that indicates how far the selected wall is from another wall. There are a couple 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 ().




3. Click on the associated dimension and enter a new value. Remember, numbers entered with an apostrophe denote feet and numbers entered with quotes denote inches. If neither apostrophes or quotes are included, the entered value defaults to inches.
4. Use the Enter key on your keyboard to close the dialog and apply the change so that the wall will move the specified distance.



5. Repeat this process for the adjacent exterior wall, continuing in a clockwise direction. It may help to refresh **Auto Exterior Dimensions** (Shift + A) between commands.

> If you use the Move Object Using Dimensions tool to reposition walls, you should always work in the same direction, adjusting one wall section after another.

For more information about using dimensions to finalize the layout of exterior walls, see “Resizing a House Using Exterior Dimensions” on page 884 of the Reference Manual.

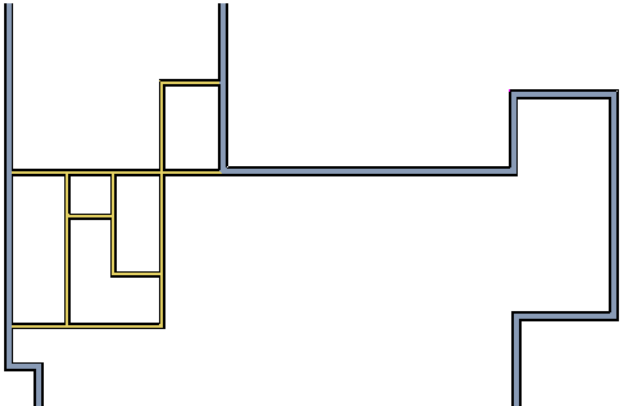
When your exterior walls are positioned properly, you may find it helpful to delete the exterior dimensions using the **Delete Objects** dialog, as described previously.

## Creating Rooms

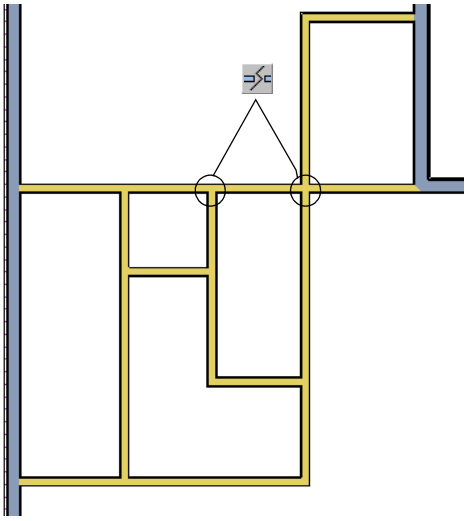
Now that the exterior of the house has been finalized we can begin laying out rooms on the interior. Rooms are defined by the walls that enclose them. They are then assigned a Room Type that assigns common room attributes. For more information about rooms, see “Room Types” on page 288 of the Reference Manual.

***To define rooms using interior walls***

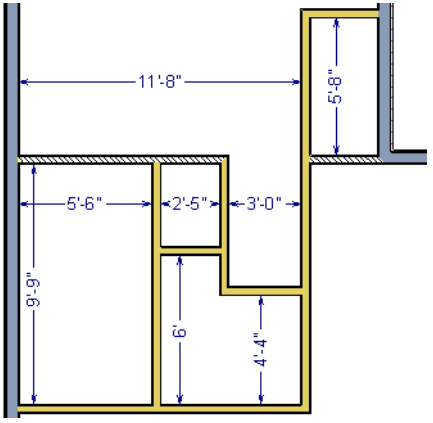
1. Select **Build> Wall> Straight Interior Wall** , then click and drag to draw interior walls. As with exterior walls, you don’t need to worry about exact placement as you draw.



2. Select **Build> Wall> Break Wall** and click to place two breaks at the locations shown in the following image.

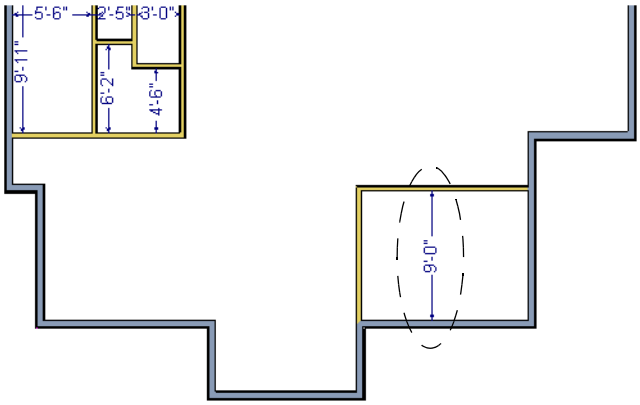


3. Click the **Select Objects** button, then select the middle wall section created by the breaks and delete it.
4. Adjust the wall spacing of the interior walls to match the following image using **Interior Dimensions**, just as you did with exterior walls. The original interior wall (hatched in the following image for illustrative purposes) should not be moved.



5. Using the **Straight Interior Wall** tool, draw two more interior walls, creating a room that will become the dining room on the right side of the plan.

6. Draw a vertical **Interior Dimension** inside this new room, then use it to move the horizontal interior wall 9 feet from the opposing exterior wall.

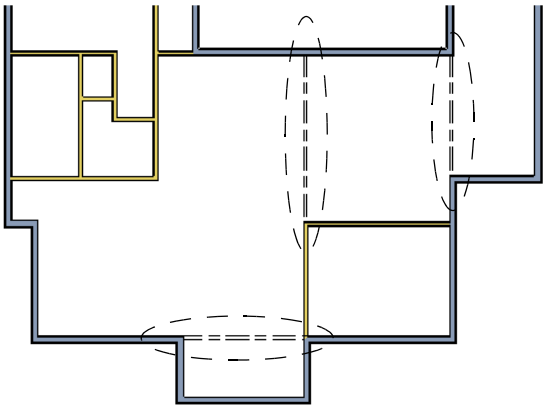



## Using Invisible Walls

In reality, rooms are not always be divided by a physical wall. The separation of two rooms may be marked by a change in the flooring (carpet to tile, for example), or by a change in the interior wall covering. In Chief Architect, an invisible wall can be used to define rooms without creating an actual wall. We'll use invisible walls to define more of the first floor layout. For more information, see "Invisible Walls" on page 243 of the Reference Manual.

***To create an invisible wall***

1. Select **Build> Wall> Invisible Wall** and draw invisible walls as shown in the following image.

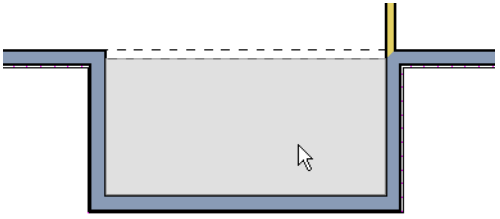


## Room Types

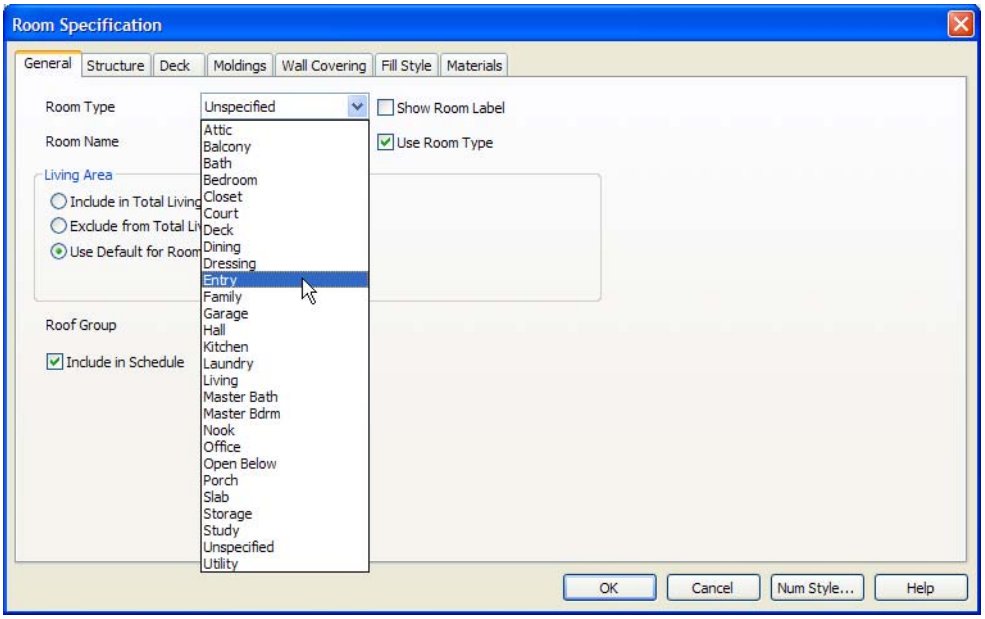
Rooms in Chief Architect are given special attributes by assigning a Room Type. For example, porches use a concrete floor material and have a ceiling and roof, while decks use floor planking and have no ceiling or roof. For more information, see "Rooms" on page 283 of the Reference Manual.

***To designate a Room Type for a room***

1. Click the **Select Objects** button, then click in the small room at the bottom of the plan.

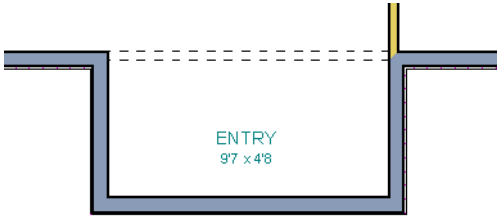


2. Click the **Open Object** edit button to open the **Room Specification** dialog.

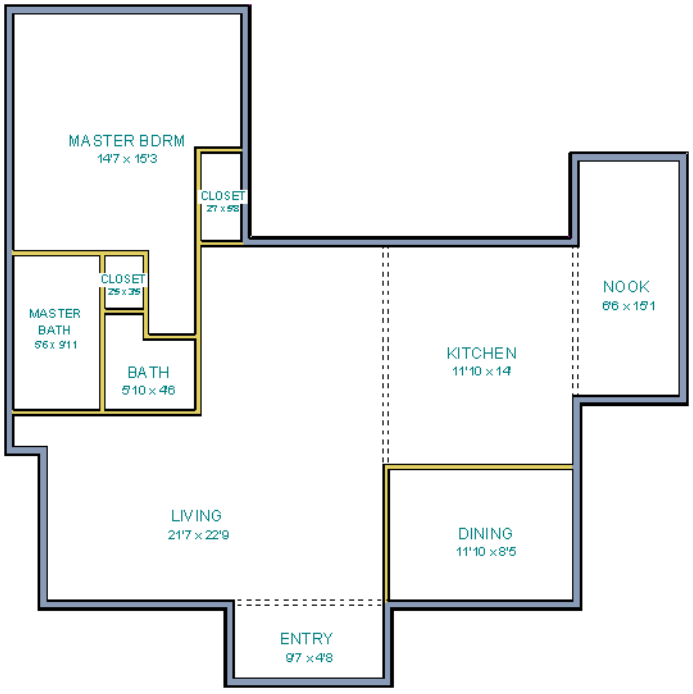



3. Click the **Room Type** drop-down list and select **Entry**.
4. Click **OK** close the dialog and apply your change.

Double-clicking a room when the **Select Objects** tool is active will also open the **Room Specification** dialog. For more information, see “Room Specification Dialog” on page 301 of the Reference Manual.



5. Open each of the rooms and assign room types as shown in the following image.




## Decks and Porches

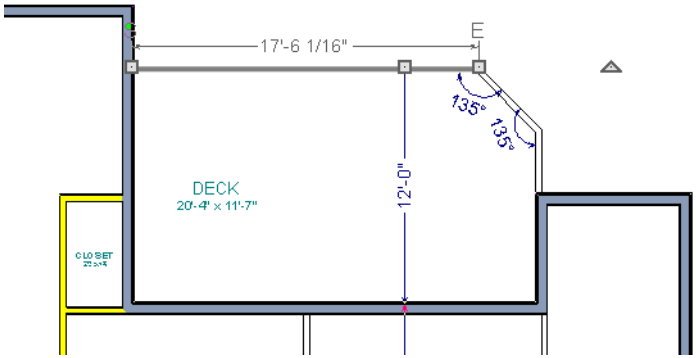
Decks and porches are exterior rooms that are defined by the deck railings and exterior walls that enclose them. When an exterior room is drawn using the **Deck Railing** tool, the room is automatically assigned the exterior room type Deck.

Railings and Deck Railings are drawn just like walls. To illustrate this, we'll add a deck off the main floor between the master bedroom and the nook.

***To draw a deck***

1. Select **Build> Deck> Straight Deck Railing** .
2. Draw three deck railings as shown in the following image. The angled railing is drawn at a 45 degree angle to the others. Note that when the mouse is released, the room is assigned the Room Type of Deck and given a room label.
3. Turn on **Display Temporary Dimensions** and select the outer railing to position the railing as shown.

- For information about angular dimensions, see “Angular Dimensions” on page 875 of the Reference Manual. Note that you must uncheck No Locate on the General tab of the Deck Railing Specification dialog to allow angular dimensions to be created.

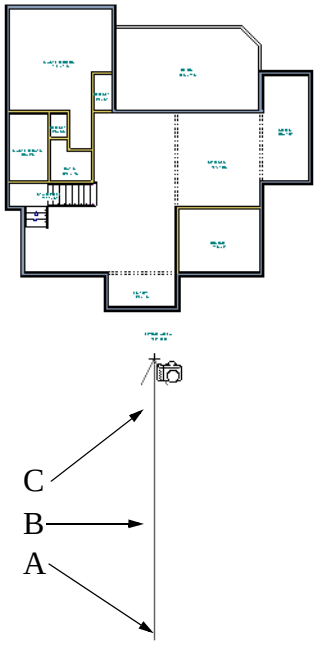



## Creating a 3D View

Let’s take a look at our plan in 3D and see how it looks so far. For more information, see “3D Views” on page 779 of the Reference Manual.

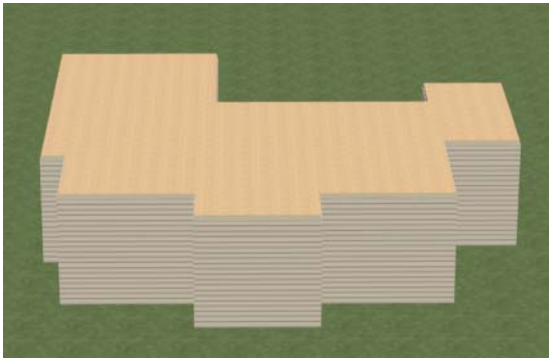
***To create a camera view***

1. In floor plan view, click the **Fill Window** button to zoom out as needed to fill the view window with the entire drawing.
2. Select **3D> Create Perspective View> Full Camera** (or press Shift + J).
3. Click at the bottom of the floor plan view window and drag a line that stops at the door. The point where you click (A) defines the point of perspective and the line (B) defines the direction of perspective.




4. Release the mouse button to create the 3D camera view. Where the mouse is released (C) is the camera's focal point.

5. If necessary, you can use the **Mouse-Orbit Camera** tool to change the camera's perspective. The camera will revolve around its focal point (C). See "Move Camera with Mouse" on page 799 of the Reference Manual for more information.



6. To return to floor plan view, select **File> Close** from the menu.

***To create a floor overview***

1. In floor plan view, select **3D> Create Perspective View> Floor Overview** . A floor overview displays a single floor without a ceiling or roof.

2. Select **3D> Move Camera With Mouse> Mouse-Orbit Camera** (should be selected by default) and click and drag the mouse on screen to change the camera perspective. You can press the I (in) and the O (out) keys on the keyboard to zoom in and out of the plan.

## Adding Floors

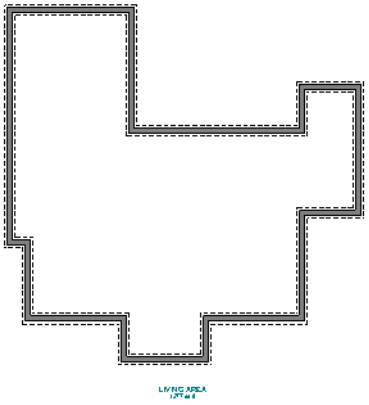
Creating new floors in a plan is easy, but it is best to do so only after the first floor plan has been finalized. Now that we have done so in our plan, we'll add a basement and second story. For more information about working with multiple floors, see "Multiple Floors" on page 373 of the Reference Manual.

***To create a foundation or basement***

1. Press Ctrl + Tab on your keyboard to return to floor plan view.

2. Select **Build> Floor> Build Foundation** . In the **Build Foundation** dialog:
   - Select 8" Concrete Stem Wall from the **Wall Type** drop-down list.
   - Change the **Min. Wall Height** to 100 inches.
   - Click **OK** to close the dialog and create a foundation level for your plan.
   - For more information, see "Foundation Defaults" on page 387 of the Reference Manual.

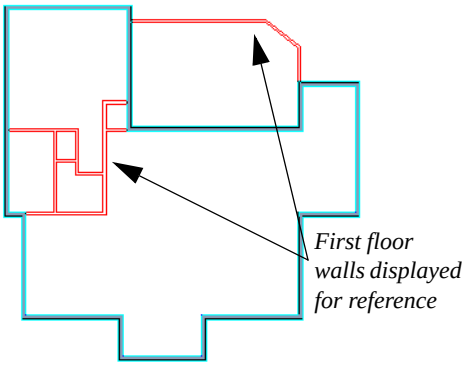
3. Select **Derive New Foundation Plan From the First Floor Plan** and click **OK** to close the **New Floor** dialog. See "Adding Floors" on page 376 of the Reference Manual.
4. You can select **Window> Fill Window Building Only** from the menu to center the plan on screen.



***To add a second floor***

1. Click the **Up One Floor** button to return to the first floor.
2. Select **Build> Floor> Build New Floor**. The **New Floor** dialog displays.
3. Select **Derive new 2nd floor plan from the 1st floor plan** and click **OK** to close the **New Floor** dialog. A floor plan for the second floor is created based on the exterior walls of the first floor plan. We will need to edit the walls of our second floor manually. It will be difficult to know where the second story walls should be without knowing where the first floor walls are located.

4. Select **Tools> Reference Floors> Reference Display** (or press F9). The first floor walls are displayed for reference.



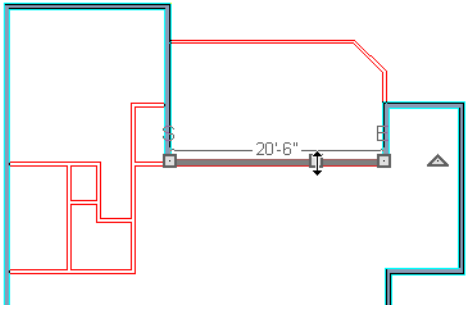

We will now edit the second story walls.

***To merge two parallel walls into one***

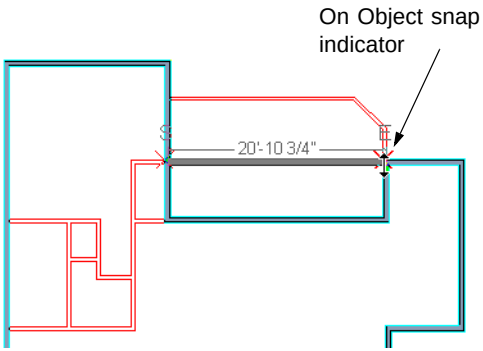
1. Select a wall, then click and drag its center edit handle to move it.
2. When the wall becomes aligned with another wall and can merge with it, it will stop at a "sticky point."
3. If you keep dragging the mouse, the wall will break free of the sticky point and you can continue moving it. In this case, we will release the mouse button. Note that the edit handles now extend the full length of the wall.

> Note: Before merging walls, make sure Object Snaps are turned on. For more information, see “Object Snaps” on page 142 of the Reference Manual.

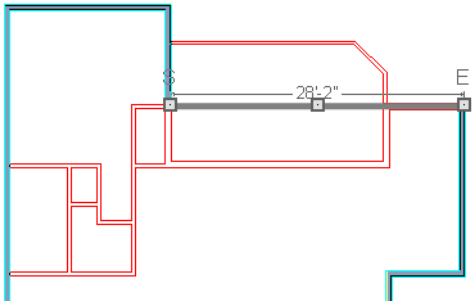
1. Select a wall and place the cursor over the center edit handle.



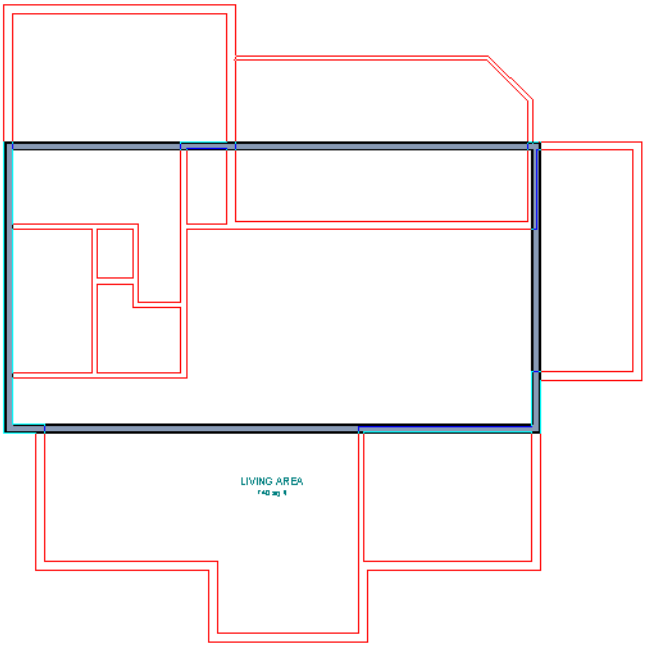
2. Click and drag the pointer over the edge of another parallel wall. Look for the On Object snap indicator. For more information, see "Object Snaps" on page 142 of the Reference Manual.



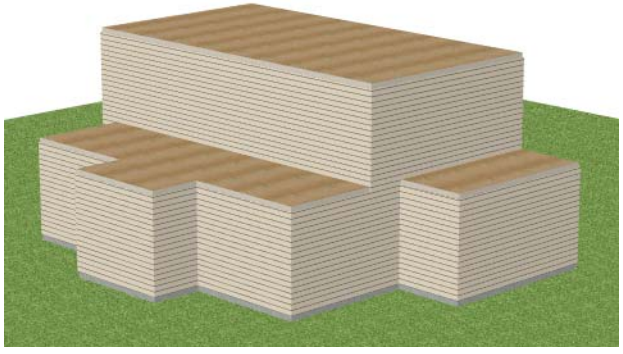

3. Release the mouse button when the On Object snap indicator appears to merge the wall sections. Note that the edit handles now extend the full length of the wall.



4. When finished, we will have four exterior walls that are aligned as shown in the following image. To achieve this, we could also have created a blank second floor plan and then drawn our second story walls manually.



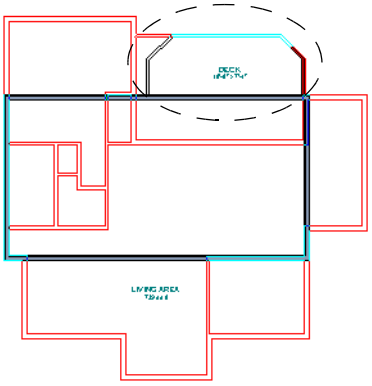

5. Select **3D> Create Perspective View> Full Overview** from the menu to create a 3D overview of our entire plan so far.



***To add a second story deck***

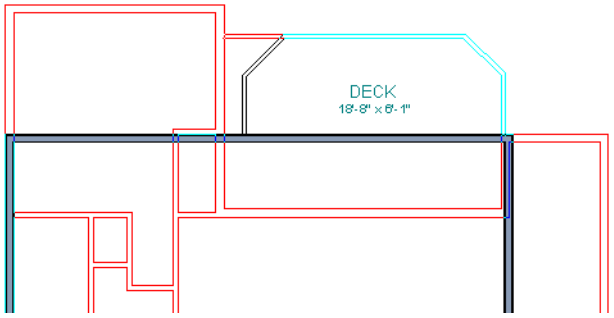
Now that we have a second floor, we'll use the tools and techniques we learned earlier to add a second story deck that is aligned with the first story deck below. See "Decks" on page 292 of the Reference Manual for more information.

1. Press Ctrl + Tab on your keyboard to switch back to floor plan view.
2. If they are not already displayed, click **Reference Display** to display the first floor walls.
3. Select the **Straight Deck Railing** tool.
4. Draw a deck as shown in the following image. If you have **Object Snaps** on, the second story deck railing will likely be drawn in alignment with the first floor on your first attempt. If not, you can align the deck railing with the first floor deck below in the following steps.



5. Select a section of deck railing that has a deck railing below it on the first floor and click the **Align with Wall Below** edit button.
   - Note: If **Align with Wall Below** is not available, the selected railing either needs to be moved closer to the wall below, or the railing is already aligned with the one below. See "Aligning Walls" on page 254 of the Reference Manual.

6. Repeat this step for each section of railing that has a railing directly below it on the first floor. When you are finished, your second floor should look like this:



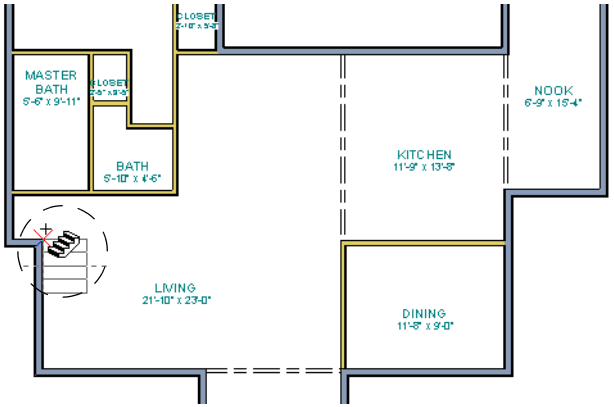

## Adding Stairs

Now that we've got three floors we'll need to get from one floor to another. For more information about stairs, see "Stairs, Ramps & Landings" on page 455 of the Reference Manual.

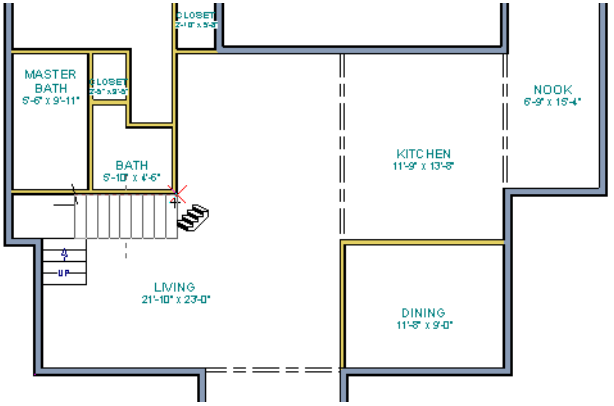
***To draw stairs with a landing***

1. Click **Down One Floor** to go to the first floor. You may want to select **Tools> Reference Floors> Reference Display** to turn off the display of the reference floor.
2. Select **Build> Stairs> Straight Stairs** (or press Shift + Y).

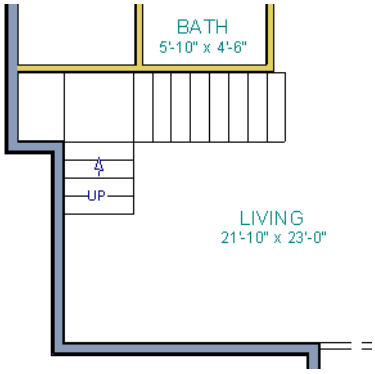
3. Click and drag to draw a short stair section as shown in the following image.



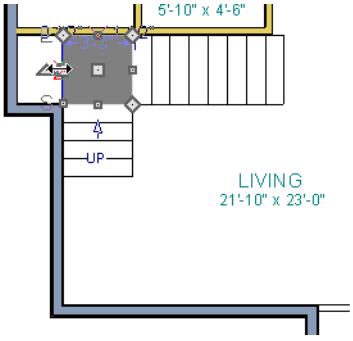

4. Draw another stair section 90° to the right of the first stair section, along the interior wall.



5. While the **Straight Stairs** tool is still active, click in the corner between the two stair sections to create a landing.



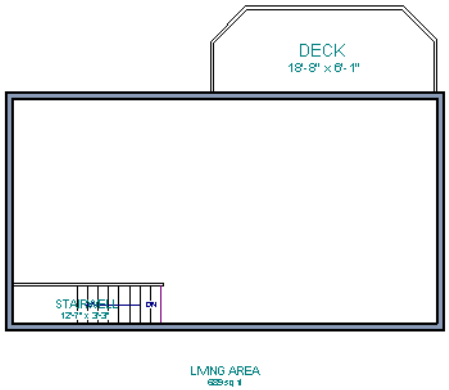

6. Click on the landing with either the **Straight Stairs** or **Select Objects** tool active, and resize it using its edit handles to fit against the wall. This may make a nice bench seat.




***To create a stairwell***

1. Select either of the two stair sections.
2. Click the **Auto Stairwell** edit button to create a stairwell.

3. Click the **Up One Floor** button to go to the second floor. Notice that the second floor now displays a stairwell defined by railings.



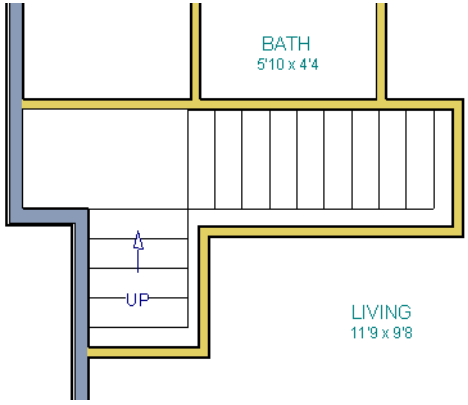

A stairwell is an interior room that is automatically assigned the **Room Type** "Open Below" in the **Room Specification** dialog. See "Room Specification Dialog" on page 301 of the Reference Manual.

It makes sense to draw the basement stairs directly below the stairs to Floor 2. We could use the **Auto Stairwell** edit tool to create another stairwell; however, in this situation, it will be better to define the stairwell with walls placed under the stairs to Floor 2 rather than by the railings that the Auto Stairwell tool generates.

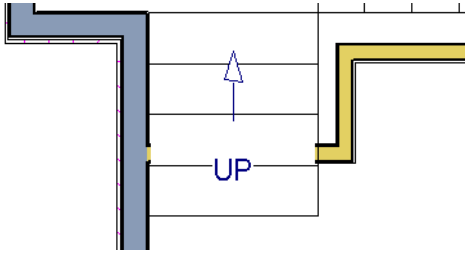
***To manually create a stairwell***

1. Click the **Down One Floor** button to go down to Floor 1.

2. Select **Build> Wall> Straight Interior Wall** , then click and drag to draw interior walls around the staircase drawn on this floor.

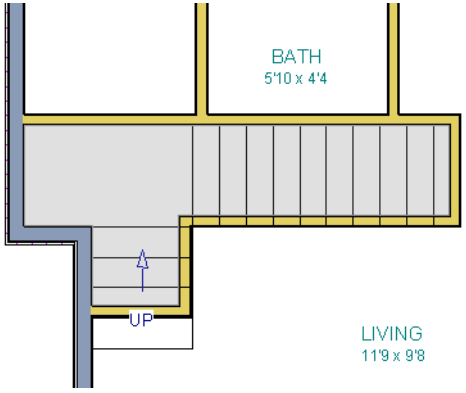



3. When the walls enclose a room around the stairs, click the **Select Objects** button, then click on one of the walls to select it. Drag it so that it is positioned inside the stairs, either aligned with the stair edges or just inside the stair edges.
4. Repeat this process with the other walls. When you reposition the wall nearest the first step of the stairs, make sure it is positioned under the second step rather than the first.

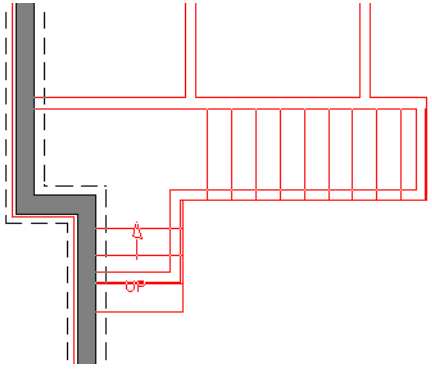



5. Next, click on a stair section inside of the stairwell room and click the **Select Next Object** edit button as many times as needed until the room is selected.

In the following image, the room (highlighted in grey) is selected and the stair sections and landing have been assigned a transparent fill style so the walls drawn beneath them can be seen.

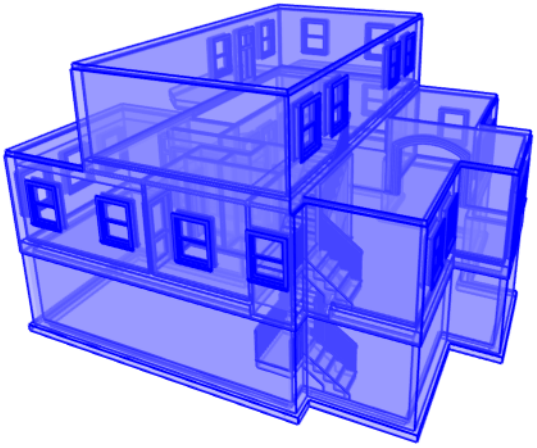



6. With the room selected, click the **Open Object** edit button and in the **Room Specification** dialog, select Open Below from the **Room Type** drop-down list and click OK.
7. Go **Down One Floor** and turn on the **Reference Display**.




8. Select **Build> Stairs> Straight Stairs** and draw two stair sections directly below the stairs you drew on Floor 1. Do not draw the landing just yet, though.
9. Select each stair section and adjust its width and position using its edit handles so that it fits within the walls forming the stairwell drawn on Floor 1.
10. When the stair sections are positioned properly, click with the Straight **Stairs** tool to create a landing as you did on Floor 1.

11. Select **3D> Create Perspective View> Full Overview** .
12. When the view has generated, select **3D> Rendering Techniques> Glass House** to view our entire model, inside and out.
13. Select **3D> Move Camera With Mouse> Mouse-Orbit Camera** and click and drag the mouse on screen to change the camera perspective. You can press the I (in) and the O (out) keys on the keyboard to zoom in and out of the plan.



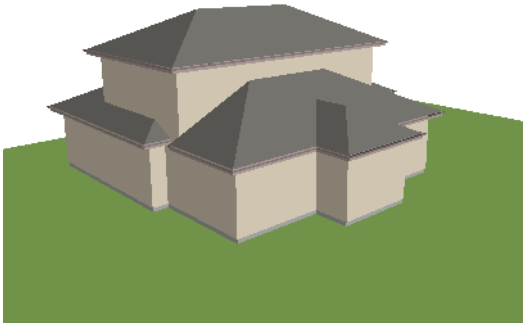
## Adding a Roof

It looks like our house could use a roof now. Chief Architect's roof tools are covered in greater detail in the Roof Tutorial. For more information, see "Roof Tutorial" on page 201 and "Roofs" on page 403 of the Reference Manual.

***To turn on automatic roof generation***

1. Select **Build> Roof> Build Roof** from the menu to open the **Build Roof** dialog.
2. On the Build tab, check **Auto Rebuild Roofs**. See "Build Roof Dialog" on page 407 of the Reference Manual for more information. Click **OK** to generate a roof.

3. Select **3D> Create Perspective View> Full Overview** to create a exterior view of your plan.

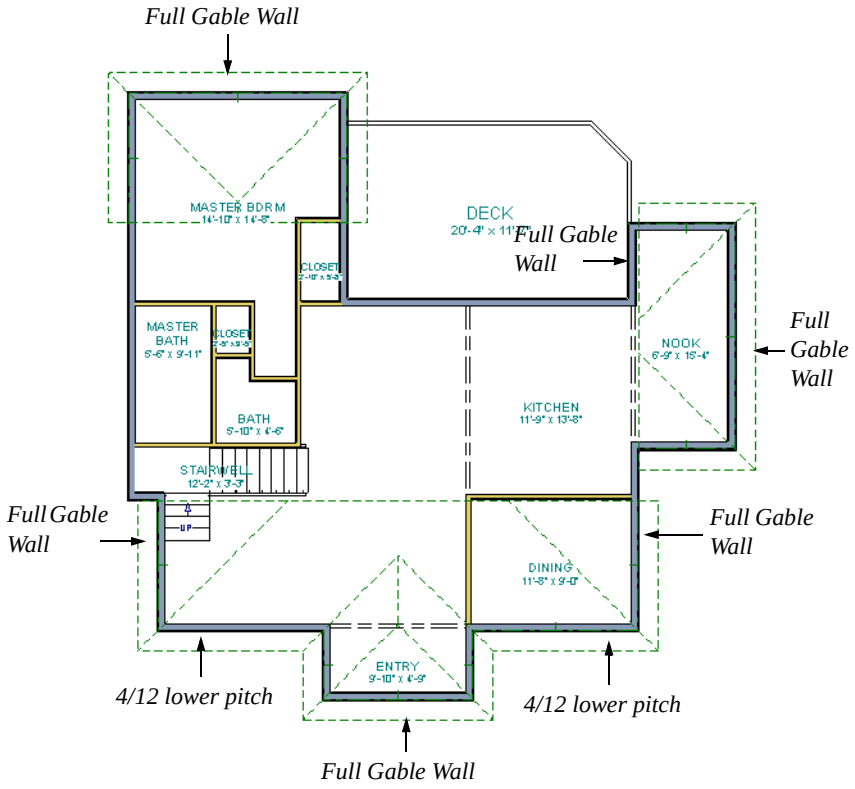


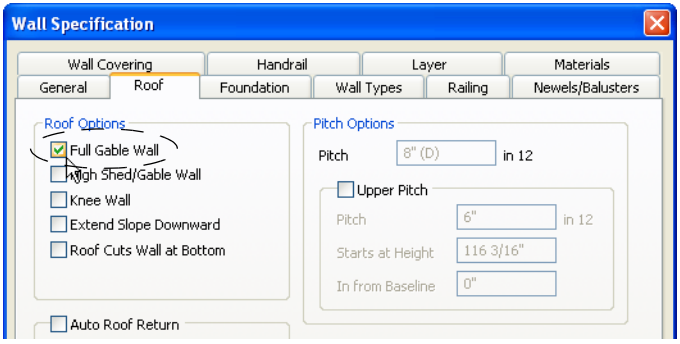
***To edit the default roof***

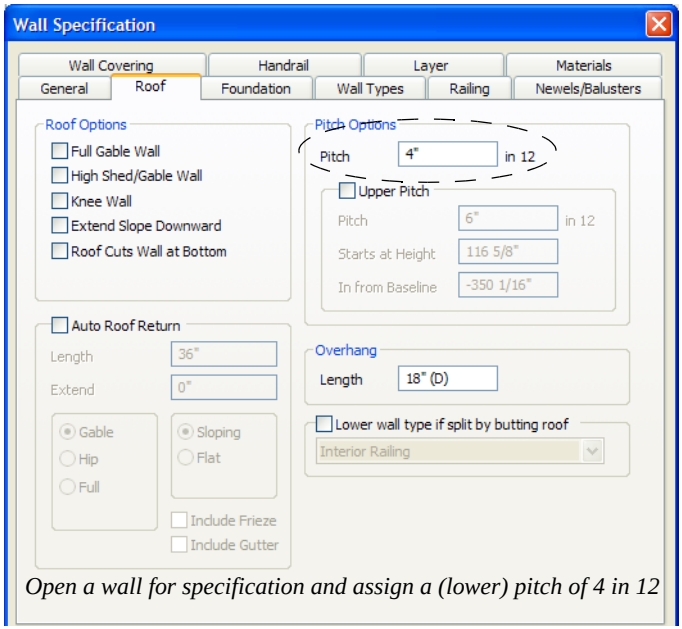
1. Close any other views you may still have open. For the following steps, only the floor plan view and the previously created 3D view should be open.
2. Make the floor plan view active by press Ctrl + Tab or by selecting the view that ends with ":Floor Plan" from the bottom of the Window menu.
3. Click **Up One Floor** to go to the first floor.
4. So that we can see the results of our changes, select **Window> Tile Vertically** from the menu to tile the 3D view and floor plan view windows.
5. Open the following first floor walls' specification dialogs and assign the settings shown in the following image on the Roof tab of the **Wall Specification** dialog. See "Roof Tab" on page 273 of the Reference Manual.

   Individual walls can be selected and edited in both 2D and 3D views. See "Editing Walls"

on page 249 of the Reference Manual.; however it may be a quicker operation in floor plan view since you can hold down the Shift key and group-select walls.

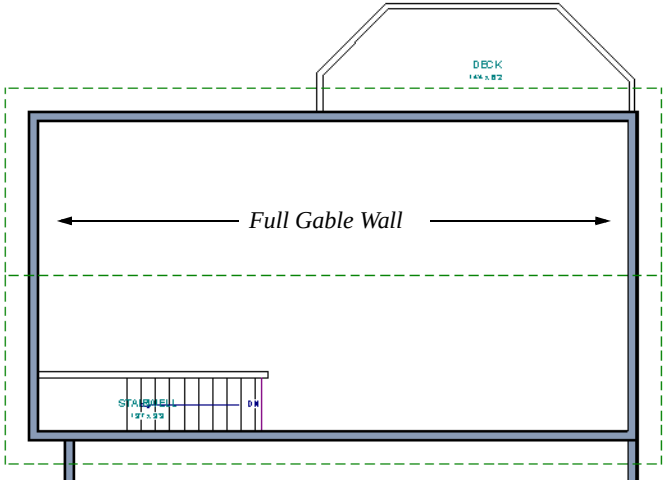


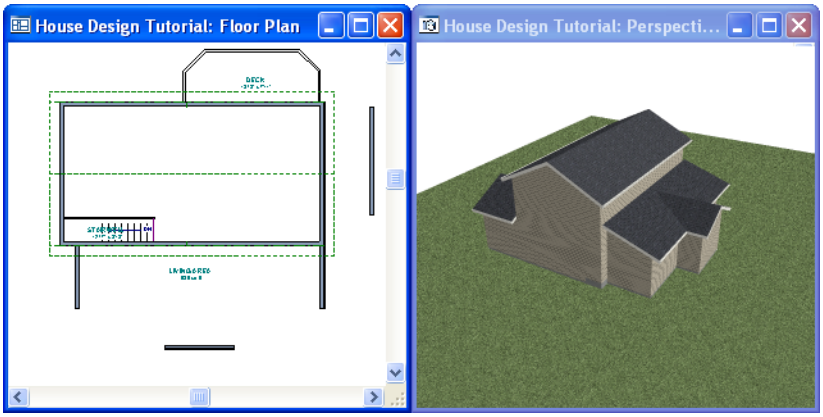



*Open a wall for specification and assign a (lower) pitch of 4 in 12*

6. Click **Up One Floor** to go to the second floor.
7. Assign the following settings on the Roof tab of the **Wall Specification** dialog to the second story walls. The additional walls you see are attic walls. You can ignore them for now. We'll talk about them in the next section.

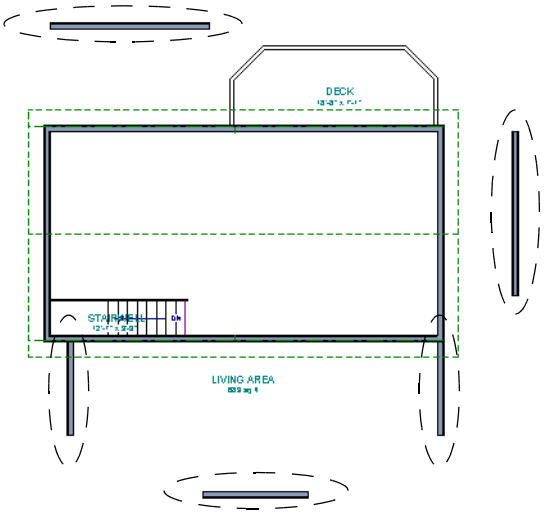


8. Notice that as you make these changes in floor plan view the 3D model updates.




## Attic Walls

When a roof is generated, attic walls are also generated. An attic wall fills the space between the first floor walls and angled roof planes above. To see this in floor plan view, take a look at the second floor.




*Attic walls generated below gable roof planes*

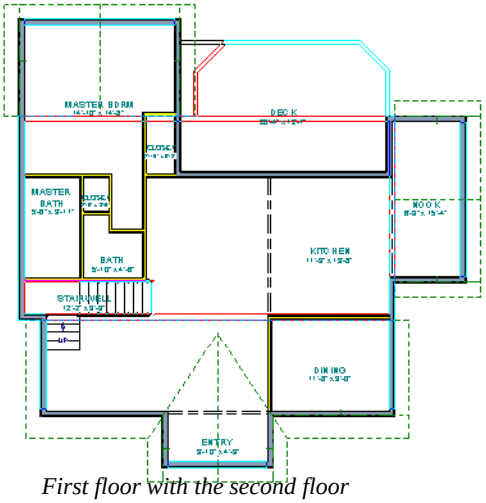
If you do not want to see attic walls in floor plan view, you turn off their display.

***To turn off the display of attic walls***

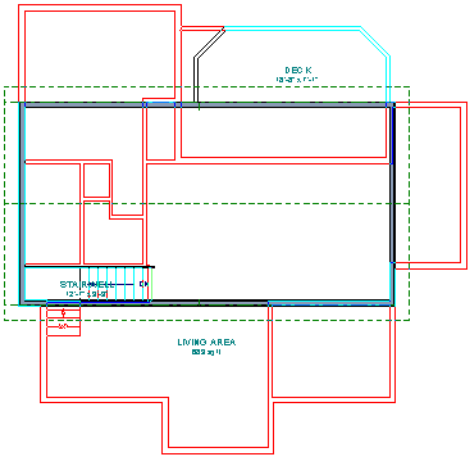
1. In floor plan view, select **Tools> Display Settings> Display Options** (or press the ~ key) to open the **Layer Display Options** dialog.
2. Find Walls, Attic in the Name column, remove the check from the Disp column for this item, and click OK. For more information, see "Layer Display Options Dialog" on page 130 of the Reference Manual.

## Improving Structural Support

The second floor is not supported well by the first floor. Before sending this plan in for approval, this must be addressed. Click the **Down One Floor** and **Up One Floor** buttons while the **Reference Display** is on to see how the walls on each floor line up.




*First floor with the second floor displayed for reference*




*Second floor with the first floor displayed for reference*

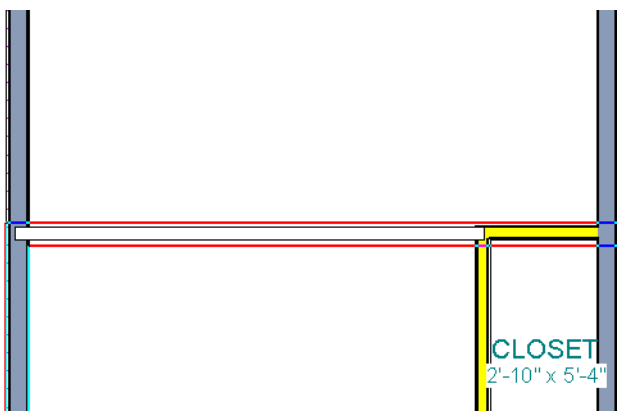
- The southern wall of floor two should have the dining room wall directly below it, which can serve as a bearing wall. We could also add an interior wall to the staircase to serve as a bearing wall. The span between the two will require a floor beam.
- The entire western wall of the second floor is supported by an exterior wall below.
- The northern wall of the second floor needs help. We can move the closet wall directly below it, but we'll also need to add a couple floor beams to help carry the load.
- The eastern wall of the second floor needs a floor beam to span between the exterior walls. Also, the first floor wall is not in alignment with the second story wall above.

***To create bearing walls***

1. Draw a **Straight Interior Wall** beside the stairwell on floor one, making sure to align it with the second story wall above. If the Dining Room wall is not in alignment with the second story wall above, select it and click the **Align with Wall Above** edit button.
2. Select the closet wall in the master bedroom and align it with the second story wall above.
3. Select the wall that divides the Nook from the Deck and lick the **Align with Wall Above** edit button.

***To add floor beams***

1. Select **Edit> Default Settings**, then click on "Framing" and click the **Edit** button.
2. On the Posts/Beams tab of the **Build Framing** dialog, specify the desired **Initial Beam Values**. For the purposes of this tutorial, we will not make any changes here - just note that the **Depth** is 12" and that beams are to be built **Under Joists**.
3. Select **Build> Framing> Floor/Ceiling Beam**.
4. In the master bedroom, click and drag to draw a floor beam that overlaps the exterior wall and the interior closet wall.
5. Once drawn, the floor beam can be selected and moved. See “Editing Box-Based Objects” on page 184 of the Reference Manual.
6. You may need to **Zoom** in to make sure the floor beam is centered below the second story wall above. If the snapping behaviors prevent accurate positioning, you can hold down the Ctrl key to bypass them.

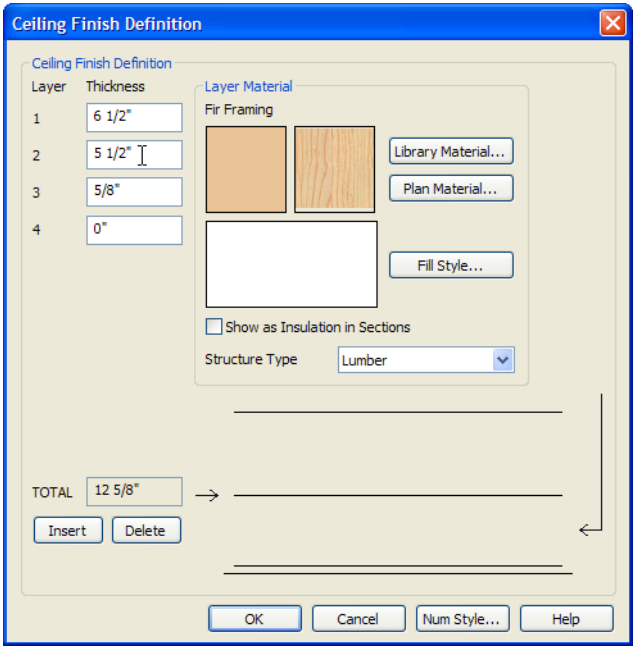



7. Draw three more floor beams to provide support for our second story; one over the deck, one between the kitchen and the nook, and another in the living room.

The floor beams we've added can remain exposed, or they could be drywalled and finished. In the Master Bedroom, we'll lower the ceiling to cover the beam. See "Lowered Ceilings" on page 295 of the Reference Manual.

***To create a lowered ceiling***

1. Select the master bedroom and click the **Open Object** edit button.
2. On the Structure tab of the **Room Specification** dialog, note the Finished Ceiling (F) value, 107 5/8", then click the **Ceiling Finish** button.
3. In the **Ceiling Finish Definition** dialog:




- Click in the **Thickness** field for Layer 1 to select it.
- Click the **Insert** button to add a new layer above the selected layer.
- This new layer's Thickness should equal the depth of the desired lowered ceiling framing. In this example, we will use 5 1/2" joists.
- With the new layer selected, click the **Library** button and choose "Fir Framing" as the material for this layer.
- Click the **Insert** button to add one more layer above the framed layer. It's Thickness should be 6 1/2", which is the difference between the beams' Depth (12") and the lowered ceiling framing Thickness (5 1/2") and its material should remain "Air Gap".

- Click OK to close the **Ceiling Finish Definition** dialog, apply your changes, and return to the **Room Specification** dialog.

4. Note that now the Finished Ceiling (F) value is now 95 5/8" - 12" less than before. Click OK to close the **Room Specification** dialog, as well.

## Placing Doors and Windows

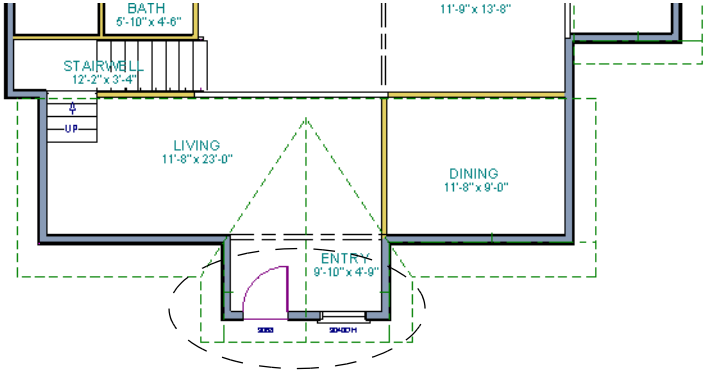
We're making progress on our house, but we can't get into it, and neither can light. Now is a good time to add some doors and windows. For more information about doors and windows, see "Doors" on page 309 of the Reference Manual and "Windows" on page 333 of the Reference Manual.

***To add a door***

1. If your views are still tiled, close the 3D view and maximize the floor plan view.
2. Select **Build> Door> Hinged Door** .
3. Move the pointer to the entry and click on the front wall, left of its center, to place a door.

***To add a window***

1. Select **Build> Window> Window** .
2. Move the pointer to the entry and click on the wall, right of center, to place a window.




***To edit a door***

1. So that we can better see the results when we edit our door, let's create a camera view of the entry. Click and drag a camera arrow outside the structure, pointed at the entry.

2. Click the **Select Objects** tool, then click on the door to select it in the 3D view.


3. Click the **Open Object** edit button to open the **Door Specification** dialog. For more information, see "Door Specification Dialog" on page 320 of the Reference Manual.
4. On the General tab, set the **Door Style** to Glass.
5. On the Frame & Lites tab, set the **Frame Bottom** to 8 inches. Press the Tab key to update the preview image on the right side of the dialog so that it reflects your change.
6. On the Lites tab, set the **Lites across** to 3 and **Lites vertical** to 4.

7. Click **OK** to return to the 3D view.

***To edit a window***

1. Next, click on the window to select it.

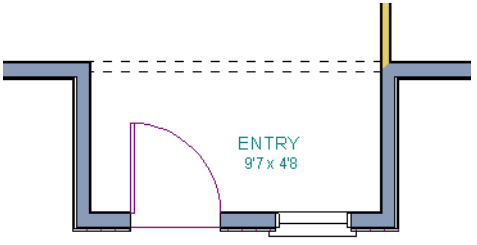

2. Click the **Open Object** edit button to open the **Window Specification** dialog. For more information, see “Window Specification Dialog” on page 350 of the Reference Manual.
3. On the General tab, select “Left-Sliding” from the **Window Type** drop-down list and set the **Width** to 36.

4. On the Lites tab, change the **Lites across** to 2 and **Lites vertical** to 3.
5. Click OK to close the **Window Specification** dialog.

If you would like all of your doors and/or windows to be customized, make your changes in the Door Defaults and Window Defaults dialogs before placing these objects. For more information, see "Default Settings" on page 62 of the Reference Manual.

***To change the door swing***

1. Return to floor plan view and select the door.
2. Click the **Change Opening/Hinge Side** edit button.




***To copy a window or door***

1. Return to the 3D view and select the window.

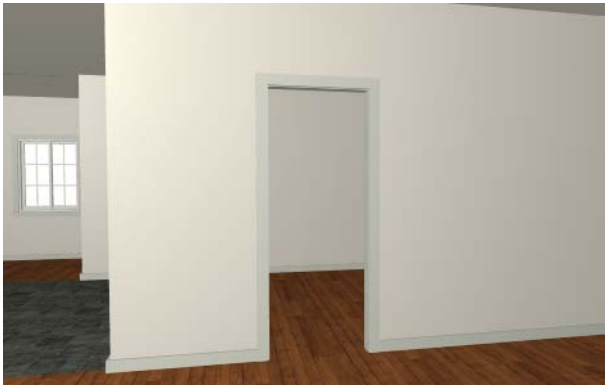
2. Click the **Copy/Paste** edit button. For more information about copying objects, see “Copying and Pasting Objects” on page 149 of the Reference Manual.
3. Click on the wall to the left of the entrance to paste the window.

Doors and windows can be placed, selected, deleted, copied, pasted, and edited in 2D and 3D views. If there is a window design that you will be using throughout a plan, you can create it once, then just copy and paste it. An even better approach is to set your door and window defaults to the desired settings before placing these objects. For more information, see “Default Settings” on page 62 of the Reference Manual.

***To create a doorway***

1. Return to floor plan view and **Zoom** in on the dining room.
2. Select **Build> Door> Doorway** and click on the dining room wall nearest the entrance to place a doorway.

3. Select **3D> Create Perspective View> Full Camera** and create an interior camera view of the doorway.

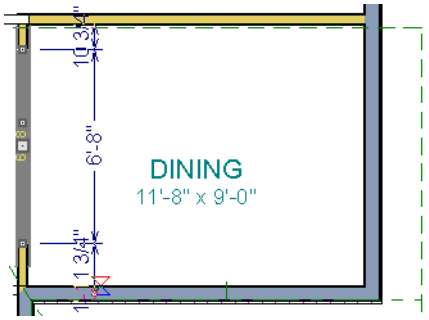


***To customize the doorway***

1. Select the doorway by clicking on it's frame and click the **Open Object** edit button to open the **Door Specification** dialog.
2. On the General tab, change the **Width** to 80 inches.
3. On the Casing tab, change the **Casing Width** to 10 inches. Be sure to delete the (D) from the text field. It stands for "default" and will continue to apply the default casing width if it is not removed, regardless of the value you specify.
4. On the Arch tab, click the Type drop-down and specify a broken arch from the list. Set the Height of the broken arch to 12 inches.
5. On the Casing tab, click the **Library** button below casing and select a molding profile from the Door & Window Casings library.
6. Click OK to close the **Door Specification** dialog.

***To center the doorway***

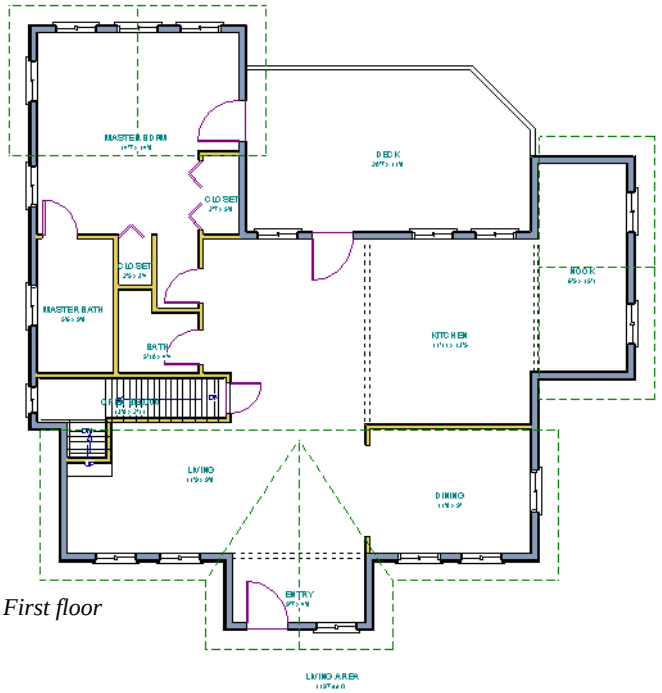
1. Return to floor plan view and select the doorway.



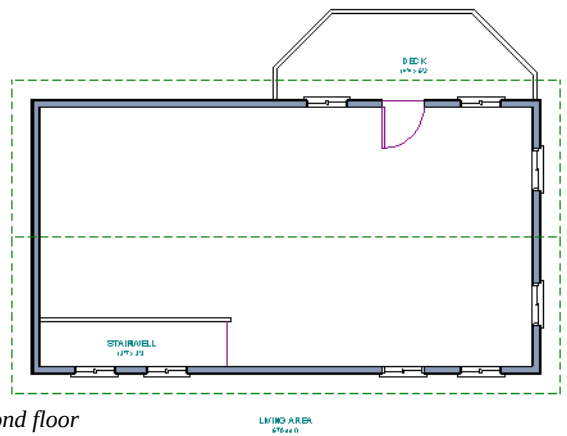

2. Click the **Center Object** edit button, then click inside the dining room, near the interior wall containing the doorway. See “Using Center Object” on page 205 of the Reference Manual.
3. Return to the camera view to see the results.

Use the tools and techniques you’ve learned to add window and doors to the rest of the plan, as shown in the following images. Doors placed in interior walls become interior doors and have

different specifications than exterior doors. If you feel inspired, customize the doors and windows as you see fit.




*First floor*



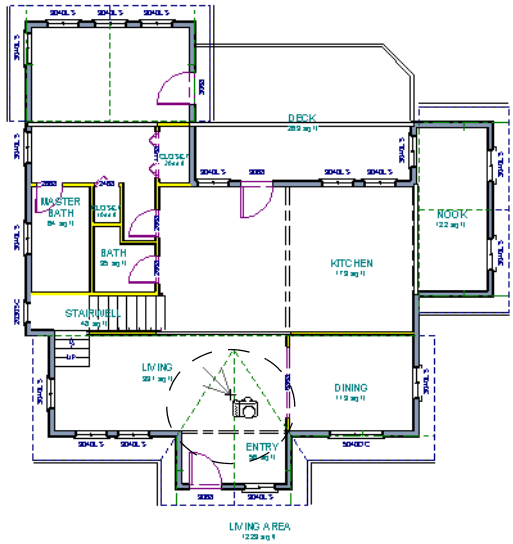

*Second floor*

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

We've added quite a lot to our model. Let's see how it all looks.

***To take a final look***

1. Using the **Full Camera** tool, create an interior camera view that will allow an unobstructed 360° view of the first floor of the model. Remember that where you click determines the camera's perspective and where you release determines the point about which the camera will rotate. Therefore a short drag distance is ideal, however, the distance must be greater than one foot.



2. Release the mouse button to create the 3D camera view then use the **Mouse-Orbit Camera** tool to take a look around and see our progress so far.

3. You can also take a **Floor Overview** on any floor.

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

If you would like, you can continue working on this plan in the Interior Design Tutorial or Kitchen and Bath Design Tutorial. You can also learn about materials in the Materials Tutorial or find out more about roofs in the Roof Tutorial.To learn how to arrange views of your model on a page for printing, see the Layout Tutorial.

Chapter 3:

# Interior Design Tutorial

In the Interior Design Tutorial, we'll pick up where we left off in the House Design Tutorial. The shell and basic structure of our plan is complete, but a lot of interior finishing remains. Our plan still needs lights, outlets, and fixtures to be a functional home. In addition, the interior could use some creature comforts such as furniture, wall coverings and moldings. You may want to save this tutorial using a new name to archive your previous work. In this tutorial, you will learn about:

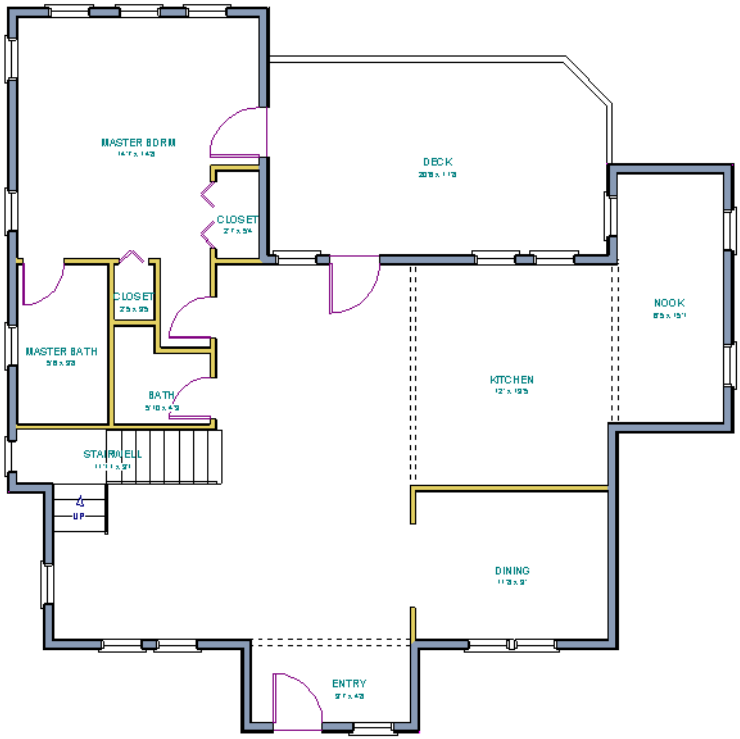
- Controlling the Display of Objects
- Working with Library Objects
- Adding Electrical Objects
- Applying Room Moldings
- Applying Wall Coverings

## Controlling the Display of Objects

We have a roof on our plan, but in this tutorial we'll be working on the plan's interior, so we do not need the roof planes to show in floor plan view. As we learned in the previous tutorial when we turned off the display of attic walls, the display of objects is controlled in the **Layer Display Options** dialog. For more information about layers and using the **Layer Display Options** dialog, see "Layers" on page 125 of the Reference Manual.

***To control the display of objects***

1. Select **Tools> Display Settings> Display Options** (or press the ~ key) to open the **Layer Display Options** dialog.
2. Press the letter R, find the layer "Roof Planes" and remove the check from the Display column. While we're at it, let's also turn off the display of "Windows, Labels" and "Doors, Labels". Click OK.



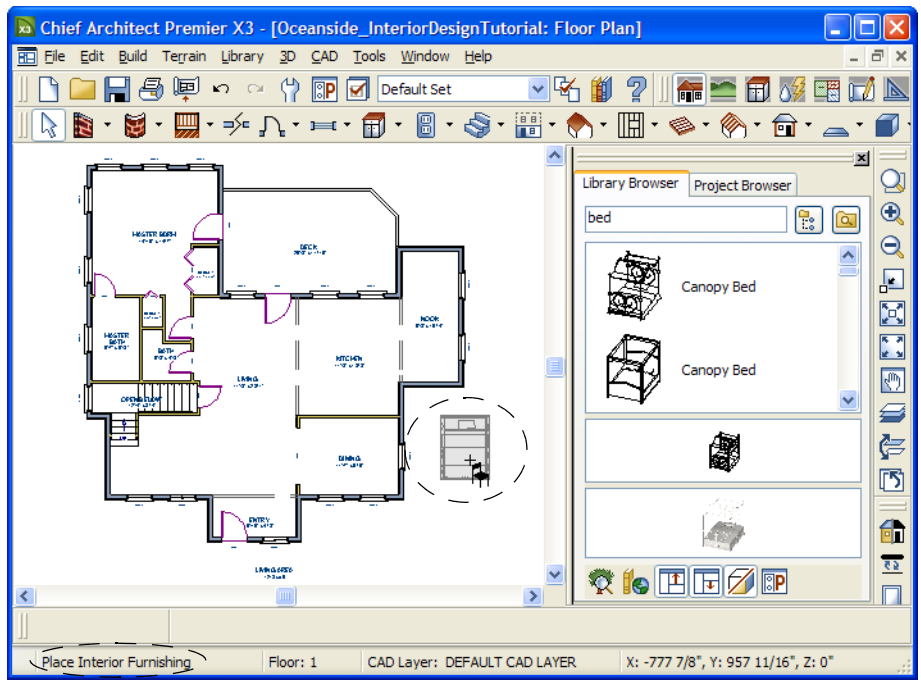

*First floor with the display of roof planes, window labels, and door labels turned off*

## Working with Library Objects

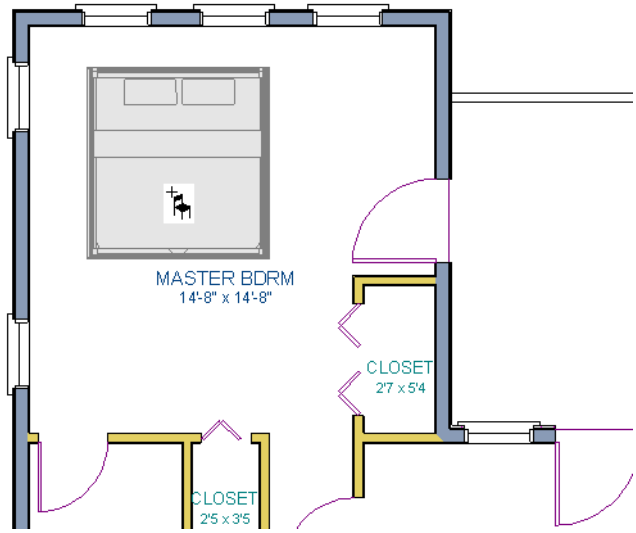
Chief Architect comes with a library that contains thousands of library objects that can be used in a plan. For more information about the library and library objects, see "The Library" on page 713 of the Reference Manual.

***To place a bed***

1. Select **Library> Library Browser** (or press Ctrl + L on your keyboard) to open the Library Browser.
2. Click the **Turn on search filtering options** button, then check **Match entire word**.
3. In the text field, type bed. Search results will display below as you type.
4. Click on a bed in the search results list to select it for placement. When a library object is selected for placement the mouse pointer icon indicates the type of library object selected, a preview outline of the object displays in floor plan view, and basic information displays in the Status Bar at the bottom of the program window.



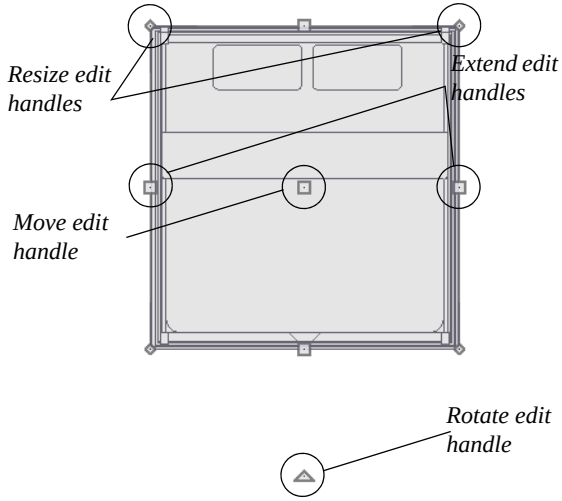
5. Click in the master bedroom to place the bed.



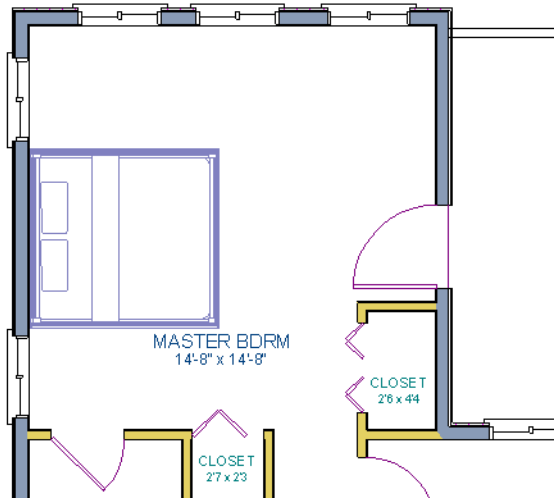

Library objects can be selected and edited using the mouse. They can also be opened for specification, a method that offers the most complete editing capabilities. See "Symbol Object Specification Dialogs" on page 741 of the Reference Manual.

***To edit a library object in floor plan view using the mouse***

1. Click the **Select Objects** button (or press the Spacebar) and click on the bed to select it. When selected, the bed displays edit handles. For more information, see "Editing Box-Based Objects" on page 184 of the Reference Manual.




2. Use the Rotate edit handle to rotate the bed.
3. Use the Move edit handle to move the bed up against the left wall.

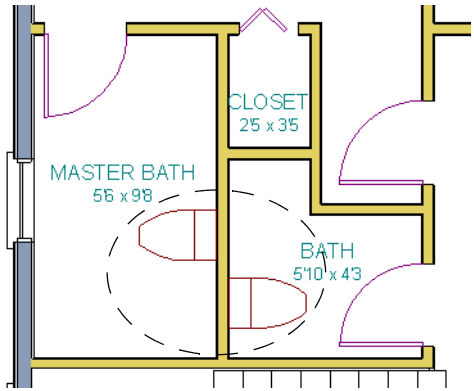



Now we'll place some fixtures. If you cannot find what you're looking for, the **Library Search** feature can help.

***To use library search***

1. Select **Library> Library Browser** to open the **Library Browser**.

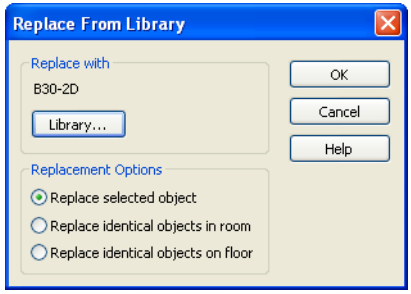
2. Type "toilet" into the search field at the top of the browser window. As you type, search results display in the Directory pane.
3. Select the Lowboy from the search results.
4. Click in the bathroom to place the toilet. Click again in the master bathroom to place another toilet.



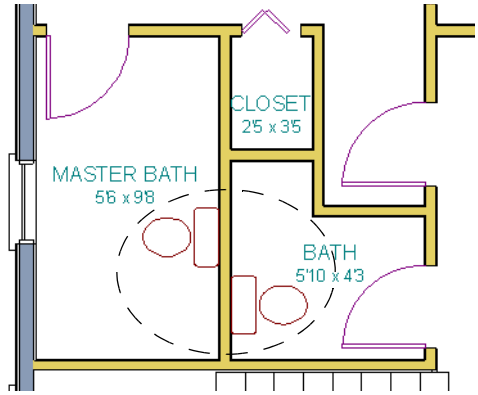

If there are multiple library objects in a plan that are similar, they can be replaced at the same time using the **Replace From Library** edit button.

***To replace a library object***

1. While the **Select Objects** tool is active, click on either one of the lowboy toilets in floor plan view to select it.
2. Click the **Replace From Library** edit button to open the **Replace From Library** dialog.

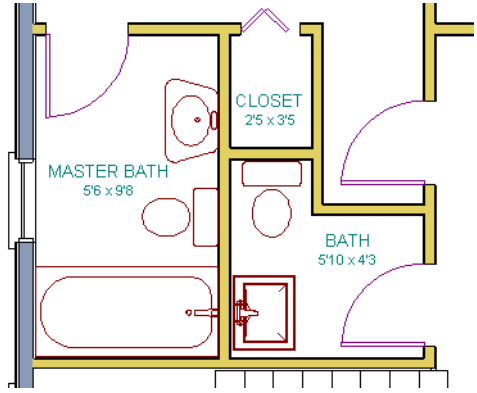



3. Click the **Library** button to select an item from the library to replace the lowboy toilets.
4. Select the standard toilet and click **OK** to return to the **Replace From Library** dialog.
5. Select **Replace Identical Objects on Floor** and click **OK**.




Using the tools and techniques learned so far, place fixtures and furniture in both bathrooms.

If existing walls and/or other objects do not allow enough room for a library object to be placed, place the library object where there is enough room and move the object into place while holding down the Ctrl key on the keyboard.

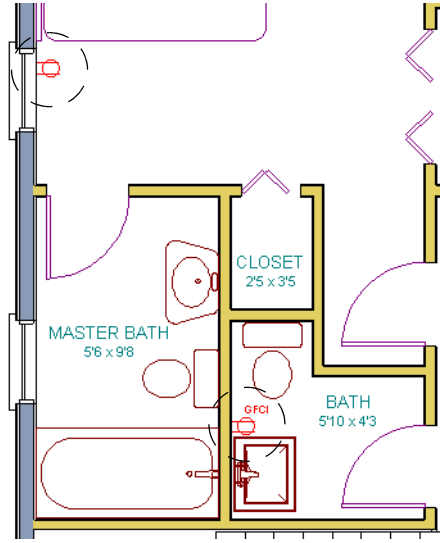



## Adding Electrical Objects

The electrical tools that come with Chief Architect allow you to detail the location of outlets and lights, as well as the layout of switches and circuits. For more information about working with electrical objects, see “Electrical” on page 549 of the Reference Manual.

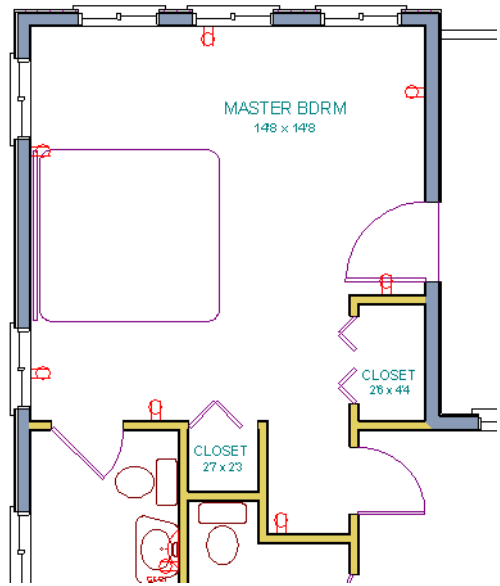
***To place an outlet***

1. Select **Build> Electrical> 110V Outlet** .
2. Click next to the sink in the bathroom to place an outlet. Notice that the outlet is a GFCI outlet, because the room is assigned the Room Type "bath".
3. Click next to the bed in the master bedroom. A standard 110V outlet is placed.




***To place outlets in a room automatically***

1. Select **Build> Electrical> Auto Place Outlets** .
2. Click once in the master bedroom and once in each bathroom to automatically place outlets. **Auto Place Outlets** will place outlets a predetermined distance from one another and place lights above sinks in rooms with the room type "bath."

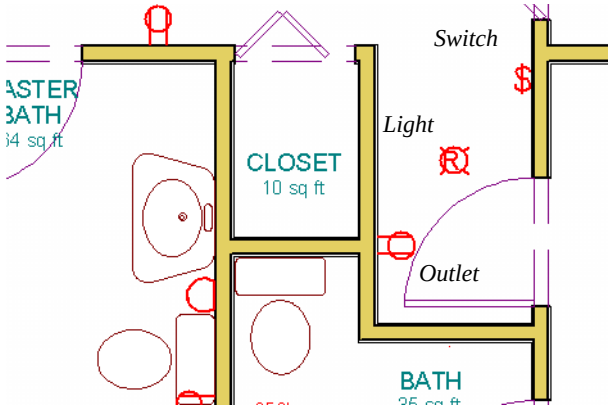



***To place lights***

1. Select **Build> Electrical> Light** .
2. Click on a wall to place a wall light.
3. Click in a room to place a ceiling light.

***To place a switch***

1. Select **Build> Electrical> Switch** .
2. Click on a wall to place a switch.

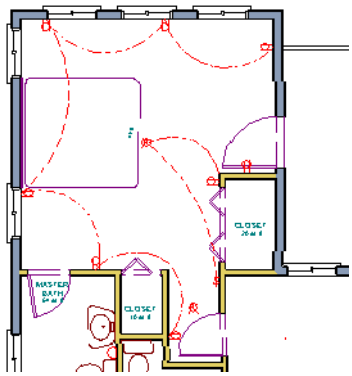



*Floor plan view showing switches, lights, and outlets*

Electrical objects can be connected in floor plan view to detail circuitry.

***To draw circuits***

1. Select **Build> Electrical> Connect Electrical** .
2. Click on an electrical object, drag a line to another electrical object, and release the mouse button.
3. Select the electrical connection to show an edit handle. Click and drag the edit handle to adjust the arc.



*Floor plan view showing two electrical circuits*

The library contains electrical objects such as fans, jacks, and smoke detectors.

***To place an electrical object from the library***

1. If it is not still open, select **Library> Library Browser** to open the Library Browser.
2. Browse to the Architectural> Electrical category.
3. Find the ceiling mounted smoke detector, select it for placement, and click in the master bedroom to place it.

Now let's take a look at our master bedroom in a 3D view. See "To create a camera view" on page 45 for information about using the **Full Camera** tool.

***To place electrical objects in a 3D view***

1. Select **Build> Electrical**> **Light**. The cursor indicates that the light tool is active.

2. Click on the wall to place a light.

3. Select **Build> Electrical> Switch** .
4. Click below the light to place a switch.

*Electrical objects can be placed in 3D views as well*

## Applying Room Moldings

In Chief Architect, you can specify base, crown and chair rail moldings for any room. The library contains hundreds of molding profiles; and in addition, you can create your own profiles and save them for future use. Moldings can be used in a variety of creative applications. We'll start by applying a crown molding in the master bedroom, and then we'll add a chair rail to the dining room. Finally, we'll create our own molding profile and use it to create a tray ceiling in the dining room. For more information about moldings, see "Trim & Molding" on page 561 of the Reference Manual.

***To add crown molding***

1. With the camera view of the bedroom still active, click the **Select Objects** button or press the Spacebar, then click in a blank space on the floor of the room to select it.
2. Click the **Open Object** edit button to open the **Room Specification** dialog for the master bedroom.
3. On the Moldings tab:
   - Uncheck **Default**, and then click the **Add New** button.
   - In the **Select Library Object** dialog, you can either browse to a crown molding in the tree list, or type "crown molding" in the text field. When you find a molding that suits your needs, click OK. For more information, see "Select Library Object Dialog" on page 735 of the Reference Manual.

- If you wish, you can specify the **Height** of the selected molding. In this tutorial, a height of 4 inches is used.
- Select "Crown Molding" from the **Type** drop-down list and notice that the From Floor value is equal to the room's Finished Ceiling Height on the General tab.
- Click OK to close the **Room Specification** dialog.

Chair rail moldings can be applied to a room in the same manner. Base moldings are already applied in most room types by default, but can be edited, removed or added here, as well.

***To add chair rail***

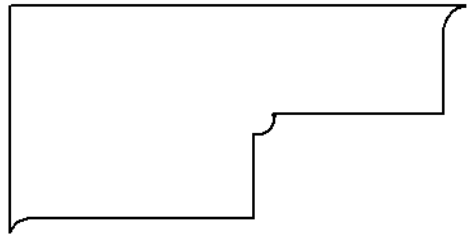
1. Select **File> Close** to return to floor plan view, then select the dining room and click the **Open Object** edit button.
2. Go to the Moldings tab of the **Room Specification** dialog.
3. Click the **Add New** button, and select a chair rail profile. Specify a **Height** of 2" and set the **From Floor** value to 32" inches. Click OK.
4. Create a 3D camera view of the dining room to see the results.

## Creating a Tray Ceiling

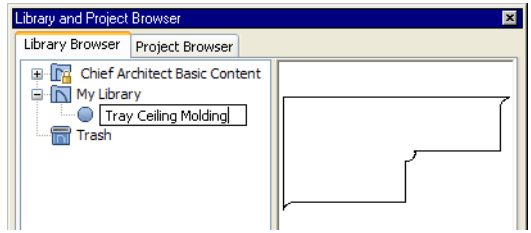
A tray ceiling is a special kind of stepped ceiling. There are a few different ways to create a tray ceiling in Chief Architect. Each method has advantages and disadvantages. Polyline solids can be used, primitive objects can be used, even soffits can be used to create tray ceilings. Using a molding is a method that works particularly well because it can easily follow the outline of a room, regardless of its shape. First we'll create a profile, then apply that profile to a crown molding. For more information, see "Creating a Molding Profile" on page 568 of the Reference Manual.

***To create a molding profile***

1. Select **CAD> CAD Detail Management** to open the **CAD Detail Management** dialog. Click the **New** button and name the new CAD Detail window "Tray Ceiling Profile". See "CAD Details" on page 974 of the Reference Manual for more about CAD Detail windows.
2. Select **CAD> Lines> Draw Line** (or press W).
3. Draw a molding profile that will become a tray ceiling. A few things to keep in mind:
   - The upper left hand corner of the profile will be placed in the corner of the ceiling.
   - This molding profile must be a closed polyline. See "Editing Closed-Polyline Based Objects" on page 179 of the Reference Manual.
   - Keep **Grid Snaps** on. See "Grid Snaps" on page 146 of the Reference Manual.
   - The distance of each line segment displays in the Status Bar as it is drawn.



4. Select the closed polyline and click the **Add to Library** edit button to add the Molding to the My Library catalog in the Library Browser.
5. In the Library Browser, right click on the Molding and select **Rename** to name this profile "Tray Ceiling Profile".




6. If you want, you can create library folders to organize your custom content by right clicking on My Library and selecting **New**> **Folder**. See “Organizing the Library” on page 729 of the Reference Manual.
7. Once has been saved to the library, you can delete the original polyline if you wish.
8. Return to floor plan view, select the dining room and click the **Open Object** edit button.
9. On the Moldings tab of the **Room Specification** dialog, click the **Add New** button, find and select your new molding profile, set its **Height** to 10" and its **Type** as "Crown Molding" and click OK.
10. Click OK to close the **Room Specification** dialog.

## Applying Wall Coverings

Now we'll apply a wall covering to the master bedroom. Wall coverings can be used in addition to a wall's surface material to create accents like wallpaper borders or wainscoting. For more information about wall coverings, see "Wall Materials" on page 299 of the Reference Manual.

***To apply a wall covering***

1. Select the master bedroom and click the **Open Object** edit button.
2. On the Wall Covering tab of the **Room Specification** dialog, click the **Add New** button to open the **Select Library Object** dialog.
3. Browse to Chief Architect Libraries> Materials> Fabric & Wall Coverings> Patterns & Prints, select a pattern, and click **OK**.
4. Change the **Width** to 11 inches, and change the **Top To Ceiling** value to 12 inches to allow for the distance between the Ceiling and Lowered Ceiling.
5. Click **OK** to close the **Room Specification** dialog.

Additional wall covering materials can be found in the Manufacturer libraries.

6. When you have finished, you may want to **Save** your work.

If you would like, you can continue working on this plan in the Materials Tutorial. To learn how to arrange views of your model on a page for printing, see the Layout Tutorial.

Chapter 4:

# Materials Tutorial

Materials display on the surfaces of objects in 3D views and can make a 3D view appear highly realistic. When applied to most objects, material quantities will also be calculated in the Materials List.

This tutorial continues from where the Interior Design Tutorial ended. You may want to save this tutorial using a new name to archive your previous work. In this tutorial you will learn about:

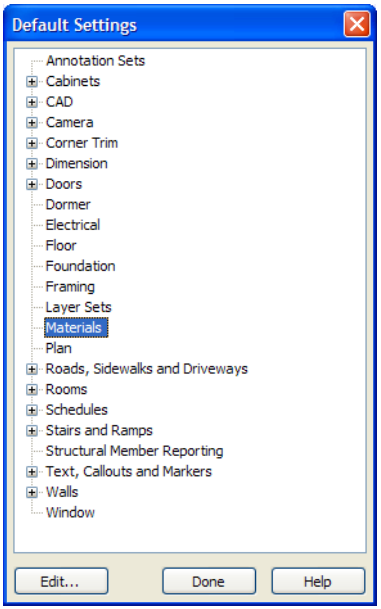
- Setting Materials Defaults
- Using the Materials Tab
- Using the Material Painter
- Using the Material Eyedropper
- Using the Color Chooser
- Blending Colors with Materials
- Using the Material Eyedropper
- Custom Materials, Images, and Backdrops
- Generating a Materials List

## Setting Materials Defaults

Material default settings determine the materials used by different objects when they are initially created. Setting the correct material defaults before beginning a project may help you save time. For more information, see “Preferences & Default Settings” on page 61 of the Reference Manual.

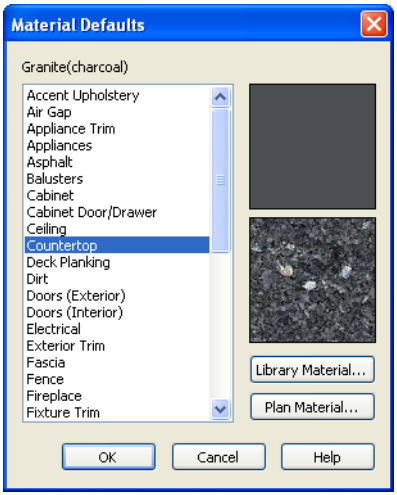
***To set material defaults***

1. Select **Edit> Default Settings** to open the **Default Settings** dialog.




2. There are a couple options. You can do either or both:
   - Select an item in the tree list and click the **Edit** button to open the defaults dialog for that type of object. The default dialogs for architectural objects such as doors and windows have a Materials tab that allows you to set the material defaults for object components. See "Using the Materials Tab" on page 97.

- Select **Materials** and click the **Edit** button to open the **Material Defaults** dialog. Here you can set the material defaults for many different objects, including some that do not have default dialogs. See “Material Defaults” on page 766 of the Reference Manual.




3. When you are finished, click **OK** to close the defaults dialog, then click **Done** to close the **Default Settings** dialog.

Once an object has been placed in a plan, the materials applied to it can be changed in a number of ways.

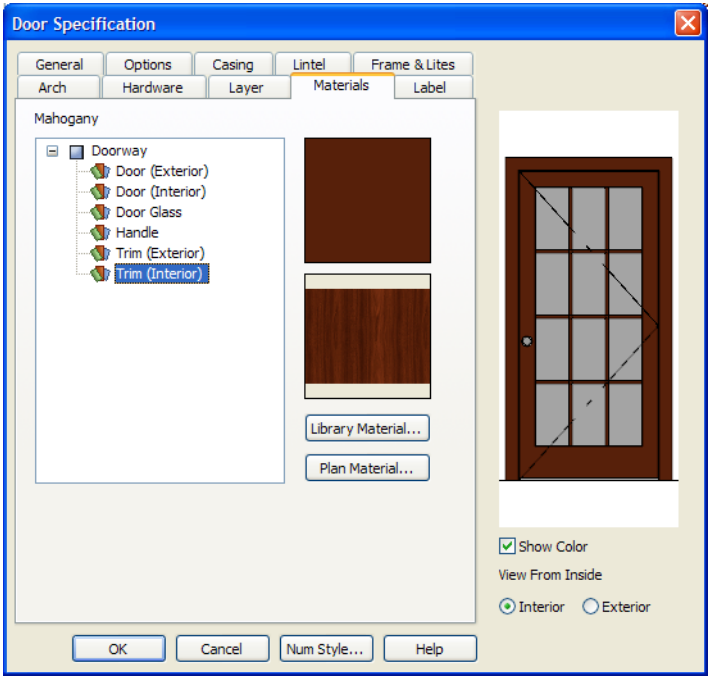
## Using the Materials Tab

Most objects’ materials can be assigned in their specification dialog in both 2D and 3D views. The materials used by a door, for example, can be edited on the Materials tab of the **Door Specification** dialog. For more information, see “Materials Tab” on page 747 of the Reference Manual.

***To change material on an object using the Materials tab***

1. Click the **Select Objects** button, then click on the door leading from the master bedroom to the deck on Floor 1 to select it.
2. Click the **Open Object** edit button to open the **Door Specification** dialog.
3. On the Materials tab, notice that you can display the preview of either the interior or exterior of the door on the right side.
   - Click the radio button beside **Interior** in the lower right corner of the dialog box.

• Select one of the door's components from the list on the left.




• Click the **Library Material** button to open the **Select Library Object** dialog.

4. Find and select a material and click **OK**.
5. You can continue to specify component materials. The preview in the dialog updates as changes are made. When finished, click **OK** to close the specification dialog.

6. Create a **Full Camera** view of the door.

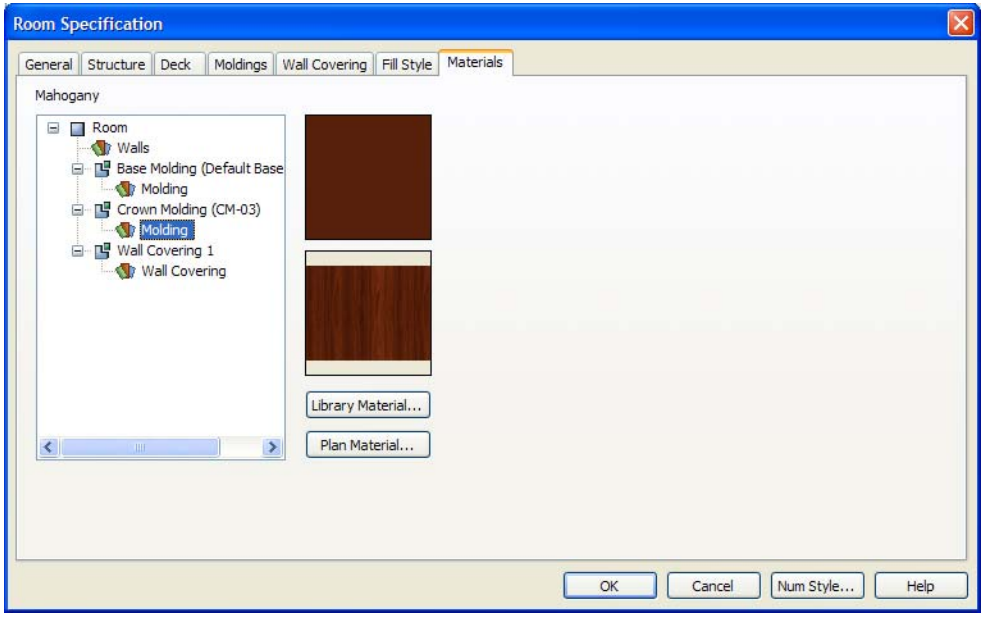
The materials used in individual rooms can also be specified. Rooms can be selected in both floor plan and 3D views.

- In floor plan view, click in an empty space within a room. When selected, the whole room is highlighted. If you accidentally select an object other than the room, you can press the Tab key on the keyboard until the room is selected.
- In camera views and overviews, click on the floor of the room to select it.

***To edit a room using the Materials tab***

1. Select the master bedroom and click the **Open Object** to open the **Room Specification** dialog.
2. On the Materials tab, select Moldings and click the **Library Material** button to open the **Select Library Object** dialog.

3. Find and select a material and click **OK** to close the dialog.




4. Click **OK** to close the **Room Specification** dialog.
5. The results can be seen in a **Full Camera** view.

# Using the Material Painter

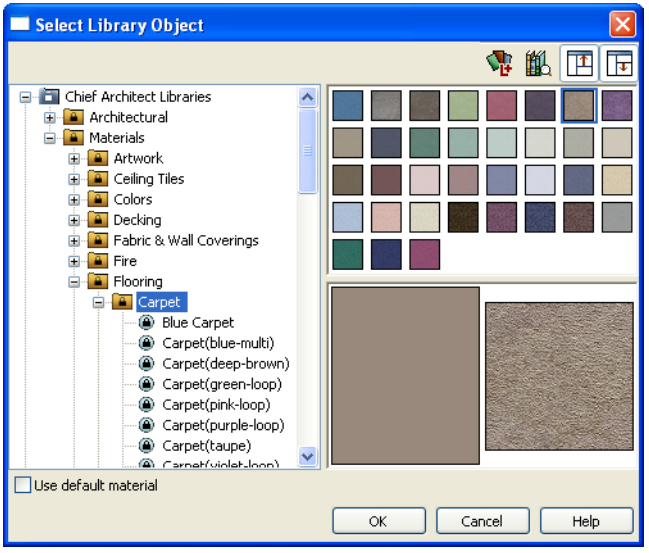
The **Material Painter** tool allows you to select a material and then apply it to an object in a 3D view.

There are five Material Painter Modes which specify how broadly or narrowly the selected material will be applied to surfaces in your plan. In this tutorial, the **Component** Mode is used. For more information, see “The Material Painter” on page 744 of the Reference Manual.

***To apply a material using the Material Painter***

1. While still in the 3D view of the door, select **3D> Materials> Material Painter** and confirm that there is a checkmark next to **Material Painter Component Mode**.

2. Click the **Material Painter** button to open the **Select Library Object** dialog. Browse to Flooring> Carpeting, select a carpet material, and click OK.




3. Move your cursor into the 3D view and notice that it displays a spray can icon .

4. Click on the floor of the master bedroom to apply the selected material to that surface, which is a component of the room.

As an alternative to wall-to-wall carpeting, you can place an area rug from the library in a room and assign to it whatever material you wish. See "Placing Library Objects" on page 733.

With the **Material Painter** tool you can apply a material to nearly any surface, including many that can't be individually selected like the base molding on a wall or the frame of a window. When either the **Component** or **Object** Modes is active, you can continue to apply the selected material to objects until a different tool is selected.

***To add artwork to a frame***

1. Place a wall or desk frame in your plan and create a camera view in which it can be seen. A variety of frames can be found in the Interiors library category.
2. Select **3D> Materials> Material Painter** and confirm that there is a checkmark next to **Material Painter Component Mode**.
3. Click the **Material Painter** button to open the **Select Library Object** dialog and select a painting, photo or print from the Artwork library.

4. Move your cursor over the middle area of the frame and click to apply the selected artwork.

The artwork displayed in a frame can also be specified in the frame's specification dialog. See "Symbol Object Specification Dialogs" on page 741 of the Reference Manual.

## Blending Colors with Materials

Instead of using the **Material Painter** to replace a material with a new one, we can use it with the **Blend Colors With Materials** feature to blend a color with a textured material such as the carpet we selected for the master bedroom and create a new material. For more information, see "Blend Colors With Materials" on page 745 of the Reference Manual.

***To blend a color with a texture***

1. In a 3D view, select **3D> Materials> Material Painter> Material Painter**.
2. In the **Select Library Object** dialog, select a solid color for the carpet from the Generic Colors library, then click OK.
3. When you move your cursor into the view, it displays a paint roller icon.
   - When **Blend Colors with Materials** is active and a solid color is loaded in the Material Painter, your cursor displays the paint roller icon.
   - If you see the spray can icon instead, select **3D> Materials> Material Painter> Blend Colors With Materials** or click the **Blend Colors With Materials** edit button to turn this feature on.

4. Click on the carpet to blend the selected color with the carpet texture. The result is a new material with the textured appearance of the carpet as well as the color you selected.

*Before using Blend Color With Material*

*After using Blend Color With Material*

## Using the Material Eyedropper

The **Material Eyedropper** tool allows you to load a material that can be seen on a surface in a 3D view into the **Material Painter** tool and then apply it to another surface. In our master bedroom, the type of wood we have assigned to the interior trim of the exterior door is different than the material used on the trim of the interior doors.We can easily change this using the **Material Eyedropper**.

*The trim on the door at left is different from the other three doors*

***To change materials using the Material Eyedropper***

1. Activate the camera view (or any 3D view).

2. Select **3D> Materials> Material Painter** from the menu. If there is a check beside **Blend Color With Material**, select this menu item to disable it; if not, simply click outside of the menu to close it again.
3. Select **3D> Materials> Material Eyedropper** and notice that the pointer displays an eyedropper icon .

4. Now just click to load that material. Notice that the pointer changes to a spray can , indicating that the loaded material is ready to apply to another object and replace the existing material.
5. Click on the doors and their frames to apply the loaded material.

## Specifying Landscaping Materials

You can use the Materials tab, Material Painter tools and Material Eyedropper to customize the appearance of your landscaping. The Terrain Perimeter, terrain features, terrain walls and curbs, and roads and sidewalks all have materials assigned to them that can be changed to suit your needs. For more information, see "Editing Terrain Objects" on page 631 of the Reference Manual.



In addition, the materials assigned to Terrain Features, including garden beds, stepping stones and driveways, are calculated in the Materials List. For more information, see "Materials Lists" on page 1119 of the Reference Manual.

## Using the Color Chooser

With the **Color Chooser** you can load any color that is displayed on your monitor and save it to the library for use in your plans.

***To create a new material using the Color Chooser***

1. Select **Tools> Color Chooser** to open the **Color Chooser** dialog.

2. Place your mouse pointer over the eyedropper at the right of the dialog, then click and drag the eyedropper to an open image on your screen.

3. Release the mouse button to load the color, then click the **Create Material** button in the **Color Chooser** dialog. Click OK to close the **Color Chooser** dialog.
4. The new "Custom Color" is now saved in the My Library catalog with its R, G, B colors specified in its name. It can be renamed and moved, and is available for use in any plan.

# Custom Materials, Images, and Backdrops

Chief Architect allows you to customize your 3D views by importing your own materials, image objects, and backdrops that display in 3D views. For more information about images, see "Pictures, Images, & Walkthroughs" on page 989 of the Reference Manual.

> Note: The following steps make use of image files that are not included with the program. You can use image files that are already on your computer or you can create new ones. You can even use the same image file to create a material, an image, and a backdrop. Learning the tools and techniques described is more important than the appearance of the final product.

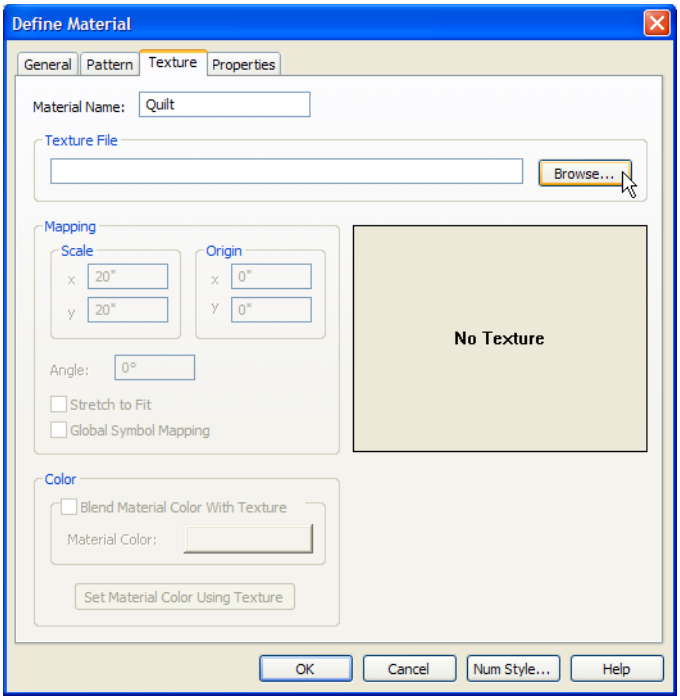
## Creating Materials

Materials are special digital images that can be applied to the surfaces of objects. You can create your own custom materials and save them in the library. Bear in mind that materials typically cover a surface by tiling an image repeatedly and are specially edited so that they tile seamlessly: as a result, not all images will necessarily serve as effective materials.

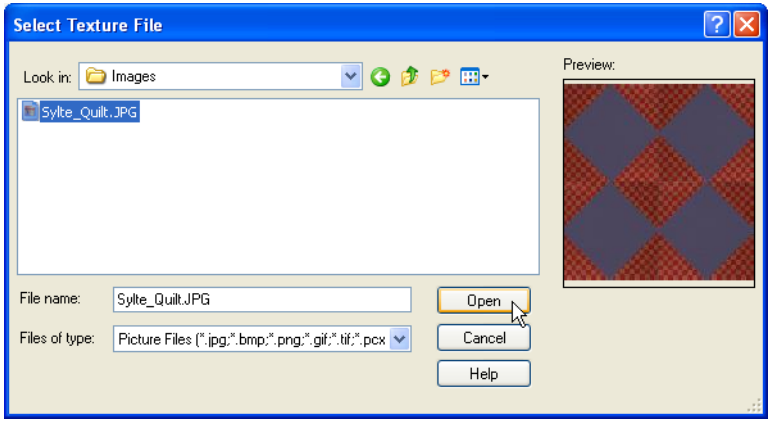
Once a material is saved in the library, it can be applied to objects in any plan, either using the objects' specification dialogs or the **Material Painter** tool.

***To add a new material to the library***

1. Select **Library> Library Browser**  (or press Ctrl + L) to open the Library Browser.
2. Right-click on the User Libraries category and select **New> Material** from the contextual menu.
3. On the Texture tab of the **Define Material** dialog, give the new material a short, descriptive name.




4. Click the **Browse** button to open the **Select Texture File** dialog and browse to an image on your computer.




5. Select an image and click the **Open** button to return to the **Define Material** dialog.

6. Specify the **Scale** of the texture, which controls how large the image will appear on the surfaces it is applied to.
7. On the Properties tab, specify the **Material Class** and attributes of the material. A Matte material will most closely resemble cloth, which is what this material will be used for.
8. Click **OK** to add the new material to the **My Library** catalog.

For more information, see "Define Material Dialog" on page 756 of the Reference Manual.

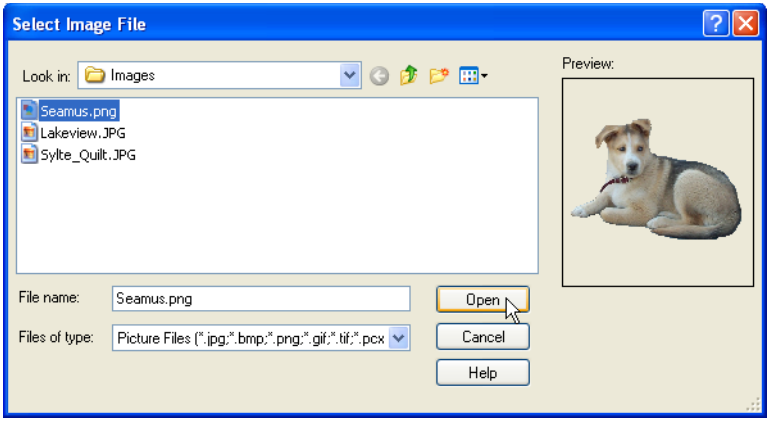
## Creating Images

In Chief Architect, image objects are more than just 2D pictures. Images have size and height attributes and can contain transparency information. In floor plan view, they display only as 2D symbols; but in 3D views, the visual information that images contain can be seen.

Images can be placed in a plan just as plants, furnishings and fixtures are: by selecting the image and clicking any floor plan view, camera view or overview.

***To create an image and save it to the library***

1. Right-click on the My Images category of the Images library and select **New> Image** from the contextual menu to open the **Image Specification** dialog. For more information, see "Image Specification Dialog" on page 993 of the Reference Manual.
2. On the Image tab, click the **Browse** button and browse to any image on your computer. In this tutorial we will use an image of a dog that has transparency data associated with it; however, you can use any image.




3. Click **Open** to return to the **Image Specification** dialog.
4. On the Image tab, enter the **Height** or **Width**, adjusting one will adjust the other, maintaining the correct proportion. Enter a **Height Above Ground** value to specify the elevation at which the image displays. A value of 24 inches works well in this case.

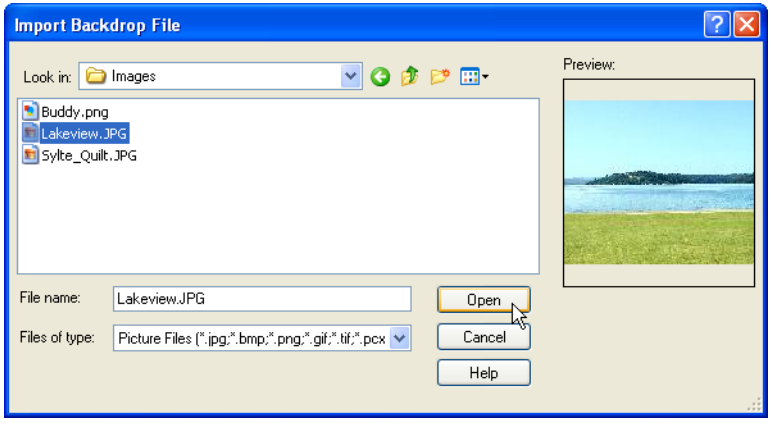
5. Specify the transparency settings on the Transparency tab.
6. Click **OK** to close the **Image Specification** dialog and add the new image to the **My Images** category in the Images library.

## Importing Backdrops

Backdrops are images that display behind 3D views. In Chief Architect, you can take a photo of a site, save it to the library as a backdrop, and display it behind 3D views to create a realistic rendering of your model and its surrounding view.

***To import a backdrop and save it to the library***

1. Select **File> Import> Backdrop** and browse to an image on your computer.

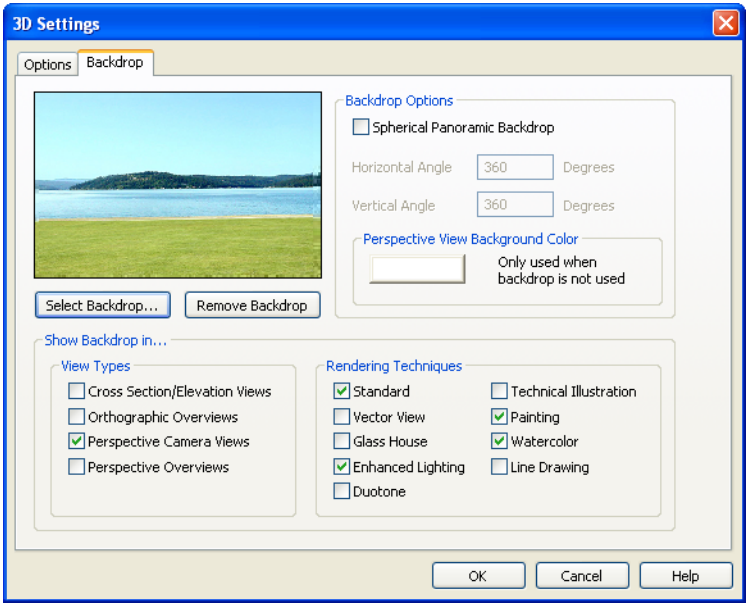



2. Select the image and click **Open** to add it to My Library.

***To apply a backdrop to 3D views***

1. Select **3D> 3D Settings** to open the **3D Settings** dialog.
2. On the Backdrop tab, click the **Select Backdrop** button to open the **Select Library Object** dialog.

3. Find and select your backdrop from My Library and click OK.




4. Click **OK** to close the **3D Settings** dialog.

You can see your custom material, image and backdrop by creating a **Full Camera** view.

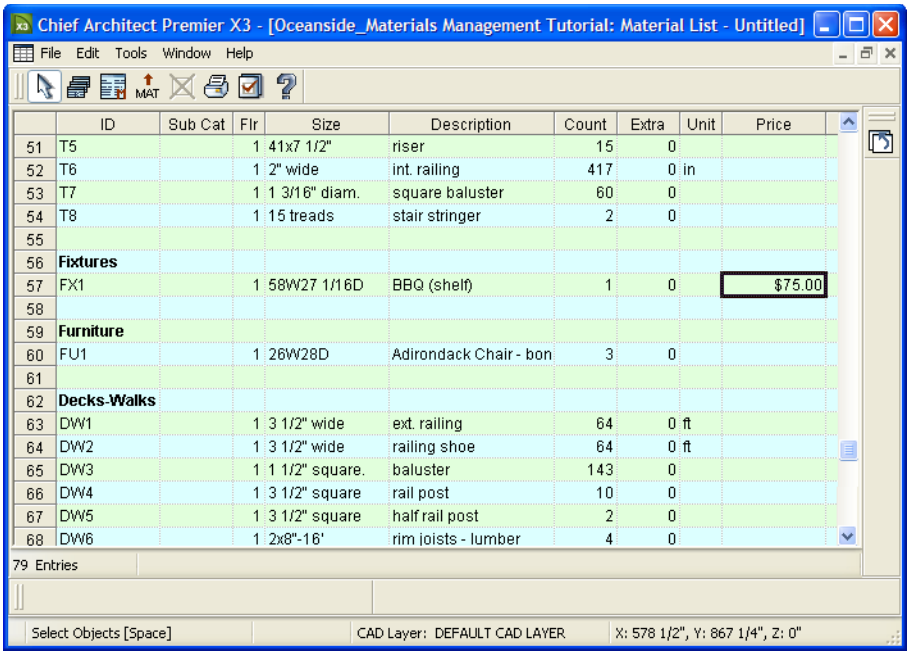
## Generating a Materials List

To conclude this tutorial, we'll generate a materials list for the house. You can generate a materials list for a single room, an area of the plan on one floor, or the whole plan. For more information, see "Materials Lists" on page 1119 of the Reference Manual.

> Note: The Materials List is only a rough cost estimate and should be double checked before being relied on.

***To generate a materials list for the whole plan***

1. Select **Tools> Materials List> Calculate From All Floors** . A materials list is generated for all floors of the house.
2. Locate the  under the Fixtures category.
3. Click in the "Price" column for the barbeque and type in $75.00. Notice that the subtotal and Total both update to reflect the pricing change. You can specify prices for every material in your plan, allowing you to generate a cost estimate.



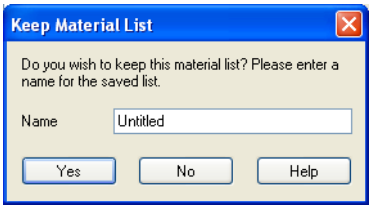

4. If you wish, you can select **File> Export Materials List** and save the list as a Tab-delimited **.txt** file, which can be opened in a spreadsheet application.
5. Close the materials list by selecting **File> Close Window** from the menu. A dialog displays, asking if you want to save the materials list before closing.
6. Save or click No to close without saving. A new materials list can always be created later.
7. When you have finished, you may want to **Save** your work.

You can generate a materials list to estimate the cost of an entire plan or just a portion of a plan. For more information, see "Materials Lists" on page 1119 of the Reference Manual.

> Note: The Materials List is only a rough cost estimate and should always be double checked before being relied on.

8. Click in the "Price" column for the barbeque and type in $75.00. Notice that the subtotal and Total both update to reflect the pricing change. You can specify prices for every material in your plan, allowing you to generate a cost estimate.
9. If you would like, you can export the materials list as a Tab-delimited **.txt** file that can be opened in a spreadsheet program. Select **File> Export Materials List** and save the materials list using the **Write Materials Export File** dialog. See "Editing Materials Lists" on page 1127 of the Reference Manual.

10. Close the materials list window by selecting **File> Close** from the menu, by pressing F4, or by clicking the in the upper right hand corner (for the current window, not the program). The **Keep Materials List** dialog displays, asking if you wold like to save this materials list before closing.




11. Click No to close the materials list and return to the previous view.

***To calculate a materials list for an individual room***

1. Click the **Select Objects** button, then click in a room to select it.
2. With the room selected, click the **Calculate from Room** edit button or select **Tools> Materials List> Calculate from Room** . The program calculates a list of the objects and materials contained in the selected room.

***To calculate a materials list for just the deck***

1. In floor plan view, select **Tools> Materials List> Calculate from Area** .
2. Click and drag a rectangle surrounding the first floor deck to display a materials list for the area within the rectangle. The resulting materials list only includes objects and materials located within the rectangle.

If you would like, you can continue working on this plan in the Kitchen and Bath Design Tutorial.

Chapter 5:

# Kitchen and Bath Design Tutorial

This tutorial continues where the Materials Tutorial left off. You should save this tutorial using a new name to archive your previous work.

The tools and techniques used to design kitchens and bathrooms are very similar. This tutorial focuses on kitchen design. When you're finished you can use what you've learned to finish up the bathrooms as well. In this tutorial you will learn about:

- Adding Cabinets
- Placing Appliances
- Editing Cabinets and Appliances
- Creating a Custom Countertop
- Creating Architectural Blocks
- Editing Cabinets and Appliances
- Working in Cross Section/Elevation Views

## Adding Cabinets

We'll begin by placing a cabinet in the kitchen and editing its dimensions, orientation, and placement. For more information about cabinets, see "Cabinets" on page 581 of the Reference Manual.

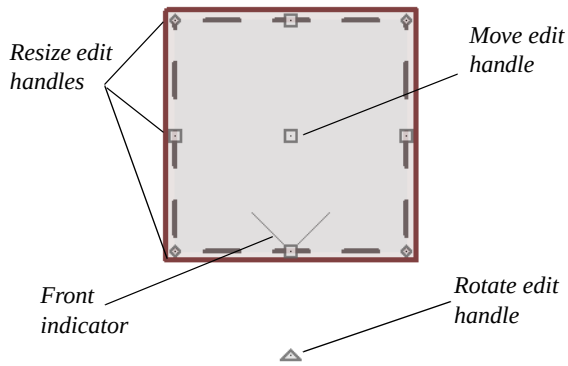
***To place a base cabinet***

1. **Zoom**  in on the Kitchen/Nook area in floor plan view.
2. Select **Build> Cabinet> Base Cabinet**  .
3. Click to place a base cabinet anywhere in the kitchen.

Once a cabinet is placed, it can be edited like other objects.

***To select and edit a cabinet***

1. Cabinets can be selected using one of the following methods.
   - Click on the cabinet while the **Select Objects** tool is active.
   - Click on the cabinet while any of the Cabinet Tools are active. This allows only cabinets to be selected.
   - Right-click on the cabinet when another tool is active.
2. When the cabinet is selected, edit handles, a front indicator, and a temporary dimension display. As with other objects, the arrow that displays when the pointer is held over an edit handle indicates what edit function that edit handle will perform. See "Editing Box-Based Objects" on page 184 of the Reference Manual.

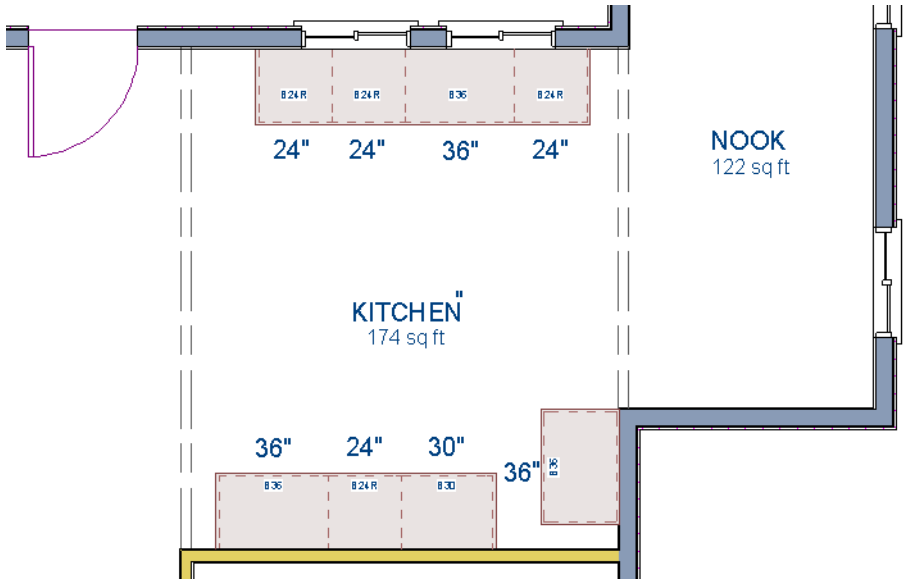



   - Move a cabinet using the move edit handle. By default, you can move a cabinet at 90° angles. To allow unrestricted movement, hold down the **Ctrl key** (or click using the right mouse button) then drag the cabinet.
   - Resize two sides of a cabinet using a resize edit handle, located in each corner.
   - Extend a cabinet's edge on one side using an extend edit handle. One of the extend edit handles also displays an arrow that indicates the cabinet's front.
   - Rotate a cabinet using the rotate edit handle.
   - A temporary dimension updates as the cabinet is moved or resized.
3. When the cabinet is selected, you can also click the **Open Object** edit button to open its specification dialog and make a wide variety of changes to the cabinet. For more information, see "Cabinet Specification Dialog" on page 598 of the Reference Manual.

***To lay out base cabinets for this tutorial***

1. Place and position base cabinets in your plan and edit their width and orientation as shown in the following image.

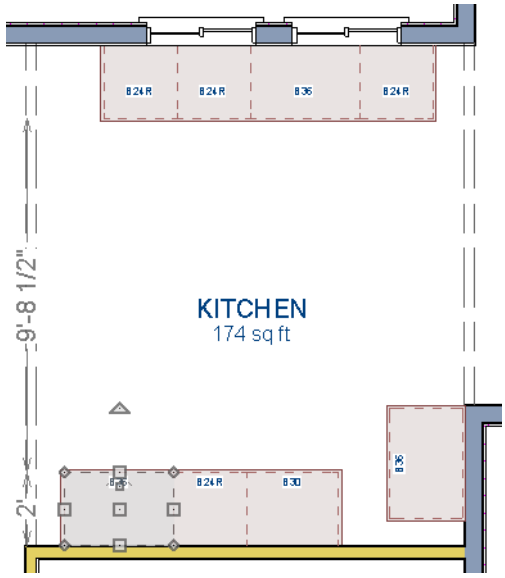
- Notice that three of the cabinets are 36" wide, and one is 30" wide.
- A cabinet snaps to another if they are in alignment, facing the same direction, and of the same type.



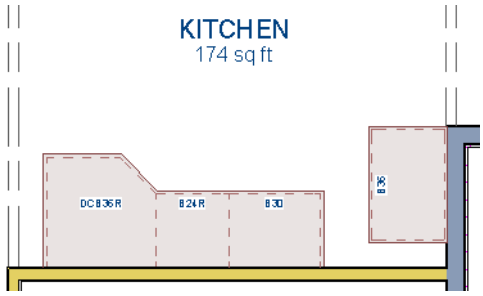

Note: The display of cabinet module lines has been turned on in the following image. See “Displaying Cabinets” on page 589 of the Reference Manual for more information.

***To create corner cabinets***

1. Select the three foot base cabinet at bottom left.



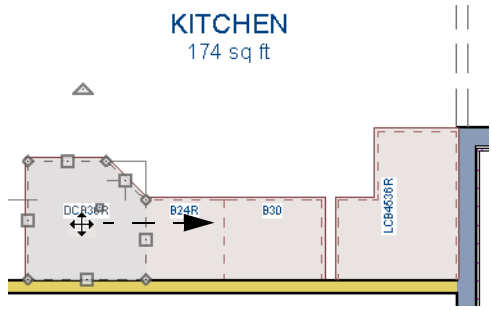

2. Click the **Open Object** edit button to open the **Base Cabinet Specification** dialog. On the General tab:
   - Specify a **Width** greater than the Depth. The selected cabinet's width should already have been changed to 36", which works well with a 24" depth. If it isn't, change it to 36" now.
   - Click the **Special** drop-down list and select Corner.
   - On the Front tab, check the box beside **Diagonal Door**.
   - Click **OK** to change the cabinet into a corner cabinet with an angled door front.



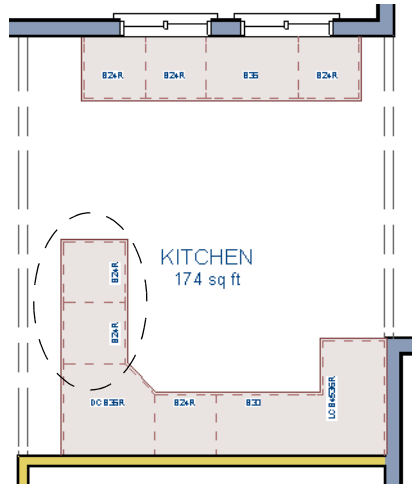

3. Select the three foot cabinet at bottom right and open it for specification:
   - On the General tab, change it to a corner cabinet (as we did in the previous step).
   - On the General tab, change the **Left Side Width** to 45 inches (45").

• On the Front tab, uncheck the box beside **Diagonal Door** if it is checked.

4. Click OK to close the **Base Cabinet Specification** dialog, then select this cabinet and move it into the corner, until it bumps into the walls.
5. Select the corner cabinet on the left, and push it (along with the others) into the corner cabinet on the right.

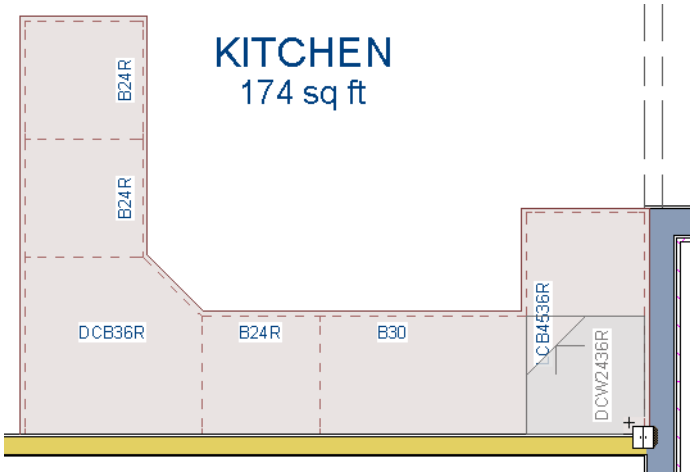



6. Place two more base cabinets next to it that face to the right. Once placed, the cabinets may need to be rotated.

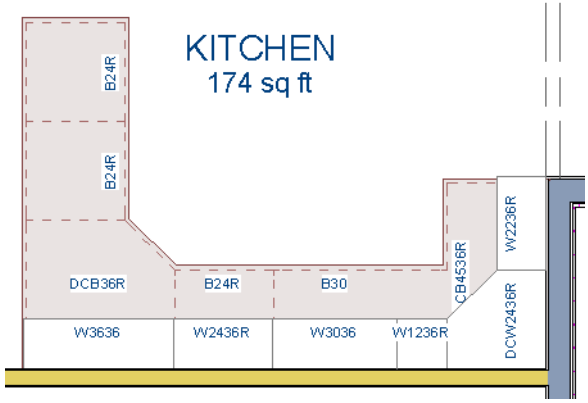



***To place wall cabinets***

1. Select **Build> Cabinet> Wall Cabinet** .
2. Click very near a corner to place a corner wall cabinet as shown. You can also place a standard wall cabinet, then open it for specification and change it to a corner cabinet, as described above.



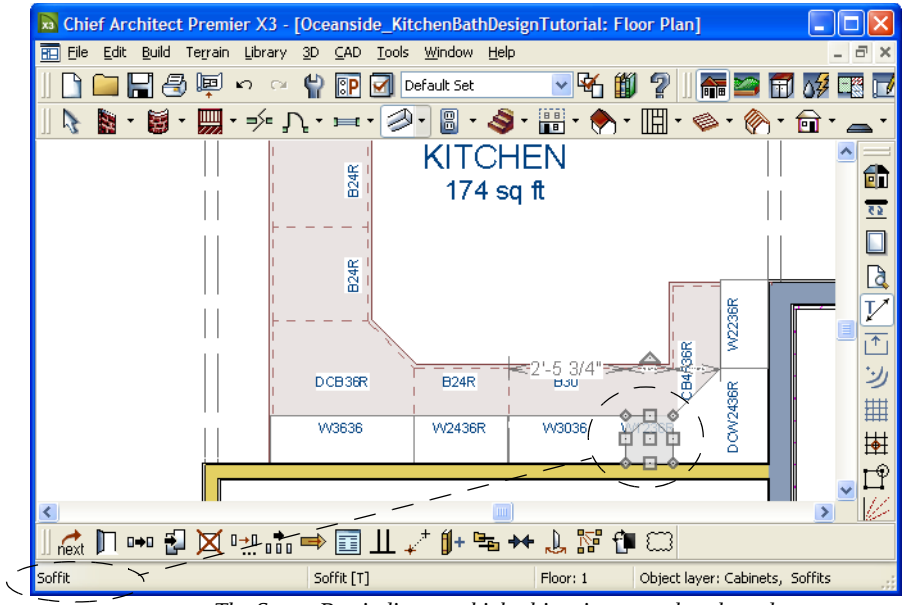

3. Continue placing wall cabinets, adjusting their widths to match the base cabinets below.




***To place soffits***

Select **Build> Cabinet> Soffit** then click above the wall cabinets to place soffits. Adjust their width and orientation to match the wall cabinets below.

When objects are very close to one another or occupy the same vertical space in floor plan view, it may be difficult to select the intended object. You can select an objects, then click the Select Next Object edit button or press the Tab key to select a neighboring object. The Status Bar indicates which object is currently selected.



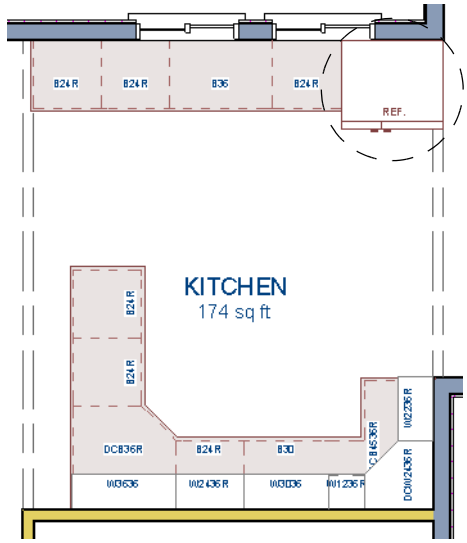

*The Status Bar indicates which object is currently selected*

## Placing Appliances

Appliances come in two basic varieties, freestanding and built-in. Most plans use both types, including this one. For more information about library objects such as appliances, see “The Library” on page 713 of the Reference Manual.

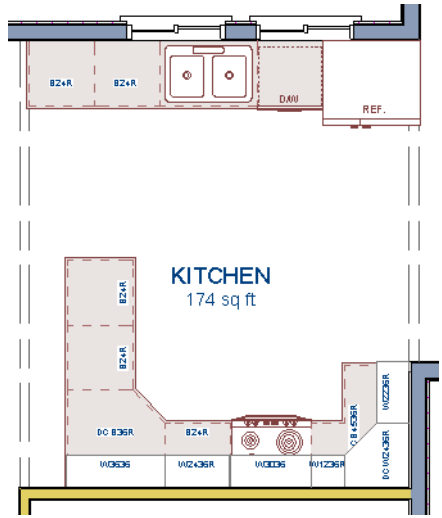
***To place a freestanding appliance***

1. Select **Library> Library Browser** to open the Library Browser.
2. Open the Architectural category to the Appliances library, find a standard refrigerator, and select it for placement.
3. Click to the right of the base cabinets near the top of the screen to place the refrigerator. You may need to move the cabinets so that the side of the refrigerator can be aligned with the wall of the nook.




***To place a built in appliance***

1. Open the Fixtures category to the Sinks library, find the double self-rimming 32 inch sink (Architectural> Fixtures> Sinks> Kitchen Sinks> With Fixtures> Self-Rimming) and select it for placement.
2. Click on the base cabinet near the top of the screen that is 3 feet wide to place the sink.
3. In the Appliances library, find a basic dishwasher, select it for placement, and click on the cabinet to the right of the sink.
4. In the Appliances library, find the electric drop-in range (Ranges> Slide-In) and select it for placement.
5. Place the range in the 30 inch cabinet near the bottom of the screen.




***To move a group of cabinets***

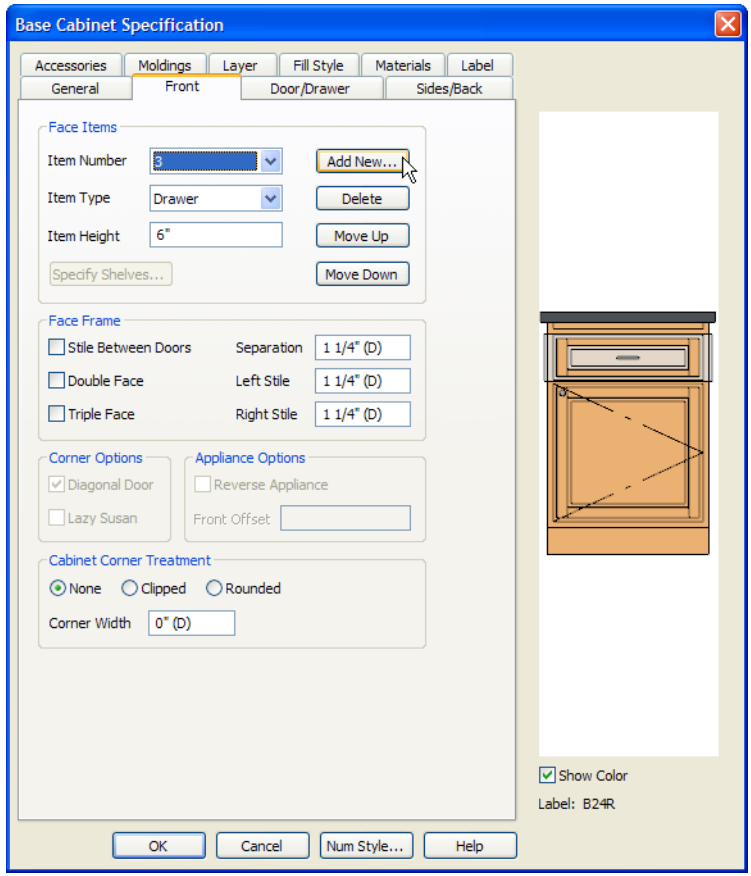
1. Select the far left cabinet near the top of the screen.
2. Place the pointer over the move handle and push the entire group of cabinets against the refrigerator.

## Editing Cabinets and Appliances

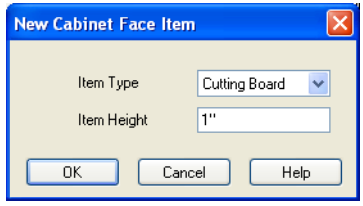
We've already learned how to edit the dimensions of cabinets and appliances in floor plan view. Like other objects, cabinets and appliances can also be edited in their own specification dialogs. This method allows a higher degree of customization.

***To edit cabinets in the Cabinet Specification dialog***

1. Select the cabinet to the left of the sink and click the **Open Object** edit button to open the **Base Cabinet Specification** dialog.
2. Select the drawer in the preview. Notice that clicking anywhere on the preview takes you to the Front tab.




3. Click the **Add New** button to open the **New Cabinet Face Item** dialog.
4. Click the **Item Type** drop-down list and select Cutting Board, assign an **Item Height** of 1 inch, and click **OK** to return to the **Cabinet Specification** dialog.




5. A new Cutting Board face item, as well as a new Separation, will be added below the drawer that you selected.

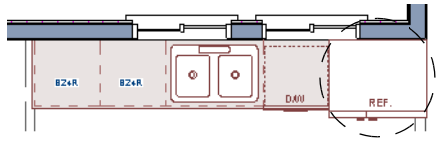
6. Click on the cutting board in the preview, then click the **Move Up** button three times to move the cutting board above the drawer and the empty spaces above and below it.
7. Select the Separation and click the **Move Up** button three times, as well.

> Note: Your cabinet may have a side backsplash to the left in the preview. This is because of the invisible wall to the left. Moving the invisible wall away from the cabinet removes this backsplash. If the cabinet displays a partial rear backsplash, it may be because of the window behind the cabinet.

8. Click OK to close the **Base Cabinet Specification** dialog.

***To edit appliances in their specification dialogs***

1. Select the refrigerator and click the **Open Object** edit button to open the **Fixture Specification** dialog.
2. On the General tab, change the **Depth** to 28 and click **OK**.

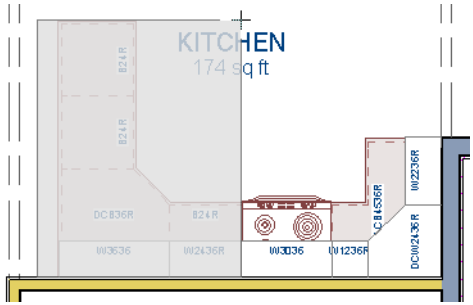



## Creating a Custom Countertop

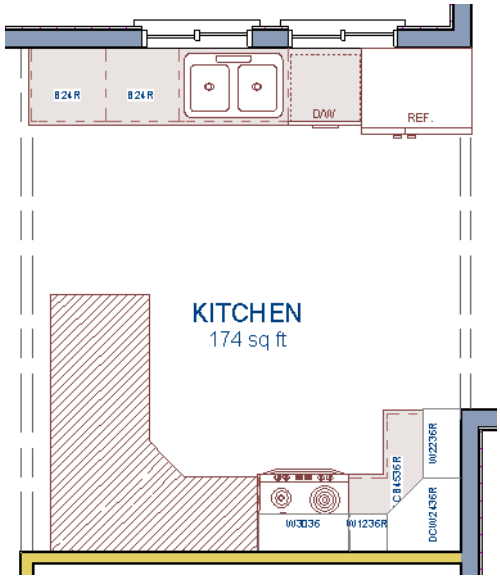
Now we'll add a custom countertop with an overhang. For more information, see "Editing Custom Countertops" on page 595 of the Reference Manual.

***To create a custom countertop***

1. Turn on **Object Snaps** .
2. Select **Build> Cabinet> Custom Countertop** .
3. Click and drag to draw a rectangular polyline that will become our custom countertop.




4. Select the custom countertop and use the edit tools to edit its shape as shown in the following image.
   - Use the **Break Line** and **Change Line/Arc** edit buttons to add edit handles and change the polyline's shape. For more information, see "Break Line" on page 208 of the Reference Manual.




*Custom countertop hatched for illustrative purposes only*

5. While we're at it, let's add some stools to our new bar (Interiors> Furniture> Seating> Stools).
6. Let's create a **Full Camera** view and take a look.

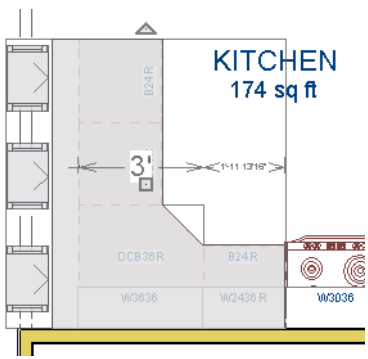
## Creating Architectural Blocks

Groups of items can be blocked together and saved to the library for use in other plans.

***To create an architectural block***

1. Return to floor plan view.
2. Group select all objects you would like to include in the architectural block. Select one object, then hold down the Shift key and select additional objects to add them to the selection set. There are many other ways to select and group select objects. For more information, see “Selecting Objects” on page 162 of the Reference Manual.

*Group selected cabinets, custom countertop, and stools*




3. Click the **Make Architectural Block** edit button.

***To add objects to the library***

1. If it is not still selected, select the architectural block.
2. Click the **Add to Library** edit button to add the cabinet to the Import folder in the Library Browser.
3. Right click on the Base cabinet name in the import category and select Rename to change this cabinets name to Kitchen Bar.
4. Now click and drag the newly named Kitchen Bar cabinet into the appropriate Users Libraries folder that you have created for it, such as Base Cabinets.

***To explode an architectural block***

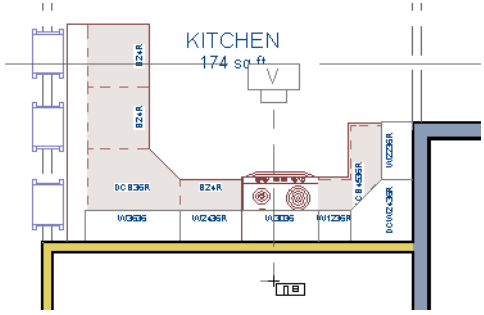
1. Select an architectural block.
2. Click the **Explode Architectural Block** edit button.

## Working in Cross Section/Elevation Views

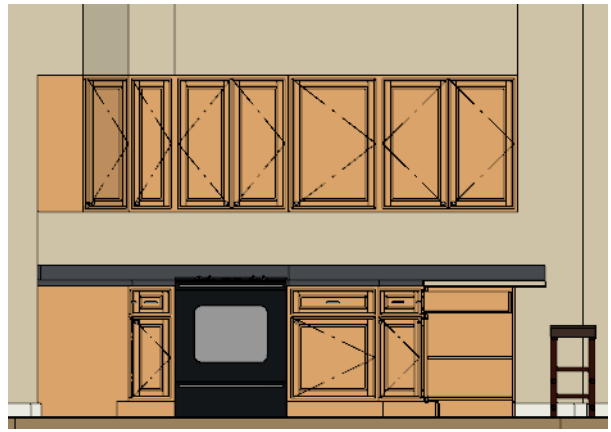
Like other objects, cabinets can be edited in cross section/elevation views. This method of editing is very powerful and allows objects to be edited easily in vertical space. Next we'll edit wall cabinets and add a range hood. For more information about cross section/elevation views, see "Working in 3D" on page 805 of the Reference Manual.

***To create a cross section/elevation view***

1. In floor plan view, select **3D> Create Orthographic View> Cross Section/Elevation**. Click and drag a line of sight that that intersectsgroup of cabinets that includes the electric range.




2. **Zoom** in on the kitchen.



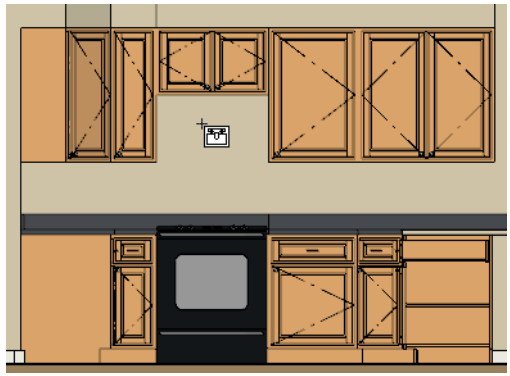
***To edit the cabinets in a cross section/elevation view***

1. Click the **Select Objects** button, then click on the wall cabinet above the range, which should have double doors and be 36" wide like the base cabinet below it.
2. Click on the cabinet's bottom edit handle and drag it upwards.


3. When the temporary dimension indicates that the cabinet height is 18 inches, release the mouse button.

***To place a range hood***

1. Find a range hood from the Fixtures Library (Architectural> Appliances> Hoods> Standard) and select it for placement.
2. Click above the range to place the hood.
3. If necessary, adjust its height and size using its edit handles.



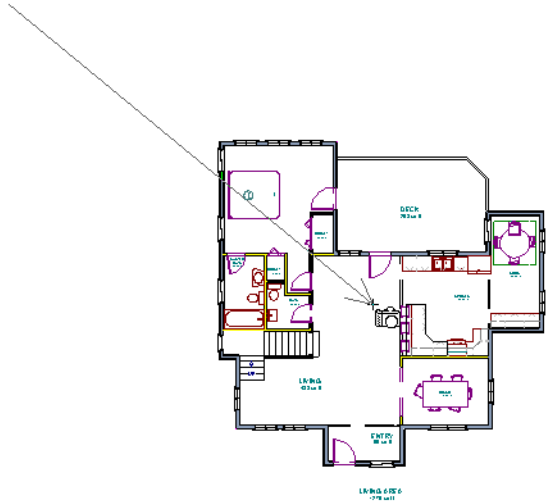
## Finishing Touches

You may want to add a few finishing touches.

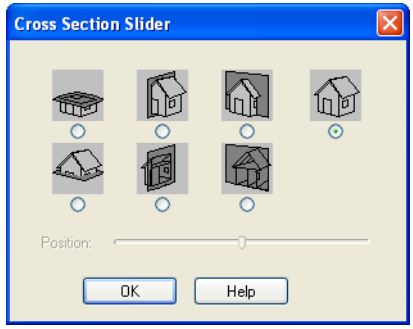
- Remove the window behind the refrigerator.
- Raise the bottom of the window behind the sink.
- Widen the window behind the sink, and center it on the sink.
- Add furniture and cabinets to the nook and change the flooring to match the kitchen.
- Add a table and some chairs to the dining room.

***To view our kitchen using the Cross Section Slider and Final View***

1. In floor plan view, click **Fill Window** .
2. Create a **Full Camera** view that starts from the exterior and release the mouse button in the kitchen. See "To create a camera view" on page 45.



3. Use the **Mouse-Orbit Camera** tool to adjust the camera's perspective. If you want, you can turn off the display of the backdrop in the **3D Settings** dialog. For more information, see "3D Settings Dialog" on page 784 of the Reference Manual.
4. Select **3D> Camera View Options> Cross Section Slider** to open the **Cross Section Slider** dialog.
5. Select the flat cut line and use the position slider to specify the location of the cutting plane. See "Cross Section Slider" on page 804 of the Reference Manual.




6. Select **3D> Camera View Options> Final View** to create a higher quality final view.

7. In a future tutorial, we will be returning to this plan file, so be sure to **Save** your work.

If you would like, you can continue working on this plan in the Landscaping Tutorial. To learn how to arrange views of your model on a page for printing, see the Layout Tutorial.

Chapter 6:

# Landscaping Tutorial

This tutorial was written to help you learn how to use Chief Architect's Terrain tools. In this tutorial, you will learn how to add elevation information to your terrain, how to create terrain features, and how to add plants and other objects from the library.

It is a good idea to become familiar with the terrain tools before beginning your own terrain project.

In this tutorial, you will learn about:

- Editing the Terrain Perimeter
- Creating a Plot Plan
- Adding Elevation Information
- Creating a Retaining Wall
- Adding Terrain Features
- Adding Library Objects to Your Plan
- Creating Final Views

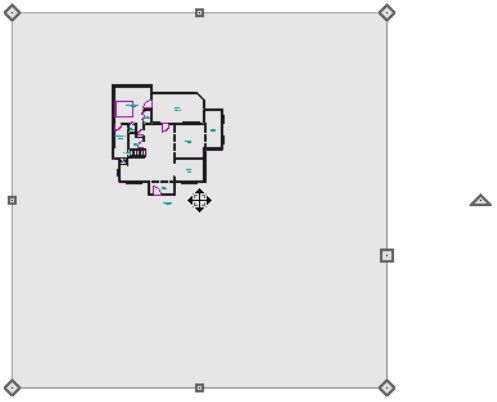
This tutorial continues from where the House Design Tutorial left off, so you may want to save this plan using a new name to archive your previous work.

## Editing the Terrain Perimeter

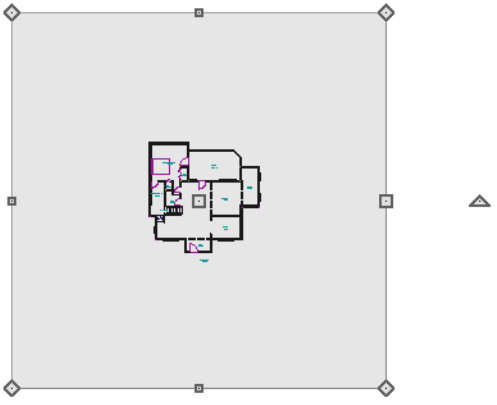
Your house may already be centered on the terrain perimeter. If it is not, you can move it.

***To move the terrain perimeter***

1. Select **Window> Fill Window** then select **Window> Zoom Out** to give us some working space.
2. Select the terrain perimeter and place your pointer over the move edit handle.



3. Move the terrain perimeter so that the house is centered.

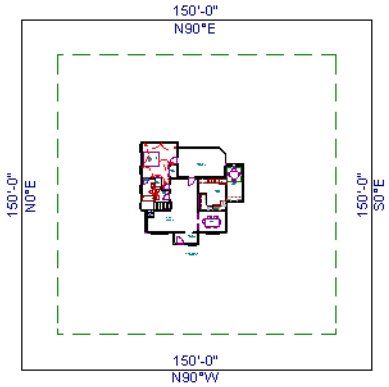


### Displaying Lot Line Information

When plans are submitted for approval, bearing information for the lot perimeter is often required.

***To display bearing information***

1. Select the terrain perimeter and click the **Open Object** edit button.
2. On the Line Style tab of the **Terrain Specification** dialog, check **Show Length** and **Show Angle**, then click OK. See “Terrain Specification Dialog” on page 632 of the Reference Manual.
3. Select **Edit> Default Settings** to open the **Default Settings** dialog, then open the **CAD Defaults** dialog. See “To display line length, bearing and radius” on page 140.
4. Click the radio button to **Display Line Angle as Bearing** and click OK.
5. Click Done to close the **Default Settings** dialog.




## Creating a Plot Plan

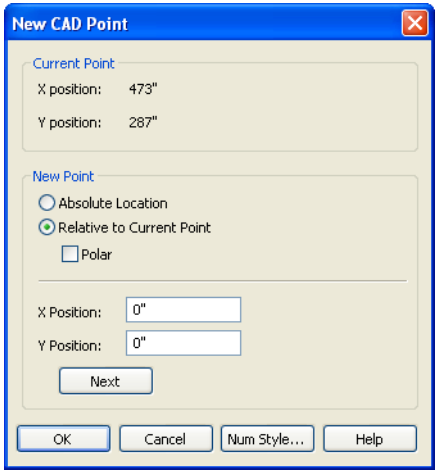
A plot plan is essentially a map of a property’s legal description. Plot plans usually have a North Pointer and can also include other features such as the location of buildings and setback lines.

When a property’s shape is more complicated than a basic rectangle, you may find it easiest to draw the plot lines yourself, rather than try to edit the terrain perimeter to meet your needs.

A plot plan can be drawn in floor plan view or, if you prefer, in a CAD Detail.

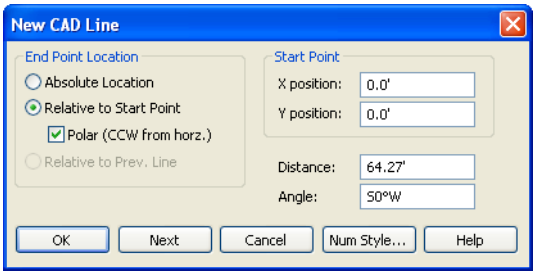
***To create a plot plan polyline***

1. Open a new Chief Architect plan.
2. If you want to draw your plot plan in a CAD Detail, select **CAD> CAD Detail Management** and click **New**.
3. Type a short, descriptive name for your detail, such as "Plot Plan" and click **OK**.
4. Select **CAD> Points> Input Point** to open the **New CAD Point** dialog. See "Input Point" on page 936 of the Reference Manual.




5. Select **Absolute Location** and define the point's position at (0,0) and click **OK**. This is the current point that serves as the Start Point for the first line of the plot plan. See "Point Tools" on page 936 of the Reference Manual.
6. Select **CAD> North Pointer**, then click and drag to create a North Pointer. See "North Pointer" on page 942 of the Reference Manual.
7. 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 point. See "Input Line" on page 940 of the Reference Manual.
8. Click **Num Style** and in the **Number Style/Angle Style** dialog, select **Decimal Feet** for the **Number Style** and **Bearing** for the **Angle Style**. See "Number Style/Angle Style Dialog" on page 110 of the Reference Manual.
9. Click **OK** to return to the **New CAD Line** dialog
10. Select **Relative to Start Point** and check **Polar (CCW to horz.)**.

11. Enter the length of the first side of your property boundary's legal description in the **Distance** field, and the angle of that line in the **Angle** field.




12. Click **Next** and enter the **Distance** and **Angle** of the next property line.
13. Continue until all property lines are entered, then click **OK** to close the **New CAD Line** dialog. The property line created should be closed, with the end point of the last line the same as the start point of the first.

***To correct an error***

1. If a line is entered incorrectly, click **OK** to close the **New CAD Line** dialog.
2. Select **Edit> Edit Behaviors> Edit Object Parts** to edit individual line segments within a polyline.
3. Click on the incorrect line to select it, then click **Delete**.
4. Click the **Edit Object Parts** toggle button again to turn it off.
5. Place a CAD point at the end of the last correct line using the **Place Point** tool to create a new current point.
6. Select **CAD> Lines> Input Line** and continue entering data in the **New CAD Line** dialog.

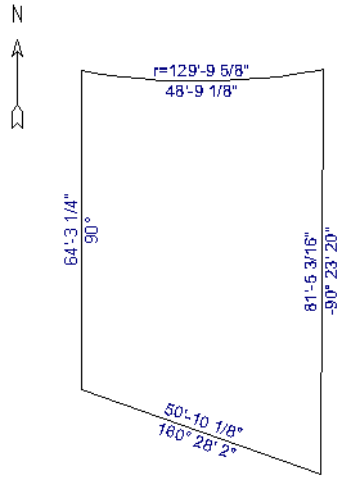
***To create a curved property line***

1. Click a property line to select it, then click the **Change Line/Arc** edit button to turn this line into an arc.
2. If necessary, use the triangular Reshape edit handle to make the arc concave or convex.
3. Click the **Open Object** edit button to open the **Arc Specification** dialog.
4. On the Arc tab, click the **Lock Chord** radio button, then specify the length of the **Radius** and click **OK**.

A curved property line can also be created by entering data in the New Arc dialog. See "Input Arc" on page 950 of the Reference Manual.

***To display line length, bearing and radius***

1. Select **Edit> Default Settings** .
2. In the **Default Settings** dialog, select CAD and click the **Edit** button.
3. In the **CAD Defaults** dialog, check **Display Line Angle as Bearing**.
4. Click **OK**, then click **Done** to close the **Default Settings** dialog, as well.
5. Click the plot plan polyline to select it, then click the **Open Object** edit button.
6. On the Line Style tab of the **Polyline Specification** dialog, check **Show Length**, **Show Angle**, and **All Angles**.

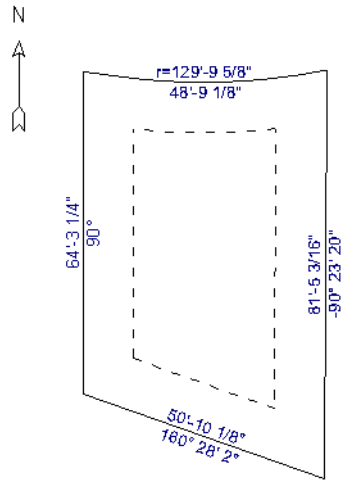



***To convert to a terrain perimeter***

1. Select the plot plan polyline and click the **Convert Polyline** edit button. See "Convert Polyline" on page 215 of the Reference Manual.
2. In the **Convert Polyline** dialog, select **Convert To: Terrain Perimeter**, then click **OK**.
3. Make any needed changes in the **Terrain Specification** dialog and click **OK**. See "Terrain Specification Dialog" on page 632 of the Reference Manual.

***To create setback lines***

1. Select **Edit> Preferences**, and on the Behaviors panel of the **Preferences** dialog, select the **Concentric** Edit Mode. See “Behaviors Panel” on page 97 of the Reference Manual.
2. In the **Jump** field, type in the setback distance required by your local planning department, such as 10’, and click **OK**.
3. Click the plot plan polyline to select it, then click the **Copy/Paste** edit button.
4. Place your cursor over a corner edit handle, then 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.
6. On the Line Style tab, select a dashed line style from the drop-down list, uncheck **Show Length** and **Show Angle**, then click **OK**.

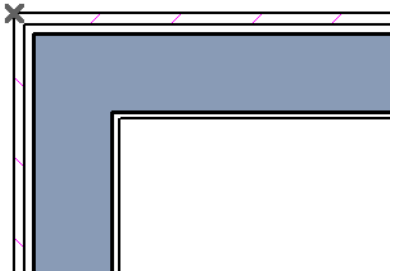



7. When you have finished creating your concentric copy, select **Edit> Edit Behaviors> Default** to restore the default edit behavior.

***To accurately position a building***

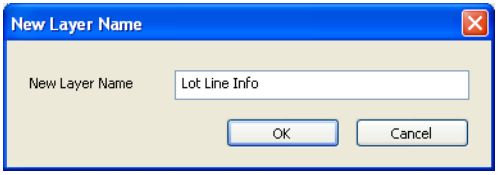
1. Place a **CAD Point** at a reference point along the perimeter of the property, such as at a corner. Or use the starting point for your plot plan polyline, (0,0), as a reference.
2. Select **CAD> Points> Input Point** to open the **New CAD Point** dialog.

3. If you are using (0,0) as your reference point, select **Absolute Location** and specify the distance that the building should be from this point in the **X Position** and **Y Position** fields.
4. If you have placed a CAD Point at a different location, select **Relative to Current Point** and specify the desired distance from that point. Unless you want to specify the location in distance and bearing, **Polar (CCW from horz)** should remain unchecked.
5. When you click **OK**, a point is created at the specified location. Use this point as a reference to accurately position a wall or corner of the building.



***To create a new layer***

1. Select **Tools> Display Settings> Display Options** to open the **Layer Display Options** dialog.
2. Click the New button to open the **New Layer Name** dialog.
3. Enter a name for the new layer.




4. Click OK to close the **New Layer Name** dialog then click OK again to close the **Layer Display Options** dialog.

***To move the setback line to the new layer***

1. In floor plan view, select the setback line and click the **Open Object** edit button.
2. On the Line Style tab of the **Polyline Specification** dialog click the Layer drop-down list and select the new layer we just created. This moves the setback line to the new layer, however that layer is still currently displaying. Click OK.

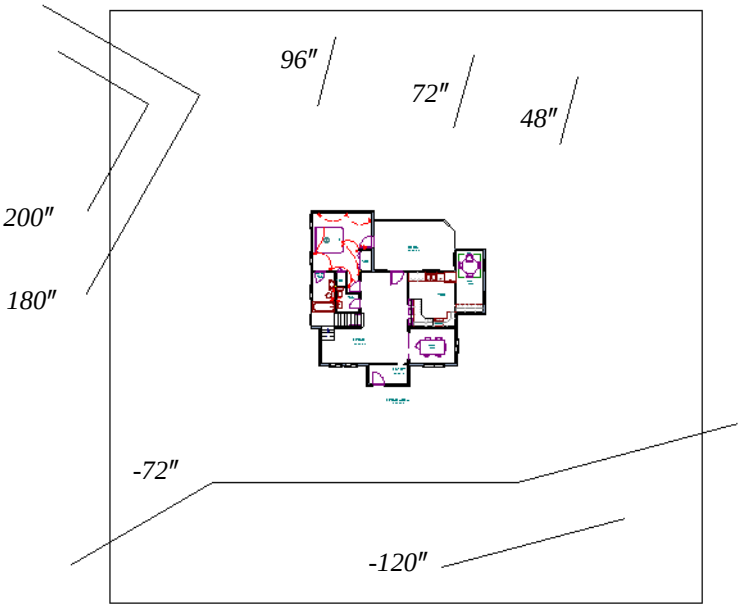
# Adding Elevation Information

Our terrain is currently flat because there is no elevation data in the plan. For more information about elevation information, see “Elevation Data Tools” on page 618 of the Reference Manual.

You can display all of the tools in the Terrain menu on your toolbars by using the Terrain Configuration. See “Toolbar Configurations” on page 119.

***To add elevation information to your plan***

1. Select **Window> Fill Window**  to fill the window with the terrain perimeter.
2. Select **Terrain> Elevation Data> Elevation Line**  and draw elevation lines as shown in the following image. An elevation line drawn near the end of another will merge.




3. To enter elevation information, click the **Select Objects**  button, select an elevation line, and click the **Open Object**  edit button to open the **Elevation Line Specification** dialog. Values entered are in inches unless the foot ( ' ) mark is added. Negative values should be preceded with a hyphen (-).

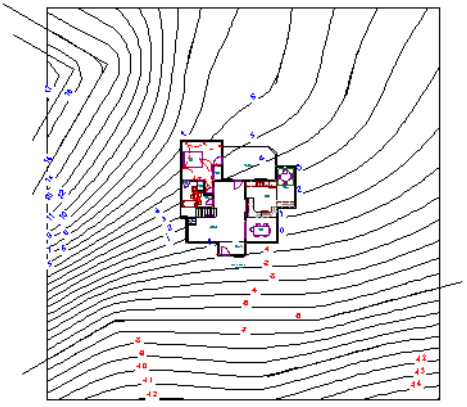
4. Select **3D> Create Perspective View> Full Overview** to create a full overview. Pressing the "I" key or the "O" key moves the camera in or out.

## Creating a Retaining Wall

Adding a retaining wall helps create a flat building pad for the house. For more information about retaining walls, see "Retaining Walls" on page 628 of the Reference Manual.

***To draw a retaining wall***

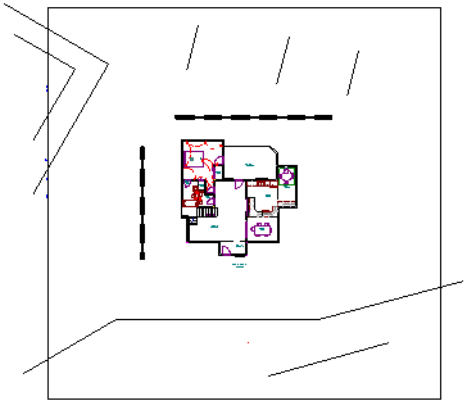
1. Return to floor plan view. Note the generated contours.



2. To make it easier to draw, you can turn off the display of primary contour lines in 2D. Select **Tools> Display Settings> Display Options** to open the **Layer Display Options** dialog. Remove the check from the Disp column for the layer "Terrain, Primary Contours". See "Layer Display Options Dialog" on page 130 of the Reference Manual for more information.

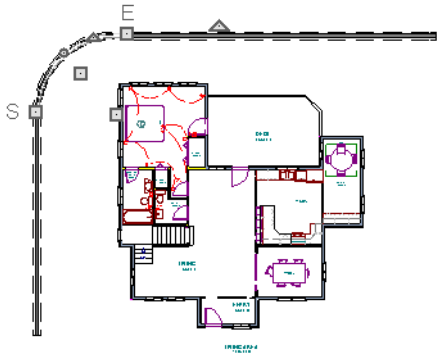
> Open 3D views are redrawn whenever changes are made to the plan, even if the 3D views are not active. Closing 3D views when they are not needed will help maximize your computer's performance.

3. Select **Terrain> Wall and Curb> Straight Retaining Wall** . Draw two straight wall sections as shown in the following image.

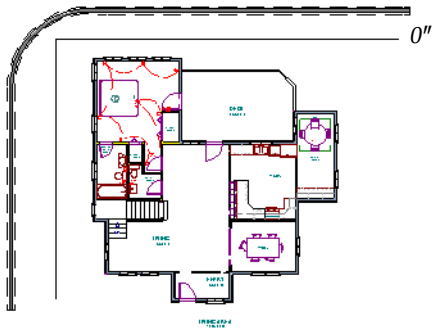


4. Select **Terrain> Wall and Curb> Curved Retaining Wall** and draw a curved retaining wall that connects at both ends to the two straight sections. Don't worry about the angle just yet, we'll adjust the curve in the next step.

5. Select the curved section then click the **Make Arc Tangent** edit button to open the **Radius of Tangent Curved Wall** dialog. This dialog gives you a few alignment options. For more information, see "Make Arc Tangent" on page 254 of the Reference Manual. Click OK to make the curved wall section tangent to both straight sections.




6. Now add two more Elevation Lines just inside the retaining wall. This helps designate the height of this area when terrain is generated. This elevation line can stay at its default height of 0' 0″.



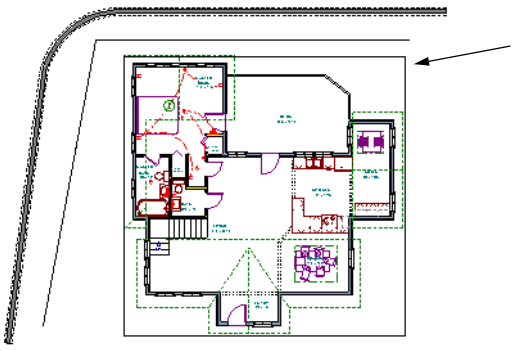

7. Take a look in a **Full Overview**. Your plan should look like this.

## Adding Terrain Features

Now we'll add a skirt around the house, a beach, a water line, and a pathway to our plan. For more information about terrain features, see "Terrain Feature Tools" on page 624 of the Reference Manual.

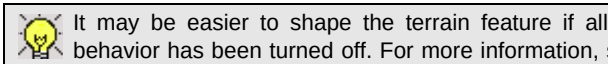
***To add a skirt to the house***

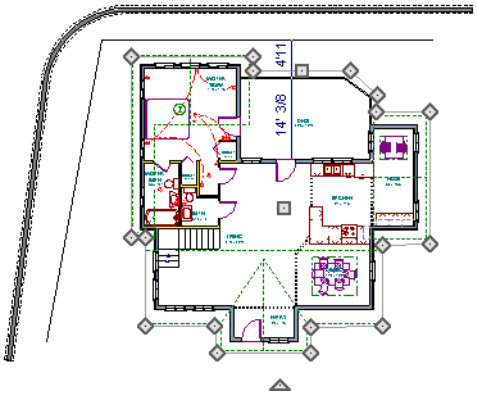
1. Close the overview to return to floor plan view.
2. Select **Terrain> Feature> Rectangular Feature** .
3. Click and drag to draw a feature polyline that surrounds the house.



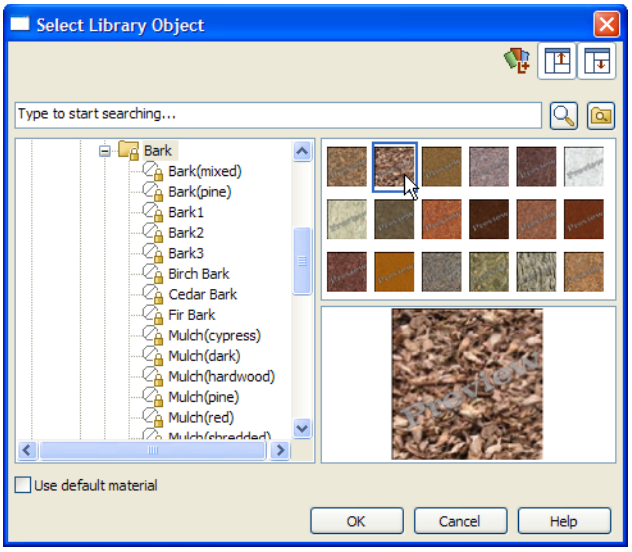
4. With the **Select Objects** button active, click the skirt to select it, click the **Break Line** edit button, then click on the garden bed to add a break.

- A break adds an edit handle, allowing greater control of the shape of the terrain feature.
- Continue adding breaks and using the edit handles to adjust the shape of the garden bed to match the footprint of the house.
- For more information, see "Break Line" on page 208 of the Reference Manual.


It may be easier to shape the terrain feature if all snapping behavior has been turned off. For more information, see "Snap Behaviors" on page 141 of the Reference Manual.



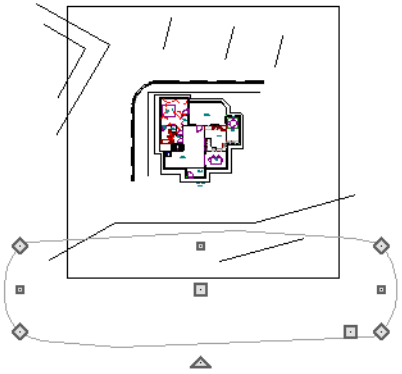

5. If you want to, you can make an edge of the terrain feature curved by selecting that edge, then clicking the Change Line/Arc edit button.
6. While the terrain feature is still selected, click the **Open Object** edit button to open the **Terrain Feature Specification** dialog.
7. On the Materials tab, select the terrain feature and click the **Library Material** button to open the **Select Library Object** dialog. Select a material for the terrain skirt and click OK.



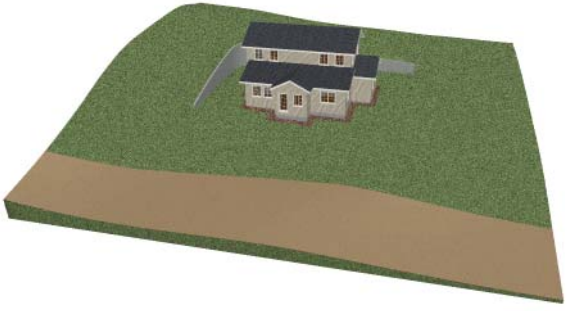

8. Create a **Perspective Full Overview** to see the results.

***To create a beach***

1. Close the overview and return to floor plan view.
2. Select **Window> Fill Window** then select **Window> Zoom Out** to give us some working space outside the terrain perimeter.
3. Select **Terrain> Feature> Spline Feature** and draw a round terrain feature that extends beyond the boundaries of the terrain perimeter.

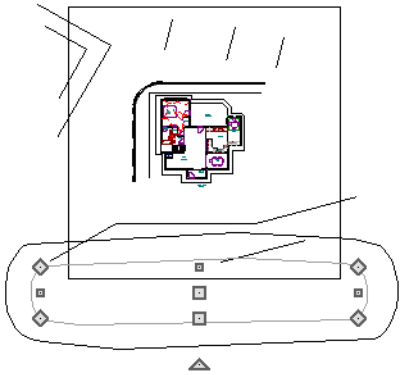


4. Select the terrain feature and the **Open Object** edit button to open the **Terrain Feature Specification** dialog.
   - On the General tab, the **Height** should be at 0 inches.
   - On the Materials tab, select the terrain feature and click the **Library Material** button to open the **Select Library Object** dialog and assign a sand material from the landscaping library.
   - Click OK to close the **Select Library Object** dialog then click OK to close the **Terrain Feature Specification** dialog and return to floor plan view.
5. Take a look at our new beach in a **Perspective Full Overview** . Notice that only the portion of the terrain feature that is included within the terrain perimeter is modeled.

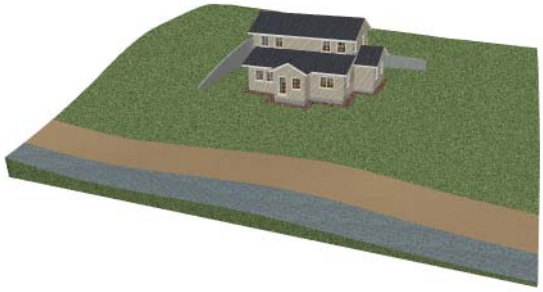


***To create a body of water***

1. Return to floor plan view, select **Terrain> Water Feature> Round Pond** and draw another spline feature, within the existing spline feature (the beach).

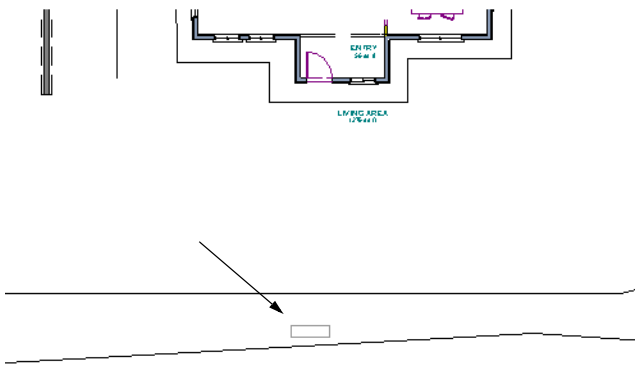


2. Select the pond and click the **Open Object** edit button. On the General tab of the **Terrain Feature Specification** dialog, raise the **Height** to 1 inch. This will display the water material above the beach.
3. Click OK and take a look in a **Perspective Full Overview** .



***To create a stepping stone pathway***

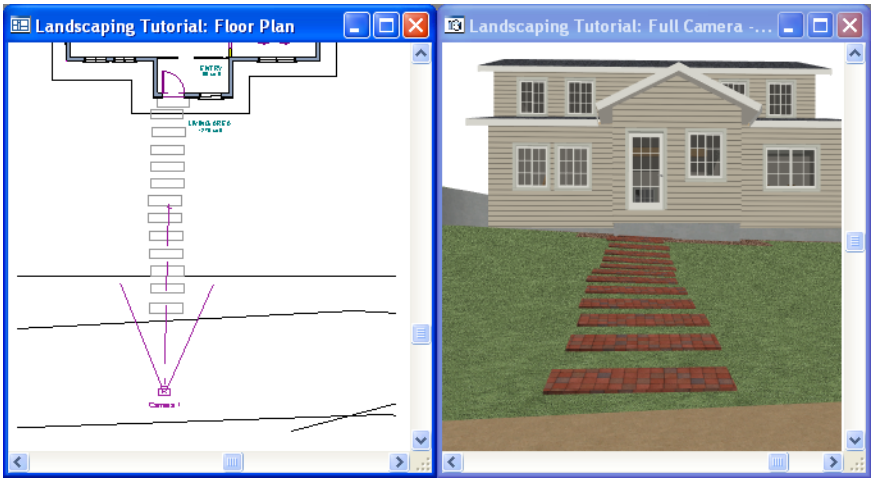
1. Return to floor plan view.
2. Select **Terrain> Stepping Stone> Polyline Stepping Stone** and draw a stepping stone just above the beach line, leading to the entrance. It may help to **Zoom** in.



3. Select the stepping stone and open it for specification.
   - On the General tab, note that the **Height** is 1 inch.
   - On the Materials tab, select the Terrain Feature component, click the **Library Material** button, and specify a different material if you like. Brick Pavers in the Landscaping library make nice stepping stones.
4. Click OK to close the **Select Library Object** dialog then click OK to close the **Terrain Feature Specification** dialog and return to floor plan view.
5. Let's look at our stepping stone in a **Full Camera** view.

6. In floor plan view, click the **Select Objects** button, select the stepping stone, click the **Copy/Paste** edit button, then click the **Sticky Mode** secondary edit button.

7. Click in floor plan view to paste copies of the group selected objects. Continue pasting copies until you have created a pathway that leads to the house.




## Adding Library Objects to Your Plan

The library contains many objects that can be added to a plan such as plant images and landscaping blocks. There are two ways to find objects in the library: by browsing and by searching. For more information about library objects, see “The Library” on page 713 of the Reference Manual.

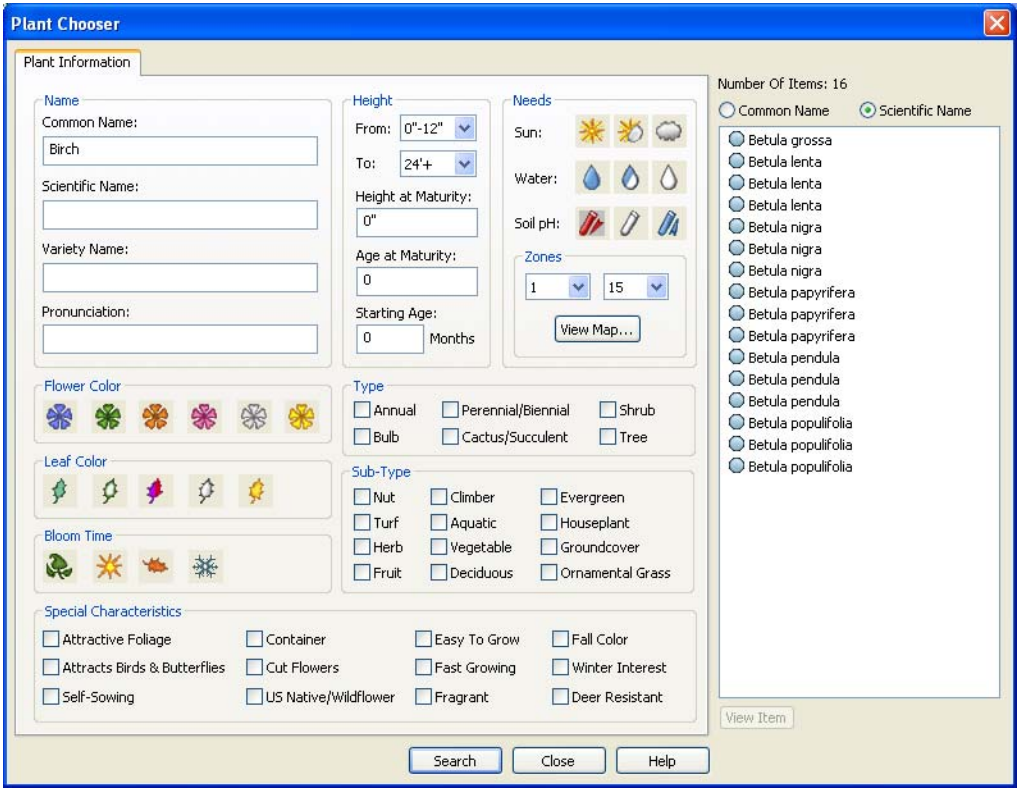
***To browse the Plants library category***

1. If the Library Browser is not open, select **Library> Library Browser** to open it.
2. Click the + beside Plants to expand this category and see its contents.
3. Click the + beside Trees to expand this folder and view its contents, as well.
4. Expand the Deciduous folder and note the many tree species to choose from. Many of these folders contain still more subfolders with different varieties of that species.

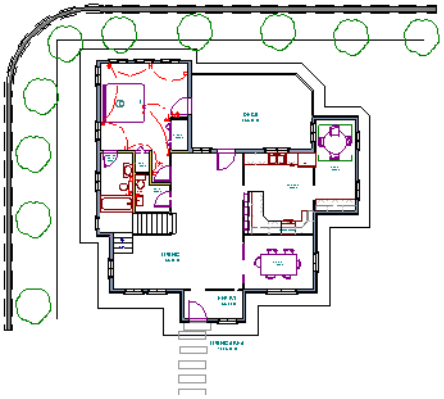
If you know exactly what tree you would like to place in your plan, browsing to it is an efficient way to find and select it; however, with so many options available it is often helpful to perform a search.

***To search using the Plant Chooser***

1. With the Library Browser still open, click the **Plant Chooser** button at the bottom of the Library Browser to open the **Plant Chooser** dialog. This dialog can also be opened by selecting **Terrain> Plant> Plant Chooser**.
2. At the bottom of the Library Browser, click the **Plant Chooser** button to open the **Plant Chooser** dialog. This dialog can also be opened by selecting **Terrain> Plant> Plant Chooser**.
3. On the Plant Information tab, enter "birch" in the **Common Names** field, and click the **Search** button to find birch trees in the Library Browser.




4. Select Betula papyrifera (young) from the search results and click the **Close** button. This locates and selects this plant in the Library Browser for placement.
5. Click in floor plan view or a 3D view to place the selected plant at that location. You can continue placing the selected plant image until another tool or library object is selected.



***To add Landscaping Objects***

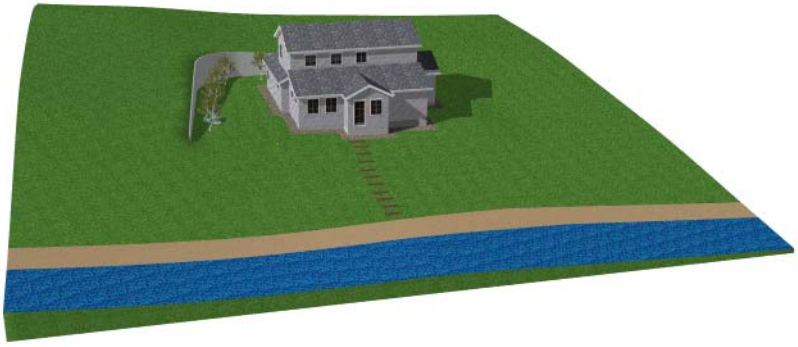
1. In the Library Browser , browse to the Chief Architect Libraries category.
2. The Exteriors library contains a selection of landscaping, deck and patio accessories, outdoor furniture, and other objects that you can place in your plan.
3. Outdoor furniture such as a garden bench are located in the Outdoor Living library folder. Library objects may need to be rotated, and can be accented with additional plants.
4. Create a **Perspective Full Camera** view.

## Creating Final Views

A final view can be created from any full overview or camera view. A final view smooths out edges in a plan and creates a more realistic rendering of the model. For more information about final views, see "Preview vs Final View" on page 815 of the Reference Manual.

***To take a Final View***

1. Select **3D> Create Perspective View> Full Overview** . Adjust the overview as you see fit.
2. Select **3D> Camera View Options> Final View With Shadows** to create a final view from the full overview.



3. When you have finished, you may want to **Save** your work.

If you would like, you can continue working on this plan in the Deck Tutorial. To learn how to arrange views of your model on a page for printing, see the Layout Tutorial.

Chapter 7:

# Deck Tutorial

In the House Design Tutorial, we added a deck to the backside of the house on both the first and second floor. Now we'll continue where the Landscaping Tutorial left off and create two more decks off the front of the house, connecting them with an exterior staircase. You may want to save this tutorial using a new name to archive your previous work.

In this tutorial you will learn about:

- Drawing Decks
- Drawing Stairs
- Changing Planking Orientation
- Adding Exterior Furniture

## Drawing Decks

Since this home is on a beach, we might as well add a couple of decks off the front. For more information, see "The Deck Tools" on page 238 of the Reference Manual.

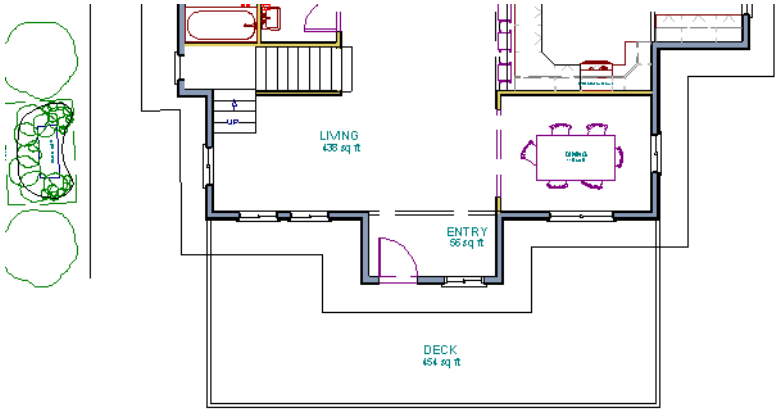
You can move the stepping stones that we added in the previous tutorial, delete them, or simply ignore them for now.

***To add a first floor deck to the plan***

1. In floor plan view, go to the first floor (you may be there already).
2. Make sure **Angle Snaps**  and **Object Snaps**  are turned on.

3. **Zoom** in on the front portion of the house.

4. Select **Build> Deck> Straight Deck Railing** and draw a deck off of the first floor as shown in the following image. As you may recall from the first tutorial, when the deck railings and the exterior front walls of the house enclose an area, room definition is created and a "Deck" room label displays.

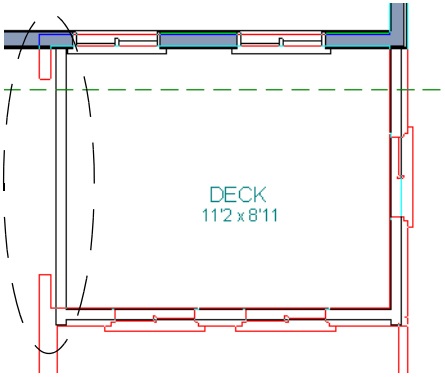



5. Now take a look at our first floor deck in a **Full Camera** view. You can see that the program automatically generated planking, posts, and beams.

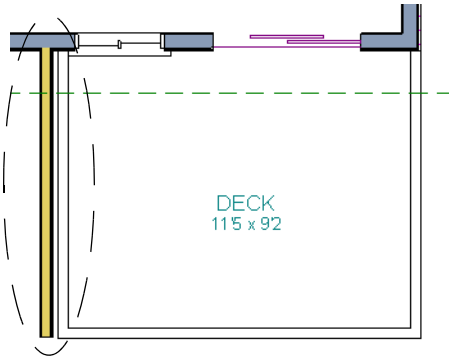
***To create a second floor deck beside a roof***

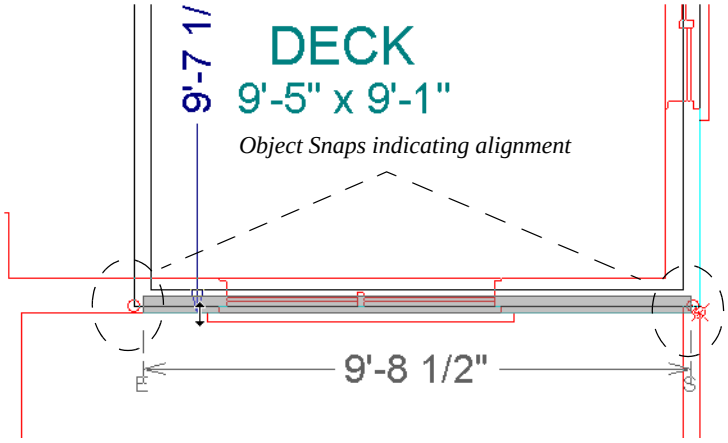
1. Return to floor plan view and select **Build> Wall> Break Wall**. Click on the exterior wall on the right side of the dining room, at the point where it is intersected by the wall separating the dining room from the kitchen.

2. Click the **Select Objects** button, then click on the exterior wall on the right side of the dining room to select it.
3. Click the **Open Object** edit button, and on the Roof tab of the **Wall Specification** dialog, uncheck **Full Gable Wall** and click OK.
4. Click the **Up One Floor** button to go to the second floor, select the attic wall directly above the exterior wall you just edited and **Delete** it.
5. Select **Tools> Reference Floors> Reference Display** (or press F9) to turn on the first floor for reference.
6. Select **Build> Deck> Straight Deck Railing** and draw a deck on the second floor, above the dining room.
7. Click and drag the railings at the front and right sides so that their exterior surfaces are aligned with the exteriors of the walls below. Make sure **Object Snaps** are still turned on, then select the deck railing. Object snap indicators will display when the railing and wall below are in alignment.
8. The railing on the left side, however, should be just to the right of the wall below.

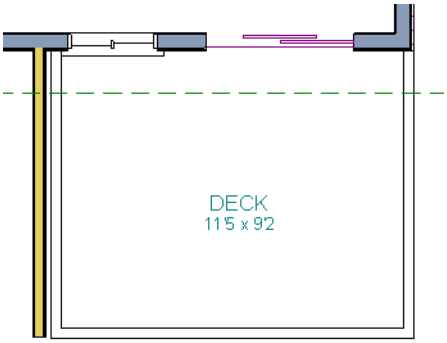



9. Select **Build> Wall> Straight Exterior Wall** and draw an exterior wall directly over the wall on the left side of the dining room.
10. Select this wall and click the **Open Object** edit button. On the General tab of the **Wall Specification** dialog, select Siding-4 from the **Wall Type** drop-down list, and click OK.
11. Select **Tools> Reference Floors> Reference Display** (or press F9) to turn off the Reference Display again.




12. We now need to create access to the deck. **Delete** the two windows, select **Build> Door> Sliding Door**, then click on the wall to place a sliding door.




13. Now take a look at our second floor deck in a **Full Camera** view.

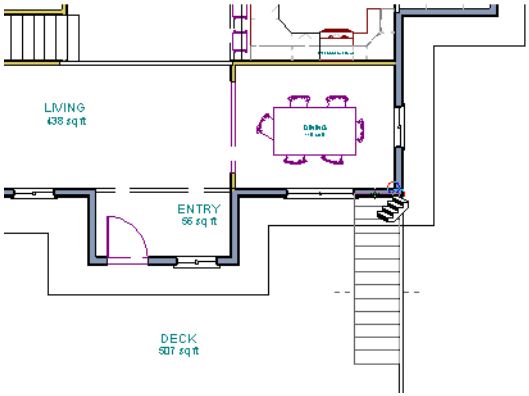
The platform edge of the second story deck can be made to match the exterior wall using the **Material Eyedropper** tool. See “Using the Material Eyedropper” on page 104.

## Drawing Stairs

Now we'll draw stairs between the upper and lower decks, and from the lower deck to the terrain below. For more information, see "Stairs, Ramps & Landings" on page 455 of the Reference Manual

***To connect the upper and lower decks with stairs***

1. In floor plan view, go to the first floor.
2. The deck planking is making it difficult to see the area where we'll be working. In the **Layer Display Options** dialog, turn off the display of the layer "Framing, Deck Planking". If you cannot remember how to do this, see "Controlling the Display of Objects" on page 77.
3. Make sure **Angle Snaps** and **Object Snaps** are turned on.
4. Select **Build> Stairs> Straight Stairs**.
5. Click and drag to draw a stairway from the lower deck to the outside edge of the upper deck railing as shown in the following image.

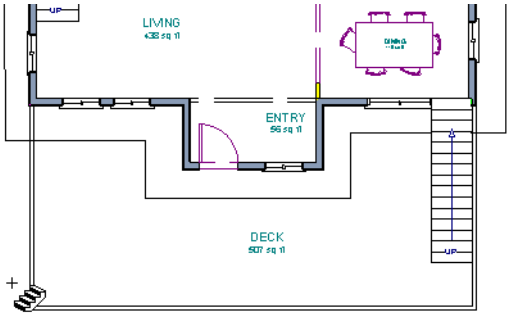



6. To help the stairs locate the deck on Floor 2, select them and move the entire staircase back, away from the front railing. Then move the stairs forward again until they bump into the front wall of the dining room.
7. In many cases, an opening will be added automatically to the deck railing at the top of a staircase. You can see this opening, which is actually a doorway placed in the railing, either by going up one floor or by creating a 3D view of the second floor deck.
8. If an opening is not created, select **Build> Door> Doorway** in either floor plan or a 3D view, then click on the deck railing to create an opening in front of the staircase.

***To draw a down staircase to the ground***

1. In floor plan view select **Build> Stairs> Click Stairs**

2. Click just to the outside of the deck platform, as shown in the following image.




3. Draw new stepping stones that lead to the staircase from the beach. To learn how to do this, see "To create a stepping stone pathway" on page 151.

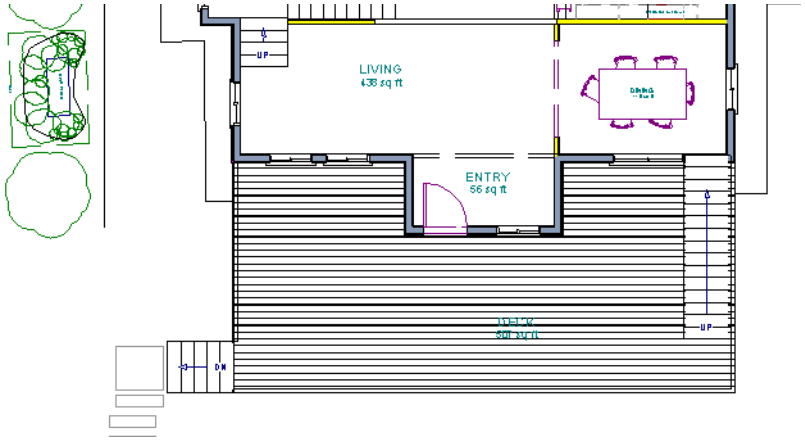
4. Now take a look at our deck in a **Full Camera** view.

## Changing Planking Orientation

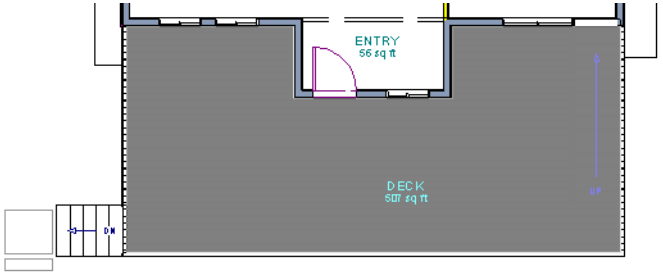
The angle of the deck planking can be controlled in the **Room Specification** dialog.

***To angle deck planking***

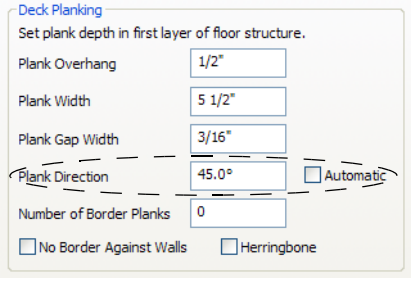
1. Return to floor plan view and turn on the display of the layer "Framing, Deck Planking" so we can see the angle of the planking in floor plan view.



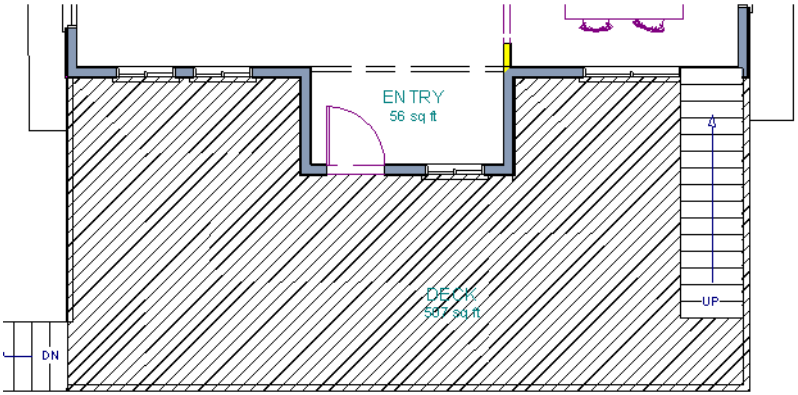

2. Select the Deck room. You will likely select an individual plank. Click the **Select Next Object** edit button or press the Tab key until the room is selected.




3. With the Deck room selected, click the **Open Object** edit button and go to the Deck tab of the **Room Specification** dialog.
4. Uncheck the **Automatic** checkbox next to Plank Direction, and then change the **Plank Direction** to 45°. See “Deck Tab” on page 305 of the Reference Manual.



5. Click OK to close the **Room Specification** dialog and return to floor plan view.




## Adding Exterior Furniture

Now let's add some furniture to our deck.

***To add furniture to the deck***

1. Open the Library Browser to Chief Architect Libraries> Exteriors> Outdoor Living> Outdoor Furniture> Furniture Sets> Adirondack> Adirondack Chair and select it for placement. When a library item is selected, a preview image displays.
2. In floor plan view or a 3D view, click on the deck to place a chair at that location. You can continue clicking to place more chairs.
3. Find Exteriors> Outdoor Living> Outdoor Cooking> Grills & Ranges> Gas> BBQ (shelf), select it for placement, and place the barbecue on the deck.

If you would like, you can learn how to create a walkout basement in sloping terrain in the Walkout Basement Tutorial. To learn how to arrange views of your model on a page for printing, see the Layout Tutorial.

Chapter 8:

# Walkout Basement Tutorial

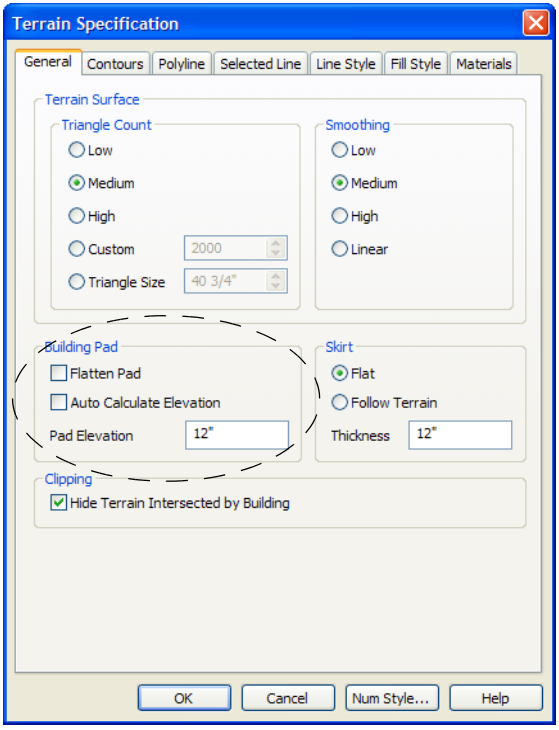
In this tutorial, we'll use the same house plan that we've used in previous tutorials. However, the terrain will be entirely different. The terrain data, terrain objects, retaining wall, and the large front deck must be removed to allow for a walkout basement. We could delete all of these elements manually, but since we saved the plan as we began each new tutorial, we can instead open the plan that we saved at the end of the House Design Tutorial (before we created landscaping), rename it, and start from there.

In this tutorial you will learn about:

- Editing the Terrain Perimeter
- Adding Elevation Data
- Adding Flat Regions
- Adding Doors and Windows
- Creating a Patio
- Adding a Driveway

## Editing the Terrain Perimeter

1. Select the terrain perimeter, then click the **Open Object** edit button to open the **Terrain Specification** dialog.
2. On the General tab, make sure **Flatten Pad** and **Auto Calculate Elevation** are unchecked, and change the **Elevation** to 12 inches.




- **Flatten Pad** flattens the building pad around the house. By unchecking this, the terrain will be allowed to slope where it intersects the house.
- **Auto Calculate Elevation** places the house at average terrain height. By unchecking this, we can control the building's height relative to the terrain.
- The **Elevation** is the distance between the default floor height of Floor 1 and a terrain elevation of 0". We will specify the Elevation as 12 inches to lower the terrain 12 inches below the first floor.

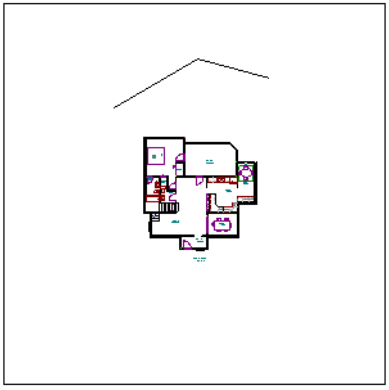
3. Click OK to close the **Terrain Specification** dialog.

# Adding Elevation Data

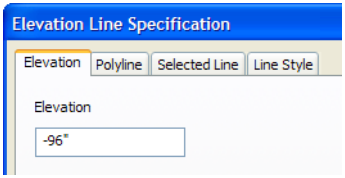
Now we'll add elevation lines to give the site appropriate relief for a walkout basement.

***Adding Elevation Lines***

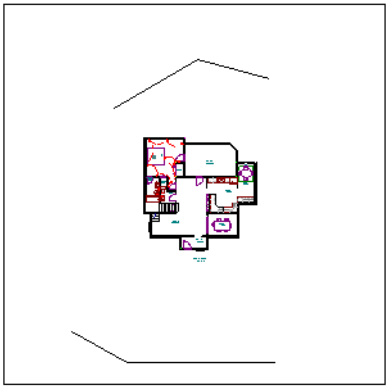
1. Select **Terrain> Elevation Data> Elevation Line**.
2. Draw an elevation line on the side of the house opposite the gable entrance. This part of the terrain will become lower in elevation.



3. Select the elevation line and click the **Open Object** edit button to open the **Elevation Line Specification** dialog. You can also double-click the elevation line with the **Select Objects** tool active to open it for specification.
4. Set the elevation at negative 96 inches (-96).




5. Click OK to close the **Elevation Line Specification** dialog.
6. Draw another elevation line on the other side of the house. We'll let this elevation line stay at the default elevation of 0.



7. Let's take look at our progress so far. Select **3D> Create Perspective View> Full Overview**.

8. We can see that the lot is beginning to slope, but it could use a little more work. Close the current 3D view by selecting **File> Close** from the menu, pressing F4, or clicking the ☒ in the top right corner of the window. If you have other active 3D views open, you may want to close them too. When multiple 3D views are open, your computer's performance may not be optimal.

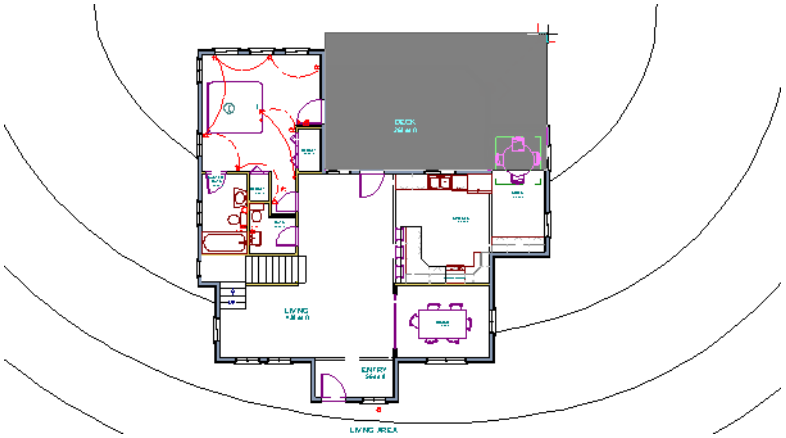
## Adding Flat Regions

A typical walkout basement has an upper flat region where you enter the house on the first floor, and a lower flat region where you walk out to ground level from the basement.

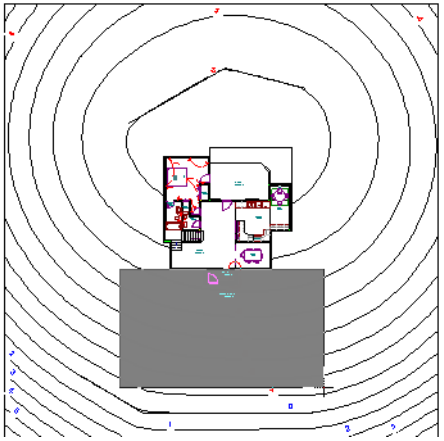
***To create flat regions***

1. In floor plan view, **Zoom** in on the house to see it in more detail.

2. Make sure **Object Snaps** are on.
3. Select **Terrain> Elevation Data> Elevation Region** and draw a flat region directly below the deck.



4. Select the Elevation Region and click the **Open Object** edit button, and on the Elevation tab of the **Elevation Region Specification** dialog, specify an Elevation of -92".
5. Select **Fill Window** to include the terrain perimeter on screen.
6. Draw another flat region that borders the main entrance, as shown in the following image.



7. Specify the elevation of this flat region as negative 12 (-12) inches.

8. Just as we did in the previous tutorial, select the deck on the first floor and click the **Build Advanced Deck Framing** edit button. Go to the second floor and repeat this step for the second floor deck.

9. Now create a **Camera** view of the deck. Create this camera view so that the focal point is the walkout basement. If you cannot remember how to do this, see "To create a camera view" on page 45.

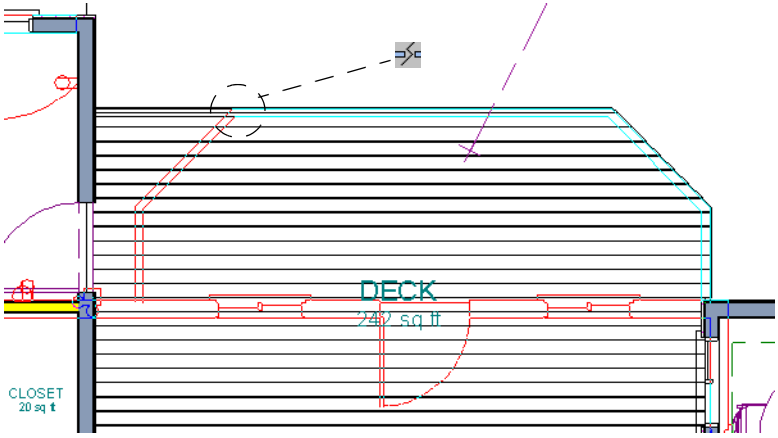
The second floor deck was not given structural supports because there was a deck beneath it. We can take care of that manually.

***To add support for the second story deck***

1. Return to floor plan view.
2. On the first floor, group-select the deck railings and open them for specification.
3. On the Railing tab of the **Deck Railing Specification** dialog, check **Post to Overhead Beam** and click OK. See "Railing Tab" on page 277 of the Reference Manual.

4. Take a look in a 3D view.

5. A section of our first floor deck railing should not have the **Post to Overhead Beam** attribute checked. Return to floor plan view and select **Tools> Reference Floors> Reference Display** or press the F9 key to turn on the Reference Display.
6. Select **Build> Wall> Break Wall** and place a break in the deck railing where the second floor deck above recedes.




7. Select the section of deck railing on the left that is not located under the second floor deck and uncheck **Post to Overhead Beam** on the Railing tab of its specification dialog.
8. Press the F9 key to turn off the Reference Display again.

9. Take a look in a 3D view.

## Adding Doors and Windows

Now we'll add a sliding door and some windows on the basement level.

***To place a sliding door***

1. Select **Build> Door> Sliding Door**, then click to place a sliding door in the foundation wall.
2. Select the door and click the **Open Object** edit button, and specify this door as a glass door, 84 inches wide. If you do not remember how to do this, see "To edit a door" on page 67.

***To place windows***

Select **Build> Window> Window**, then click on the foundation walls to place windows. If you cannot remember how to do this, see “Placing Doors and Windows” on page 67

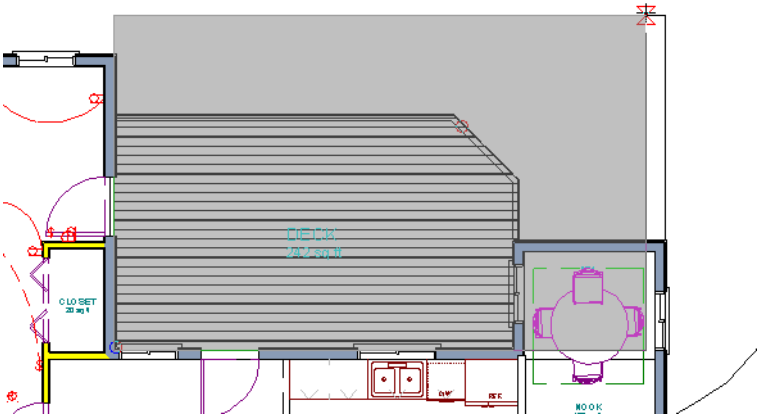
## Creating a Patio

Our walkout basement could use a patio. As you may recall from previous tutorials, a terrain feature creates an object that sits on top of the terrain’s surface. This will work well for a patio.

***To draw a patio***

1. Press Ctrl + Tab to return to the basement level in floor plan view.

2. Select **Terrain> Feature> Rectangular Feature** and draw a rectangular feature that sits on top of the flat region. This is much easier when **Object Snaps** are on.



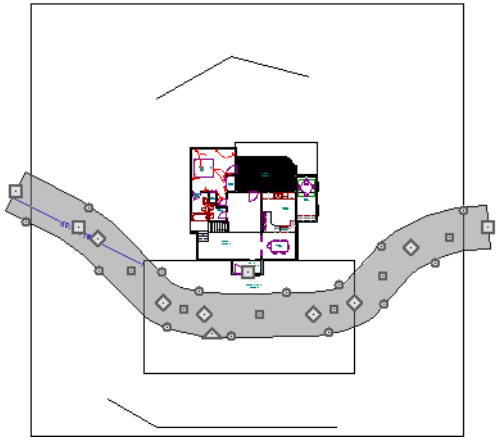
3. Open the rectangular feature for specification and on the General tab, set the **Height** to 4 inches (placing it 4 inches above the elevation region) and set the **Thickness** to 6 inches (making it 6 inches thick, 2 inches subgrade). Click OK to close the **Terrain Feature Specification** dialog.
4. Press Ctrl + Tab to return to the 3D camera view.

## Adding a Driveway

Now we'll add a driveway to our plan.

***To add a driveway to the plan***

1. Select **File> Close** to return to floor plan view. You should still be on Floor 1.
2. Click the **Fill Window** button to fill your screen with the terrain perimeter.
3. Turn off the display of the layer, "Terrain, Primary Contours". If you cannot remember how to do this, see "Creating a Retaining Wall" on page 144.
4. Select **Terrain> Driveway> Spline Driveway** then click and drag to draw driveway section.
5. Click and drag the driveways edit handles to customize its shape as desired. See "Editing Spline Based Objects" on page 187.



6. Take a look at your plan in a **Full Overview**. Select **3D> Camera View Options> Final View** to smooth surface edges and improve the quality of the view.

If you would like, you can learn about creating retaining walls, planting beds and other landscaping features in the Landscaping Tutorial. To learn how to arrange views of your model on a page for printing, see the Layout Tutorial.

Chapter 9:

# Layout Tutorial

In this tutorial we will create a layout template, send a few views to a layout page, then save this document in PDF format.

In this tutorial you will learn about:

- Creating a Layout Template
- Creating a Border and Title Block
- Sending Floor Plan Views to Layout
- Sending Elevation Views to Layout
- Sending Details to Layout
- Sending Perspective Views to Layout
- Printing to PDF

## Getting Started

Chief Architect uses two file types: plans and layouts. In a plan file (.plan), we design a 3D model of a structure, and in a layout file (.layout) we arrange views of that model as well as text, callouts and other annotation to produce professional quality construction documents. For complete information about layouts, see “Layout” on page 1071 of the Reference Manual.

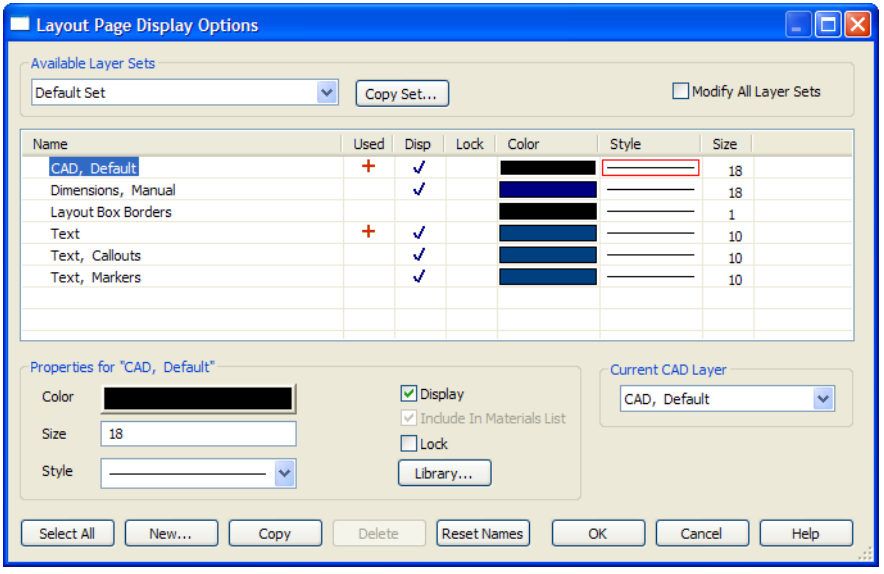
In previous tutorials we explored aspects of creating a 3D model in a plan file. Now, we’ll create a layout file and arrange views of the model that we recently completed on the layout pages. Since we won’t be altering the model itself, it doesn’t matter which plan file you use.

# Creating a Layout Template

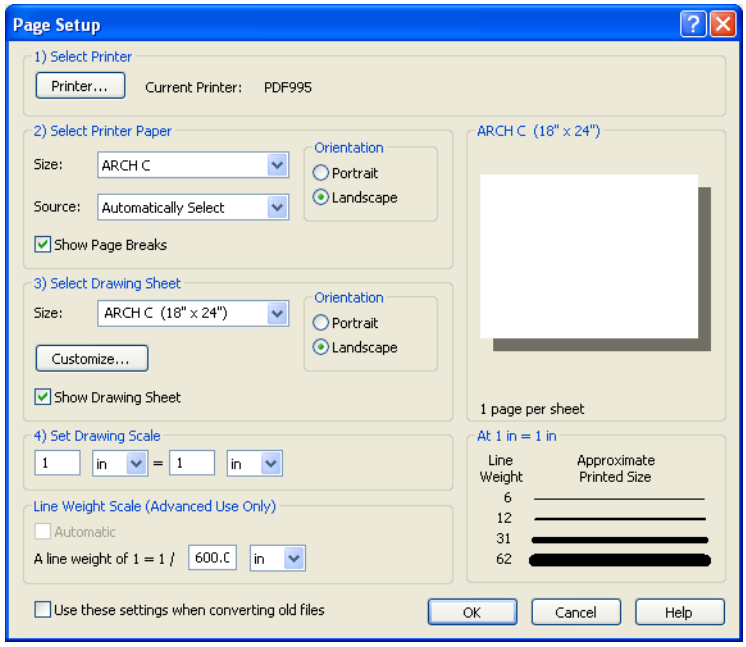
Before creating a layout file, it is very helpful to create a layout template. Templates save default, layer and page setup settings and then apply them to new, blank files - saving you the time and work of specifying them every time you begin a new project. For more information about plan and layout templates, see "Template Files" on page 72 of the Reference Manual.

***To create a layout template***

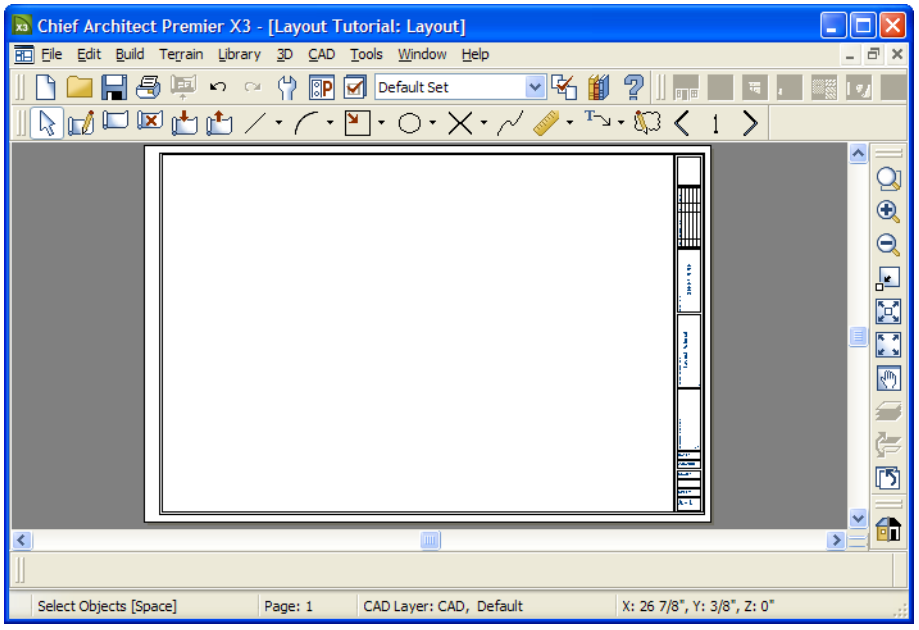
1. Select **File> New Layout** to open a new, blank layout file.
2. Select **Edit> Default Settings** from the menu to open the **Default Settings** dialog. Make any changes that you wish to the Text, CAD and Layout Defaults. This tutorial will simply use the default settings, but you can customize the defaults to suit your own tastes. See "Preferences & Default Settings" on page 61 of the Reference Manual. Click Done when you are finished to close the **Default Settings** dialog.
3. Select **Tools> Display Settings> Display Options** to open the **Layout Page Display Options** dialog. Here you can set up line weights, styles, and colors for the layers in your layout template. See "Layout Page Display Options" on page 1083 of the Reference Manual. These settings do not affect objects within layout views - they only affect CAD, Text, Dimensions and layout box borders placed on the layout pages. Click OK when you are finished.



4. Select **File> Print> Page Setup** to open the **Page Setup** dialog.




5. First we'll click the **Printer** button and specify the printer.
   - If you have a local printer/plotter you will be using, select it from the list.
   - If you do not have a local printer, you can select a PDF driver as your printer. See "Printing to PDF" on page 200.
6. Specify the **Size** and **Orientation** for the Printer Paper and Drawing Sheet. The sizes available will be limited by the current printer. In most cases, the printer paper and the drawing sheet should be the same size. If you would like to print a test page or if you would like to tape smaller pieces of paper together to create a larger sheet, the printer paper and the drawing sheet can be different dimensions.
7. The **Drawing Scale** for layout files should always be 1 in = 1 in (1 mm = 1 mm for metric plans). For more information, see "Page Setup Dialog" on page 1061 of the Reference Manual. Click OK when you are finished.
8. Select **Tools> Layout> Page Down** to go to Layout Page 0. Any information that you place on Layout Page 0 will display and print on all pages of the document, so this is a good location for your border and title block. See "Layout Page Zero" on page 1078 of the Reference Manual.

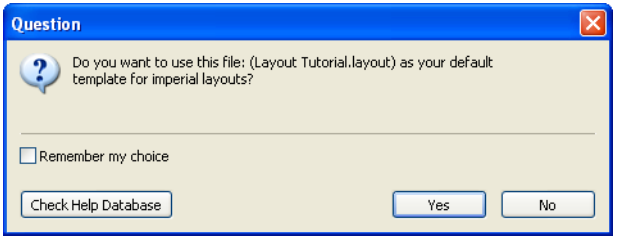



9. Select **Tools> Layout> Page Down** to go to Layout Page 0. Any information that you place on Layout Page 0 will display and print on all pages of the document, so this is a good location for your border and title block. See "Layout Page Zero" on page 1078 of the Reference Manual.

10. Select **File> Templates> Save Plan as Template**. The **Save Plan File** dialog opens to the Templates directory specified in the **Preferences** dialog. For more information, see "Folders Panel" on page 85 of the Reference Manual.

11. Save your new layout template with a short, descriptive name such as "My 24 x 36 Template.layout".

12. When prompted, click Yes, specifying that you would like to use your new template as the default.



13. Your template layout file will close and (provided you have no other plans open) a new untitled layout file will open with your border, title block, default and layer settings ready to go.

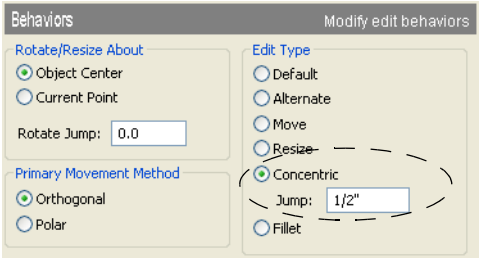
## Creating a Border and Title Block

Once the page setup of the layout sheet is established, you can use CAD tools to create a border and title block for your layout pages on Layout Page Zero. For information about the printable area of the drawing sheet, see “Show Sheet” on page 1053 of the Reference Manual.

Drawing borders may be simplified by making a few changes in the **Preferences** dialog and your plan defaults. When you have finished creating borders you may want to reverse these changes.

***To create a layout border***

1. Make sure that **Object Snaps** are enabled, particular **Endpoint** snaps.
2. Select **Window> Fill Window** or zoom out so that you can see the entire drawing sheet.
3. Select **CAD> Boxes & Framing**> **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.
4. Select **Edit> Preferences**, then go to the Behaviors panel of the **Preferences** dialog.
5. Select **Concentric Edit Type**, and specify the **Jump** value as the distance you would like your border to be drawn from the edge of the drawing sheet. In our example, 1/2" is used. For more information, see “Behaviors Panel” on page 97 of the Reference Manual.




6. Select the rectangular polyline, then click and slowly drag a corner edit handle towards the center of the polyline. When you reach the your specified **Concentric Jump** distance, the polyline will resize so that it’s edges are that distance from the drawing sheet edges.

- Make sure that your border is entirely within the printable area.

7. You can easily create a double border in the same manner. Click the **Copy/Paste** edit button, then click and slowly drag one of the corner edit handles towards the polyline center. A concentric copy of the polyline is made when you reach your **Concentric Jump** distance.
8. When you are finished concentrically resizing and copying your border objects, it is a good idea to return to the Behaviors panel of the **Preferences** dialog and return to the **Default Edit Type**.
9. You can adjust the line weight, style and color for any CAD object in its specification dialog. See "Line Style Tab" on page 944 of the Reference Manual.
10. To see the final product, you may find it helpful to turn off the display of the Snap and Reference Grids. See "Layout Defaults" on page 1072.

***To create filleted corners***

1. Select one of your rectangular polylines and double-click the **Fillet Two Lines** edit button
2. In the **Chamfer/Fillet** dialog, specify a **Fillet Radius value**. A value of 1" fillets one inch of each intersecting edge.
3. Select one side of the rectangle, click the **Fillet Two Lines** edit button and then select an adjacent side. The two lines fillet where they meet.
4. Repeat step 3 until all corners are filleted.

## Title Block

Create the title block using CAD objects and Text on Layout Page Zero. Include only those items that should appear on every layout page. You can create areas for page-specific information, which can be filled in later on each page.

A company logo can be added to a layout by importing it as a bitmap into a CAD detail, then sending the CAD Detail to the layout. You can also embed the image in the layout file. For more information, see "Importing Pictures" on page 997 of the Reference Manual.

## Text Macros

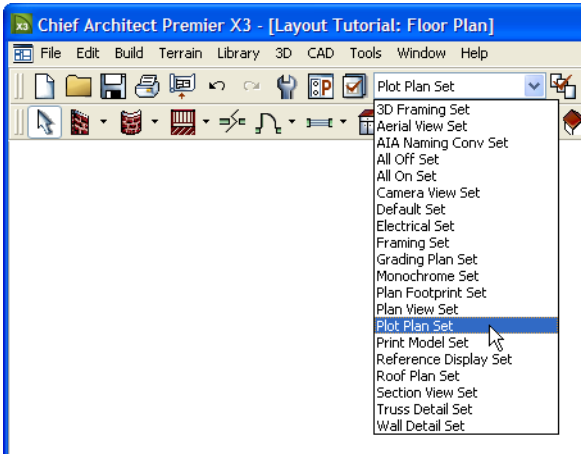
Page numbers can be entered on page zero using text macros that are available with the Text tool. The correct page number displays on all pages. A variety of other macros are also available including date/time, file name, drawing scale, and others. See "Text Macros" on page 921.

# Sending Floor Plan Views to Layout

In order to send any view to layout, first open both the destination layout file and the plan file. It is recommended that these two files have the same name and be saved in the same folder in your computer. See “Organizing Your Files” on page 44 of the Reference Manual and “Managing Layout Links” on page 1087 of the Reference Manual.

***To send a floor plan view to layout***

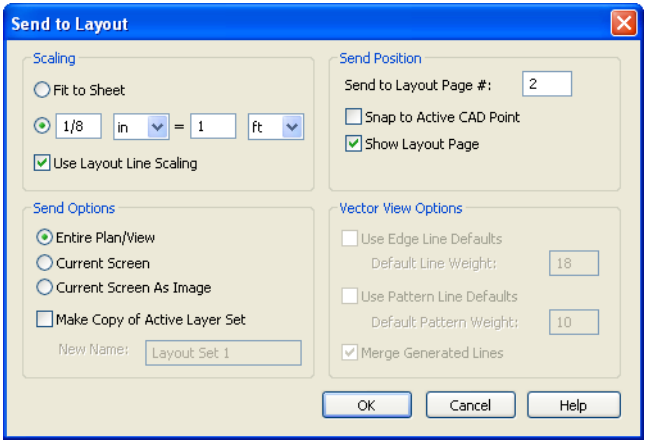
1. Select **File> Open Plan** and open a plan such as the Walkout Basement Tutorial plan.
2. Select **File> Save As** and save the file using a new name.
3. Select **Window> Fill Window**.
4. Select **Tools> Display Settings> Display Options** and turn on or off any layers as needed so that only the objects that you want to see in the layout view display.
5. Click the **Active Layer Set Control** drop-down arrow and select Plot Plan Set from the list. Selecting this layer set turns off the display of layers that aren’t necessary for a site plan, such as cabinets, millwork and door and window labels.



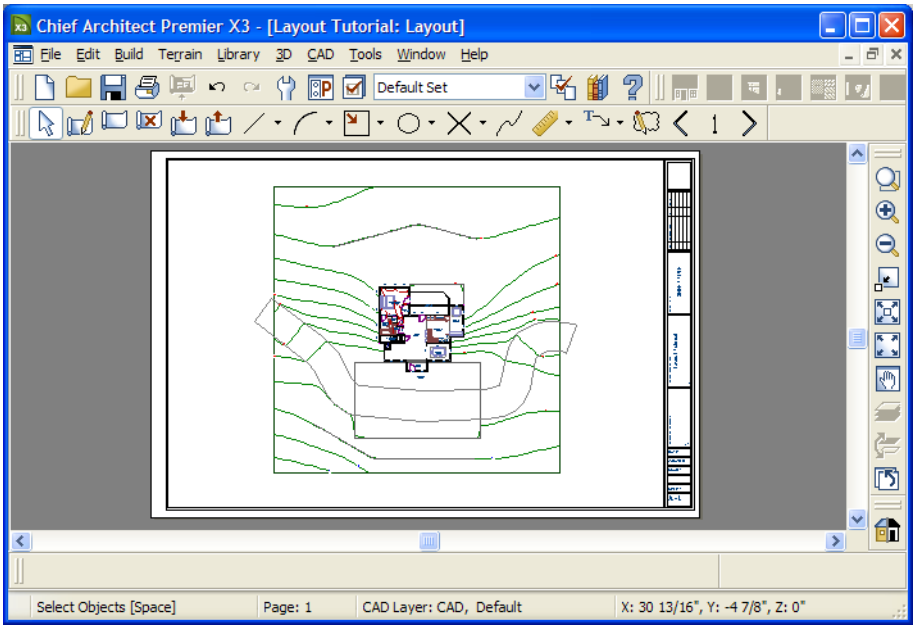

6. Select **File> Print> Page Setup** and make sure that your **Drawing Scale** is correct in the **Page Setup** dialog. This will be the scale of the view once it is sent to layout. For a plot plan, a scale such as 1/8 inch = 1 ft works well.

The information in the Page Setup dialog is view-specific. When you open the dialog in floor plan view, its settings only apply to floor plan views of the current plan. When you open it in a cross section view or CAD detail window, its settings apply only to the current view or detail window.

7. Select **File> Send to Layout**  to open the **Send to Layout** dialog.
   - Confirm that the view is being sent to layout using the same **Scale** as in the **Page Setup** dialog.
   - Select **Entire Plan/View** under **Send Options**.
   - Uncheck **Make Copy of Active Layer Set**. This means that once sent to layout, the view will use the Plot Plan Set and changes made to this layer set will affect the view.
   - Under **Send Position**, we will **Send to Layout Page #** 2 and leave **Show Layout Page** checked so that when we click **OK**, the layout window will become active.



8. Click OK to send the view to layout.




9. Once sent to layout, the view can be selected and moved using its edit handles or edit buttons, and its edges can be edited like a CAD box. See “Editing Box-Based Objects” on page 184 of the Reference Manual.
10. Select **Window> Previous Window** (or press Ctrl + Tab) to return to floor plan view.
11. Click the **Active Layer Set Control** drop-down arrow and select Default Set from the list of available layer sets. See “Active Layer Set Control” on page 130 of the Reference Manual.

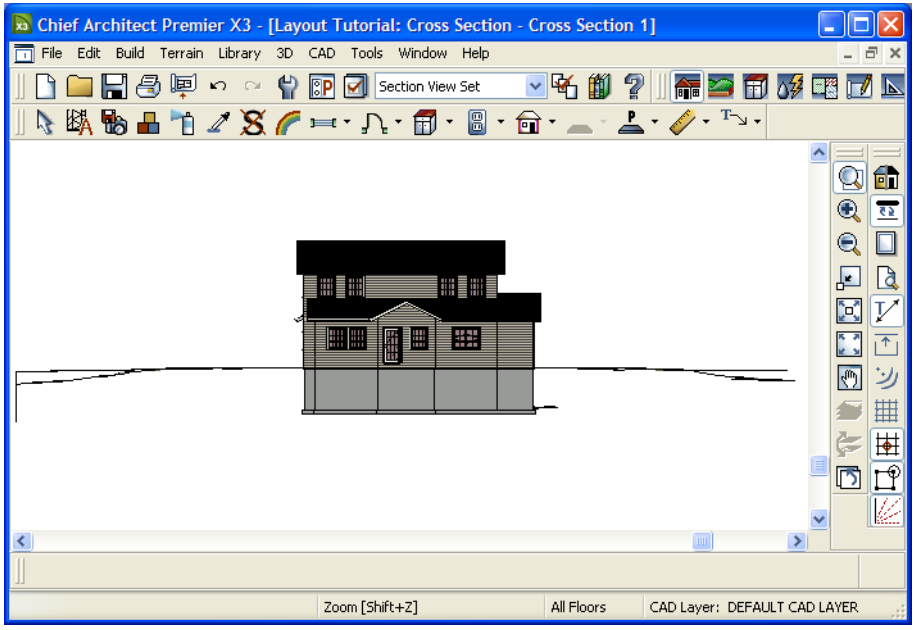
> It is important that we switch from the Plot Plan Set so that we don’t make unwanted changes to our site plan view on the layout page.

## Sending Elevation Views to Layout

**Cross Section/Elevation**, **Backclipped Cross Section** and **Wall Elevation** views can also be sent to layout.

***To send an elevation view to layout***

1. Select **3D> Create Orthographic View> Cross Section/Elevation** , then click and drag to create a front elevation view. See "Cross Section/Elevation Views" on page 791 of the Reference Manual.

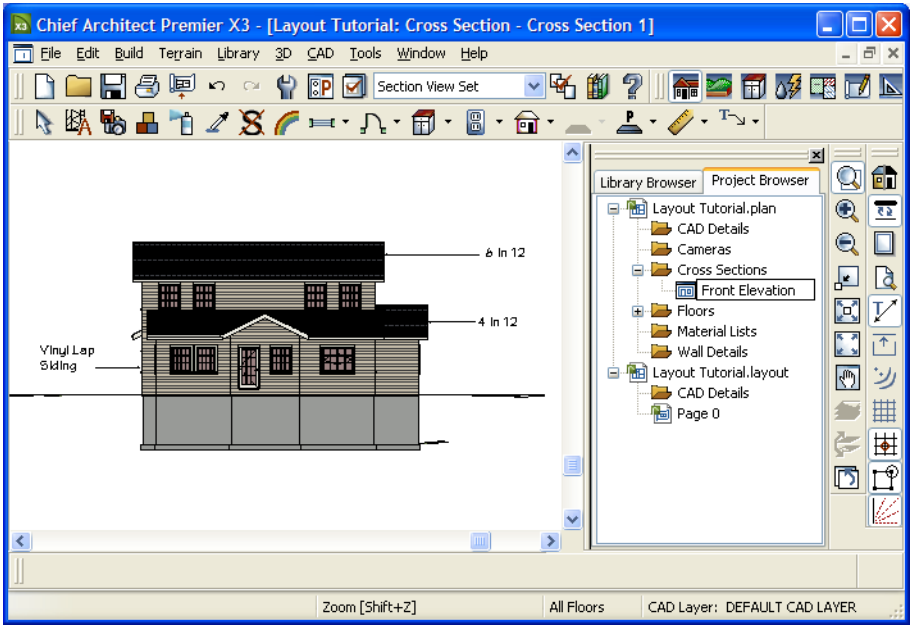



2. In the elevation view, click the **CAD Configuration** button to access the CAD toolbar (see "Toolbar Configurations" on page 119 of the Reference Manual) and add any annotations such as roof heights, pitches, material specifications or other notes.

3. You may want to **Zoom** in on the house.

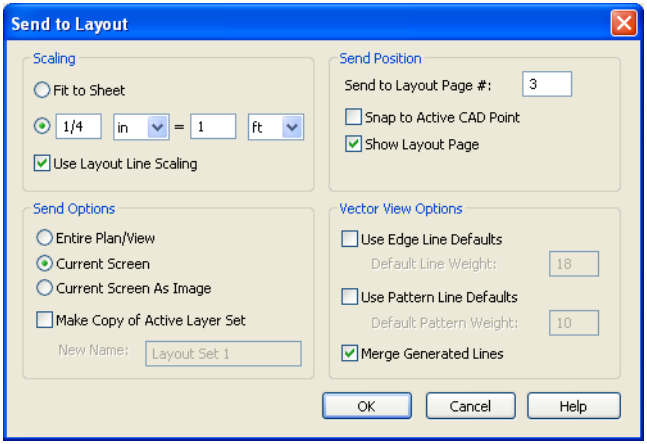

4. Select **3D> Save Active Camera** so that the camera and your annotations are retained and listed in the Project Browser. See “Saving & Printing 3D Views” on page 807 of the Reference Manual.

5. Select **3D> Edit Active Camera**, and in the **Cross Section/Elevation Camera Specification** dialog, give the Cross Section view a short descriptive name, such as "Front Elevation".

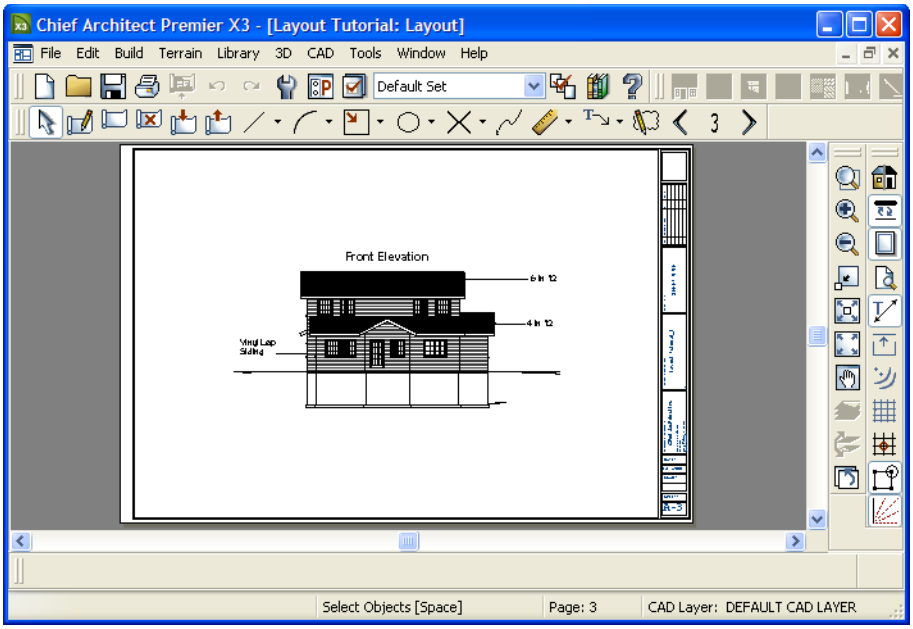


6. Select **File> Print> Page Setup** and specify a **Drawing Scale** for the elevation view in the **Page Setup** dialog. 1/4 in = 1 ft should work well. Click OK to close the **Page Setup** dialog.

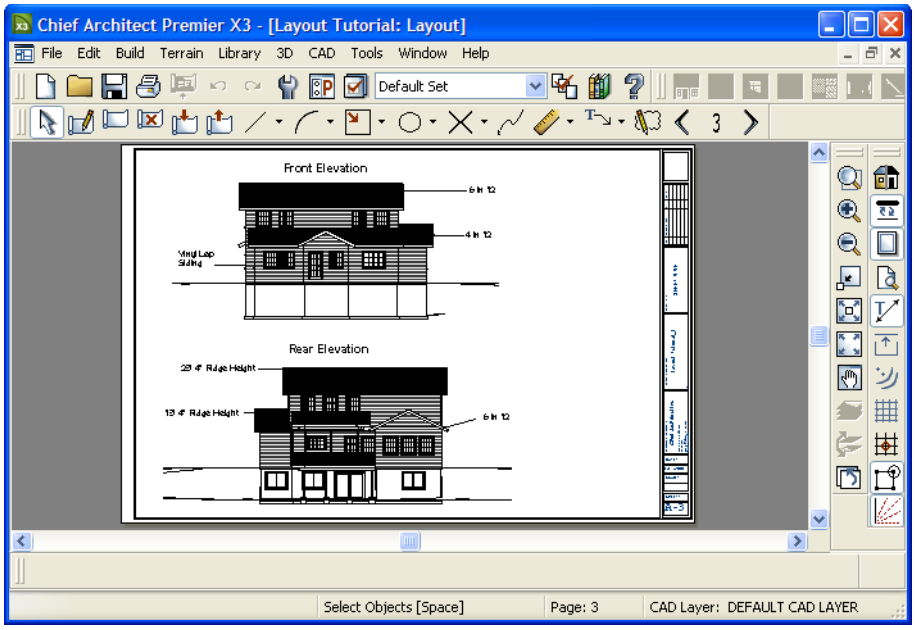
7. Select **File> Send to Layout** to open the **Send to Layout** dialog.
   - Confirm that the view is being sent to layout using the same **Scaling** as in the **Page Setup** dialog.
   - Select **Current Screen** under **Send Options**.
   - In this case, we will leave **Make Copy of Active Layer Set** unchecked. Once sent to layout, the view will use the Section View Set and changes made to this layer set will affect the view.
   - Under **Send Position**, we will **Send to Layout Page #** 3 and leave **Show Layout Page**.
   - When Orthogonal Views (including cross section/elevation views) are sent to layout, you can specify line weights for surface edge lines and pattern lines. You can also leave these boxes unchecked to use the line weight settings assigned to the individual objects and patterns in the view. See "Send To Layout Dialog" on page 1076 of the Reference Manual.



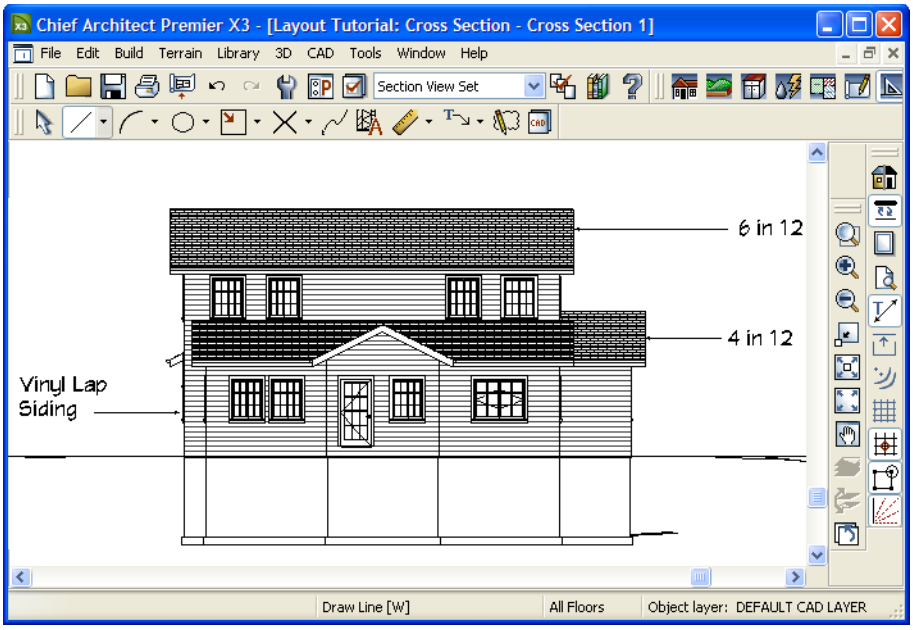
8. Click OK.




9. Return to the elevation view, then select **File> Close** to close the view. The **Closing Elevation** dialog will appear, click OK. If you had made edits to the elevation view, clicking OK would update those edits to the layout view. In this case, no changes were made, so it doesn't matter.
10. Return to floor plan view. A camera symbol now displays, indicating the position of your saved elevation camera.
11. Repeat this process for a rear elevation view. The elevation views will need to be selected and repositioned on the layout page.




If you would like to make changes to the lines in the elevation view, select **CAD> CAD Detail From View** to make a copy of the view in a CAD detail window that is composed of editable lines and polylines. Changes made to the model do not affect views sent to CAD. See "CAD Details" on page 974 of the Reference Manual.



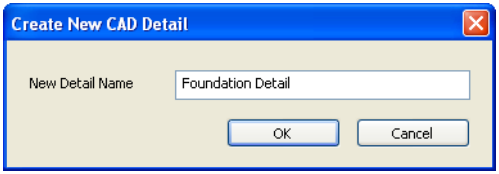

*Any Orthographic view can be converted to a CAD Detail. All patterns become lines and colors no longer display. Individual lines can be added and edited.*

## Sending Details to Layout

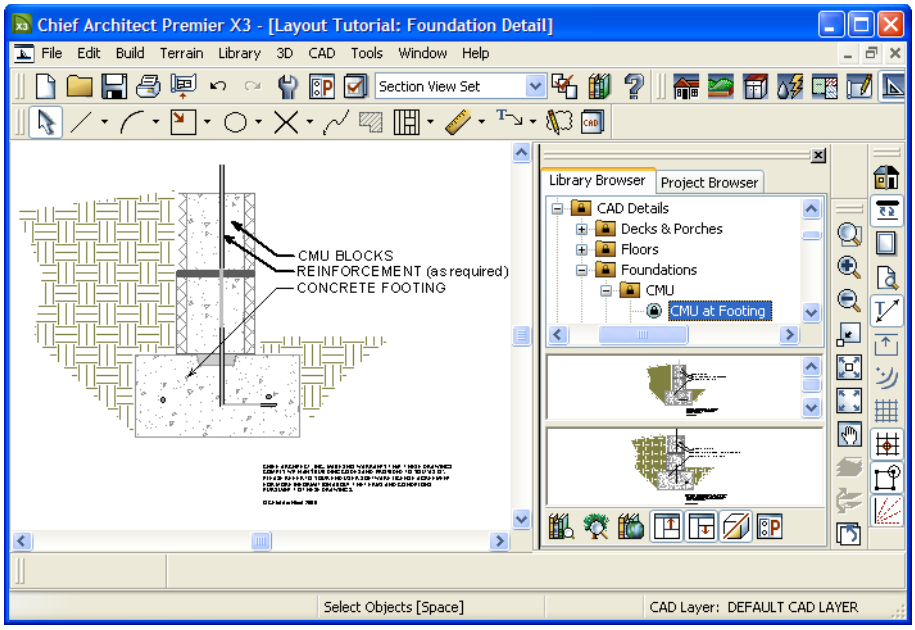
Foundation, roof, cross section and other details are an important feature of professional construction documents. The steps used to send details to layout can also be used to place schedules, legends, keys and other items on the layout page.

***To send details to layout***

1. Return to floor plan view.
2. Select **CAD> CAD Detail Management** to open the **CAD Detail Management** dialog. Click the **New** button, type a short descriptive name for your detail and click OK.

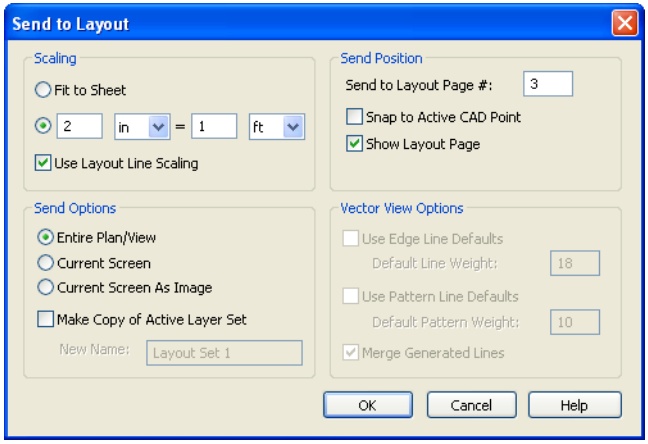


3. A new CAD Detail window opens. You can create a CAD detail from scratch using the CAD tools, or you can place a CAD block from the library.
4. In this example, we will place a blocked drawing from the CAD Blocks library category. This block can be exploded and edited as needed. See "CAD Blocks" on page 968 of the Reference Manual.

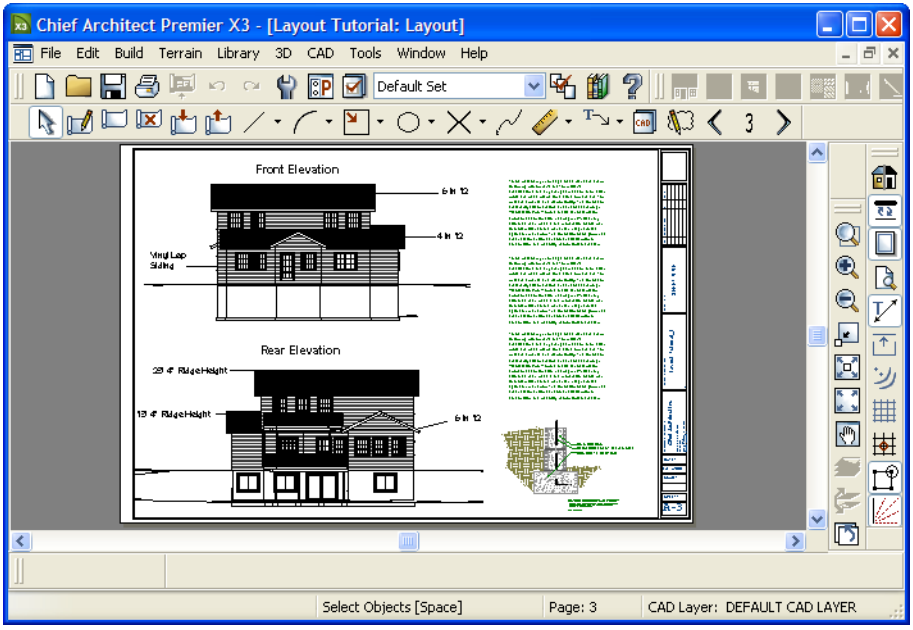



5. Select **File> Print> Page Setup** and specify a **Drawing Scale** for the CAD detail in the **Page Setup** dialog. 2 inches = 1 foot works well in this case.
6. Select **File> Send to Layout** to open the **Send to Layout** dialog.
   - Confirm that the view is being sent to layout using the same **Scaling** as in the **Page Setup** dialog.
   - Select **Entire Plan/View** under **Send Options**.
   - In this case, we will leave **Make Copy of Active Layer Set** checked and type a short, descriptive name for the layer set that the layout view will use, such as "Page 3 Detail Set". Once sent to layout, the view will use this layer set, so any changes made to the Default Set will not affect it.

• Under **Send Position**, we will **Send to Layout Page #** 3 and leave **Show Layout Page** checked so that when we click **OK**, the layout window will become active.




7. Some useful notes are available in the Notes & Legends library in the CAD Blocks category. Text can also be copied and pasted from other applications. Place your notes in a CAD detail and send them to layout, as previously described.

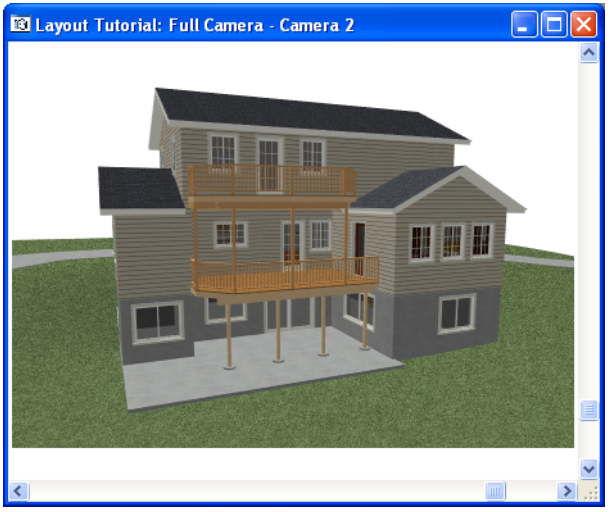


## Sending Perspective Views to Layout

Perspective views add visual appeal and clarity to your documentation. They are converted to bitmap images when sent to layout, which means that they increase your file size considerably. As a result, you should send perspective views to layout sparingly.

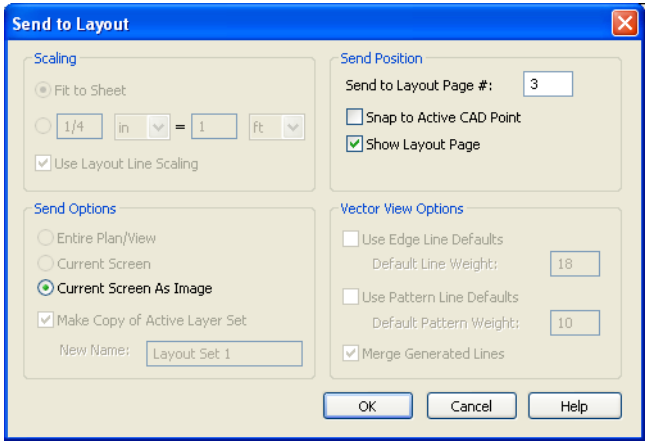
***To send a perspective view to layout***

1. Return to floor plan view.
2. Select **3D> Create Perspective View> Full Camera** and create a 3D view.
3. In the camera view, use the Move, Orbit and Tilt Camera tools available in the 3D menu to adjust the view to your liking. See "Editing 3D Views" on page 798 of the Reference Manual.
4. Click the Restore button at the top right corner of the view window, between the Minimize and Close buttons, then adjust the shape of the window so that it includes the information that you want and has a height to width ratio similar to the space you want it to fill on the layout page.

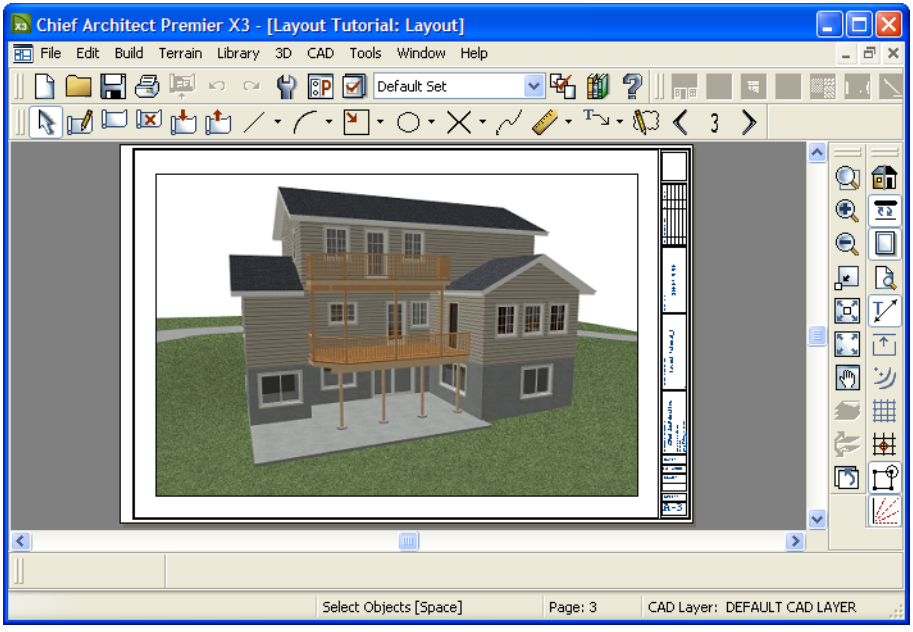



5. Select **3D> Camera View Options> Final View** to redraw the view at a higher quality according to your settings in the **Preferences** dialog. See "Preview vs Final View" on page 815 of the Reference Manual.

6. Select **File> Send to Layout** to open the **Send to Layout** dialog. When perspective views are sent to layout our options are limited because they cannot be scaled. This is why we do not need to access the **Page Setup** dialog before sending the view to layout.




7. **Send to Layout Page #** 1 and leave **Show Layout Page** checked.
8. Select and resize the image as needed.



## Printing to PDF

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.

In order to create a PDF, you must first have a PDF printer driver installed on your computer. Many options are available, including PDF995, which is available for download. Select **Help> Download PDF Printer Driver** from the program menu or visit www.pdf995.com.

Creating a PDF is a printing function, and the PDF driver installed on your computer should be treated like any other printer. Set up page size and orientation information in its Properties dialog and select your PDF writer as your printer in the **Page Setup** and **Print** dialogs. For more information, see "Printing to a PDF File" on page 1056 of the Reference Manual.

Chapter 10:

# Roof Tutorial

This tutorial can be completed independent of the previous tutorials. We'll go over some common roof styles that can be created using settings in the **Wall Specification** dialog. We'll also learn how to add gables over doors and windows, how to create dormers automatically and manually, and how to create skylights. For additional information about using the Roof Tools, see "Roofs" on page 403 of the Reference Manual.

In this tutorial you'll learn about:

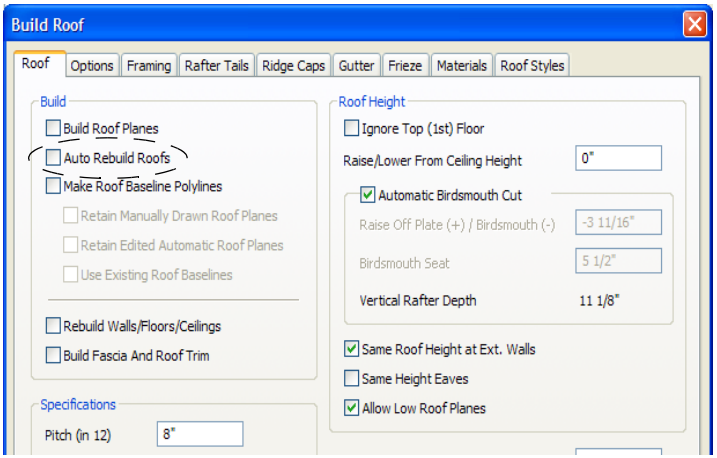
- Auto Rebuild Roofs
- Getting Started
- Deleting Roofs
- Hip Roofs
- Gable Roofs
- Shed Roofs
- Saltbox Roofs
- Gambrel Roofs
- Gull Wing Roofs
- Half Hip Roofs
- Mansard Roofs
- Finding the Start of an Upper Pitch
- Roof Type Quick Reference
- Roof Returns
- Adding Gables over Doors and Windows
- Automatic Dormers
- Manually Drawn Dormers
- Skylights
- Using the Break Wall Tool with Roofs

## 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. In the **Build Roof** dialog, check/uncheck **Auto Rebuild Roofs** and click **OK**.

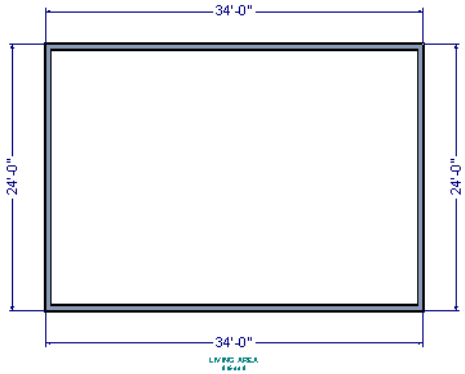



## Getting Started

We'll begin this tutorial with a new plan.

***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. We'll use this outline to build a number of different roof styles. See "Drawing Walls" on page 245.




## Deleting Roofs

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

***To delete a roof***

1. Select **Build> Roof> Delete Roof Planes** .

- Select **Edit> Delete Objects** and in the **Delete Objects** dialog, select **All Rooms On This Floor**; place a check beside **Roof Planes**; and click **OK**.

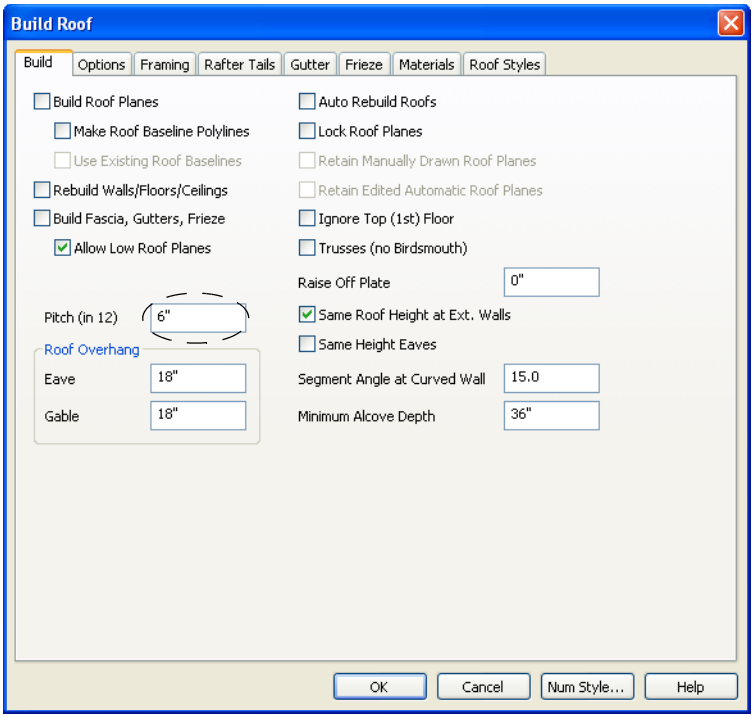
If a warning message states that roofs cannot be deleted while **Auto Rebuild Roof** is on, click the **Yes** button to turn off **Auto Rebuild Roof** and delete the roof.

## Hip Roofs

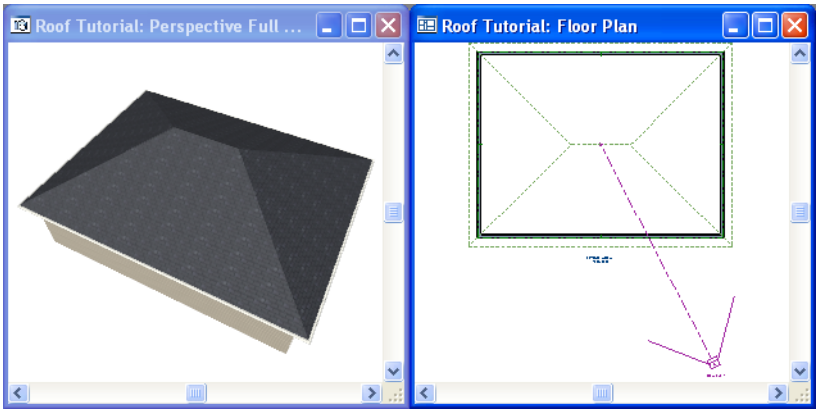
When roofs are automatically generated, the default roof type is a hip roof, which means that a roof plane is built over every exterior wall in the plan that does not have another wall drawn above it.

***To create a hip roof***

1. Select **Build> Roof> Build Roof** from the menu to open the **Build Roof** dialog. The **Pitch** is set at 6 in 12 inches.




2. Check **Build Roof Planes** and click **OK** to generate a hip roof.
3. Select **3D> Create Perspective View > Full Overview** to create a 3D overview of the house. If you wish, you can select **3D> Toggle Textures** from the menu to turn off the display of textures.
4. Select **Window> Tile Vertically** to see both views at the same time.



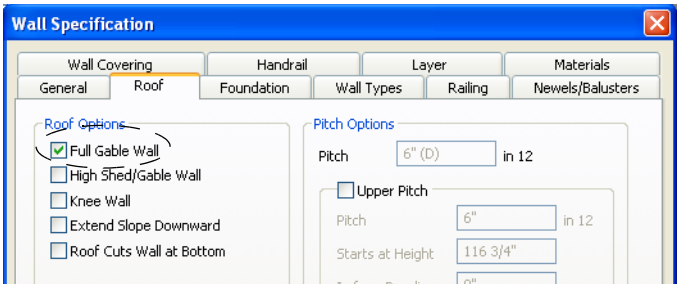

## Gable Roofs

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 a gable over a wall, specify it as a **Full Gable Wall**. To create basic gable roof, two walls must be specified as such.

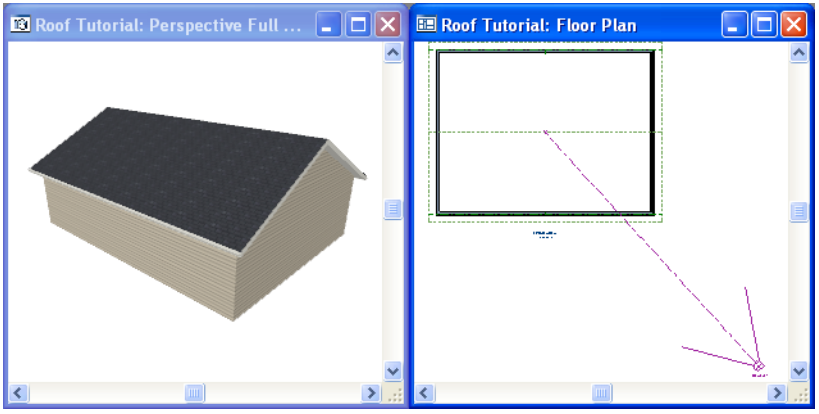
***To create a gable roof***

1. Click on the floor plan view window to make it the active view.
2. Select **Build> Roof> Delete Roof Planes** .
3. 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.
4. Click the **Open Object** edit button and on the Roof tab of the **Wall Specification** dialog, check **Full Gable Wall** and click OK.




- Alternatively, you can click the **Change to Gable Wall(s)** edit button.
- To remove the Full Gable Wall attribute from a wall, you can select it and click the **Change to Hip Wall(s)** edit button.

5. Select **Build> Roof> Build Roof** to open the **Build Roof** dialog, check **Build Roof Planes**, and click **OK**.



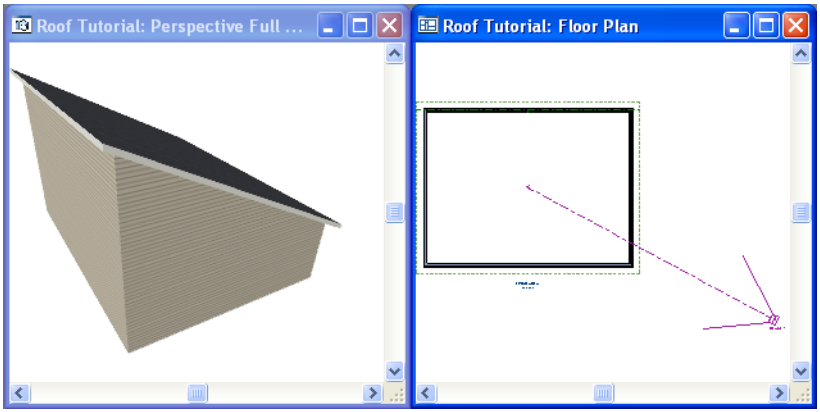

## Shed Roofs

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. Click on the floor plan view window to make it the active view.
2. Select **Build> Roof> Delete Roof Planes**.

3. With the **Select Objects** tool, double-click the lower horizontal wall and in the Roof tab of the **Wall Specification** dialog, check **High Shed/Gable Wall** and click OK.
4. As in the Gable Roof example, specify the left and right vertical walls as **Full Gable Walls**.
5. Select **Build> Roof> Build Roof** to open the **Build Roof** dialog, check **Build Roof Planes**, and click **OK**.

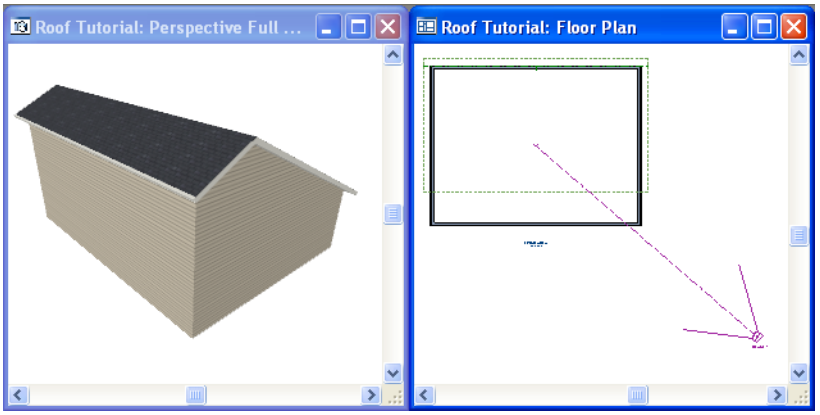



## Saltbox Roofs

A saltbox is a type of gable roof with different pitches on each of the two roof planes and an offset ridge. Assign a different pitch to the two roof planes in the **Wall Specification** dialog for the wall supporting each one.

***To create a saltbox roof***

1. Click on the floor plan view window to make it the active view.
2. Select **Build> Roof> Delete Roof Planes**.
3. With the **Select Objects** tool, double-click the lower horizontal wall. On the Roof tab of the **Wall Specification** dialog, remove the check from **High Shed/Gable Wall** and change the pitch to 12 in 12. Click OK to close the **Wall Specification** dialog.
4. Leave the **Full Gable Wall** box checked for the two vertical walls.
5. Select **Build> Roof> Build Roof** to open the **Build Roof** dialog, check **Build Roof Planes**, specify the pitch as 3 in 12, and click **OK**.

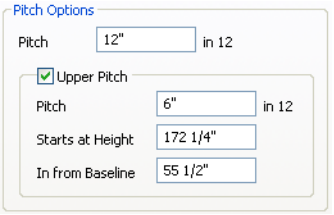



## Gambrel Roofs

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.

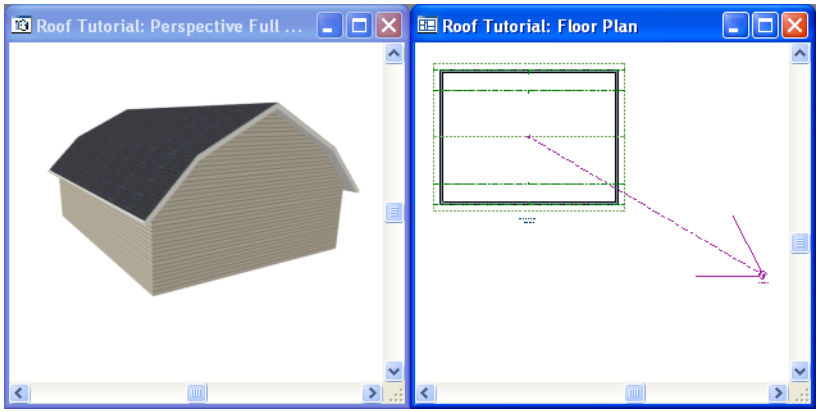
***To create a gambrel roof***

1. Click on the floor plan view window to make it the active view.
2. Select **Build> Roof> Delete Roof Planes** .
3. Group select the horizontal walls and open them for specification. On the Roof tab:




   - Specify the lower **Pitch** as 12 in 12.
   - Place a check in the box beside **Upper** Pitch.
   - Keep the **Upper Pitch** as 6 in 12 and change the **Start Height** to 156. The second pitch will begin 60 inches above the top plate (top plate = 96 inches, so 96 + 60 =156).
   - To learn more, see "Finding the Start of an Upper Pitch" on page 213.
4. Click OK to close the **Wall Specification** dialog.
5. The two vertical walls should remain Full Gable Walls.

6. Open the **Build Roof** dialog, check **Build Roof Planes**, specify the **Pitch** as 6 in 12 once again, and click **OK**.



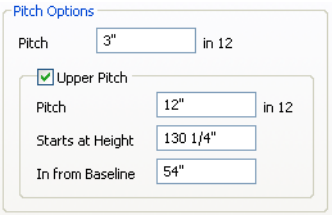

Experiment with alternate pitches and overhangs. Also, try varying the height at which the second pitch begins so that you can see the effect it has on your gambrel roof design.

## 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 second.

***To create a gull wing roof***

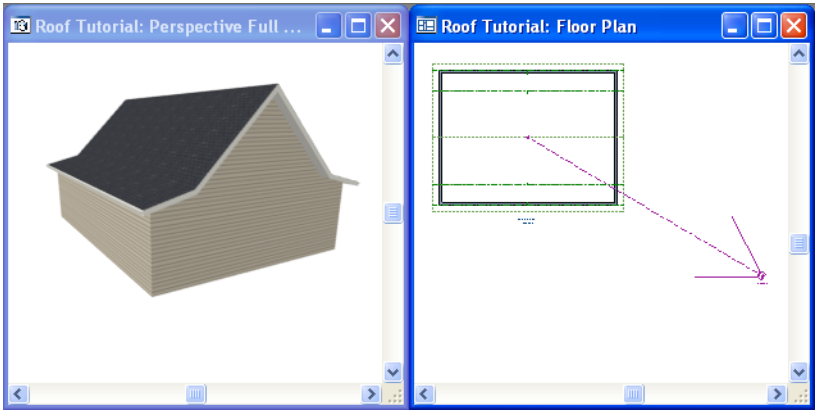
1. Click on the floor plan view window to make it the active view.
2. Select **Build> Roof> Delete Roof Planes** .
3. Change the following settings for each of the horizontal walls on the Roof tab of the **Wall Specification** dialog:




- Specify the lower **Pitch** as 3 in 12.
- Place a check in the box beside **Upper** Pitch.

- Keep the **Upper Pitch** as 12 in 12 and change the **Start Height** to 114". The second pitch will begin 18 inches above the top plate (top plate = 96 inches, so 96 +180 =114).
- To learn more, see "Finding the Start of an Upper Pitch" on page 213.

4. The two vertical walls remain Full Gable Walls.
5. Click the **Build Roof** tool, 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 your gull wing roof design.

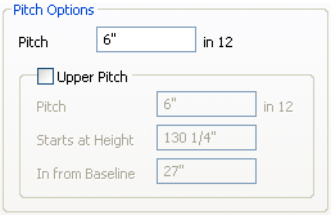
## Half Hip Roofs

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***

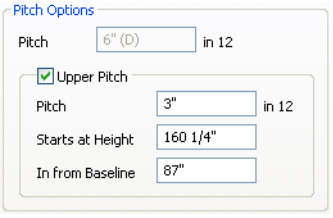
1. Click on the floor plan view window to make it the active view.
2. Select **Build> Roof> Delete Roof Planes** .
3. With the **Select Objects** tool, double-click each wall and make these changes on the Roof tab of the **Wall Specification** dialog:

For the two Horizontal walls:



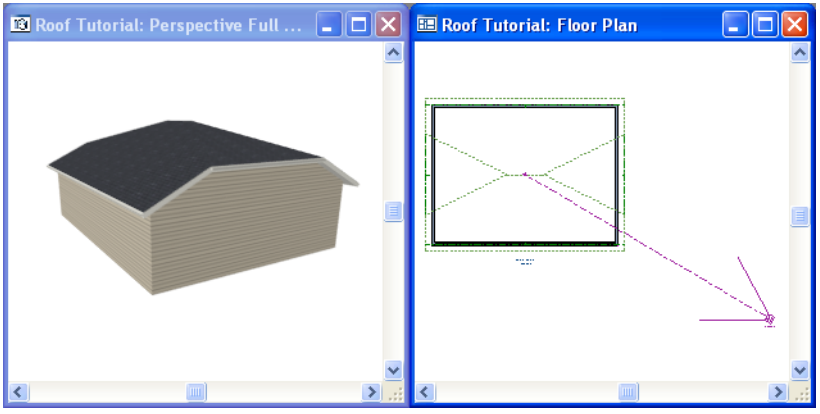

- Specify the lower **Pitch** as 6 in 12.
- Uncheck the box beside **Upper** Pitch.

For the two Vertical walls:




- Leave the Full Gable Wall box checked.
- Check the box beside **Upper** Pitch.
- Specify the **Upper Pitch** as 3 in 12 and set the **Start Height** at 144".

4. Click the **Build Roof** tool, check **Build Roof Planes**, and click **OK** in the **Build Roof** dialog.

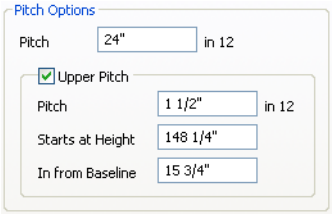


# Mansard Roofs

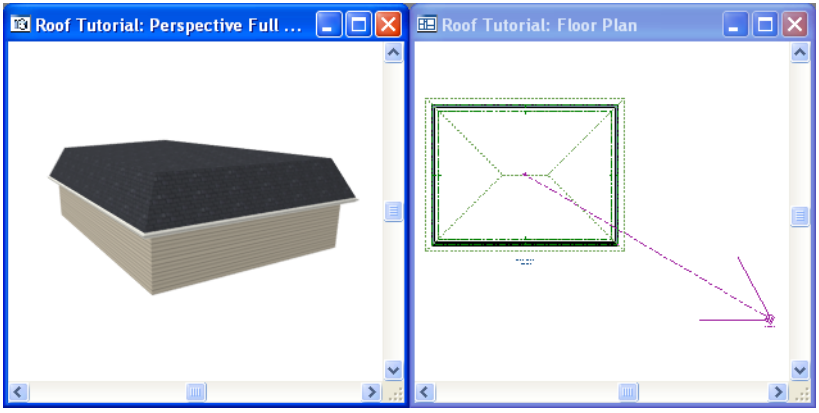
A mansard roof is a hip roof with two slopes on the roof sections above each of the four walls. The second slope begins at the same height above each wall. The upper slope is usually quite gentle and the lower slope, much steeper.

***To create a mansard roof***

1. Click on the floor plan view window to make it the active view.
2. Select **Build> Roof> Delete Roof Planes** .
3. Group select all four walls, open them for specification, and on the Roof tab of the **Wall Specification** dialog specify the following settings:




   - Clear the **Full Gable Wall** checkbox.
   - Specify the lower **Pitch** as 24 in 12.
   - Place a check in the box beside **Upper** Pitch.
   - Keep the **Upper Pitch** as 1.5 in 12 and change the **Start Height** to 132".
   - To learn more, see "Finding the Start of an Upper Pitch" on page 213.
4. Click the **Build Roof** tool, check **Build Roof Planes**, and click **OK** in the **Build Roof** dialog.

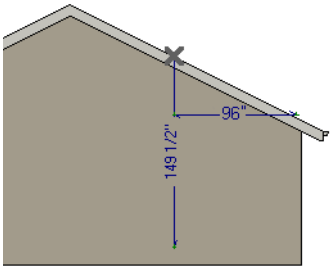



## Finding the Start of an Upper Pitch

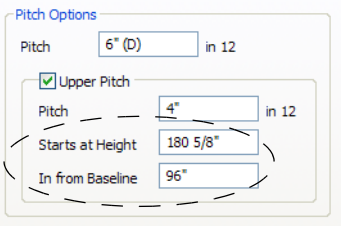
When creating a roof style with lower and upper pitches, you can determine the exact Starts at or In From Baseline values that you need in an elevation view.

***To find the start of an upper pitch***

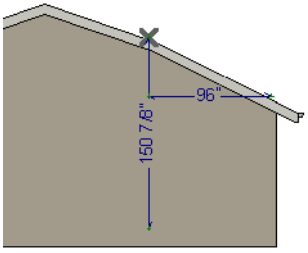
1. Generate the roof using only the first, lower pitch. Be sure to define all the roof information for each wall (gable, hip, first pitch, etc.).
2. Create a cross section view that includes the roof plane that will have the second pitch. See “Cross Section/Elevation Views” on page 791
3. Select **CAD> Points> Place Point**  , click to place a temporary point near the location where you want the second pitch to start, and then either:
   - Using the **End-to-End Dimension**  tool, drag a dimension line from the floor on Floor 1 (which has a height of 0 by default) to the temporary point.
   - Using the **End-to-End Dimension**  tool, 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.



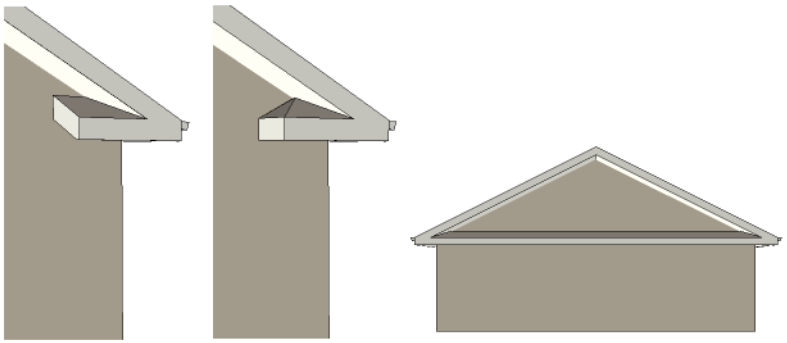
## Roof Type Quick Reference

The following chart provides a quick reference for building the roof styles described in this tutorial. The chart shows which walls to change and what to change on the Roof tab of the **Wall Specification** dialog for each wall. These parameters are based on a 34x24-foot model. For different size plans, adjust these numbers.

| Roof Type | Wall to Change | Set as Full Gable | Set as High Shed Gable | Lower Pitch | Upper Pitch | Start Height |
|---|---|---|---|---|---|---|
| Gable Roof | Vertical Wall 1 | | | | | |
| | Vertical Wall 2 | | | | | |
| | Horizontal Wall 1 | X | | | | |
| | Horizontal Wall 2 | X | | | | |
| Shed Roof | Vertical Wall 1 | X | | | | |
| | Vertical Wall 2 | X | | | | |
| | Horizontal Wall 1 | | X | | | |
| | Horizontal Wall 2 | | | | | |
| Saltbox Roof | Vertical Wall 1 | X | | | | |
| | Vertical Wall 2 | X | | | | |
| | Horizontal Wall 1 | | | 12 in 12 | | |
| | Horizontal Wall 2 | | | 3 in 12 | | |
| Gambrel Roof | Vertical Wall 1 | X | | | | |
| | Vertical Wall 2 | X | | | | |
| | Horizontal Wall 1 | | | 12 in 12 | 6 in 12 | 156 |
| | Horizontal Wall 2 | | | 12 in 12 | 6 in 12 | 156 |
| Gull Wing Roof | Vertical Wall 1 | X | | | | |
| | Vertical Wall 2 | X | | | | |
| | Horizontal Wall 1 | | | 3 in 12 | 12 in 12 | 114 |
| | Horizontal Wall 2 | | | 3 in 12 | 12 in 12 | 114 |
| Half Hip Roof | Vertical Wall 1 | X | | | 3 in 12 | 144 |
| | Vertical Wall 2 | X | | | 3 in 12 | 144 |
| | Horizontal Wall 1 | | | 6 in 12 | | |
| | Horizontal Wall 2 | | | 6 in 12 | | |
| Mansard Roof | Vertical Wall 1 | | | 12 in 12 | 1.5 in 12 | 144 |
| | Vertical Wall 2 | | | 12 in 12 | 1.5 in 12 | 144 |
| | Horizontal Wall 1 | | | 12 in 12 | 1.5 in 12 | 144 |
| | Horizontal Wall 2 | | | 12 in 12 | 1.5 in 12 | 144 |

## Roof Returns

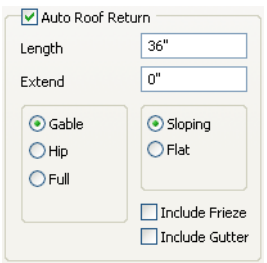
A roof return is a small decorative roof plane that connects to the low side of a gable roof overhang and extends below the upper triangular portion of the gable wall. The following pictures show the three styles of roof returns that can be produced in Chief Architect.



*Gable Return* *Hip Return* *Full Return*

The first two are called **Gable** and **Hip** returns, since the returns themselves end in either a gable or a hip. The third is called a **Full** return because it extends under the entire gable, connecting both sides.

The Roof tab of the **Wall Specification** dialog contains the settings that generate roof returns. Roof returns can be specified for any wall, but only exterior **Full Gable Walls** can display them.




Specify the horizontal **Length** of the returns in inches; the distance to **Extend** the returns past the main roof overhang; the style of roof return; and whether the returns are sloping or flat. As long as your model has a roof, the specified roof returns will be generated when you click **OK**. For more information, see "Roof Returns" on page 450 of the Reference Manual.

# Adding Gables over Doors and Windows

You can add a gable roof over a door or window.

***To create a gable roof over a door or window***

1. Select a door or window, then click the **Gable Over Door/Window** edit button.
2. Click the **Build Roof** tool, check **Build Roof Planes**, and click **OK** in the **Build Roof** dialog.
3. A gable is created with an overhang of one foot on each side of the door or window.

***To remove a gable roof over a door or window***

1. Select the door or window and click the **Delete Gable Over Opening** edit button.
2. Click the **Build Roof** tool, check **Build Roof Planes**, and click **OK** in the **Build Roof** dialog.
3. When you rebuild the roof, the gable will be removed.

***To create a gable over several doors and/or windows***

1. Select a door, window, or mulled unit.
1. Hold down the Shift key and click on additional doors and/or windows to add them to your selection set.
2. Click the **Gable Over Door/Window** edit button.
3. Click the **Build Roof** tool, check **Build Roof Planes**, and click **OK** in the **Build Roof** dialog to create a gable over the selected wall openings.

# Automatic Dormers

The **Auto Dormer** and the **Auto Floating Dormer** tools offer a quick and convenient alternative to drawing dormers manually. With just a few clicks an entire dormer is placed, complete with roof, roof hole, walls, and window.

There is a limit to how low the roof pitch can be set when creating dormers. Generally, 9 in 12 is the lowest pitch that will provide enough elevation to contain a dormer.

## Auto Floating Dormer

A**n Auto Floating Dormer** can be placed anywhere within a roof plane, as long as there is enough space to contain it. A floating dormer is what some people refer to as a "decorative" dormer. It does not require support walls and does not tie in with the structure of the building.

Select **Build> Roof> Build Roof> Auto Floating Dormer** and click within an existing roof plane to place a floating dormer at that location. Once a dormer is created, it can be moved, resized and opened for specification. For more information, see "Editing Auto Dormers" on page 446 of the Reference Manual.

An Auto Floating Dormer cannot initially be placed so that its walls align with an exterior wall. Once it is created, its front wall can often be aligned with an exterior wall below; however, its side walls must remain inside the exterior walls.

## Auto Dormer

The **Auto Dormer** tool places a standard dormer, which has the same space and structural requirements as a manually drawn dormer. If you have not drawn dormers manually, you may benefit from learning how. For information, see "Manually Drawn Dormers" on page 219.

- Dormers can only be placed in roofs that are large and steep enough to contain them. You may need to change the pitch and/or size of a roof plane before an automatic dormer can be placed. If a warning message stating that some walls are outside the roof plane appears when you try to place an automatic dormer, try decreasing the **Height** value in the **Dormer Defaults** dialog.
- A knee wall must be present for the dormer to connect to. A knee wall will create attic space and offer structural support. A wall must be present, but it does not necessarily have to be designated as a **Knee Wall** in the **Wall Specification** dialog.
- Dormers cannot be in conflict with the ceiling on the same floor. If you need to create an open, attic condition, check **Ignore Top Floor** in the **Build Roof** dialog and generate roof planes based on the floor below the dormer. If necessary, you can then use **Raise Off Plate**

in the **Build Roof** dialog to move roof planes up. See “Build Roof Dialog” on page 407 of the Reference Manual.

Once placed in your model, an automatic dormer can be repositioned and its width adjusted using its edit handles. Double-click on an automatic dormer to open the **Dormer Specification** dialog, which looks just like the **Dormer Defaults** dialog but only affects the selected dormer. You can also select the dormer window separately; resize it with its edit handles; and open it for specification. For more information about dormers, see “Dormers” on page 444 of the Reference Manual.

## Manually Drawn Dormers

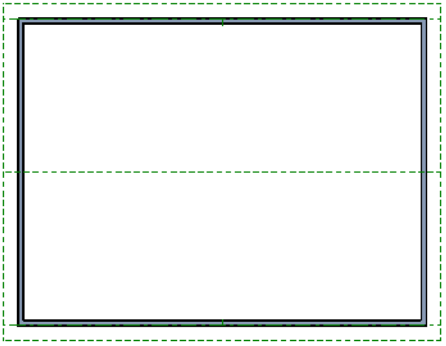
To create dormers in an upper floor, create a new floor for your plan and modify this floor with knee walls and windows to form gables. We’ll start with a new 40 x 30 foot plan to learn this technique.

As with automatic dormers, roof pitches of 9 in 12 or greater generally work better than shallow pitches when creating dormers because they provide enough vertical space to build the dormer within.

***To create a new plan***

1. Select **File> Close All** from the menu to close any open plans.
2. Select **File> New Plan** to open a new plan. In the **Create New Plan** dialog, select the Default Style template.
3. Select **Build> Wall> Straight Exterior Wall** and draw a rectangular floor plan, 40 feet by 30 feet, in a clockwise direction.
4. Click the **Fill Window Building Only** button to zoom in on the house.
5. Select **File> Save** from the menu and give the plan a name.
6. Group select the right and left vertical walls, open them for specification, and on the Roof tab of the **Wall Specification** dialog, click the **Full Gable Wall** check box and click OK.
7. Select **Build> Floor> Build New Floor**.
8. Check the **Derive new 2nd floor plan from 1st floor plan** option in the **New Floor** dialog and click OK.
9. Group select the right and left vertical walls on the second floor, open them for specification, and on the Roof tab of the **Wall Specification** dialog, click the **Full Gable Wall** check box and click OK.

10. Select **Build> Roof> Build Roof** , check **Build Roof Planes**, change the pitch to 12 in 12, and click **OK** in the **Build Roof** dialog.



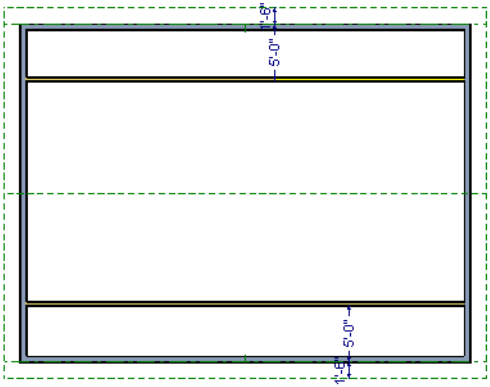
***To create two knee walls***

A knee wall is a short wall on an upper floor that is cut off by a roof plane.

1. Select **Build> Wall> Straight Interior Wall** and draw a horizontal interior wall (from left to right). Position this knee wall so that it is 5 feet from the top exterior wall.

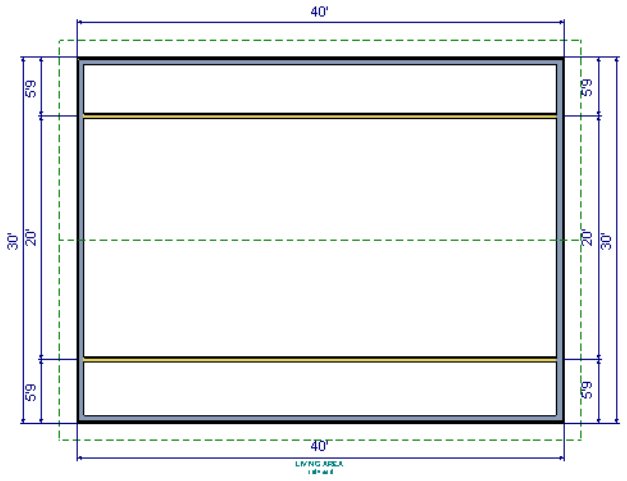
> You can also create a custom wall type for the knee walls, such as a wall with only a framing layer and one sheetrock layer. See "Wall Type Definitions Dialog" on page 265 of the Reference Manual.

2. Draw another interior wall (from right to left) and position it 5 feet from the bottom exterior wall. You can reposition the knee walls using dimensions. For more information, see "Moving Objects Using Dimensions" on page 883 of the Reference Manual.



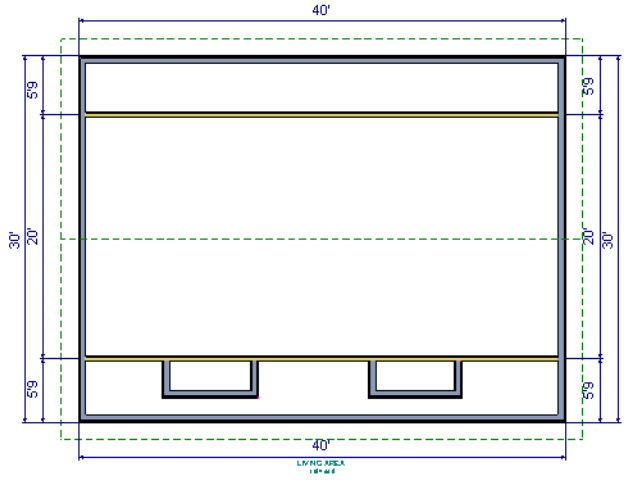

3. Group select both interior walls and open them for specification. Check **Knee Wall** on the Roof tab of the **Wall Specification** dialog and click OK.


4. Select **CAD> Dimensions> Automatic Exterior Dimensions** to create exterior dimension lines for your plan, which should now look like this:



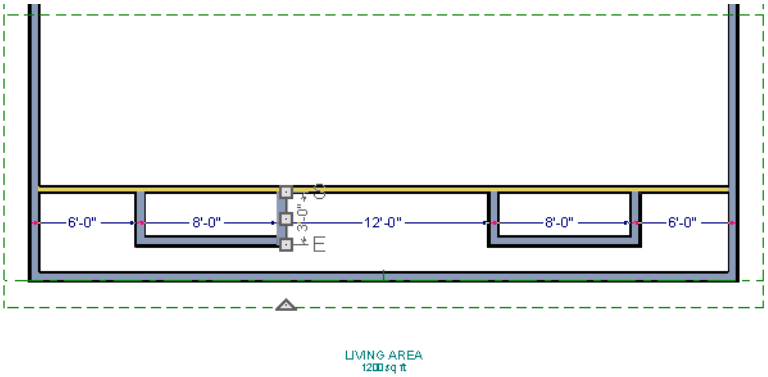

***To build the dormer walls***

1. Select **Build> Wall> Straight Exterior Wall** and draw two rectangular boxes on the outside of the lower interior wall, as shown in the following image.




2. Position the lower walls of each dormer box 2 feet from the bottom wall. The lower dormer walls are those parallel to the bottom wall.

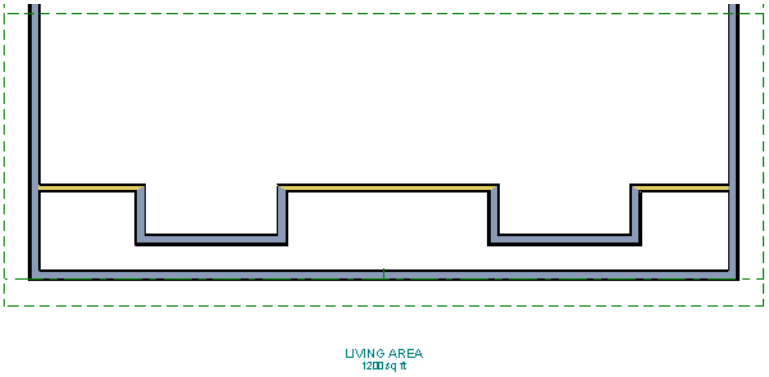
3. Edit each dormer box so that it is 6 feet from each vertical side wall and 8 feet wide.




4. Select **Build> Wall> Break Wall** and click along the lower interior wall to place wall breaks as shown in the following image.

*Corners after Break Wall is used*

5. Delete the upper, horizontal portion of each window box.

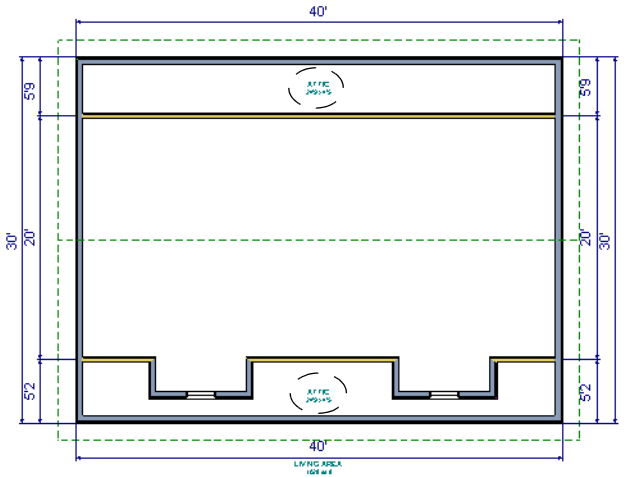


***To add a window to each dormer***

1. Select **Build> Window> Window** and click on each dormer front wall to place a window. The program may warn you that you are adding windows to an interior wall; click **OK** to continue.
2. Select the window; click the **Center Object** edit button; and click near the wall containing the window to center it on the wall. See "Using Center Object" on page 205 of the Reference Manual.
3. Do the same for the other window.

***To build the roof***

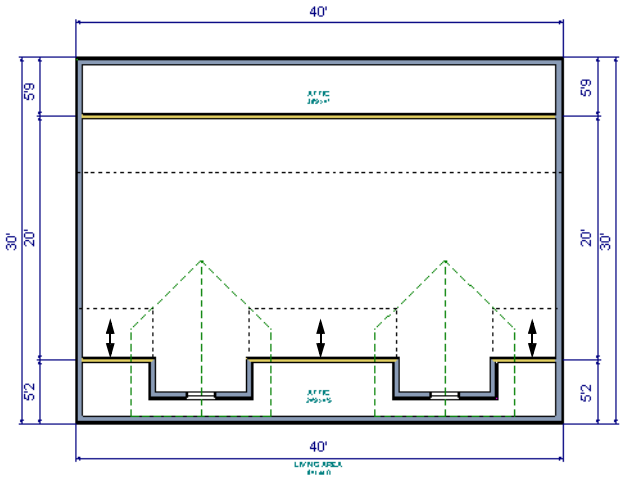
1. Group select the two dormer front walls that contain a window, open them for specification, and on the Roof tab of the **Wall Specification** dialog, check **Full Gable Wall** and click **OK**.
2. Group select the dormer side walls, open them for specification, and on the Roof tab of the **Wall Specification** dialog, specify the **Pitch** for the dormer roof plane above the wall, and click **OK**. Earlier we specified a pitch of 12 in 12 in the **Build Roof** dialog, that pitch should have prefilled here. A steep pitch of 12 in 12 will work well for these dormers.
3. Double-click the narrow room above the top knee wall to open the **Room Specification** dialog, designate its **Room Type** as "Attic" and click OK.
4. Do the same for the lower attic room.



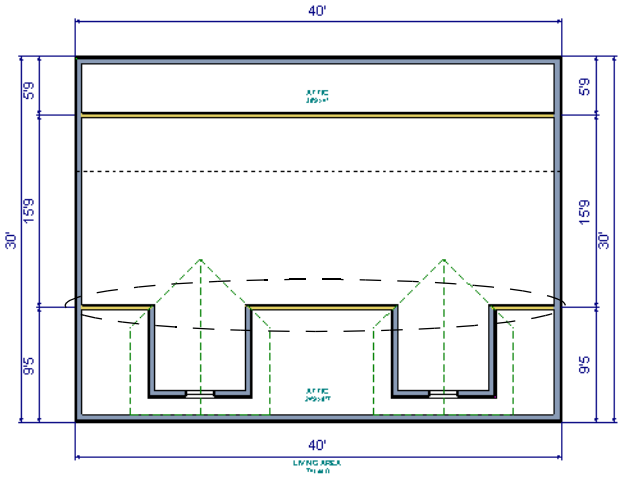

5. Select **Build> Roof> Build Roof** from the menu.

6. In the **Build Roof** dialog, check **Build Roof Planes,** and click OK.
7. Create a 3D view to see the results.

8. Notice there are small gaps in the dormer side walls. This gap is caused by the difference between the position of the knee walls and the point at which the ceiling intersects the roof plane. This location is marked by the dotted line in floor plan view.




9. Select each of the knee walls and move them back so that they are in alignment with the ceiling plane. When **Object Snaps** are enabled, the walls will snap into position when they are close to the ceiling lines.



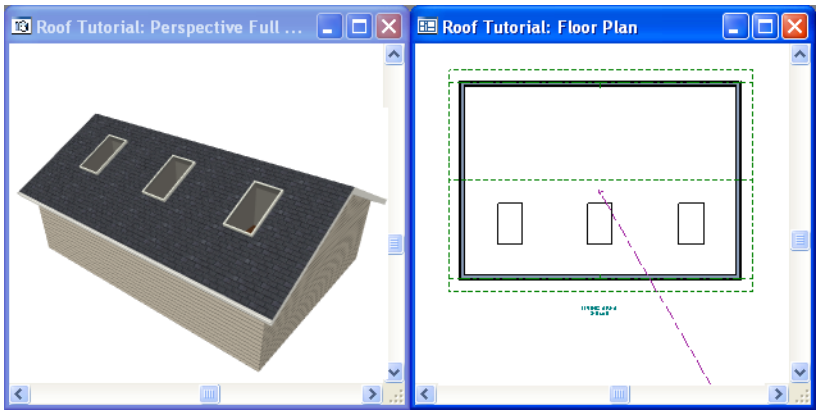

10. Take a look in a 3D view.

You can move the interior walls closer to or further from the outside walls to change the dormers' elevation, or change the pitch for the roof to make the dormers longer. You can create dormers in more complex plans the same way, but you may want to experiment with wall placement and pitch to achieve the desired effect.

## Skylights

Skylights can easily be added using the **Skylight** tool. In floor plan view, select **Build> Roof> Skylight** then click and drag a rectangular shape within an existing roof plane.

When you release the mouse button, a skylight is created and can be repositioned and resized using its edit handles. For more information, see “Skylights” on page 441 of the Reference Manual.



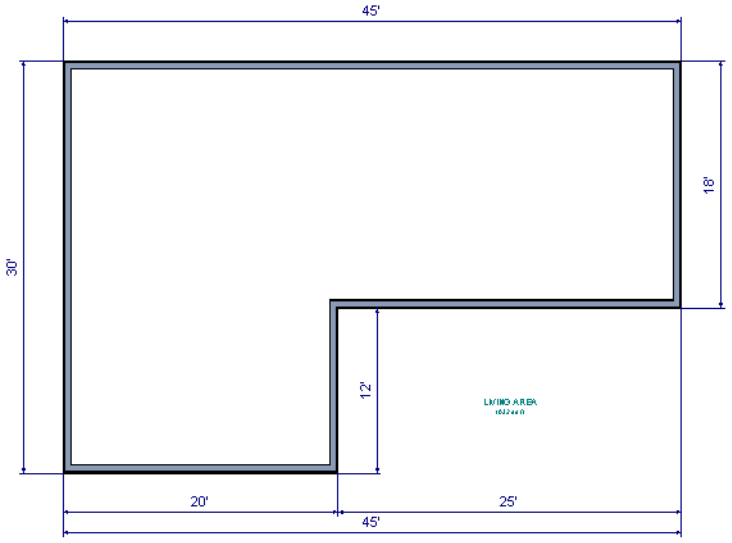

## Using the Break Wall Tool with Roofs

Many homes have more than one roof type built above a single exterior wall. One common example is a reverse gable roof, created when a house has gable walls that are perpendicular to one another, as in an L-shaped home.

We can create a reverse gable roof on an L-shaped home using the **Break Wall** tool.

***To create an L-shaped home***

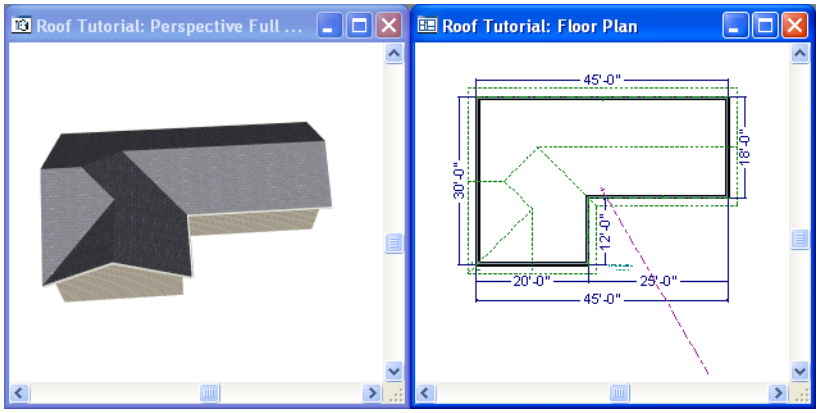
1. Select **File> Close All** from the menu.
2. Select **File> New Plan** to open a new plan.
3. Draw an L-shaped house with the following dimensions:
   - Left wall - 30 feet long
   - Upper wall - 45 feet long.
   - Right wall 18 feet long.
   - Lower wall extending left from the right wall - 25 feet long.
   - Vertical wall connecting two lower walls - 12 feet long.
   - Lower wall extending right from the left wall - 20 feet long.




To create a reverse gable in this plan, we need to create three gable walls: two running vertically and one horizontally.

***To add a gable roof to the plan***

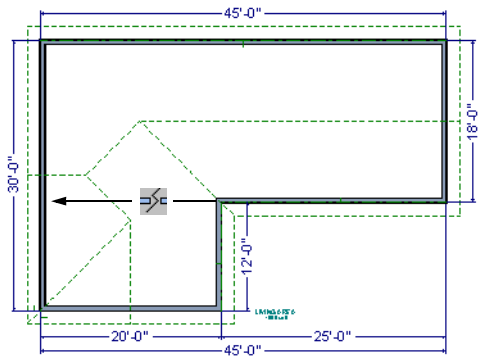
1. Check **Full Gable Wall** on the Roof tab of the **Wall Specification** dialog for these three walls:
   - The far left vertical wall
   - The far right vertical wall
   - The bottom left horizontal wall
2. Click the **Build Roof** tool to open the **Build Roof** dialog, check **Build Roof Planes,** and click OK to build the roof. Your plan should look like this:




Built this way, the gable wall on the left produces roof planes that extend too high and interfere with the roof over the lower part of the house. To correct this, use the **Break Wall** tool to break the left wall into two different sections. We can then specify the upper section as Full Gable without affecting the lower section.

***To use the Break Wall tool***

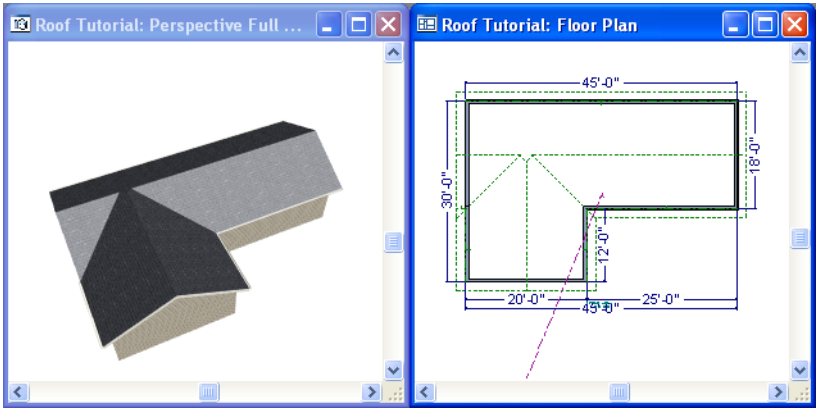
1. Select **Build> Wall> Break Wall** and click the far left wall at a point even with the lower right wall. Extension snaps should help you place the break at the right place. See “Extension Snaps” on page 143 of the Reference Manual.



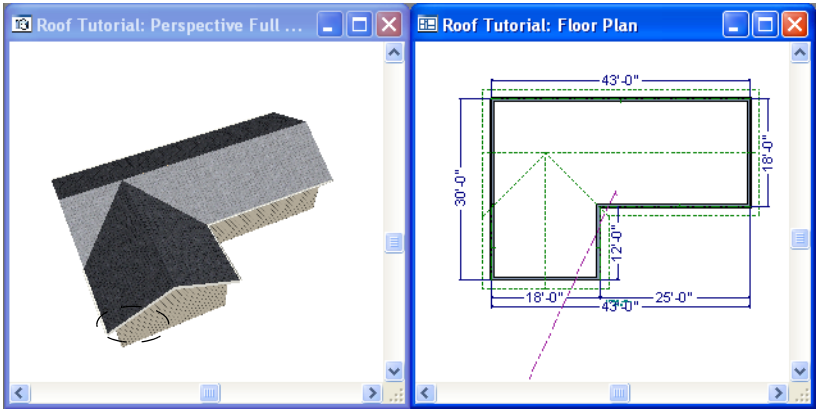

2. Open the lower portion of the wall for specification and on the Roof tab of the **Wall Specification** dialog, clear the **Full Gable Wall** checkbox and click **OK**.

3. Click the **Build Roof** tool, check **Build Roof Planes,** and click **OK** to build a roof based on the new wall specifications.

You now have two full gable roof sections meeting to form your L-shaped roof. Your plan should look like the following image:




Notice the step in the ridge line. This can be corrected by resizing the lower gable wall. Select the vertical wall to the right of the bottom gable wall and move it to the left 2 feet, reducing the length of the gable wall from 20 to 18 feet. When you are finished, rebuild the roof.




This completes the Roof Tutorial. You can use any combination of the techniques described here to create a wide variety of roof planes.

Appendix A

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