Chief Architect®
Home Designer® Pro 2015

User's Guide

Contents

Chapter 3: Roof Tutorial

Chapter 4: Interior Design Tutorial

Chapter 5: Kitchen and Bath Design Tutorial

Chapter 6: Materials Tutorial

Chapter 7: Landscaping Tutorial

Chapter 8: Deck Tutorial

Chapter 9: Creating a Plot Plan

Chapter 10: Layout Tutorial

Appendix A: End User License Agreement

Installation

This chapter will walk you through installing your Home Designer software.

Chapter Contents

- System Requirements
- Downloading Home Designer Pro
- Installing Home Designer Pro
- Installing Your Optional Hardware Lock
- Starting Home Designer Pro
- Migrating Library Catalogs
- Program Updates
- Installing on Multiple Computers
- Uninstalling Home Designer Pro

System Requirements

In order to install and run Home Designer Pro, your computer system must meet the following minimum requirements:

- Windows® 8/7/Vista; Mac OS X® v10.8 (Mountain Lion) or newer

- 2.4 GHz processor

- 2 GB of memory (32 bit); 4 GB of memory (64 bit)

- 5 GB of available hard disk space

- 512 MB dedicated video card or integrated graphics with 2012 or newer drivers

- Recommended minimum monitor resolution: 1152 x 860

- 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.HomeDesignerSoftware.com.

Downloading Home Designer Pro

To download and install Home Designer Pro 2015, begin by logging in to your online Home Designer Pro account at www.HomeDesignerSoftware.com.

Browse to the Digital Locker page, click the Download button, and save the file to your local hard drive. Select an easy to find **Save in** location on your computer, such as your Documents folder or Windows Desktop, then click **Save**.

Installing Home Designer Pro

When the installer file is completely downloaded, the Home Designer Pro Setup Wizard will launch automatically.

If you have a Home Designer Pro Program DVD, insert it into your DVD drive:

- In Windows, the Setup Wizard will launch automatically. If it does not, press the Windows key on your keyboard, then select Computer. Right-click on your DVD drive and select **Open** from the menu, then double-click on the file with your program's name and the **.msi** file extension.

- On a Mac, the DVD will open in a Finder window automatically. If it does not, right-click on the disk icon on your desktop and select **Open** from the menu. Then, double-click on the file with the **.pkg** file extension.

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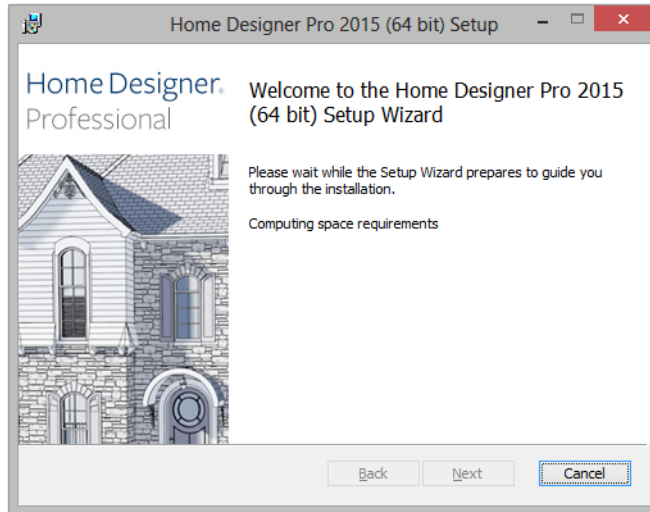
1. Depending on whether or not you have installed the program on this computer before, the text in this window may vary. Click **Next** to continue.

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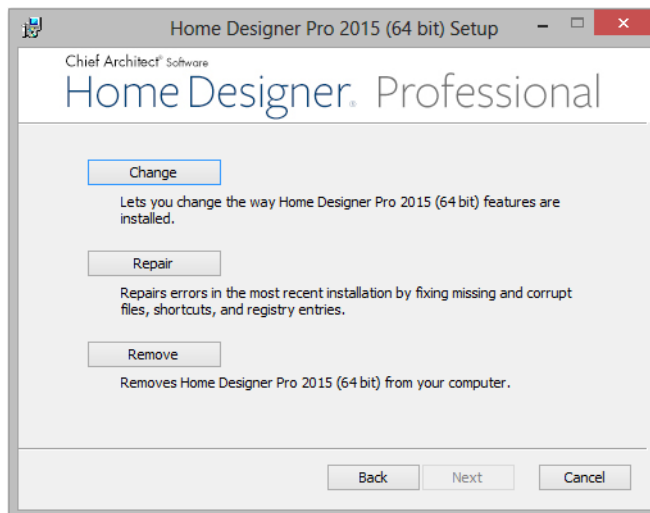
2. If you have installed the program before, this window will display, allowing you to reinstall or uninstall the program. If you are installing the program for the first time, this window will not display.

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 197 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
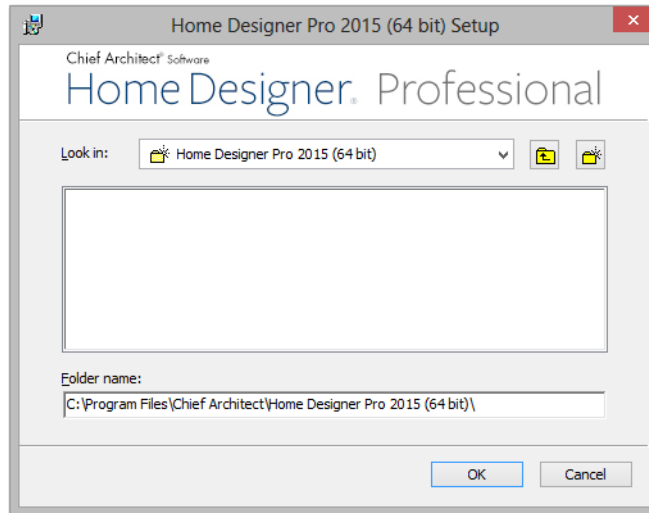
4. This window appears only if you click the **Advanced** button, and then the **Change** button, in the previous windows. Choose the destination folder for the program. By default, the program installs in the C:\Program Files\Chief Architect directory, in a folder with the same name as your program 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.

    > Note: Regardless of the location that you specify here, the program's library content will be installed in your computer's ProgramData folder.

Choose Items to Install
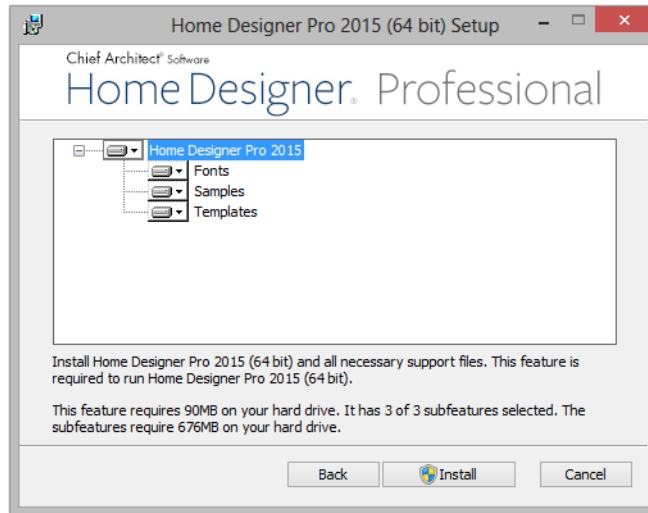
5. You can use this window to specify what features you wish to install.
    • Click on a line item to select it. Information about its contents and hard drive space requirements displays beneath the list of features.
    • Click the drop-down arrow beside a line item to specify how it is installed. By default, **Entire feature will be installed** is selected for all line items.
    • Choose **Entire feature will be unavailable** to prevent a selected subfeature from being installed. When this option is selected, a red X will display beside the line item's drop-down arrow. The top level feature cannot be excluded from installing. If you decide to not proceed with the program installation, click the Cancel button.
    • Click **Install** to install the program and supplemental content as specified.

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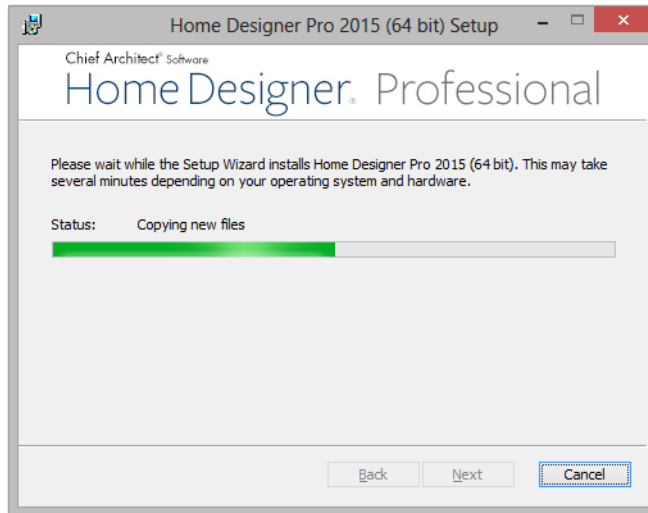
6. The Setup Wizard will begin copying files to your hard disk after a few moments and a green progress bar in this window will show the status of this process. This may take a few minutes.

Setup Wizard Complete
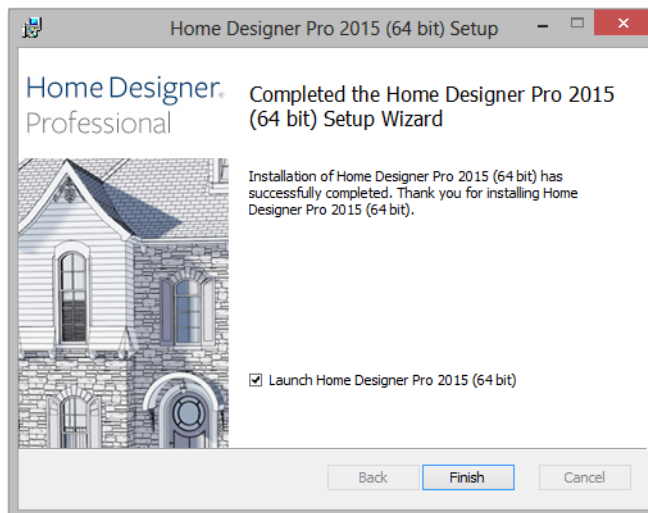
7. When all files have been copied, this dialog will display. Click **Finish** to launch Home Designer Pro.

13

Installing Your Optional Hardware Lock

Hardware Lock Security is an alternative to the standard, internet based license security used by most Home Designer Pro licenses and can be used on Windows operating systems only. If you do not have Hardware Lock Security for your Home Designer Pro license, skip this section and proceed to Starting Home Designer Pro section of the instructions.

USB Hardware Locks

HASP   Super Pro

Your Hardware Lock

If you do have Hardware Lock Security, the hardware lock is your key for operating Home Designer Pro on supported Windows operating systems. You will not be able to operate Home Designer Pro 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 Home Designer Pro installation instructions.

Installing Your Lock

1. Attach your lock to any available USB port.
2. Your Windows operating system should detect the lock and install it automatically.
3. Launch Home Designer Pro.

Starting Home Designer Pro

If you have plan and layout files created in previous versions of Home Designer Pro, be sure to read "Before You Begin" on page 965 of the Reference Manual before you open any of these files in Home Designer Pro 2015.

You can use the Start menu or the shortcut on your desktop to start Home Designer Pro. When you launch the program for the first time, the **Product Activation** dialog will open.

This dialog will also open if you have previously deactivated your license on the current computer, or if you are converting a Trial Version installation into the full software version. See "Home Designer Pro Trial Software" on page 42 of the Reference Manual.
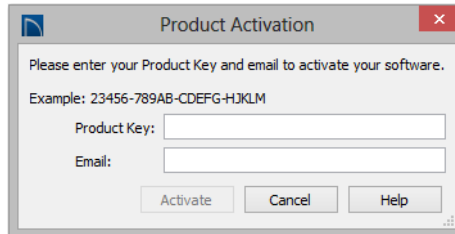
*   Enter your **Product Key**, which is located in the account information from your download or on a sticker inside your DVD case.

*   Enter your **Email** address.

*   Click the **Activate** button to launch the program.

If you do not have a User Account on our web site, the **Create User Account** dialog will open next.
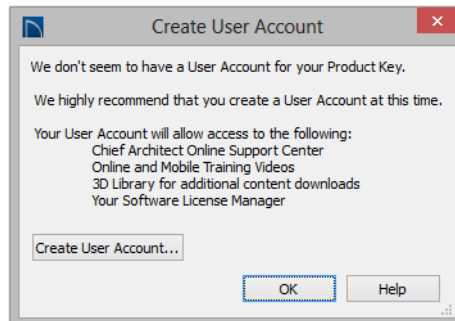
So that you can take full advantage of our online resources, we recommend that you click the **Create User Account** button and take a moment to create a User Account on our web site, www.HomeDesignerSoftware.com.

Migrating Library Catalogs

If you have Home Designer Pro 2014 or a lesser version 2014 program installed on our computer, the **Migrate Library Catalogs** dialog will display after you activate the license, allowing you to migrate library content for use in Home Designer Pro 2015. See "Library Content" on page 645 of the Reference Manual.

Migrate Library Catalogs Dialog
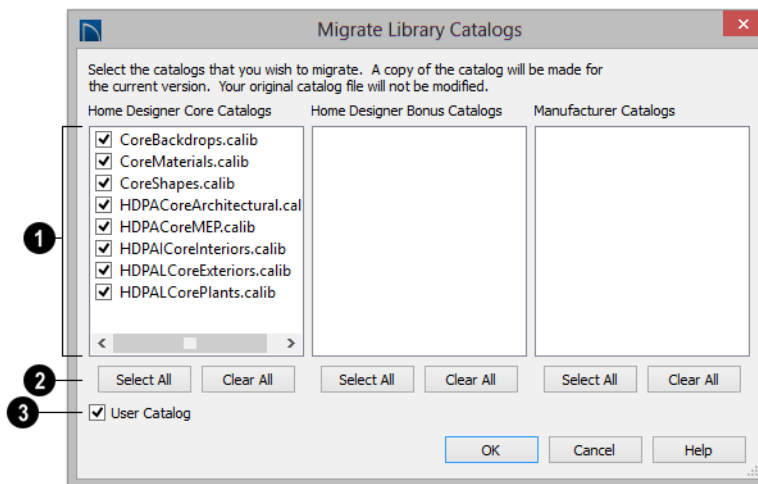
1   A list of all **Home Designer Core**, **Home Designer Bonus**, and **Manufacturer Catalogs** installed in your version 2014 library display here.

•   Uncheck the box beside a library catalog's name to prevent it from migrating into the version 2015 Library Browser.

2   **Select All/Clear All** -

•   Click the **Select All** button below a list to migrate all catalogs in that list into the version 2015 library.

•   Click the **Clear All** button below a list to migrate none of the catalogs in that list into the version 2015 library.

3   Uncheck **User Catalog** if you do not want to migrate your custom library content into version 2015. When this is checked, your version 2014 custom library content will be migrated and placed in your User Catalog.

Legacy Library Conversion

If you upgraded to Version 2015 from a Home Designer Pro version between and have custom library content from that version on your computer, the **Legacy Libray Conversion** dialog will display.

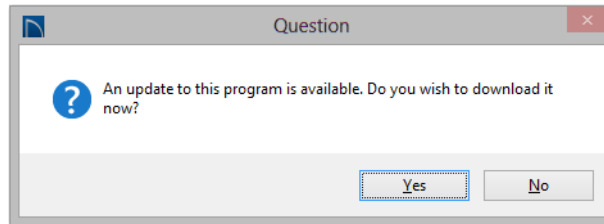To convert this custom content for use in Version 2015, click **Yes**.

Program Updates

From time to time, Chief Architect releases Home Designer Pro program updates that are available for download free of charge from the Home Designer Pro web site, www.HomeDesignerSoftware.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 Home Designer Web site.

- Click **No** to launch Home Designer Pro.

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

Program updates are not patches: when an update is installed, the previous version is uninstalled and then the new version is installed. Library content, Preference settings, and information saved in the program's Data folder are not affected by program updates.

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 77 of the Reference Manual.

Installing on Multiple Computers

A license of Home Designer Pro 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, or if you wish to rename your computer, you must deactivate your license first.

For details, please refer to the **End User License Agreement**, found in both the program installer and the User's Guide .pdf.

> ⚠ An active Internet connection is required to deactivate a Home Designer Pro license.

17

To deactivate a Home Designer Pro license

1. Launch Home Designer Pro 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.

License activations can also be deactivated in your User Account on our web site, www.HomeDesignerSoftware.com

To manage license activations online

1. Log in to your User Account on our web site, www.HomeDesignerSoftware.com.
2. Browse to your **Digital Locker: Software Downloads and Product Keys** page.
3. Click the link to **Manage your Active Licenses**.
4. Click the **Deactivate** button to deactivate your license on the computer where it is currently active, making it available for use on another computer.

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 Home Designer Pro. See "Your Hardware Lock" on page 14.

Uninstalling Home Designer Pro

There are two ways that Home Designer Pro can be removed from a Windows 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. Open the Windows Control Panel.
2. Double-click Programs.
3. Find Home Designer Pro and click **Uninstall**.

To remove the program using the Setup Wizard

1. Launch your downloaded program installer or place the disc in the DVD drive and select **Install** Home Designer Pro from the Home Designer Pro 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 Home Designer Pro.

When Home Designer Pro is uninstalled, neither the Home Designer Pro Data folder nor the library content is removed from the system. See "Home Designer Pro Data" on page 45 and "Library Content" on page 645.

⚠ If an emergency forces you to reformat your hard drive, reinstall your operating system, or resort to a system restore point, be aware that none of these actions result in a normal program uninstallation or license deactivation.

Home Designer Pro 2015 Reference Manual

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 you are finished, you will have created a sample plan named "Stucco Beach House." You can then apply the tools and techniques learned to your own plans.

In this tutorial you will learn about:

- Before You Begin
- Getting Started
- Setting Defaults
- Drawing Walls
- Creating Dimension Lines
- Adjusting Wall Positions
- Creating Rooms
- Creating a 3D View
- Adding Floors
- Adding Stairs

Before You Begin

Home Designer Pro 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 67 of the Reference Manual.

• Since toolbars can be customized, their default layout and location may differ. For more information, see "Toolbar Customization Dialog" on page 108 of the Reference Manual.

• As the program is updated, features may be added or removed. If you are using the latest version of Home Designer Pro, 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 17.

• Depending on your operating system and Windows system settings, dialogs and toolbars may appear differently than they do in the tutorials.

Getting Started

Begin by opening a new, blank plan.

To start Home Designer Pro

1. Click the Windows Start button and select All Programs.

2. Browse to Chief Architect> Home Designer Pro 2015> Home Designer Pro 2015, and click to start the program.

3. When Home Designer Pro launches, the **Getting Started** window displays. For more information, see "Startup Options" on page 24 of the Reference Manual.

   • Select **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.

4. The **Create New Plan** dialog displays next.
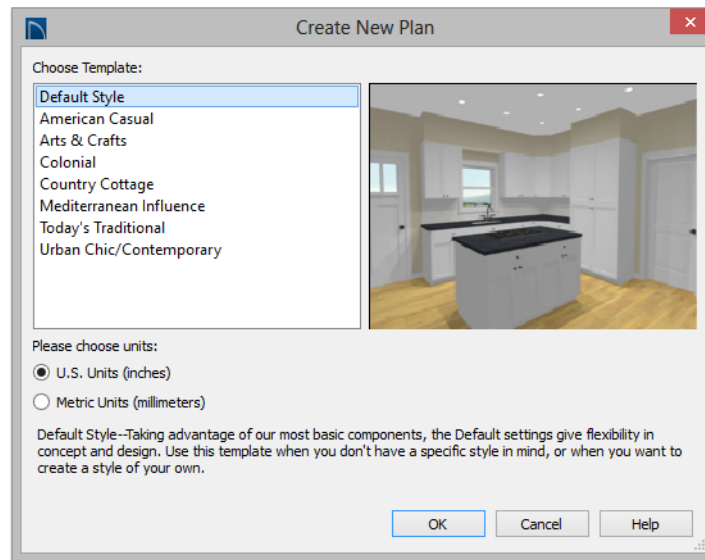
5. Home Designer Pro includes a selection of Home Style, Interior and Landscaping template plans, each with different default settings that allow you to begin working in a particular plan style quickly. For this tutorial, select **Home Style Templates** from the drop-down list. The **Default** template and **U.S. Units** are selected by default. Click **OK**. The floor plan view window opens, ready for you to begin drawing.

6. You should begin work on any new file by giving it a name. To do this:
    - 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.
    - Type a name for your plan.
    - Click **Save**.

7. It is a good idea to save your work on a regular basis as you proceed. To do this, you can:
    - Select **File> Save** 🖫 from the menu to open the **Save Plan File** dialog
    - Click the **Save** 🖫 button on the toolbar.
    - Type Ctrl + S on your keyboard.

For more information about saving files, see "Saving, Exporting, and Backing Up Files" on page 48 of the Reference Manual.

Setting Defaults

Default settings determine the initial characteristics of objects when they are first drawn. When set up in advance, they can help you both save time and avoid mistakes. Before you draw walls and create rooms, therefore, you should always make sure the defaults will meet your needs for the current project. For more information about defaults, see "Preferences and Default Settings" on page 63 of the Reference Manual.

While all defaults are important, there are several that can be considered critical because they help determine the size and structural characteristics of the building. These critical defaults are:

- Normal Room Defaults
- Floor Defaults
- Framing Defaults
- When your Framing Defaults suit your needs, click OK. Wall Defaults
- Dimension Defaults

It is recommended that whenever possible, you set these defaults before drawing anything in your plan. Changes made to these settings later on are possible, but may require extra work to review and adjust heights and wall positions.

To access a file's default settings

1. Select **Edit> Default Settings** 🔧 to open the **Default Settings** dialog.
2. Click on the white arrow next to a category to expand it and show its contents.
   - Click on the black downward facing arrow to collapse the category again.
3. Select a defaults dialog that you would like to open and click the **Edit** button.
   - You can also open the defaults dialog by double-clicking on a line item

Normal Room Defaults

The **Normal Room Defaults** dialog serves as the master defaults dialog for floor and ceiling structure and finish definitions on all floors. These are particularly important because they influence the overall height of the structure. For more information, see "Floor and Room Defaults" on page 244 of the Reference Manual.

To set the Normal Room Defaults

1. In the **Default Settings** dialog, click the white arrow beside "Rooms", then select "Normal Rooms" from the list and click the **Edit** button.
2. The settings in this are similar to those on the Structure panel of the **Room Specification** dialog, but only four options are active here:
   - Specify the default **Ceiling Structure**.
   - Specify the default **Ceiling Finish**.

- Specify the default **Floor Finish**.
- Specify the default **Floor Structure**.

3. If you wish, you can also specify unique default Floor Finish definitions for Kitchen/Bath/ Utility Rooms, Deck Rooms, and Garage/Porch/Slab Rooms.

Floor Defaults

The **Floor Defaults** dialogs let you set the default floor and ceiling structure and finish definitions for the each floor as well as the default ceiling heights and room moldings. The Floor Defaults dialogs draw their default floor and ceiling structure and finish definitions from the Normal Room Defaults dialog. For more information, see "Floor Defaults Dialog" on page 338 of the Reference Manual.

To set the Floor Defaults

1. In the **Default Settings** dialog, select "Floor" from the list and click the **Edit** button to open the **Floor Defaults** dialog for the current floor.
   - In a plan in progress with multiple floors, begin by navigating to the floor where you would like to modify the floor defaults, then open the **Default Settings** dialog.
2. On the Structure panel, note the **Ceiling Height**. The initial value is 109 1/8" (inches). Leave this value unchanged for this tutorial.
3. Click OK to close the **Floor Defaults** dialog.

Framing Defaults

The **Framing Defaults** dialog influence how all of the major structural components of the model are created: including floors and ceilings, walls, and the roof. For more details, see "Framing Defaults" on page 460 of the Reference Manual.

To set the Framing Defaults

1. In the **Default Settings** dialog, select "Framing", then click the **Edit** button to open the **Framing Defaults** dialog.
2. It is a good idea to review the settings on each of the panels; however, there are several settings that should be set before you start drawing:
   - On the Foundation panel, set the Floor Joist Width and On-Center Spacing.
   - On the 1st Floor panel, Set the Floor Joist Width and On-Center Spacing.
   - On the Roof panel, set the On Center Spacing, Rafter Type, and the Height and Width of the roof framing members.

When your Framing Defaults suit your needs, click OK. **Wall Defaults**

The **Wall Defaults** dialogs let you specify the thickness, materials, and other characteristics of the walls that are drawn by each of the Wall Tools. For more information, see "Wall Type Definitions" on page 221 of the Reference Manual.

To set the Wall Defaults

1. In the **Default Settings** dialog, click on the arrow next to "Walls", select "Exterior/Interior Wall" and click the **Edit** button.
2. For this tutorial, select "Stucco-6" from the **Exterior Wall** drop down list and click OK.
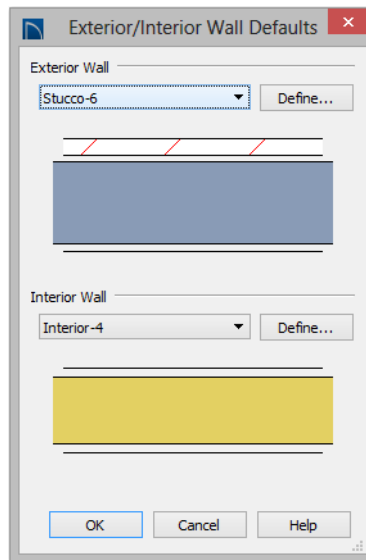
Dimension Defaults

Dimension lines are important for both positioning walls and other objects and for annotating your drawing. It is a good idea, therefore, to specify how you want dimensions to locate objects as well as their appearance before you begin drawing.

To set the Dimension Defaults

1. In the **Default Settings** dialog, click on the arrow next to "Dimension" to expand this category, then select the type of dimension you want to modify. For this tutorial, select **Auto Exterior Dimensions**, and click the **Edit** button.
2. On the Locate Objects panel, specify how you want Auto Exterior Dimension lines to locate walls: either at their outside surfaces or at their dimension layer.

• Under the **Walls** heading, select **Wall Dimension Layer** and **Primary Wall Side**.

• Specify how **Openings** are located. For this tutorial, **Sides** is used.
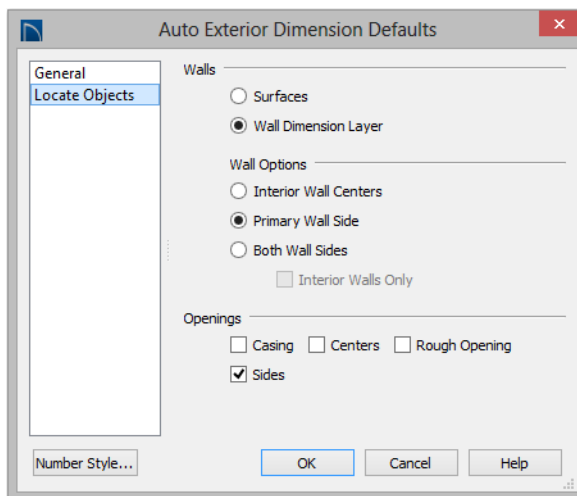
3. Review each of the panels and settings available for setting up your Dimension Defaults.

4. For more information, see "Dimension Preferences and Defaults" on page 757 of the Reference Manual.

Other Defaults

You may want to review some of the other available defaults when setting up your template. For example, you can modify your Cabinet defaults, where you can set up your materials for Base, Wall and Full Height Cabinets so that any future cabinets placed in the plan will initially use these default settings.

Drawing Walls

Once your defaults are set, a new drawing can be started 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, and Fencing" on page 187 of the Reference Manual.

To draw exterior walls

1. When drawing a structure's perimeter walls, it is recommended that you make sure **Grid Snaps** are turned on. You may choose to disable them, though, once the shell walls are in

position. See "Snap Behaviors" on page 121 of the Reference Manual for more information.

- Select **Build> Wall> Straight Exterior Wall** ![icon] from the menu or click the corresponding toolbar button, then click and drag from left to right to draw a wall.

2. There are a few things to make note of 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. Its angle is also shown in the Status Bar.
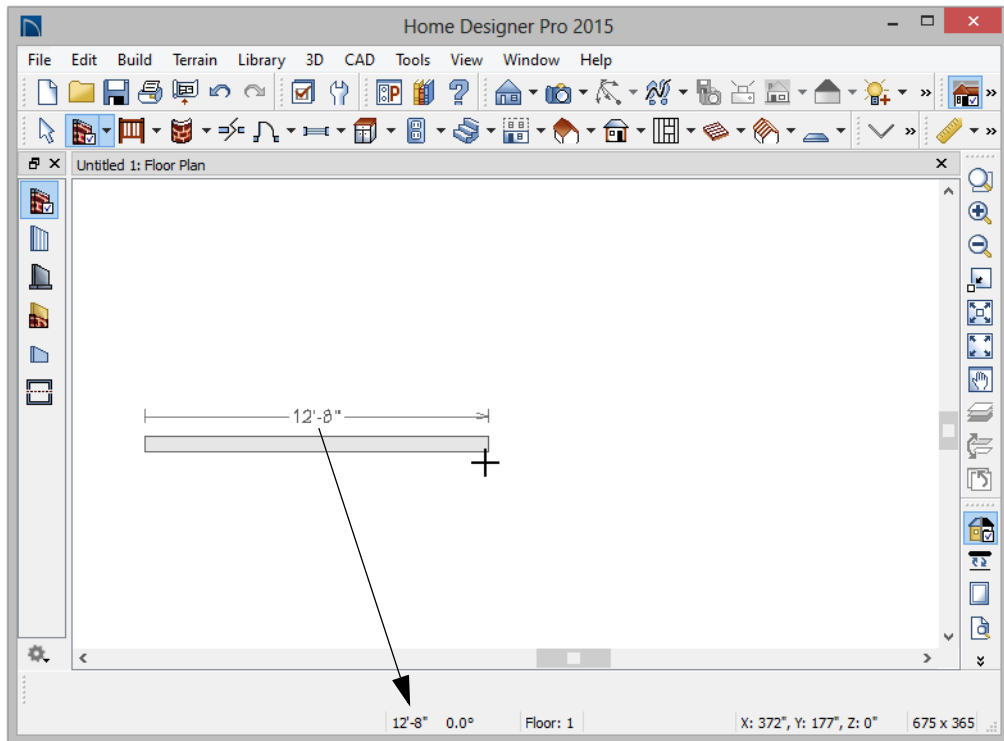
Wall length and angle are indicated in the Status Bar as the wall is drawn

- Wall angles are restricted to increments of 15° when **Angle Snaps** ![icon] are on. In most instances, this makes drawing straight walls easy and is desirable; however, you can

  toggle Angle Snaps on and off by selecting **Edit> Snap Settings> Angle Snaps** ![icon] or pressing the F10 key. See "Snap Behaviors" on page 121 of the Reference Manual for more information.

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

• Exact dimensions are not important yet, but keep the final size of the structure in mind as you draw. The overall lengths of this building's sides are 41' x 39'6".

• It is helpful to draw exterior walls in a clockwise direction 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 252 of the Reference Manual.
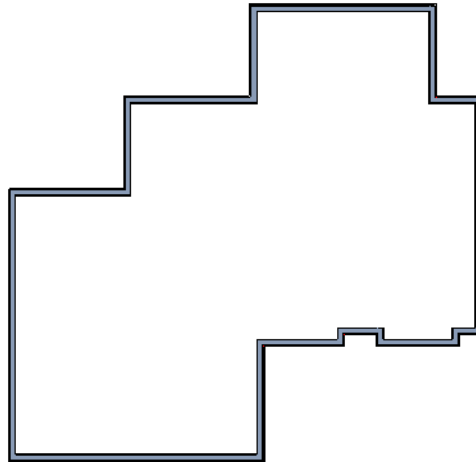
Interior walls are drawn the same way that exterior walls are.

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.
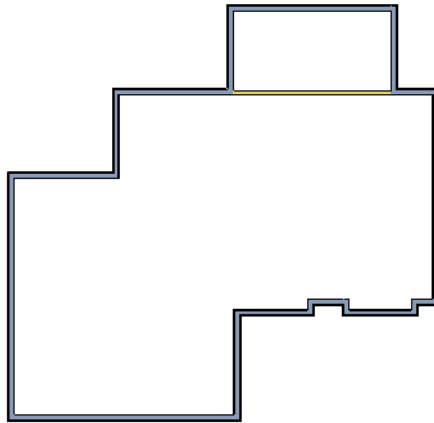
To delete a wall

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 Home Designer Pro, you can generate two types of automatic dimension lines and draw a variety of manual dimensions . For more information, see "Dimensions" on page 757 of the Reference Manual.

To create automatic exterior dimension lines

1. Select **CAD> Dimensions > Auto Exterior Dimensions** [icon].
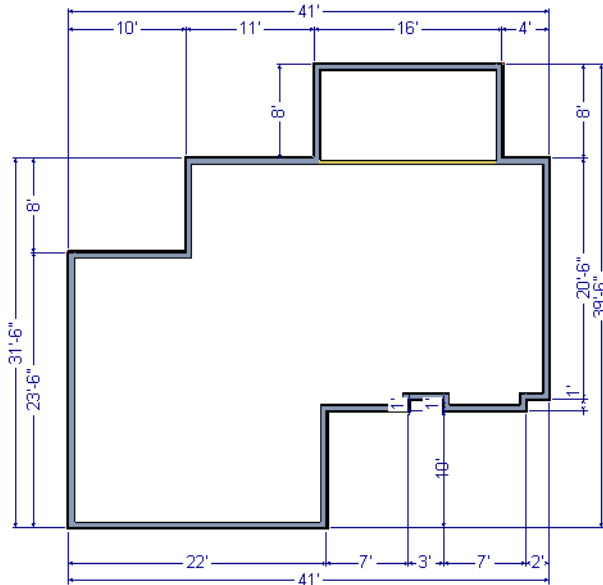
LIVING AREA
1145 sq ft

2. For a closer view of a certain area, click the **Zoom** [icon] 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 "View and Window Tools" on page 689 of the Reference Manual.

3. To return to the previous zoom factor, select **Window> Undo Zoom** [icon].

4. If you can't see all the exterior dimension lines at once, select **Window> Fill Window Building Only** [icon] to center your plan on screen.

To draw an interior dimension line

1. Select **CAD> Dimensions> Interior Dimension** [icon].

2. Click and drag a line that intersects the interior wall and other walls you want to locate.
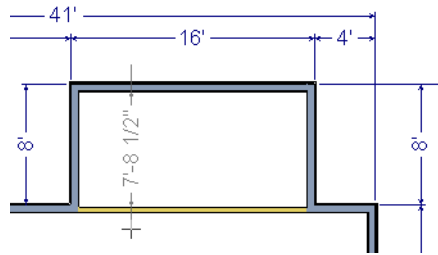
3. Release the mouse button to display the interior dimension.
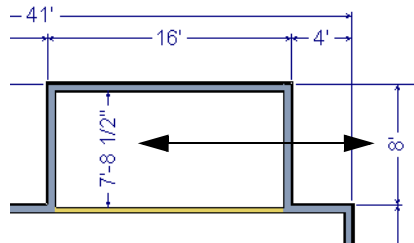
Note: Interior Dimensions locate the Main Layer of walls by default rather than wall surfaces. See "Wall Type Definitions Dialog" on page 224 of the Reference Manual. This and other options can be changed in the Dimension Defaults dialog. See "Dimension Defaults Dialog" on page 758 of the Reference Manual.

Adjusting Wall Positions

Now you can adjust the spacing of walls with more precision. There are a couple of ways to move walls into position, but the fastest and most accurate uses dimension lines. For more information about using dimensions to move objects with accuracy, see "Moving Objects Using Dimensions" on page 776 of the Reference Manual.

To move walls using dimensions

1. Begin by selecting **Window> Fill Window Building Only** 🔲 so the entire building can be seen.

2. Click the **Select Objects** 🔍 button, then click on a wall that you want to move.

3. 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 👆.

Selected Wall

Associated Dimension

Pointing Hand icon
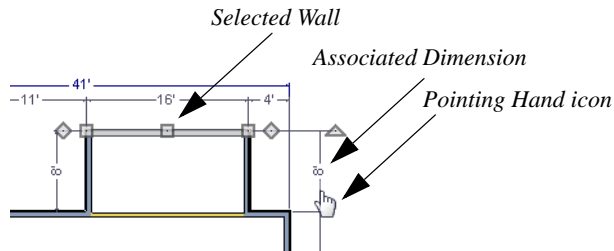
4. Click on the associated dimension and enter a new value. Remember: numbers entered with an apostrophe denote feet and numbers entered with quotes denote inches. If neither apostrophes or quotes are included, the entered value defaults to inches.

5. Use the Enter key on your keyboard to close the dialog and apply the change so that the wall will move the specified distance.

6. 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 dimensions to reposition walls, you should always work in the same direction, adjusting one wall section after another.

Dimensions can also be used to change the length of a selected wall. Bear in mind, though, that the when a wall is resized in this manner its Start point will always be locked and its End point will always be moved. When, adjusting all the walls in a floor plan, it is often easier to move them than to resize them. See "Editing Walls" on page 209 of the Reference Manual.

When you are finished, your dimensions should match those in the following image:
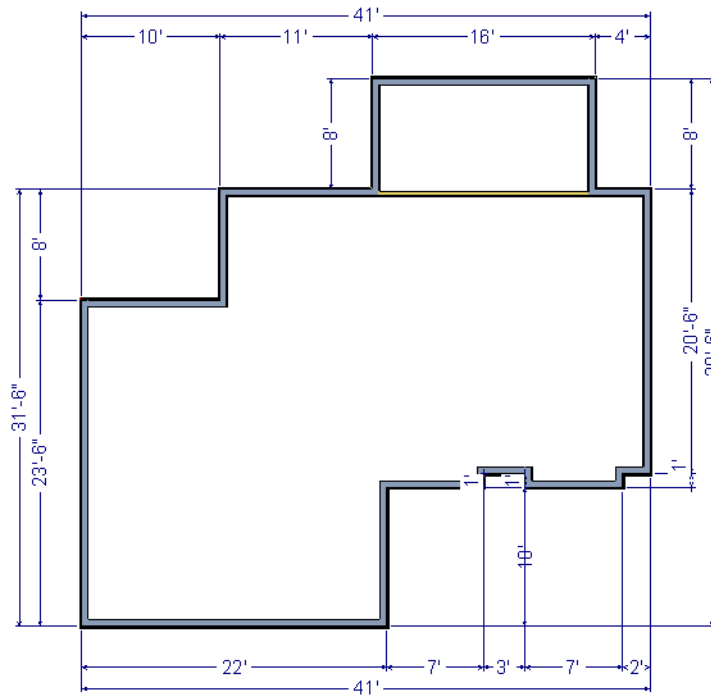
When your exterior walls are in position, you may find it helpful to delete the dimensions.

To delete all dimensions at once

1. Select **Edit> Delete Objects** 🗙 to open the **Delete Objects** dialog. See "Delete Objects Dialog" on page 183 of the Reference Manual.
2. Select the **All Rooms On This Floor** radio button.
    *   Check **Manual Dimensions** to delete manually-drawn dimension lines such as those drawn by the **Interior Dimension** 📏 tool;
    *   Check **Automatic Dimensions** to delete automatically generated dimension lines such as those created by the **Auto Exterior Dimensions** 📐 tool;
    *   Click OK.

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

34

To move walls using their edit handle

1. Click the **Select Objects** ⬚ tool then click on an exterior wall to select it.

2. Click and drag the Move edit handle that displays at the position along the wall where you clicked. Walls can be moved perpendicular to the direction that they are drawn.

3. As you move the wall, the dimension lines that indicate how far it is from other walls will update.

If you have difficulty positioning a wall at a particular location, try zooming in on it using either the **Zoom** ⬚ or **Zoom In** ⬚ tool or by scrolling with your mouse wheel. You can also use the arrow keys on your keyboard to nudge a selected wall up, down, left, or right on-screen.

Creating Rooms

Once the exterior of the house is in place, you can begin drawing interior walls and creating rooms. Rooms are defined by the walls that enclose them and can be assigned a Room Type that applies attributes such as flooring that are typical to that type of room. For more information about rooms, see "Room Types" on page 248 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.
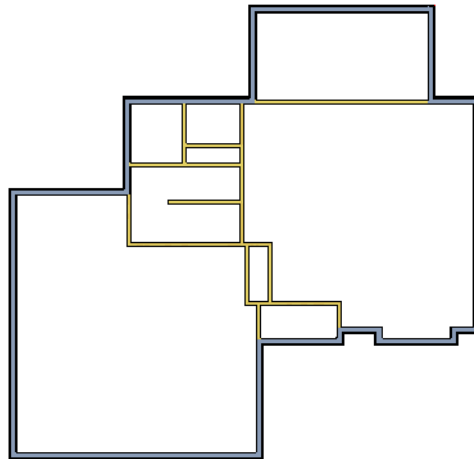
2.   Select **Build> Wall> Break Wall** ⇒⫝̸⫣ and click to place two breaks at the locations shown in the following image.
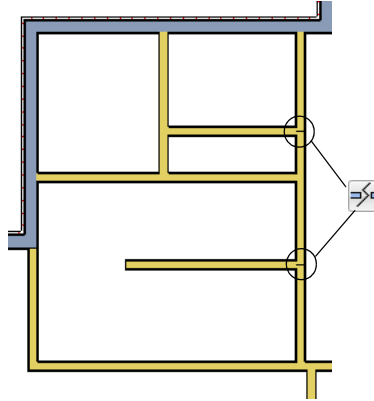
3.   Click the **Select Objects** ⬚ button, then select the top wall section created by the breaks and delete it. Repeat this process for the bottom wall section, so that only the middle section remains, which is hatched in the image below for illustrative purposes.
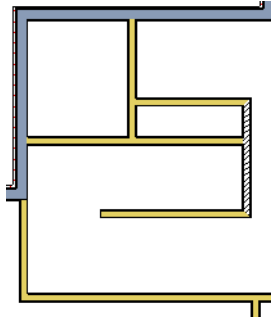
4. Draw a horizontal **Interior Dimension** inside this new room, then use it to move the vertical interior wall 9' 7 3/4" from the opposing exterior wall.
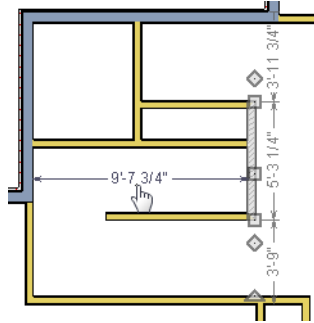
To change a wall's type

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 226 of the Reference Manual.
2. On the Wall Types panel, click the **Wall Type** drop-down list and select the desired wall type
3. Click **OK** to close the dialog and change the selected wall to the chosen wall type. Repeat this process for each of the wall's that you want to change, as in the image below.
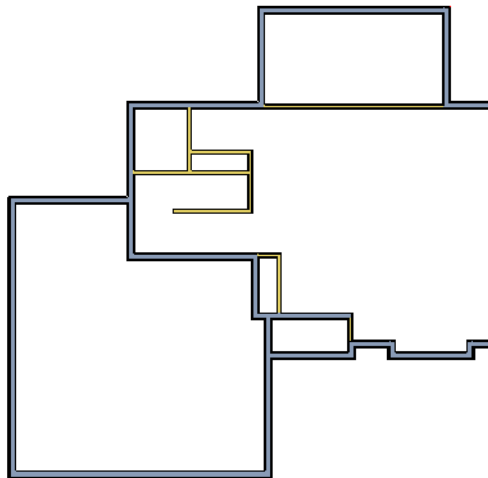
Using Room Dividers

In reality, rooms are not always 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 Home Designer Pro, a Room Divider or invisible wall can be used to define rooms without creating an actual wall. For more information, see "Room Dividers and Invisible Walls" on page 198 of the Reference Manual.

To create an invisible wall

1. Select **Build> Wall> Room Divider** and draw Room Dividers as shown in the following image.
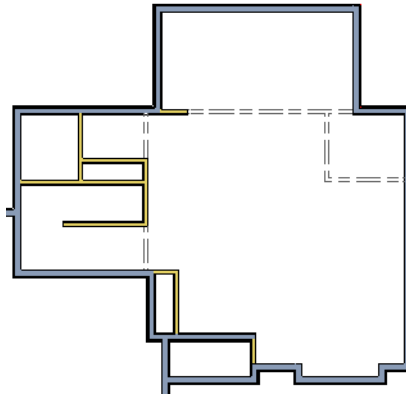
2. Using the **Select Objects** tool, select one of the Room Dividers and click on the **Open Object** edit tool to display the **Wall Specification** dialog. On the **General** panel, note that **Invisible** and **No Locate** are checked.

3. Uncheck **No Locate**, as while this option is selected, it will prevent dimensions from locating the wall, and click **OK**. Repeat this process for any of the remaining invisible walls in the plan that you want to be able to dimension to.

4. Adjust the wall spacing of the interior, exterior and invisible walls to match the following image using **Interior Dimensions** ↗, just as you did with exterior walls.
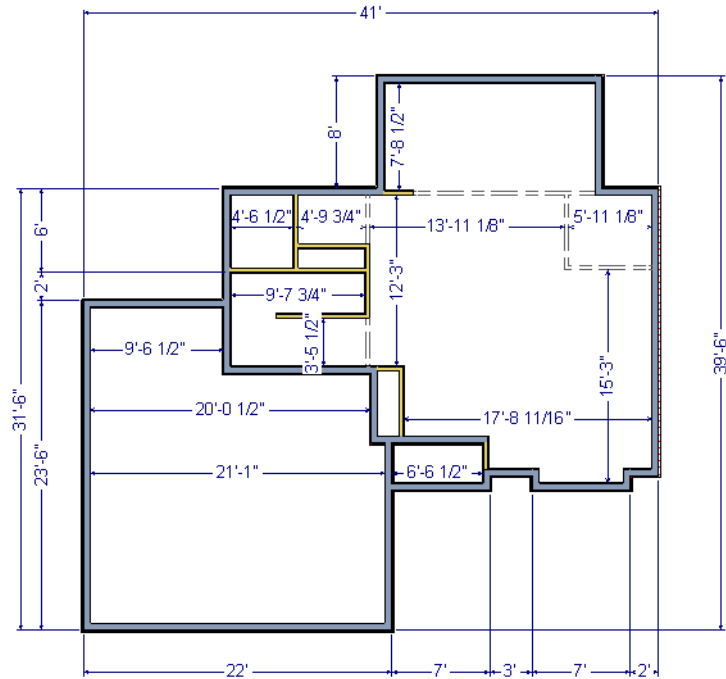
Room Types

Rooms in Home Designer Pro are given special attributes when they are assigned a Room Type. For example, porches use a concrete floor material and have a ceiling and roof, while decks use floor planking and have no ceiling or roof. For more information, see "Rooms" on page 243 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.
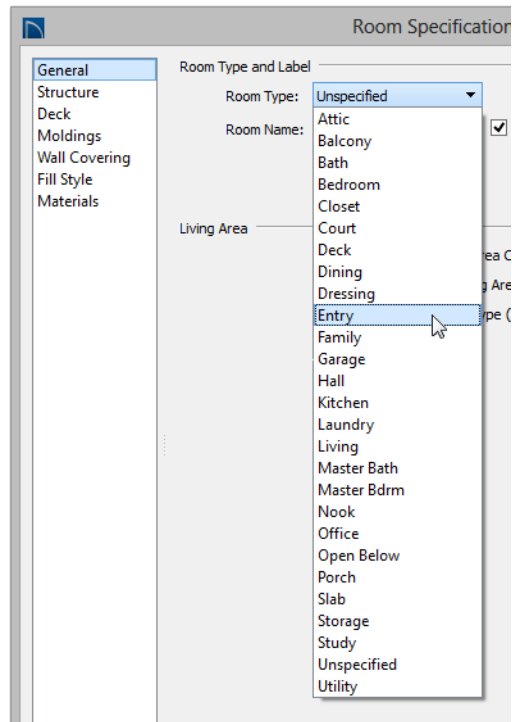
3. On the General panel, click the **Room Type** drop-down list and select **Entry**.
4. Click **OK** close the dialog and apply your change.

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 262 of the Reference Manual.
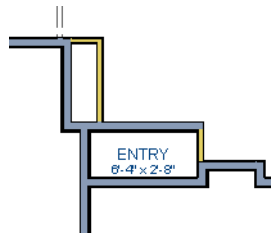
5. Open each of the rooms and assign room types as shown in the following image.
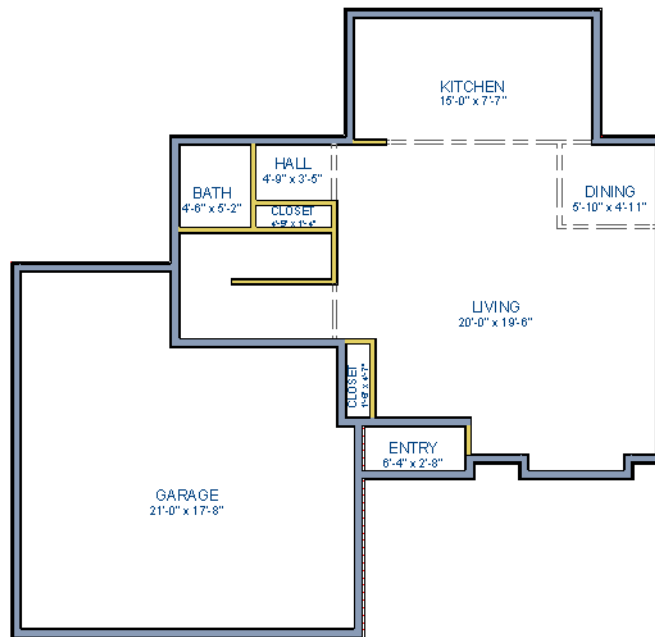
Creating a 3D View

You can create a 3D view of the model to see how it looks so far. For more information, see "3D Views" on page 697 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 Entry. The point where you click (A) defines the point of perspective and the line (B) defines the direction of perspective.
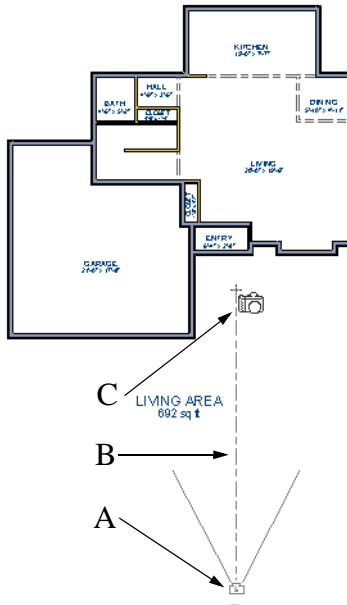
4. Release the mouse button to create the 3D camera view. Where the mouse is released (C) is the camera's focal point.

5. You can use the **Mouse-Orbit Camera** tool to change the camera's perspective. The camera will revolve around its focal point (C). See "Repositioning Cameras" on page 714 of the Reference Manual for more information.

6. To smooth out the edges and create a more realistic rendering of the model, you can select **3D**> **Camera View Options**> **Final View** 🖼 or **Final View with Shadows** 🖼.
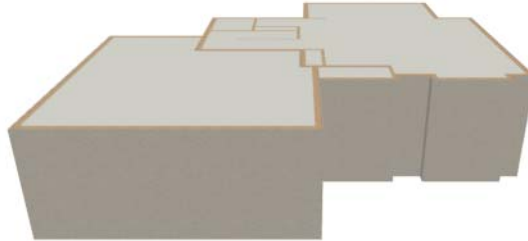
> Note: Final Views often take significantly longer to generate than Pre-views, so the 3D view reverts back to the Preview Settings as soon as anything is changed within the view.

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

To create a Doll House View

1. In floor plan view, select **3D> Create Perspective View> Doll House View** 🎲. A Doll House View displays a single floor without a ceiling or roof.

2. Select **3D> Move Camera With Mouse> Mouse-Orbit Camera** 🔘 (which should be selected by default) then 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. For more information on modifying camera views, see "Editing 3D Views" on page 719 of the Reference Manual.

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. With this first floor of this plan completed, you can now add a second story and basement. For more information about working with multiple floors, see "Multiple Floors" on page 337 of the Reference Manual.

To add a second floor

1. Select **Build> Floor> Build New Floor** . The **New Floor** dialog displays.

2. Select **Derive new 2nd floor plan from the 1st floor plan** and click **OK** to close the **New Floor** dialog to display the Floor 2 Defaults. You could also create a blank second floor plan and then drawn the second story walls manually; however, it is usually faster to automatically generate the perimeter walls and then edit them as needed.

3. Click **OK** and a floor plan for the second floor is created based on the exterior walls of the first floor plan. The second floor perimeter walls will now require some editing. 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 the F9 key. The first floor walls are displayed for reference.
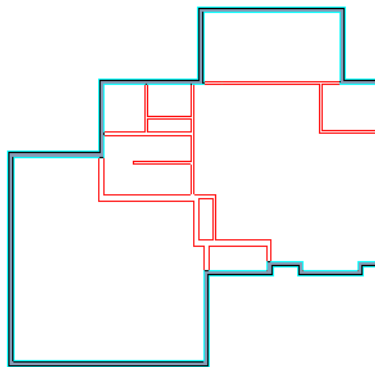
To merge two parallel walls into one

1. Select the topmost horizontal wall, then click and drag its Move 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. Release the mouse button. Note that if you keep dragging the mouse, the wall will break free of the sticky point and you can continue moving it.
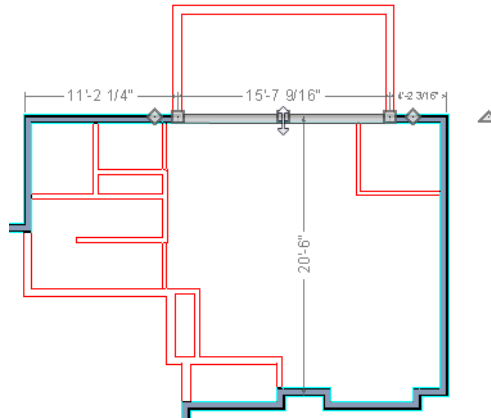

4. When you select the wall now, notice that the edit handles are located along its full length.
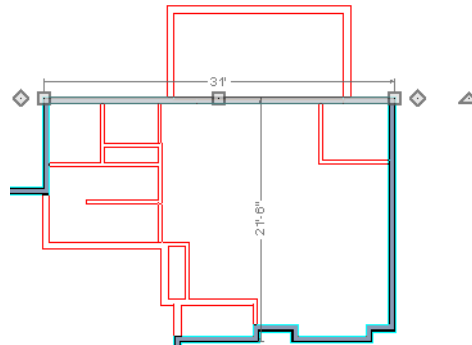
Note: Before merging walls, make sure Object Snaps are turned on. For more information, see "Object Snaps" on page 122 of the Reference Manual.

Use the techniques described above and in "Drawing Walls" on page 27 and "Adjusting Wall Positions" on page 32 to create exterior walls as shown in the following image:
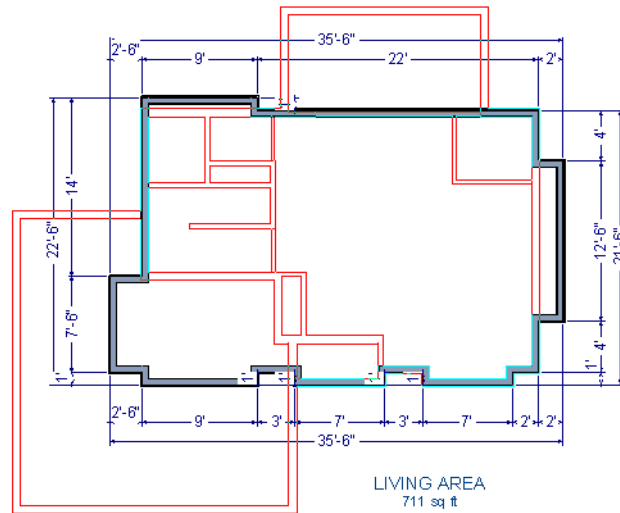
5. At this point, remember to **Save** 💾 the plan.

To create a foundation or basement

1. Select **Build> Floor> Build Foundation** 🔲. In the **Build Foundation** dialog:
    - Change the **Minimum Stem 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 350 of the Reference Manual.
2. Select **Derive New Foundation Plan From the First Floor Plan** and click **OK** to close the **New Floor** dialog. For more information, see "Adding Floors" on page 339 of the Reference Manual.

3. You can select **Window> Fill Window Building Only** ⬚ from the menu to center the plan on screen.

GARAGE
20'-8" × 17'-6"
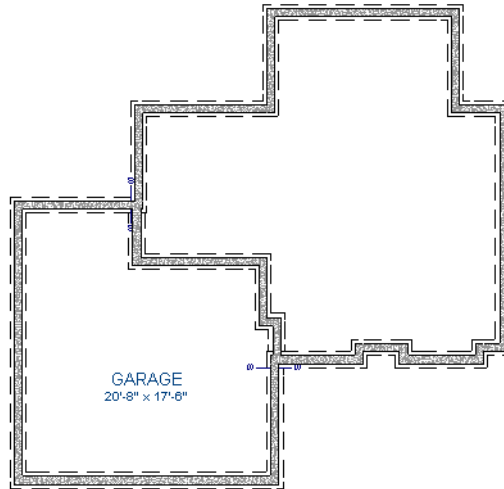
> 💡 Notice the "S" Markers, which indicate steps in the foundation stem wall top heights. For more information, see "Foundation Defaults" on page 350 of the Reference Manual.

4. Select **3D> Create Perspective View> Full Overview** 🔲 to create a 3D overview of the entire plan so far.
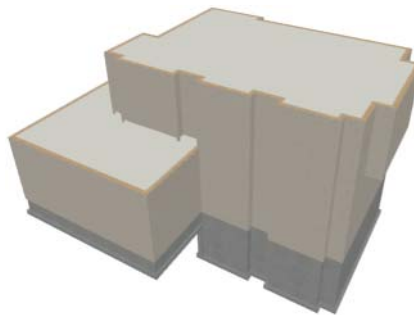
To add a second story balcony

Now that a second floor has been created, the tools and techniques described earlier can be used to add a second story balcony that is aligned with the floor below.

1. Press Ctrl + Tab on your keyboard to switch back to floor plan view and return to Floor 2.

2. If they are not already displayed, click **Reference Display** ⬒ to display the first floor walls.

3. Select **Build> Wall> Straight Railing** ▥.

> ⚠ For best results, do not use the Deck Railing tool or specify the balcony room as a Deck.

4. Draw a balcony as shown in the following image:
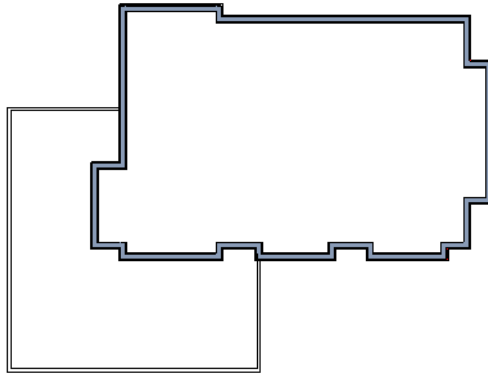
-   If **Object Snaps** ⬚ are on, the second story balcony railing will likely snap into alignment with the walls on Floor 1 as they are drawn. If not, you can manually align them as described in the following steps.

5. Next, use the **Select Objects** ⬚ tool to select one of the railings, and click the **Open Object** ⬚ edit button. On the General panel of the **Railing Specification** dialog, increase the Thickness to 8 1/8" and click **OK**.

6. With the railing still selected, click the **Align with Wall Below** ⬚ edit button.

-   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 213 of the Reference Manual.

7. Repeat these steps for each section of railing that has a wall directly below it on Floor 1.

8. Finally, add interior walls to the second floor. When you are finished, it should look similar to this:
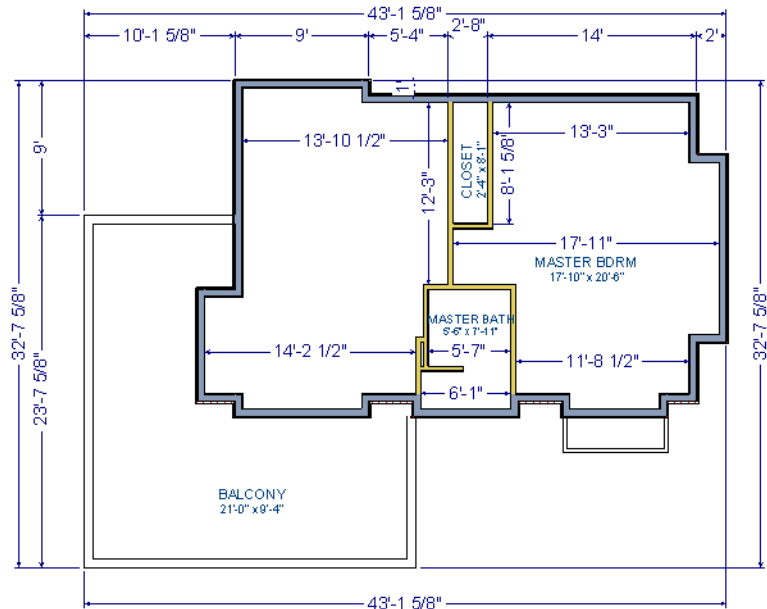

Adding Stairs

Now that the structure has three floors, it will require stairs. For more information about stairs, see "The Stair Tools" on page 422 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.

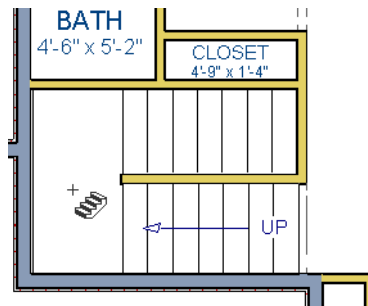2. Select **Build> Stairs> Straight Stairs** (or press Shift + Y).

3. Click and drag to draw a short stair section from right to left, as shown in the following image:
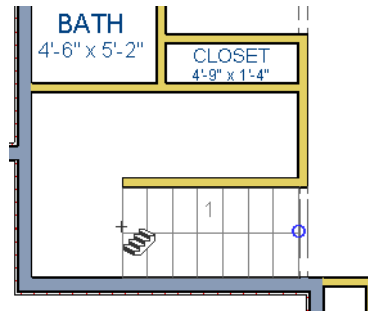
4. Draw another stair section from left to right, directly above the first:
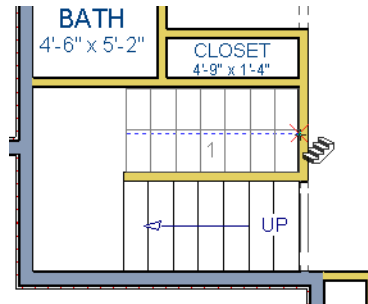
5. While the **Straight Stairs** tool is still active, click in the space to the left of the two stair sections to create a landing.


6. Click on the landing with either the **Straight Stairs** or **Select Objects** tool active, and if needed, resize it using its edit handles to fit it against the wall.

A stairwell is simply an interior room that has been assigned the Room Type "Open Below". See "Room Specification Dialog" on page 262 of the Reference Manual.

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 Floor 2. Notice that there is now a stairwell room defined by railings directly above the stairs on Floor 1.
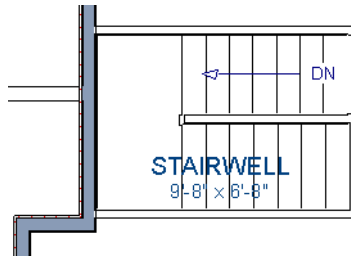

It makes sense to draw the basement stairs directly below the stairs to Floor 1. The **Auto**

Stairwell ▥ edit tool could be used to create another stairwell; however, in this situation, it will be better to use the existing interior walls to define the stairwell, 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.   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 instead of the stair.

3. 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.
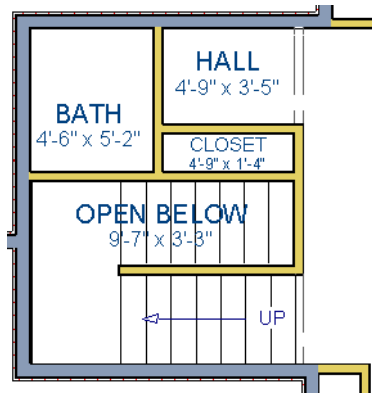
4. Go **Down One Floor** ⌄ to the foundation (Floor 0) level, and turn on the **Reference Display** ⬗.

5. 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.
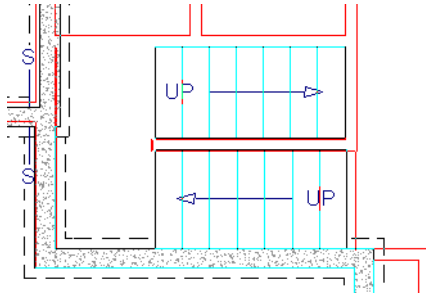
6. Select each stair section and adjust its width and position using its edit handles so that it fits within the walls forming the stairwell drawn on Floor 1.

7. When the stair sections are positioned properly, click with the **Straight Stairs** ⬗ tool to create a landing as you did on Floor 1.

8. Next, use the **Select Objects** ▷ tool to select the landing, click on the **Break Line** ⤬
    edit tool, and click along the landing's edge to place a break, which allows you to reshape
    it so that it fits against the foundation walls.
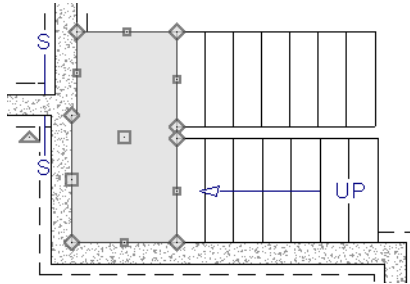
9. Select **3D> Create Perspective View> Full Overview** 🔲.

10. When the view has generated, select **3D> Glass House** ⌂ to view the entire model,
    inside and out.
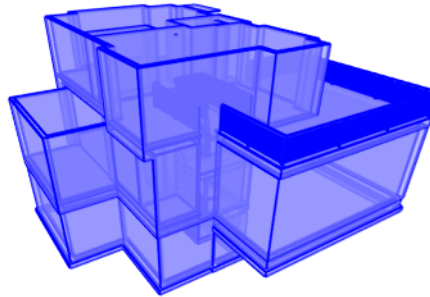
11. Select **3D> Move Camera With Mouse> Mouse-Orbit Camera** 🖾 and click and drag
    the mouse on screen to change the camera perspective. You can press the I (in) and the O
    (out) keys on the keyboard to zoom in and out of the plan.



Placing Doors and Windows

Now is a good time to add some doors and windows to the model. For more information about
doors and windows, see "Doors" on page 271 of the Reference Manual and "Windows" on
page 299 of the Reference Manual.

53

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.
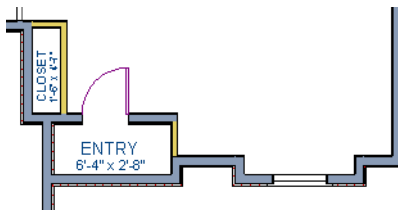
To edit a door

1. To better see the results when the door is edited, create a **Perspective Full Camera** 📷, view inside 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 283 of the Reference Manual.

4. On the General panel, set the **Door Style** to Glass and set the Width to 36".

54

5. On the Frame & Lites panel, 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 panel, set the **Lites across** to 3 and **Lites vertical** to 5.

7. On the Hardware panel, set the Handle **In from Door Edge** to 2"

8. 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 310 of the Reference Manual.

3. On the General panel, select "Fixed Glass" from the **Window Type** drop-down list and set the **Width** to 54".

4. On the Lites panel, change the **Lites Across** to 4 and **Lites Vertical** to 4.

5. Click OK to close the **Window Specification** dialog.

To customize all of your doors and windows in this manner, make your changes in the Door Defaults and Window Defaults dialogs before placing them. For more information, see "Default Settings vs Preferences" on page 64 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.
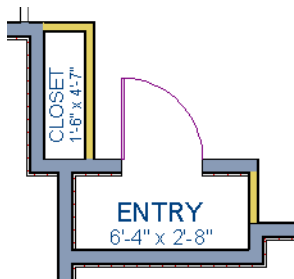
To copy a window or door

1. Return to the 3D view and select the window, or door, you wish to copy.

56

2. Click the **Copy/Paste** ⬛ edit button. For more information about copying objects, see "Copying and Pasting Objects" on page 126 of the Reference Manual.

Doors and windows can be placed, selected, deleted, copied, pasted, and edited in either 2D or 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 vs Preferences" on page 64 of the Reference Manual.

To create a doorway

1. Return to floor plan view and **Zoom** 🔍 in on the entry room.

2. Select **Build> Door> Doorway** ⬛ and click on the front Entry room wall to place a doorway at that location.

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

To customize the doorway

1. Select the doorway by clicking on its frame and click the **Open Object** ⬛ edit button to open the **Door Specification** dialog.
2. On the General panel, change the **Width** to 54" and the **Height** to 96".
3. On the Casing panel, change the **Exterior Casing Width** to 10". Be sure to delete the (D) from the text field. It stands for "default" and if it is not removed, it will continue to apply the default casing width, regardless of the value you specify.
4. On the Casing panel, click the **Library** button beside **Casing Profile** and select a molding profile from the library
5. On the Arch panel, click the **Type** drop-down and select "Broken Arch" from the list. Set the **Height** to 12".
6. Click OK to close the **Door Specification** dialog.

To center a wall opening

1. Return to floor plan view and select the doorway.
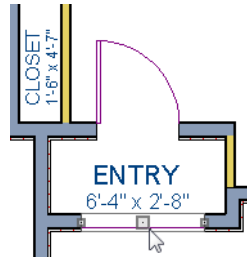
2. Click the **Center Object** ⊶ edit button, then click inside the entry room, near the interior wall containing the doorway. For more information, see "Using Center Object" on page 168 of the Reference Manual.

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. For example, increase a door's width to 48" or greater and the program will automatically create a double door.

1st Floor

2nd Floor
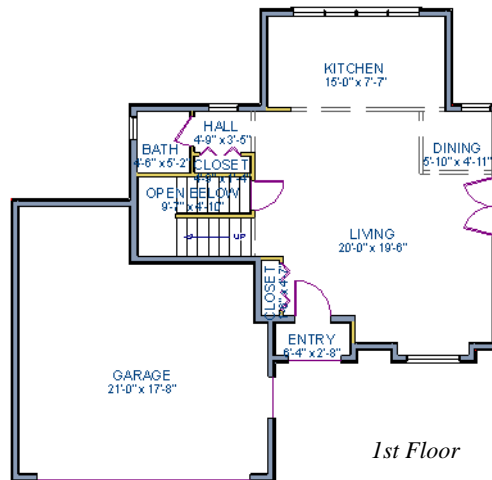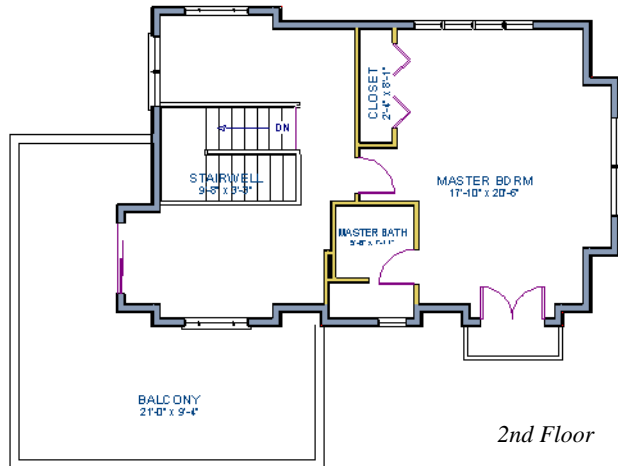
When you have finished, **Save** 🖫 your work.

To take a final look

1. Using the **Full Camera** 📷 tool, create an interior camera view on Floor 1. Remember that where you click determines the camera's perspective and where you release determines the point about which the camera will rotate. A short drag distance is ideal, however, the distance must be greater than one foot.
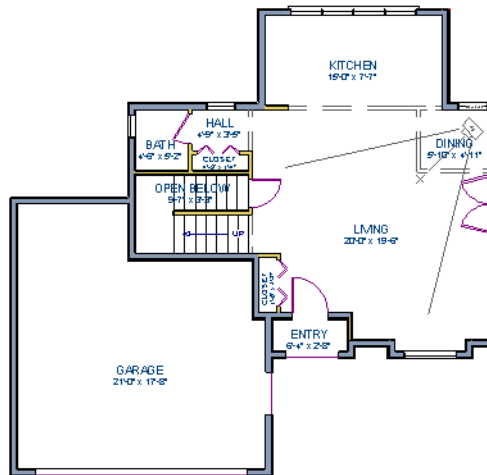
2. Release the mouse button to create the 3D camera view then use the **Mouse-Orbit Camera** ⚓ tool to take a look around and see your progress so far.

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

4. When you are finished, be sure to **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.

Roof Tutorial

The majority of Roof Tutorial describes some common roof styles that can be created using settings in the **Wall Specification** dialog and can be completed independent of the other tutorials. It also explains how to add gables over doors and windows, how to create dormers automatically and manually, and how to create skylights.

The Adding a Roof to the Stucco Beach House section continues where the Interior Design Tutorial left off and explains how to add a roof to that plan.

For more information about Roof Tools, see "Roofs" on page 371 of the Reference Manual.

In this tutorial you'll learn about:

- Getting Started with Automatic Roof Styles
- Hip Roofs
- Gable Roofs
- Shed Roofs
- Offset Gable Roofs
- Gambrel Roofs
- Gull Wing Roofs
- Half Hip Roofs
- Mansard Roofs
- Finding the Start of an Upper Pitch
- Roof Style Quick Reference
- Roof Returns

- Adding Gables over Doors and Windows
- Automatic Dormers
- Crickets and Dormer Vents
- Manually Drawn Dormers
- Skylights
- Using the Break Wall Tool to Modify Roofs
- Adding a Roof to the Stucco Beach House
- Troubleshooting Automatic Roof Issues

Getting Started with Automatic Roof Styles

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

To begin a new plan

1. If any plans are open, select **File> Close All** from the menu.

2. Select **File> New Plan** to open a new plan. In the **Create New Plan** dialog, select the Default Style template.

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. See "Drawing Walls" on page 201 of the Reference Manual.

LIVING AREA
816 sq ft
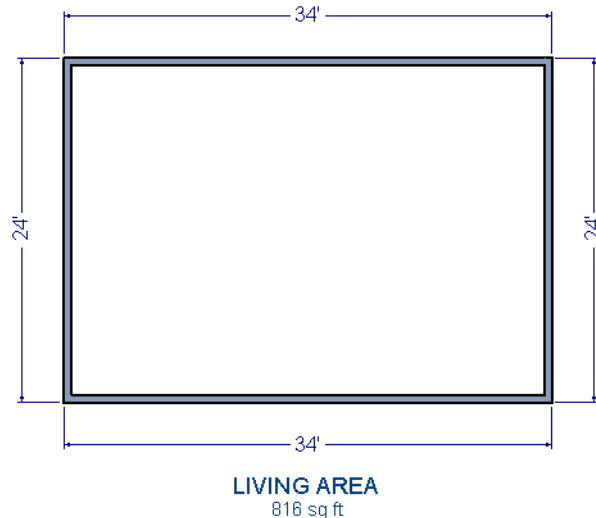
4. Select **3D> Create Perspective View> Full Overview** to create a 3D overview of the house.

    • If you wish, you can select **3D> Toggle Textures** from the menu to turn off the display of material textures and represent all materials using solid colors.

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

| Hip Roof: Floor Plan | Hip Roof: Perspective Full Overview - Camera 1 |
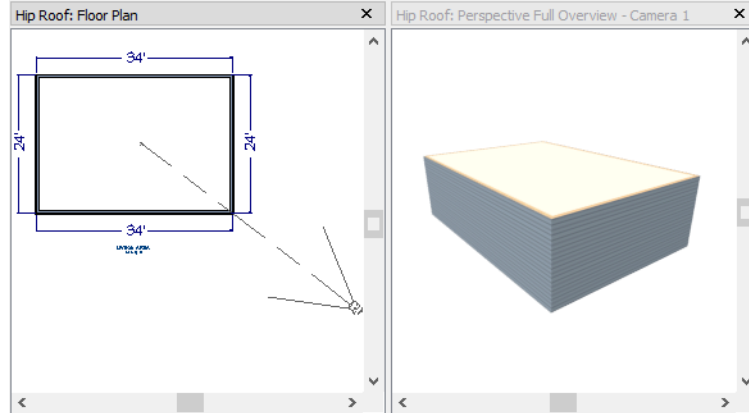
Roof Style Directives in Walls

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

Individual walls can be selected and edited in both 2D and 3D views. When multiple walls are to be edited, however, it is usually quicker and easier to work in floor plan view: in part, because you can hold down the Shift key and group-select walls. See "Editing Walls" on page 209 of the Reference Manual.

To set a wall's roof directives

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

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

Attic Walls

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

If you do not want to see attic walls in floor plan view, you can 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 Display column for this item, and click OK. For more information, see "Layer Display Options Dialog" on page 116 of the Reference Manual.

Deleting Roofs

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

•   Select an individual roof plane and **Delete** ⊠ it.

•   Select **Build> Roof> Delete Roof Planes** ⊠ to delete all roof planes in the plan.

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

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

Auto Rebuild Roofs

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

To turn on/off Auto Rebuild Roofs

1. Select **Build> Roof> Build Roof** ⌂ from the menu.

2. On the Roof panel of the **Build Roof** dialog, check or uncheck **Auto Rebuild Roofs** and click **OK**.

Hip Roofs

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

To create a hip roof

1. Begin with the basic rectangular structure described in "Getting Started with Automatic Roof Styles" on page 62.

2. Select **Build> Roof> Build Roof** ⌂ from the menu to open the **Build Roof** dialog.

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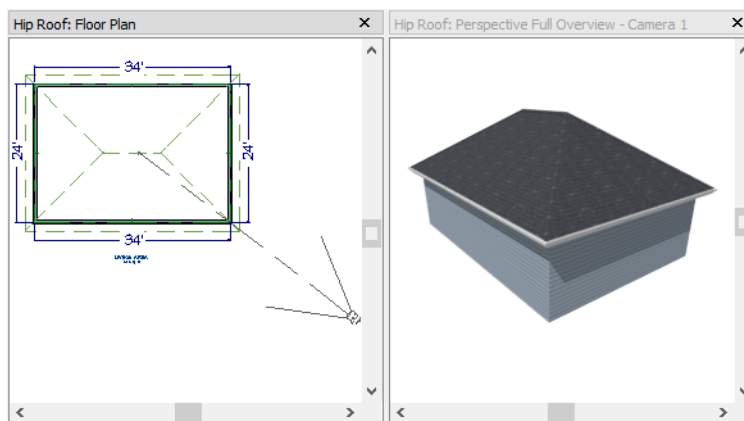
Gable Roofs

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

To create a gable roof

1. Begin with the basic rectangular structure described in "Getting Started with Automatic Roof Styles" on page 62.

2. Click the **Select Objects** ⌖ tool, select the vertical wall on the left, hold down the Shift key, and select the vertical wall on the right. The two walls should be group-selected.

3. Open the **Wall Specification** dialog and on the Roof panel, check **Full Gable Wall** and click **OK**. See "To set a wall's roof directives" on page 63.

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

4. Select **Build> Roof> Build Roof** ⬠ to open the **Build Roof** dialog, check **Build Roof Planes**, and click **OK**.
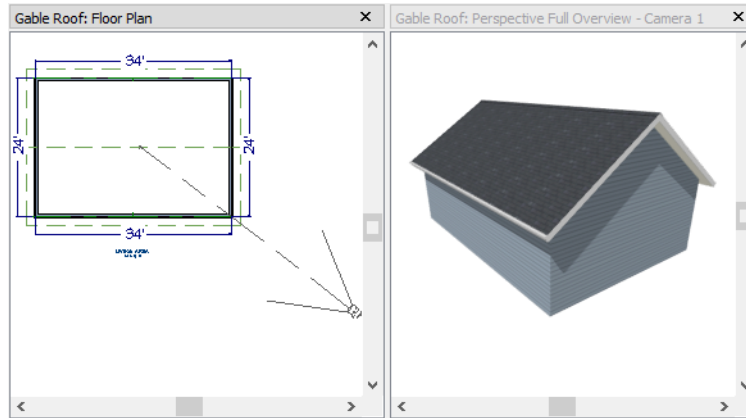
Shed Roofs

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

To create a shed roof

1. Begin with the basic rectangular structure described in "Getting Started with Automatic Roof Styles" on page 62.
2. As in the Gable Roofs example, specify the left and right vertical walls as **Full Gable Walls**.
3. Select the lower horizontal wall and open its **Wall Specification** dialog. On the Roof panel, check **High Shed/Gable Wall** and click **OK**. See "To set a wall's roof directives" on page 63.
4. Select **Build> Roof> Build Roof** ⬠ to open the **Build Roof** dialog, specify a **Pitch** of 2 in 12, check **Build Roof Planes**, and click **OK**.
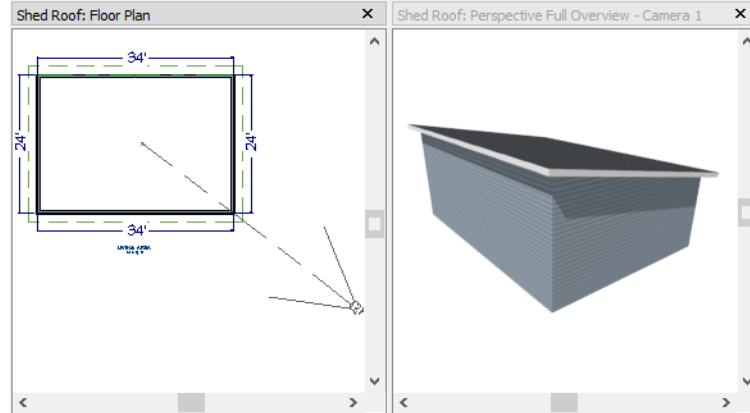
Offset Gable Roofs

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

To create an offset gable roof

1. Begin with the basic rectangular structure described in "Getting Started with Automatic Roof Styles" on page 62.

2. As in the Gable Roofs example, specify the left and right vertical walls as **Full Gable Walls**.

3. Select the lower horizontal wall and open its **Wall Specification** dialog. On the Roof panel, leave the **Roof Options** unchecked and change the **Pitch** to 12 in 12. See "To set a wall's roof directives" on page 63.

4. Select **Build> Roof> Build Roof** 🏠 to open the **Build Roof** dialog, check **Build Roof Planes**, specify the **Pitch** as 2 in 12, and click **OK**.
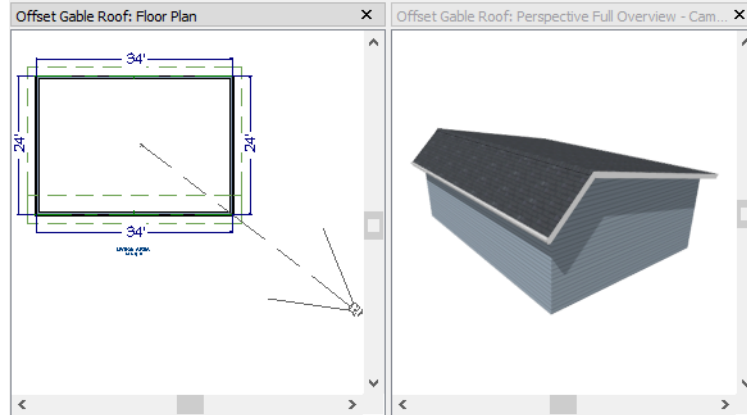
Gambrel Roofs

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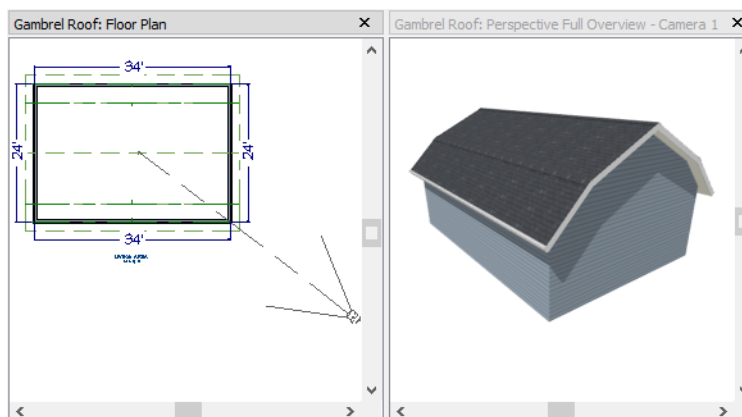
To create a gambrel roof

1. Begin with the basic rectangular structure described in "Getting Started with Automatic Roof Styles" on page 62.

2. As in the Gable Roofs example, specify the left and right vertical walls as **Full Gable Walls**.

3. Click the **Select Objects** ⬚ tool, select the horizontal wall on the top, hold down the Shift key, and select the horizontal wall on the bottom. The two walls should be group-selected.

4. Open the **Wall Specification** dialog and on the Roof panel, change the following settings:
   • Make sure that the **Pitch** value is followed by (D), which means that is set to use the default.
   • Check the box beside **Upper Pitch**.
   • Specify the **Upper Pitch** as 6 in 12 and the **Start Height** as 156".
   • To learn more, see "Finding the Start of an Upper Pitch" on page 72.

5. Click **OK** to close the **Wall Specification** dialog. See "To set a wall's roof directives" on page 63.

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

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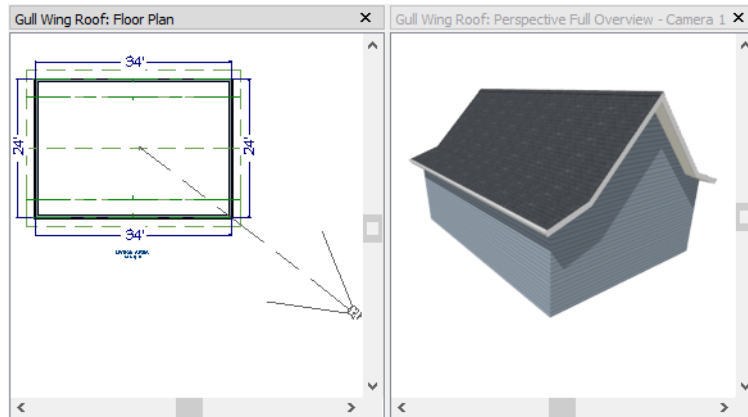
Gull Wing Roofs

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

To create a gull wing roof

1. Begin with the basic rectangular structure described in "Getting Started with Automatic Roof Styles" on page 62.

2. As in the Gable Roofs example, specify the left and right vertical walls as **Full Gable Walls**.

3. Click the **Select Objects** 🔾 tool, select the horizontal wall on the top, hold down the Shift key, and select the horizontal wall on the bottom. The two walls should be group-selected.

4. Open the **Wall Specification** dialog and on the Roof panel, and change the following settings:

   • Make sure that the **Pitch** value is followed by (D), which means that is set to use the default.
   • Place a check in the box beside **Upper** Pitch.
   • Keep the **Upper Pitch** as 12 in 12 and change the **Start Height** to 125".
   • To learn more, see "Finding the Start of an Upper Pitch" on page 72.

5. Click **OK** to close the dialog. See "To set a wall's roof directives" on page 63.

6. Click the **Build Roof** tool, specify a **Pitch** of 3 in 12, check **Build Roof Planes**, and click **OK** in the **Build Roof** dialog.

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

Half Hip Roofs

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

To create a half hip roof

1. Begin with the basic rectangular structure described in "Getting Started with Automatic Roof Styles" on page 62.
2. As in the Gable Roofs example, specify the left and right vertical walls as **Full Gable Walls**. In addition, change the following **Pitch Option** settings:
    • Check the box beside **Upper Pitch**.
    • Specify the **Upper Pitch** as 3 in 12 and set the **Start Height** at 170".
3. Click the **Build Roof** tool, check **Build Roof Planes**, and click **OK** in the **Build Roof** dialog.
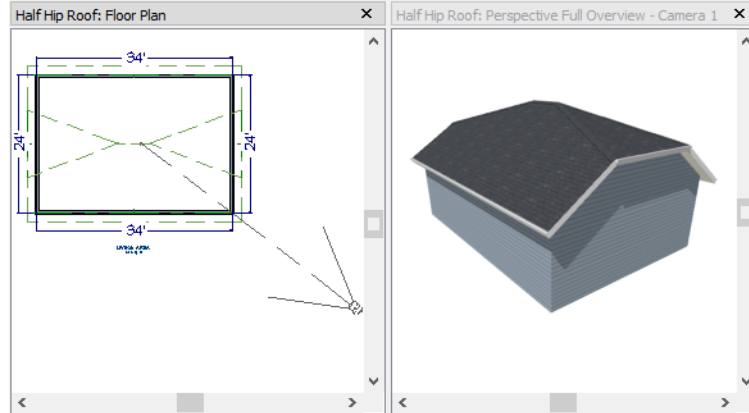
Mansard Roofs

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

To create a mansard roof

1. Begin with the basic rectangular structure described in "Getting Started with Automatic Roof Styles" on page 62.

2. Click the **Select Objects** ![cursor icon] tool, select one of the exterior walls, hold down the Shift key, and click on the remaining walls to select them as a group.

3. Open the **Wall Specification** dialog and on the Roof panel, and change the following settings:

    • Check the box beside **Upper Pitch**.
    • Specify the **Upper Pitch** as 1.5 in 12 and the **Start Height** as 132".
    • To learn more, see "Finding the Start of an Upper Pitch" on page 72.

4. Click **OK** to close the dialog. See "To set a wall's roof directives" on page 63.

5. Click the **Build Roof** ![roof icon] tool, specify a Pitch of 24 in 12, check **Build Roof Planes**, and click **OK** in the **Build Roof** dialog.
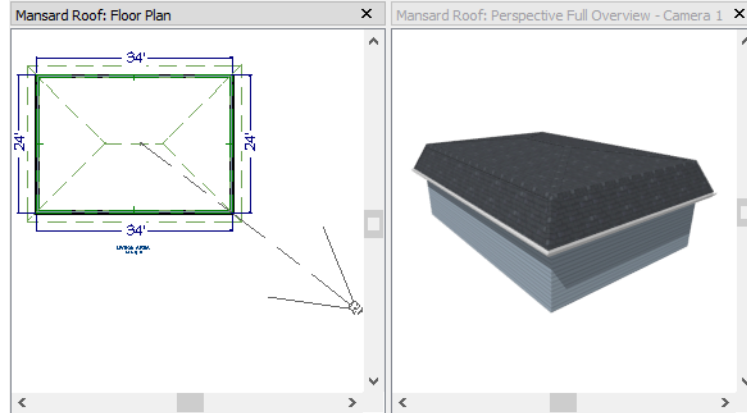
Finding the Start of an Upper Pitch

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

To find the start of an upper pitch

1. Generate the roof using only the first, lower pitch. Be sure to define all the roof information for each wall (gable, hip, first pitch, etc.).

2. Create a cross section view that includes the roof plane that will have the second pitch. See "Cross Section/Elevation Views" on page 710.

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 **Point-to-Point 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 **Point-to-Point Dimension** ⟋ tool, drag a dimension line from the baseline to the vertical plane of the temporary point.
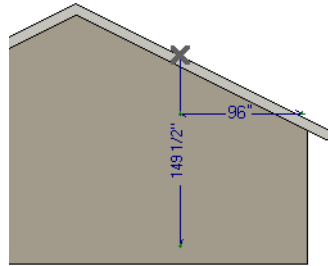
4. Enter either of these values in the **Wall Specification** dialog. You can press the Tab key to update the other value. Click **OK** to close the dialog.

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

Roof Style 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 panel 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					
Offset Gable 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	125
	Horizontal Wall 2			3 in 12	12 in 12	125
Half Hip Roof	Vertical Wall 1	X			3 in 12	170
	Vertical Wall 2	X			3 in 12	170
	Horizontal Wall 1			6 in 12		
	Horizontal Wall 2			6 in 12		
Mansard Roof	Vertical Wall 1			12 in 12	1.5 in 12	132
	Vertical Wall 2			12 in 12	1.5 in 12	132
	Horizontal Wall 1			12 in 12	1.5 in 12	132
	Horizontal Wall 2			12 in 12	1.5 in 12	132

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. While you can build these manually, the following pictures illustrate the three styles of roof returns that can be produced automatically in Home Designer Pro.

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. Full roof returns are sometimes referred to as water tables.

The Auto Roof Return settings are found on the Roof panel of the **Wall Specification** dialog. Roof returns can be specified for any wall, but they will only generate on **Full Gable Walls**.

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 417 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.
2. Hold down the Shift key and click on additional doors and/or windows to add them to your selection set.
3. Click the **Gable Over Door/Window** edit button.
4. 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

An **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 413 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** [icon] 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 78.

- 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 377 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 and Crickets" on page 411 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** [icon] to open a new plan. In the **Create New Plan** dialog, select the Default Style template.

3. Select **File> Save** 🖫 from the menu, save the file to an easy to find location, such as Documents, and give the plan a short, descriptive name like Dormer Tutorial.

4. Select **Build> Wall> Straight Exterior Wall** 🧱 and draw a rectangular floor plan, 40 feet by 30 feet, in a clockwise direction.

5. Click the **Fill Window Building Only** 🔍 button to zoom in on the house.
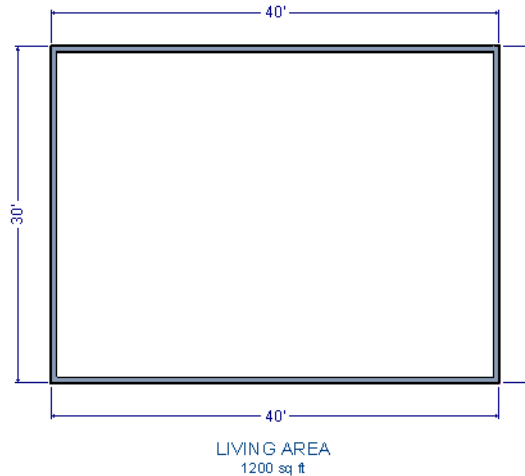
6. As in the Gable Roofs example, specify the left and right vertical walls as **Full Gable Walls**. See "To set a wall's roof directives" on page 63.

7. Select **Build> Floor> Build New Floor** 🏗.

8. Choose the **Derive new 2nd floor plan from 1st floor plan** option in the **New Floor** dialog and click **OK**. In the Floor 2 Defaults dialog, which opens next, click **OK** without making any changes.

9. Select Build> Roof> Build Roof 🏠 to open the **Build Roof** dialog. On the Roof panel, check **Build Roof Planes**, change the **Pitch** to 12 in 12, and click **OK**.
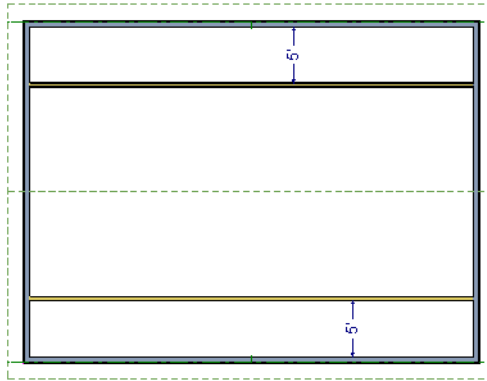
To create two knee walls

A knee wall is a short wall on an upper floor that is cut off by a roof plane rather than building up to full ceiling height. They are often used to separate loft areas from attic space.

> 💡 You can 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 224 of the Reference Manual.

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.

2. Draw another horizontal interior wall 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 776 of the Reference Manual.


3. Group select both interior walls and click the **Open Object** 🔲 edit button. Check the box beside **Knee Wall** on the Roof panel 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:
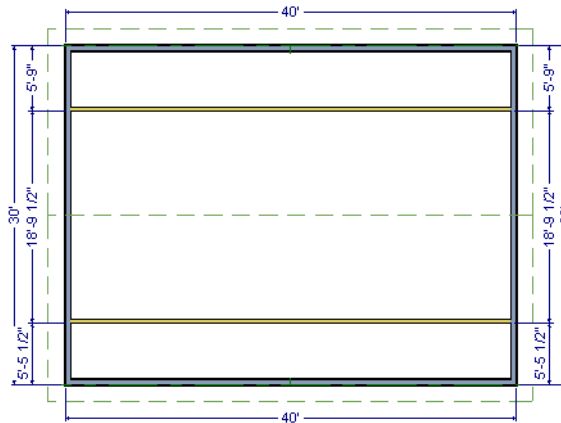
*To draw the dormer walls and windows*

1. Select **Build> Wall> Straight Exterior Wall** ![icon] and draw two rectangular boxes on the outside of the lower knee wall, as shown in the following image.
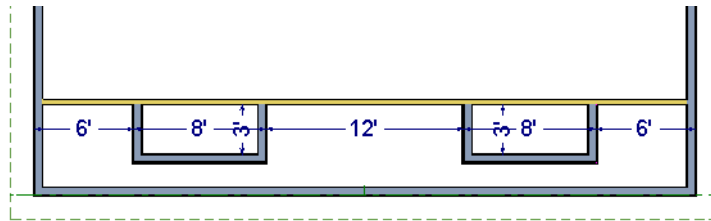
2. Position the front walls of each dormer box 2 feet from the bottom exterior wall. The front dormer walls are those parallel to the bottom wall.

3. Use dimension lines to position the dormer side walls so that the dormers are 6 feet from each vertical exterior walls wall and 8 feet wide.

4. Select **Build> Wall> Break Wall** ![icon] and click along the lower knee wall to place wall breaks where it intersects each of the dormer side walls.
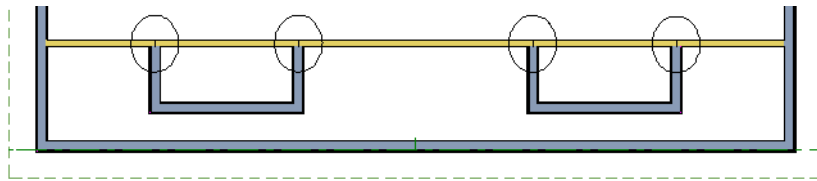
5. Delete the segments of the knee wall located behind the dormers, as in the following image:
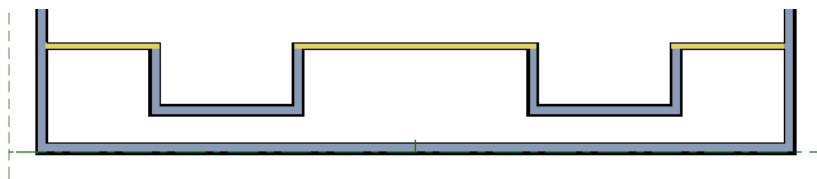

6. Select **Build> Window> Window** ![icon] and click on each dormer front wall to place a window.

   • When **Midpoint** △ **Object Snaps** are enabled, a "sticky point" will exist at the midpoint of the dormer front wall when you move your mouse along the front wall. For more information, see "Object Snaps" on page 122 of the Reference Manual.

- You can also use the **Center Object** ✦ edit button to center each window along the wall after it has been placed.See "Using Center Object" on page 168 of the Reference Manual.

To build the roof

1. Group select the two dormer front walls with windows and open their **Wall Specification** dialog. On the Roof panel, check **Full Gable Wall** and click **OK**.

2. Group select the four dormer side walls and open their **Wall Specification** dialog. On the Roof panel, confirm that **Pitch** is 12 in 12, and click **OK**.
   - Earlier, a pitch of 12 in 12 was specified in the **Build Roof** dialog: that pitch should have prefilled here and will work well for these dormers.

1. Click the **Select Objects** ⬚ button, then click in the narrow room between the top knee wall and the top exterior wall to select it.

2. Click the **Open Object** 🗍 edit button to open the **Room Specification** dialog. On the General panel, select "Attic" as the **Room Type** and click **OK**.

3. Do the same for the lower attic room.
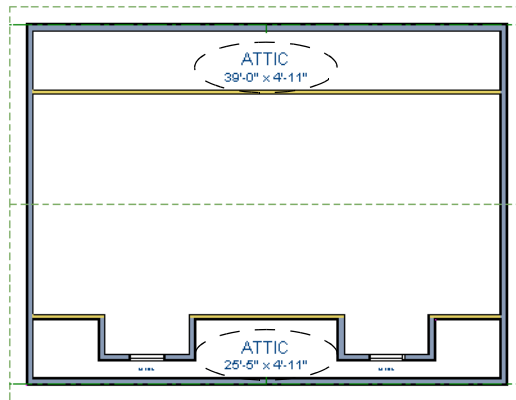
4. Select **Build> Roof> Build Roof** 🏠 from the menu.

5. In the **Build Roof** dialog, check **Build Roof Planes,** and click **OK**.

6. Select **3D> Create PerspectiveCamera View> Full Overview** 📦 to create a 3D overview of the house to see the results.

7. Notice that 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 black dotted Ceiling Break Line in floor plan view.
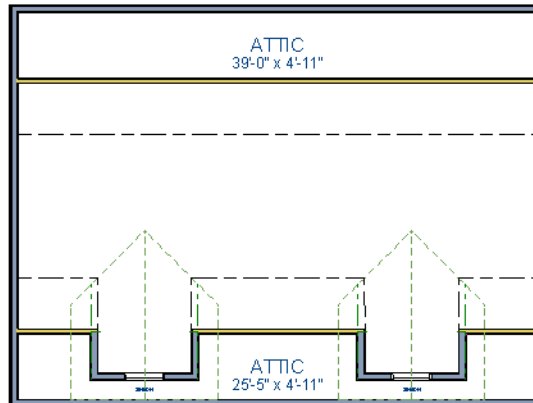
8. Select each of the knee walls and move them back so that they are in alignment with the ceiling plane. When **Object Snaps** ⬚ are enabled, the walls will snap into position when they are close to the Ceiling Break Lines.

83
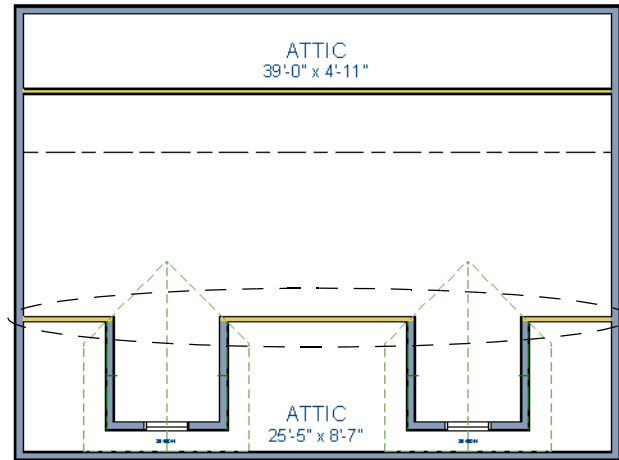
9.   Take a look in a 3D view.

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.

Crickets and Dormer Vents

Roof crickets, sometimes called saddles, are raised roof planes built to divert water or snow.
When a roof is generated automatically, crickets will not be produced, but they can be drawn

manually using the **Roof Plane** ⬒ tool.

Dormer vents can be created using a similar technique.

To create a manually drawn chimney cricket

1. Create a basic rectangular structure with a hip roof. See "To create a hip roof" on page 65.
    *   In this example, the display of Roof Plane Labels is turned off. See "Roof Plane
        Labels" on page 387 of the Reference Manual.

2. Select **Build> Fireplace** ⬚ and click on one of the exterior walls to place a masonry
   fireplace at that location in the wall.
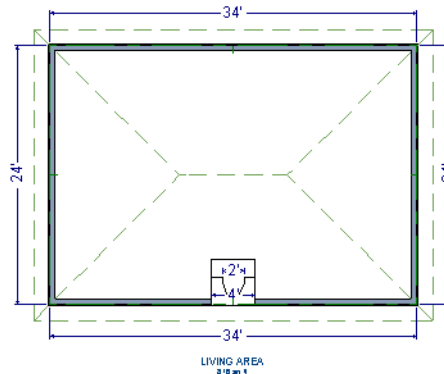
*   **Midpoint** △ Object Snaps or the **Center Objects** ⬌ edit tool can be used to center
    the fireplace along the wall, if desired. See "Using Center Object" on page 168 of the
    Reference Manual.

3. Make any required changes to the fireplace.
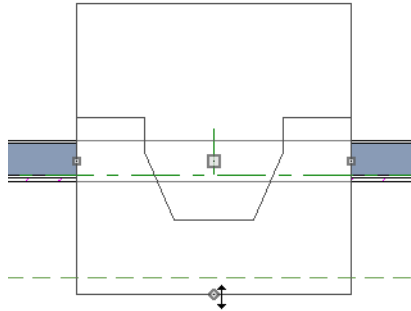
- In this example, the default 48" wide fireplace is used, but its Depth edit handle is used to offset the fireplace 6" towards the exterior. See "Chimneys" on page 369 of the Reference Manual.

4. Select **CAD> Line> Draw Line** and draw a CAD line along the inside surface of the fireplace's firebox.
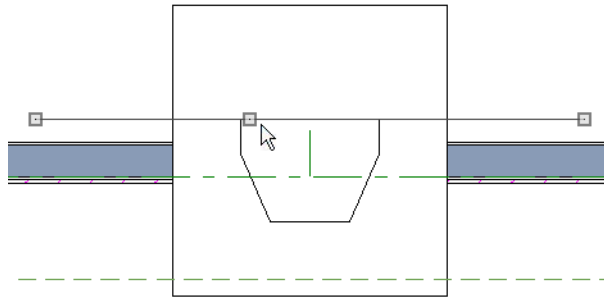
- You can also draw the CAD line near the desired location and then move it into place using dimensions. See "Moving Objects Using Dimensions" on page 776 of the Reference Manual.
- Make sure that the CAD line extends past the fireplace in both directions.

5.   Select **Build> Roof> Build Roof** 🏠 from the menu, and in the **Build Roof** dialog, specify the Pitch, Framing, and any other attributes that you will need for the cricket.

   • In this example, a Pitch of 12:12 and 1 1/2" x 5 1/2" rafters are specified. See "Build Roof Dialog" on page 377 of the Reference Manual.

   • Do not check Build Roof Planes. Here, we're using the **Build Roof** dialog to set the defaults for manually drawn roof planes. See "Roof Defaults" on page 373 of the Reference Manual.

6.   Select **Build> Roof> Roof Plane** 🏠 from the menu, then:
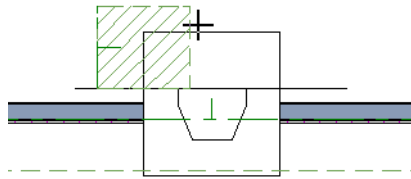
   • Click on the CAD line near one of its endpoints and drag to draw a roof baseline perpendicular to the line, towards the structure's interior.

   • Release the mouse button and move the mouse parallel to the CAD line and in the direction of the fireplace's center and click once.

   • The roof plane that is created will draw its height from the top of the roof below at the point where you first clicked to begin drawing.

   Note: In this example, the cricket roof plane is assigned an angled fill pattern to make it easier to see.

7.   Use dimensions to resize the new roof plane so that it measures half the width of the fireplace from its low edge to its ridge. In this example, that distance is 24".

8.   Use Roof Intersection Points to find the intersection point for the edge of the roof plane opposite the fireplace. See "Locating Intersections" on page 390 of the Reference Manual.
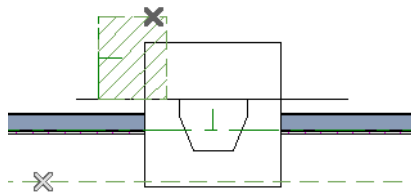
   • If the program creates an Intersection Point that is not located on the roof plane edge, move that edge so that it is closer to the fireplace and the roof plane is more narrow and try again..

9. Use the roof plane's edit handles to:

   • Angle the low edge of the roof plane up to the Intersection Point.
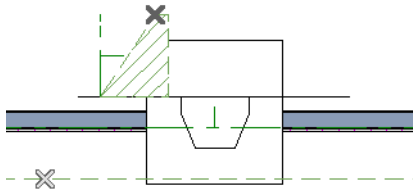
   • Drag the short edge of the roof plane outward until it disappears and the roof plane becomes a triangle.
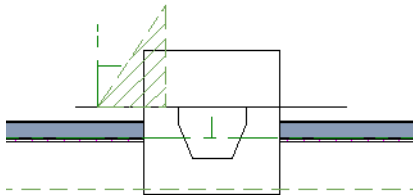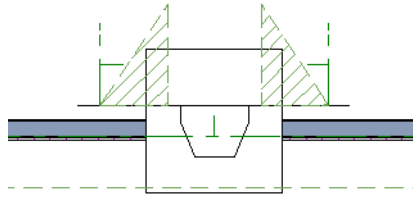

10. Use the **Copy/Paste** ▣⇒▣ edit tool in combination with the **Reflect About Object** ⬛ edit tool to create a copy of the cricket roof plane. See "Reflect About Object" on page 176 of the Reference Manual.
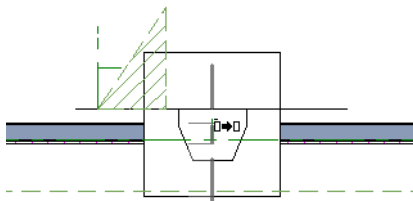
   • Copy/reflect the roof plane about the fireplace to produce a roof plane that slopes in the opposite direction as the original.

11. Use the **Point to Point Move** ✛ edit tool to move the new roof plane so that its ridge edge is adjacent to the original roof plane's ridge. See "Point to Point Move" on page 165 of the Reference Manual.
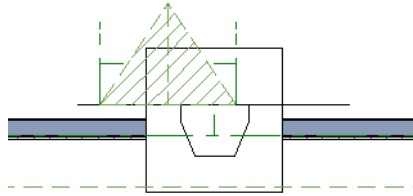
12. Center the cricket behind the fireplace:

   • Shift+select the two cricket roof planes.

   • Click the **Center Objects** ↦ edit button.

• Move the mouse pointer over the fireplace. When a center axis displays over the fireplace, click once.

13. Create a 3D view to see the results.

> 💡 Remember to restore the settings in the Build Roof dialog if you intend to draw more structural roof planes in your plan.

The cricket created above can easily be converted into a dormer vent. Begin by closing the 3D view and returning to floor plan view.
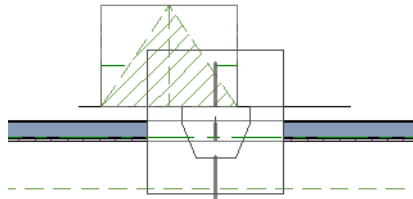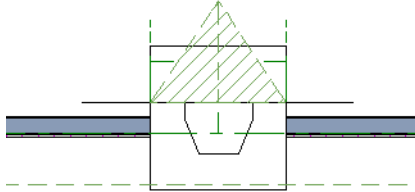
To create a dormer vent

1. Select the fireplace positioned in front of the cricket and click the **Delete** ⊠ button.

2. Go **Up One Floor** ⌃ and select **Tools> Display Settings> Reference Display** ⊜.

3. Select **Build> Wall> Exterior Wall** 🔲 and draw a wall inside the area of the roof cricket on the floor below, parallel to its front.
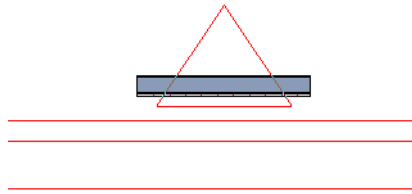
- • If you draw the wall in the wrong direction and its siding layer faces the interior, select it and click the **Reverse Layers** ⬌ edit button.

4. Click on the wall to select it and click the **Open Object** ⬜ edit button. On the Roof panel of the **Wall Specification** dialog, check the box beside **Roof Cuts Wall at Bottom** and click **OK**. See "Roof Panel" on page 230.

5. With the wall still selected, use its edit handles to move it the desired distance from the eaves of the roof cricket.

6. Create a 3D view to see the results.

A selection of attic vents is available in the Library Browser. See "Vents" on page 303 of the Reference Manual.

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 and Roof Holes" on page 409 of the Reference Manual.
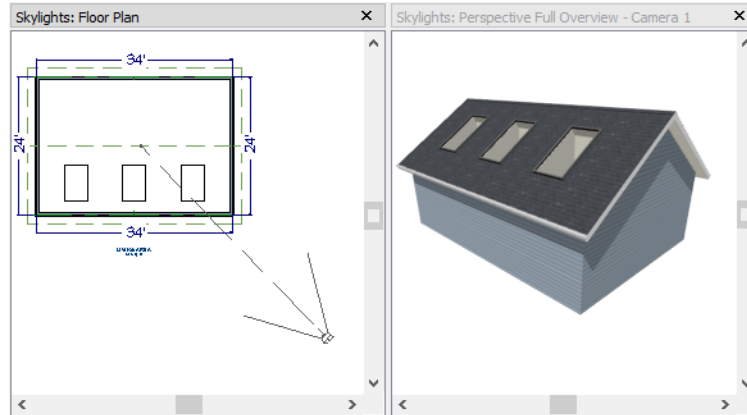
Using the Break Wall Tool to Modify Roofs

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. In the **Create New Plan** dialog, select the Default Style template.

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.

4. If desired, turn off **Auto Rebuild Roof** and delete the roof.
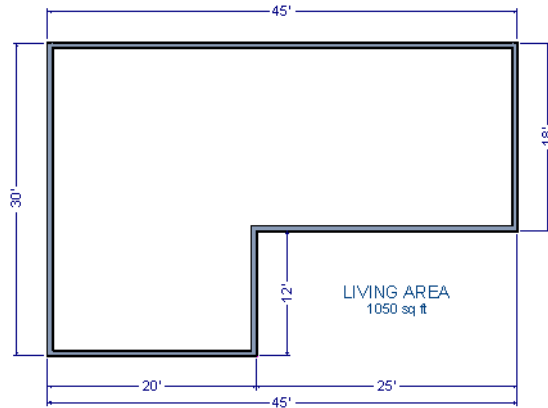
To create a reverse gable in this plan, we need to create three gable walls: two running vertically and one horizontally.

To add a gable roof to the plan

1. Check **Full Gable Wall** on the Roof panel 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** 🏠 button to open the **Build Roof** dialog, check **Build Roof Planes,** and click **OK** to build the roof. The roof will look like this:
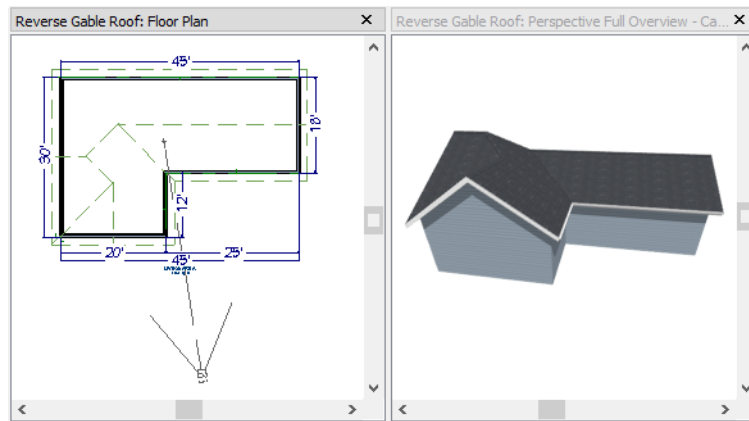
The gable wall on the left produces roof planes that extend too high and interfere with the roof over the front extension of the house. To avoid this, use the Break Wall tool to divide the left wall into two different sections. The upper section can then be specified as a Full Gable without affecting 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.
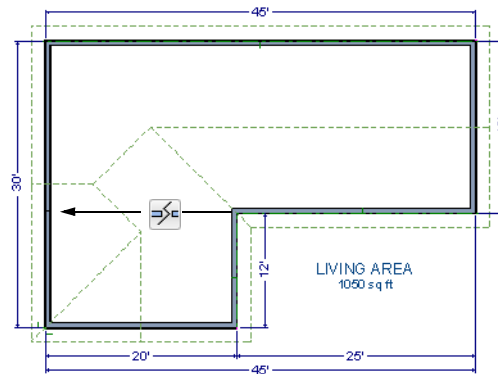
2. Open the lower portion of the wall for specification and on the Roof panel of the **Wall Specification** dialog, clear the **Full Gable Wall** checkbox and click **OK**.

3. Click the **Build Roof** 🏠 button, 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:
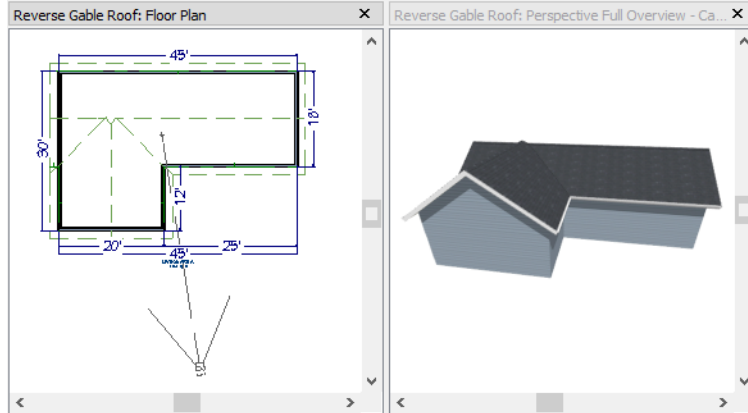
Notice the step in the ridge line. This can be corrected by resizing the lower gable wall. Select the vertical wall to the right of the bottom gable wall and move it to the left 2 feet, reducing the length of the gable wall from 20 to 18 feet. When you are finished, rebuild the roof.
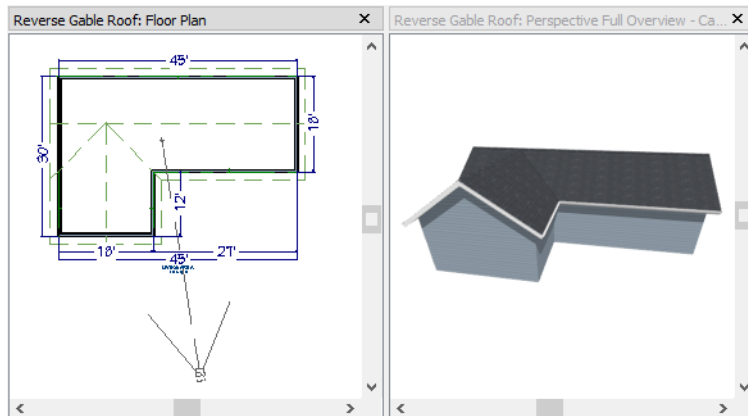
This completes this Roof Tutorial. You can use any combination of the techniques described here to create a wide variety of roof designs.

Adding a Roof to the Stucco Beach House

Now that we have a basic understanding of the automatically roof tools, let's return to our previously saved Stucco Beach House plan, as it looks like our house could use a roof now.

Select **File**> **Save As** 🖫 and give this plan a new name, such as "Beach House Roof Tutorial" before continuing.

Individual walls can be selected and edited in both 2D and 3D views; however, when multiple walls must be edited, it is usually quicker and easier to work in floor plan view: in part, because you can hold down the Shift key and group-select walls. See "Editing Walls" on page 209 of the Reference Manual.

To edit the default roof

1. Close any 3D views that you may have open and work in floor plan view.

2. Starting on Floor 1, use the **Select Objects** 🔖 tool to select the top horizontal exterior Kitchen wall:
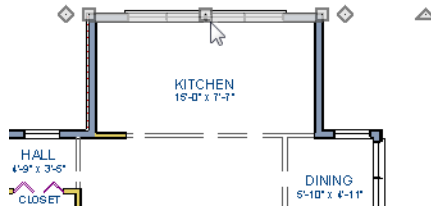
3. Click the **Open Object** 🔲 edit button and specify this wall as a **Full Gable Wall**. See "Gable Roofs" on page 65.

4. Click **Up One Floor** 🔺 to go to the second floor.

5. Using the **Select Objects** 🔖 tool, select the Balcony room, then click the **Open Object** 🔲 edit button. On the Structure panel of the **Room Specification** dialog, uncheck **Roof Over This Room**, then click **OK**.

6. Assign the **Full Gable Wall** and **Extend Slope Downward** settings to the exterior walls, as shown in the following image. See "To set a wall's roof directives" on page 63.

Full Gable Wall

CLOSET
2'-4" x 8'-1"

DN

Full Gable Wall

STAIRWELL
9'-8" x 3'-3"

MASTER BDRM
17'-10" x 20'-6"

Full Gable Wall

Extend Slope Downward

MASTER BATH
5'-6" x 7'-11"

Full Gable Wall

Extend Slope Downward

Full Gable Wall

Full Gable Wall

BALCONY
21'-0" x 9'-4"
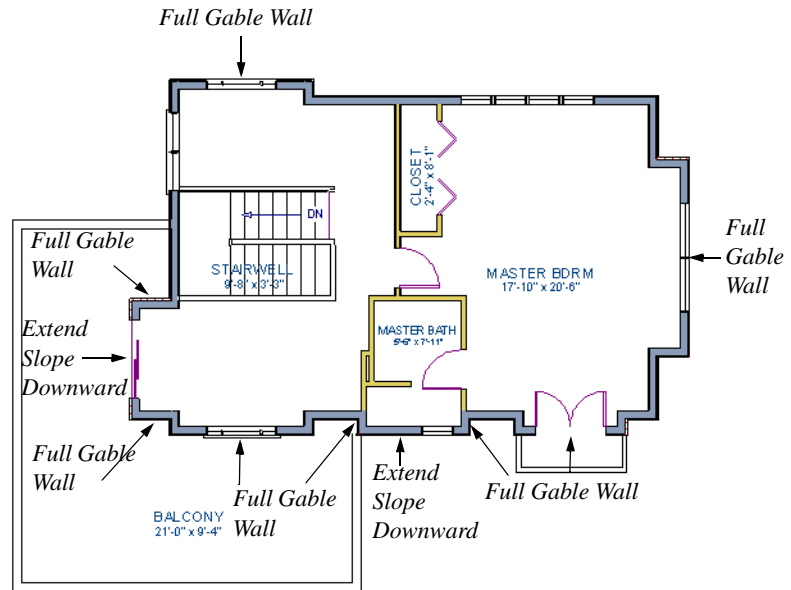
7. Once these roof directives have been assigned, the roof can be generated.

To turn on automatic roof generation

1. Select **Build> Roof> Build Roof** 🏠 to open the **Build Roof** dialog.
2. On the Roof panel, check **Auto Rebuild Roofs and Build Roof Planes**. See "Build Roof Dialog" on page 377 of the Reference Manual for more information.
3. Set the **Pitch** to 3 in 12.
4. You can go to the **Materials** panel to change the material of your roof. Here, an Earth Roof Tile material.
5. Click **OK** to close the dialog and generate a roof.

The additional walls that are created are attic walls. See "Attic Walls" on page 64.

6. Select **3D> Create Perspective View> Full Overview** to create a exterior view of your plan.
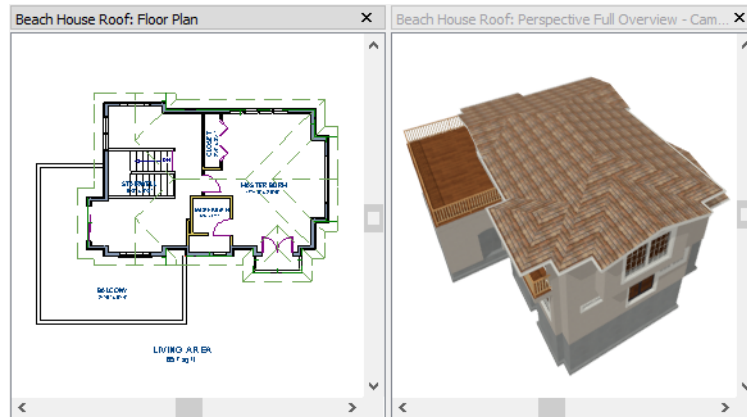
Troubleshooting Automatic Roof Issues

Creating a roof automatically can require experimentation and practice. Here are some suggestions for troubleshooting a problematic roof design.

Bear in mind that some complicated roof plans can only be produced by manually drawing and/or edited roof planes. See "Automatic vs. Manual Roofs" on page 372 of the Reference Manual.

Roof Directives in Walls

As discussed in this chapter and in the Roofs chapter, the program will automatically generate a roof plane bearing over each exterior wall in a plan to produce a hip roof. If you require a different condition over a particular wall, such as a triangular gable or side wall of a shed roof, you can specify that condition on the Roof panel of the **Wall Specification** dialog. See "Roof Panel" on page 230 of the Reference Manual.

Specifying roof directives that do not reflect what you require directly above a selected wall, however, can often result in drastic and unwanted changes to your roof. For example, when two parallel walls are specified as Full Gable Walls, a single ridge will be created between them.
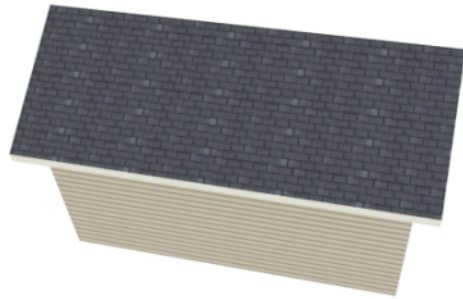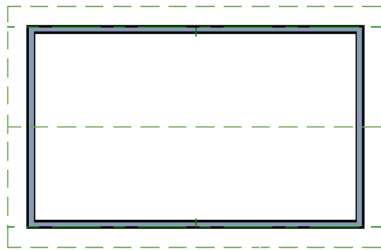
If a wall that is perpendicular to these walls is also specified as a Full Gable Wall, the roof becomes more complex with an additional ridge, two valleys, and two hips.
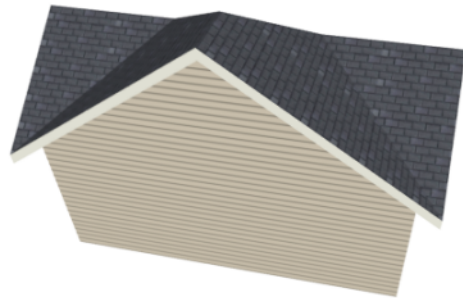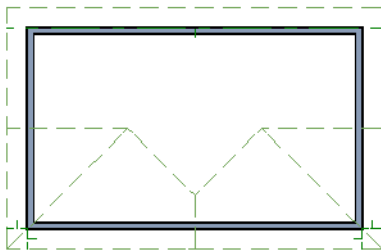
If you are seeing hips or valleys in your roof where you do not expect them, revisit the Roof panel of the walls supporting the affected roof planes.

Roof Heights

The heights of all automatically generated roof planes are based on the heights of the walls that they bear on. Wall heights, in turn, are determined by the ceiling heights of the rooms that they define. See "Floor and Ceiling Heights" on page 254 of the Reference Manual.

For example, the hip roof over a simple rectangular structure with a consistent ceiling heights (in this case, 109 1/8") has four roof planes.
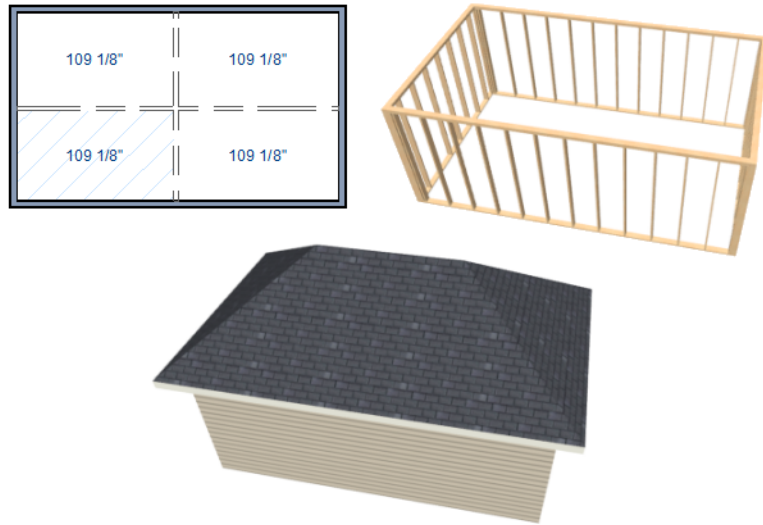
This roof will become considerably more complex if one room inside is given a lowered ceiling height (in this case, 97 1/8").
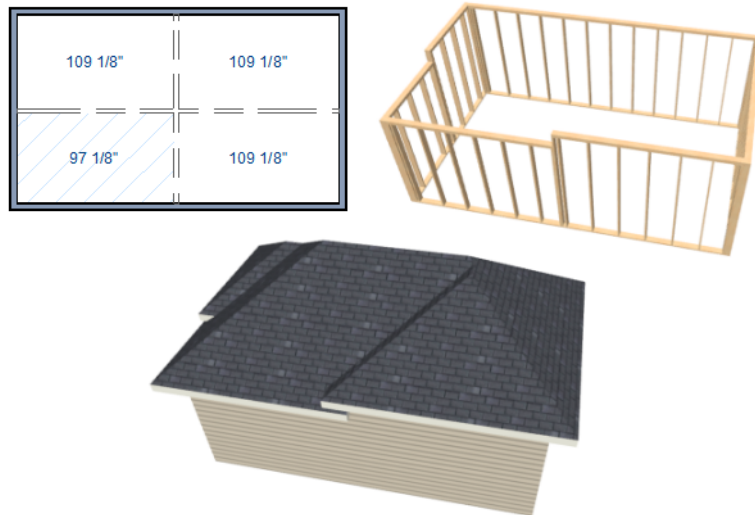
If you generate a roof and it seems to be more complicated and has more roof planes than it should, take a look at the ceiling heights of the rooms in the plan. Often, the correct way to

create a lowered ceiling condition will be to set the ceiling at the default height create a lowered Ceiling Finish. See "Lowered Ceilings" on page 259 of the Reference Manual.

Controlling Roof Ridges

A single roof ridge will generate for as long as the bearing walls that support the roofs on either side of the ridge are the same distance apart. When alcoves or bumpouts are introduced along either bearing wall, the ridge is likely to become broken.

For example, a simple rectangular structure with Full Gable Walls at each end generates a roof with a ridge that runs from Full Gable Wall to Full Gable Wall.
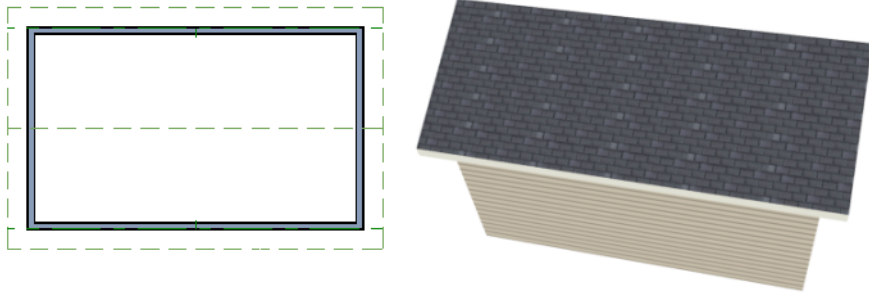
If a bumpout is added that affects the length of either Full Gable Wall, or if an alcove is added anywhere along the length of the structure, the ridge will no longer follow a straight line.
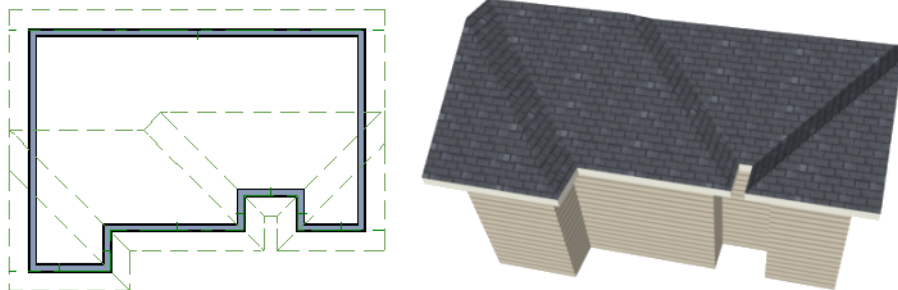
There are a number of ways to maintain a single ridgeline in the presence of alcoves or bumpouts:

- Use the **Break Wall** tool to control the length of a Full Gable Wall section. See "Using the Break Wall Tool to Modify Roofs" on page 92.
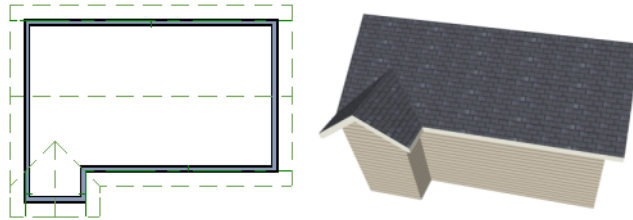
- Increase the **Minimum Alcove Size** to specify what size alcoves are roofed. See “Roof Panel” on page 379 of the Reference Manual.
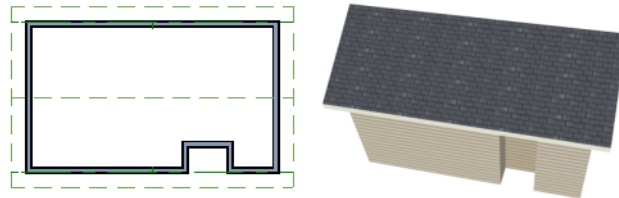
- Use the **Extend Slope Downward** roof directive to allow the roof over a bumpout to extend lower then the ceiling height in that area. See “Roof Directives in Walls” on page 216 of the Reference Manual.
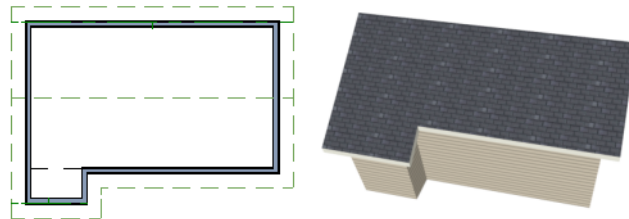
- Specify the area inside of an alcove as an "Open Below" room with a roof but no ceiling, and **Use Soffit Surface for Ceiling** specified. See “Room Types” on page 248 and “Structure Panel” on page 263.
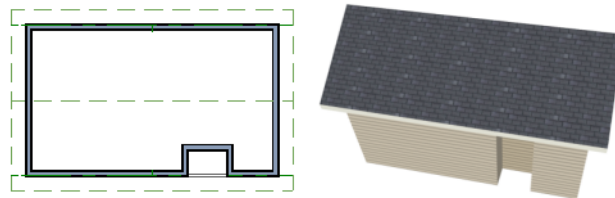
Interior Design Tutorial

The Interior Design Tutorial picks up where the House Design Tutorial left off. The basic structure of the plan is complete, but the 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
- Applying Room Moldings
- Applying Wall Coverings

Controlling the Display of Objects

Every object that you create in Home Designer Pro exists on a layer that lets you control whether it displays in the current view as well as some aspects of its appearance. For example, the roof that was created in the House Design Tutorial will only be in the way in this tutorial, which discusses the plan's interior. To avoid this, the "Roof Planes" layer can be turned off in floor plan view. For more information, see "Layers" on page 113 of the Reference Manual.

To control the display of objects

1. First, select **File**> **Save As** 🖫 and give this version of the plan a new name, such as "BeachHouse - Interior Tutorial"

2. Select **Tools> Display Settings> Display Options** ☑ or press the ~ key to open the **Layer Display Options** dialog.

3. Press the letter R, find the "Roof Planes" layer and remove the check from the Display column. Turn off the display of "Windows, Labels" and "Doors, Labels", as well. Click OK.
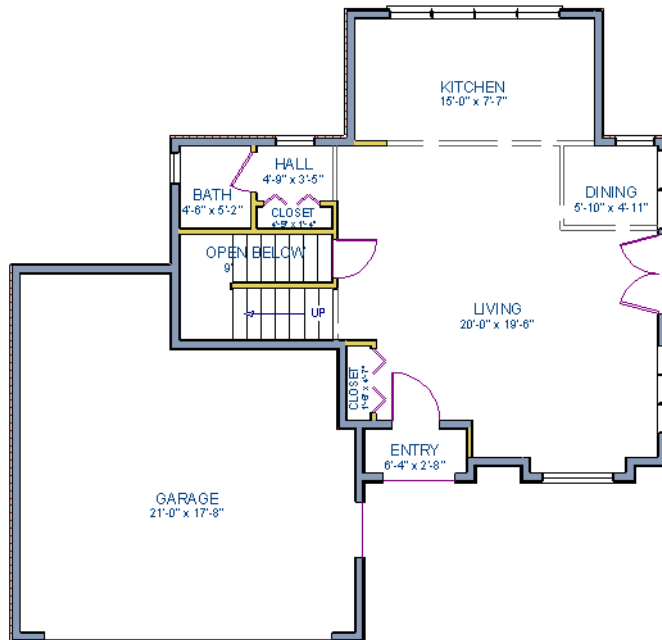
Floor 1 with the display of door and window labels and roof planes turned off

Working with Library Objects

Home Designer Pro 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 639 of the Reference Manual.

To use the Library Search to locate a symbol and place it in the plan

1. Move up to Floor 2 using the **Floor Up** ⌃ tool.
2. Select **View> Library Browser** 📖 or press Ctrl + L on your keyboard to open the Library Browser.
3. In the text field, type "bed" and notice that search results will display below as you type. All items with "bed" in any part of their search attributes are included, so in this example, the search results include a variety of items besides furniture.
4. To narrow the search results, click the **Search Filtering Options** 🔲 button, then check the box beside **Entire Word**. Now only items with the word "bed" in their attributes are included in the search results.
5. Click on a bed in the search results list to select it for placement.
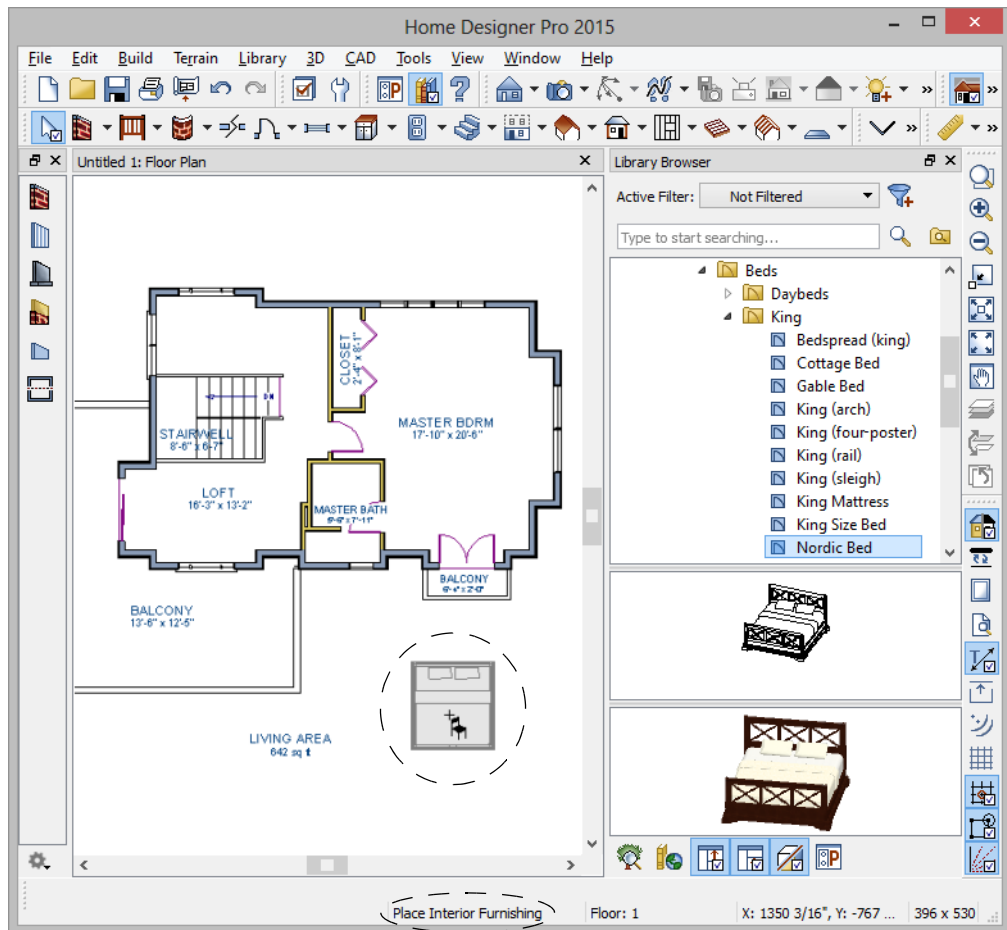
> 💡 When a library object is selected for placement the mouse pointer icon indicates the type of library object selected, a preview outline of the object follows your pointer as you move it, and basic information displays in the Status Bar at the bottom of the program window.

6. Click in the master bedroom to place the bed.
7. To see where the selected item is located in the Library Browser, right-click on it and select **Show in Browser** from the contextual menu.
8. To switch from a list of search results to the Library Browser tree view, click the

    Browse 🔲 button to the right of the text field.

A library object can be selected and edited using the mouse. It also has a specification dialog that offers additional editing options. See "Symbol Object Specification Dialogs" on page 662 of the Reference Manual.

To modify a symbol from the library

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 154 of the Reference Manual.

Resize edit handles

Extend edit handles

Move edit handle
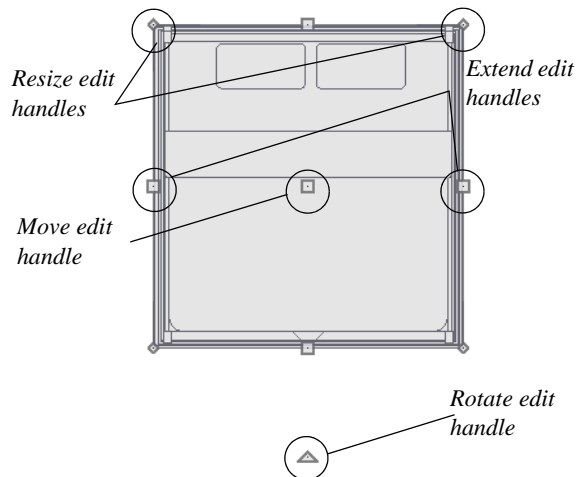
Rotate edit handle

2. Use the Rotate edit handle to rotate the bed.
3. Use the Move edit handle to move the bed up against the right wall.
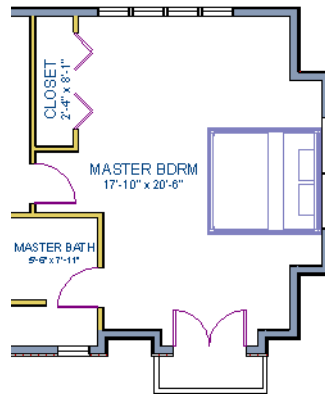
4. You can modify the materials for the bed by using the **Select Objects** button tool to select the bed, and clicking the **Open Object** edit button to open the **Furniture Specification** dialog.

5. On the Materials panel, select the component of the object that you want to apply a new material to: for example, the Bedspread.

6. Click the **Library Material** button to open the **Select Library Object** dialog, where you can search or browse the Library to find and apply a new material to the bedspread portion of the bed. Here, a light brown fabric is used.

7. Repeat this process for any of the other materials on the bed you may want to adjust, then click **OK** to apply the changes which will be visible when you create a camera view.

> You can also apply materials to objects in 3D views using the Material Painter tool. To learn more, see Using the Material Painter in the Materials Tutorial.

You can replace a library object in your plan with a different item from the library using the

Replace From Library edit button. This can be particularly helpful if you have multiple copies of the same object throughout the plan, as you might with a fixture like a sink or toilet, and would like to replace them all at once.

To replace a library object

1. While the **Select Objects** tool is active, click on the bed to select it.

2. Click the **Replace From Library** edit button to open the **Replace From Library** dialog.
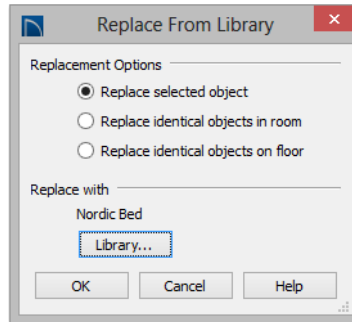
3. Select one of the **Replacement Options** to replace the current object only, all identical objects in the room, or all identical objects on the current floor.
4. Click the **Library** button to select a replacement item from the library.
5. Click **OK** to return to the **Replace From Library** dialog, then click **OK** once more.

Using the tools and techniques learned so far, place fixtures in the bathrooms on Floors 1 and 2.

Floor 1   *Floor 2*
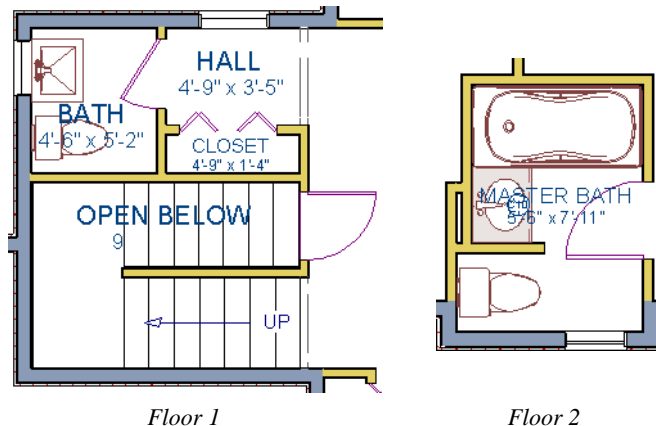
> If existing walls and/or other objects do not allow enough room for a library object to be placed, place the library object where there is enough room and move the object into place while holding down the **Ctrl** key on the keyboard.

108

Applying Room Moldings

In Home Designer Pro, you can specify base, crown and chair rail moldings for any room. The library contains a selection of molding profiles For more information, see "Trim and Molding" on page 525 of the Reference Manual.

To add crown molding to a room

Moldings can be added in floor plan or any camera view. So that you can see the results more quickly, begin by creating a camera view of the master bedroom. See "To create a camera view" on page 41 for information about using the **Full Camera** 📷 tool.

1. 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 panel:
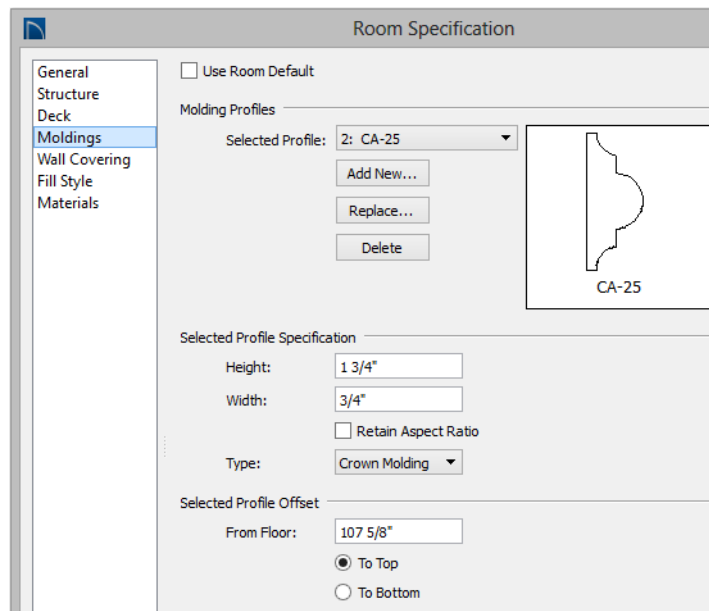
*   Uncheck **Default**, and then click the **Add New** button.
*   In the **Select Library Object** dialog, either search or browse to find a chair rail profile that you like. When you find one, select it and click **OK**. For more information, see "Select Library Object Dialog" on page 656 of the Reference Manual.

- If you wish, you can specify the **Height** and **Width** of the selected molding. In this tutorial, a **Height** of 2 inches is specified.
- Select "Chair Rail" from the **Type** drop-down list.
- Notice that the **From Floor** value equals the room's Finished Ceiling Height on the Structure panel. Set this value to 32" inches.
- Click OK to close the **Room Specification** dialog.

Crown 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.

When you have finished, remember to **Save** 🖫 your work.

Applying Wall Coverings

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 206 of the Reference Manual.

To apply a wall covering

1. Select the master bedroom and click the **Open Object** 🗍 edit button to open the **Room Specification** dialog,
2. On the Wall Covering panel:

Applying Wall Coverings
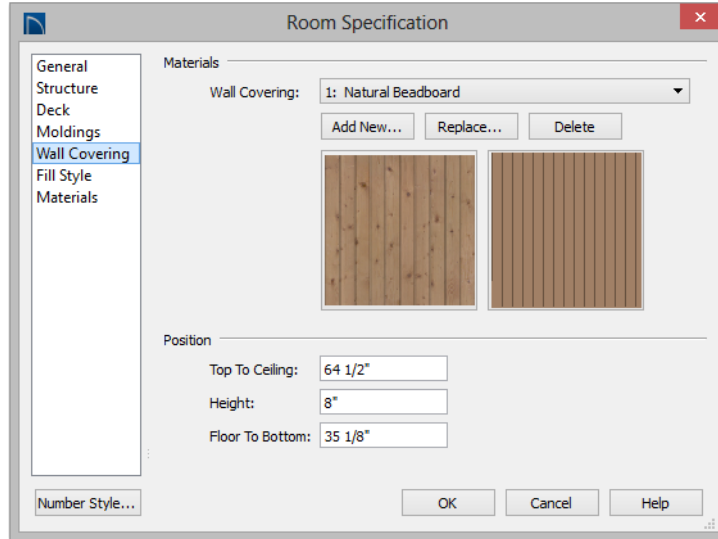
- Click the **Add New** button to open the **Select Library Object** dialog.
- Select an appropriate material for your wall covering, and click **OK**. In this example, a Natural Beadboard material is used.
- Change the **Height** to 28 inches, and change the **Floor to Bottom** value to 3 1/2 inches to allow for the distance between the base and chair rail moldings.
- Click **OK** to close the **Room Specification** dialog.

> Additional wall covering materials can be downloaded into the Manufacturer Catalogs. See "Downloading Library Content" on page 646 of the Reference Manual.

If you would like, you can continue adding interior elements from the Library Browser before continuing to work on this plan in the Kitchen and Bath tutorial.

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 Cabinet Island
- Editing Cabinets and Appliances
- Working in Cross Section/Elevation Views

Adding Cabinets

Begin by selecting **File**> **Save As** 🔲, and name the plan BeachHouse - Kitchen Bath Tutorial.

To place a base cabinet

1. **Zoom** 🔍 in on the Kitchen 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** ![icon] tool is active.

    • Click on the cabinet while any of the **Cabinet Tools** ![icon] are active.

    • 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 154 of the Reference Manual.

Move edit handle

Extend edit handle

Resize edit handles

Front indicator
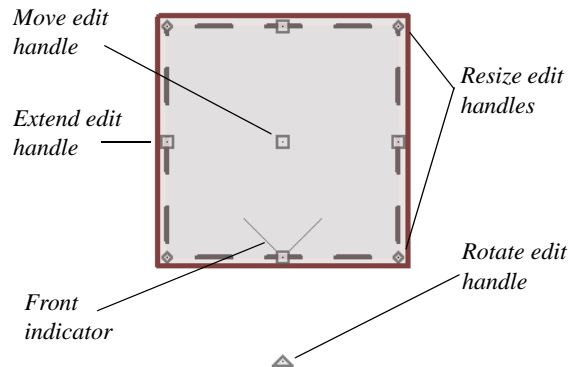
Rotate edit handle

    • Move a cabinet using the Move edit handle. By default, you can move a cabinet parallel to its sides or its front and back edges. To allow unrestricted movement, hold down the Ctrl key or click and drag using the right mouse button.
    • 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.
    • Rotate a cabinet using the Rotate edit handle, which is always offset to one side.
    • A temporary dimension updates as the cabinet is moved or resized.
3. When a cabinet is selected, you can also click the **Open Object** ![icon] 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 551 of the Reference Manual.

To lay out base cabinets for this tutorial
1. Place and position six base cabinets and edit their widths as shown in the following image:
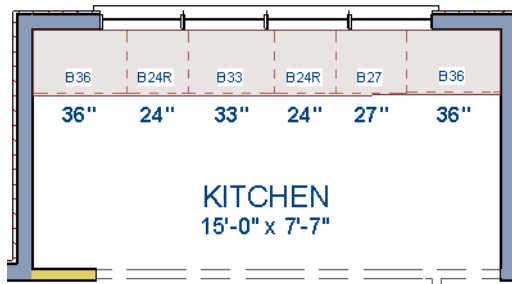
- Two of the cabinets are 36", two are 24" wide, one is 33" and one is 27" wide.
- A cabinet snaps to another if they are in alignment, facing the same direction, and of the same type.

> Note: The display of cabinet module lines has been turned on in the following images. See "Displaying Cabinets" on page 543 of the Reference Manual for more information.

To create corner cabinets

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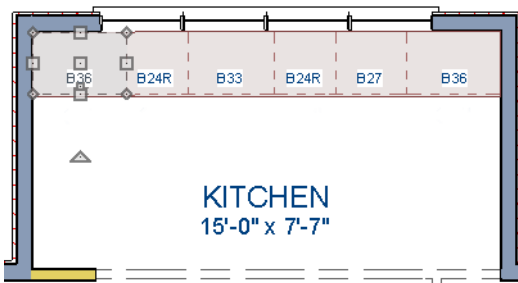
2. Click the **Open Object** edit button to open the **Base Cabinet Specification** dialog. On the General panel:
    - Specify a **Width** greater than the Depth. The selected cabinet's width should already have been changed to 36", which works well with a 24" depth. If it isn't, change it to 36" now.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

115
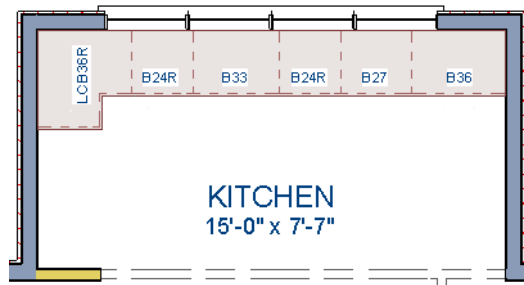
3.   With the cabinet still selected, use its Rotate edit handle to rotate it so its back faces the wall corner if necessary.

4.   A different approach can be used to create a corner cabinet in the right corner. Begin by selecting the cabinet on the right and pressing the **Delete** key or clicking the **Delete** ⊠ edit button.

5.   Select **Build> Cabinet> Base Cabinet** ⊞, then move your mouse pointer into the corner. When the cabinet preview changes to a corner cabinet, click once.

6.   Uncheck **Diagonal Door** for this new cabinet as described in step #2, above.
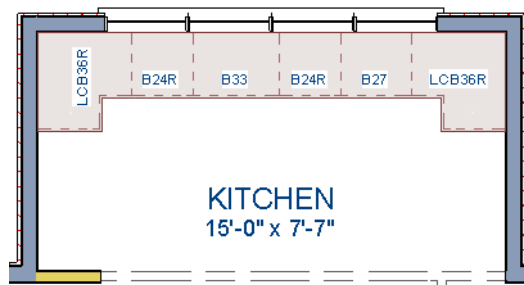
> To move a row of cabinets, select one cabinet, then click and drag the Move edit handle towards the other cabinets. The selected cabinet will push the others. See "Bumping/Pushing" on page 164 of the Reference Manual.

To place wall cabinets

1.   Select **Build> Cabinet> Wall Cabinet** ⊞.
2.   Click above the left corner base cabinet to place a wall cabinet as shown.
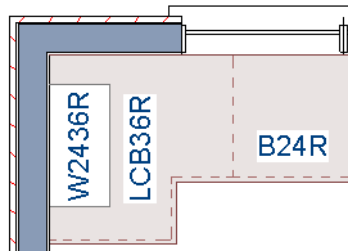
3. Click the **Open Object** edit button to open the **Wall Cabinet Specification** dialog:
    - On the General panel, specify a **Width** of 33".
    - On the Door/Drawer panel, change the **Door Style** to "Framed", and check the box beside **Glass Doors**.
    - On the Moldings panel, click the **Add New** button to add crown molding to the cabinet.
      In this example, a crown molding profile with a **Height** of 2 1/2", a **Width** of 2 1/2", and a Vertical **Offset** of - 2 1/2" is used. For more details, see "To add crown molding to a room" on page 109.
    - Click **OK** to apply these changes to the wall cabinet.
4. With the wall cabinet still selected:
    - Click the **Copy/Paste** edit button.
    - Click the **Reflect About Object** edit button.
    - Move your mouse pointer into the center of the room so that the room becomes highlighted.
    - When you see a dashed vertical line running through the center of the room, click once. The dashed line is a reflection axis, and a copy of the cabinet will be created on the opposite side of the kitchen, aligned with the original.
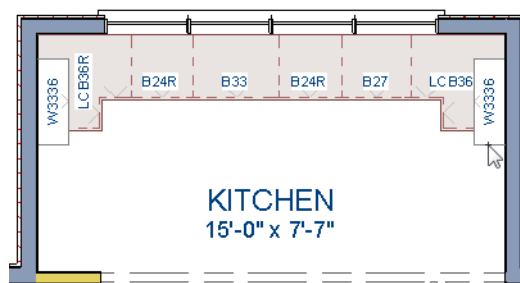
> Note: The display of cabinet face indicator lines has been turned on in the following images. See "Displaying Cabinets" on page 543 of the Reference Manual for more information.

With the wall cabinets in place, you may want to add soffits to enclose the space between them and the ceiling.

To place soffits

1. Select **Build> Cabinet> Soffit** ⬛ then click above the wall cabinets to place soffits.
2. 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.

For more information about cabinets, see "Cabinets" on page 535 of the Reference Manual.

Placing Appliances

Appliances come in two basic varieties, freestanding and built-in. For more information about library objects such as appliances, see "The Library" on page 639 of the Reference Manual.

To place a freestanding appliance

1. Select **View> Library Browser** ⬛ to open the Library Browser.
2. In the Core Catalog, browse to Architectural> Appliances> Refrigerators, locate a refrigerator, and select it for placement.
3. On the left side of the kitchen, click in the empty space below the base corner cabinet to place the refrigerator.
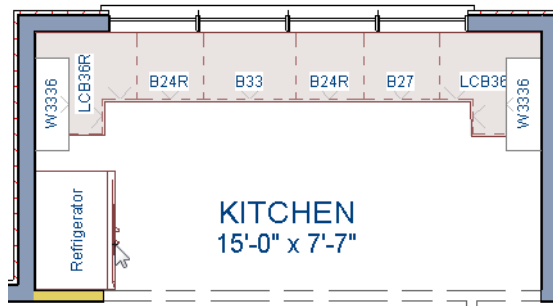
4. In the Appliances catalog, find an electric range and place it in the empty space on the right side of the kitchen.

To place a built-in appliance

1. Select **View> Library Browser** 📚 to open the Library Browser.
2. In the Core Catalog, browse to Architectural> Fixtures> Sinks, locate a sink, and select it for placement. In this example, the Self Rimming Offset 32" sink is used.
3. Click on the base cabinet near the top of the screen that is 33" wide to insert the sink into that cabinet.
4. In Core Catalog> Architectural> Appliances> Dishwashers, select a dishwasher for placement, and click on the cabinet to the right of the sink.
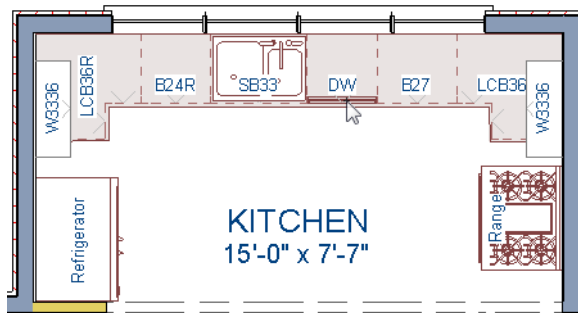
Editing Cabinets and Appliances

Like most objects, cabinets and appliances can also be edited in their own specification dialogs. This method allows a higher degree of customization than using just the edit handles.

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. Click on the drawer in the preview image on the right side of the dialog. Notice that clicking anywhere on the preview takes you to the Front panel.
3. Click the **Add New** button to open the **New Cabinet Face Item** dialog.
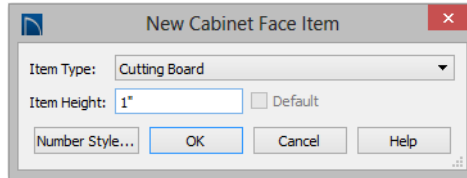
4. Click the **Item Type** drop-down list and select Cutting Board, assign an **Item Height** of 1 inch, and click **OK** to return to the **Cabinet Specification** dialog.
5. A new Cutting Board face item, as well as a new Separation, will be added below the drawer that you selected.
6. Click on the Cutting Board in the preview, then click the **Move Up** button three times to move the cutting board above the drawer.
7. Select the Separation and click the **Move Up** button three times, as well.
8. Click OK to close the **Base Cabinet Specification** dialog.

These steps can be used to create a wide variety of cabinet front configurations, such as a bank of drawers.

To edit appliances in the Fixture Specification dialog

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

Finally, add some narrow base cabinets to fill in the gaps beside the appliances. You can also add a wall cabinet and soffit above the range.

120
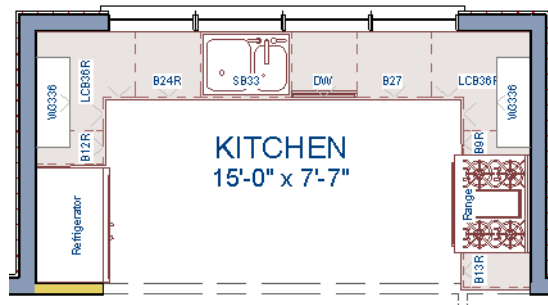
Creating a Cabinet Island

A cabinet island with custom countertop can also be created using the Cabinet Tools. For more information, see "Editing Custom Countertops" on page 542 of the Reference Manual.

To create a cabinet island

1. Select **Build> Cabinet> Base Cabinet** .
2. Click to place a base cabinet in the kitchen area, and select it.
3. Click the **Open Object** edit button to open the **Base Cabinet Specification** dialog.
   • On the General panel, specify a **Width** of 33" and a **Depth** of 27".
   • On the Front panel, create three **Double Drawers** with an **Item Height** of 8 1/2".
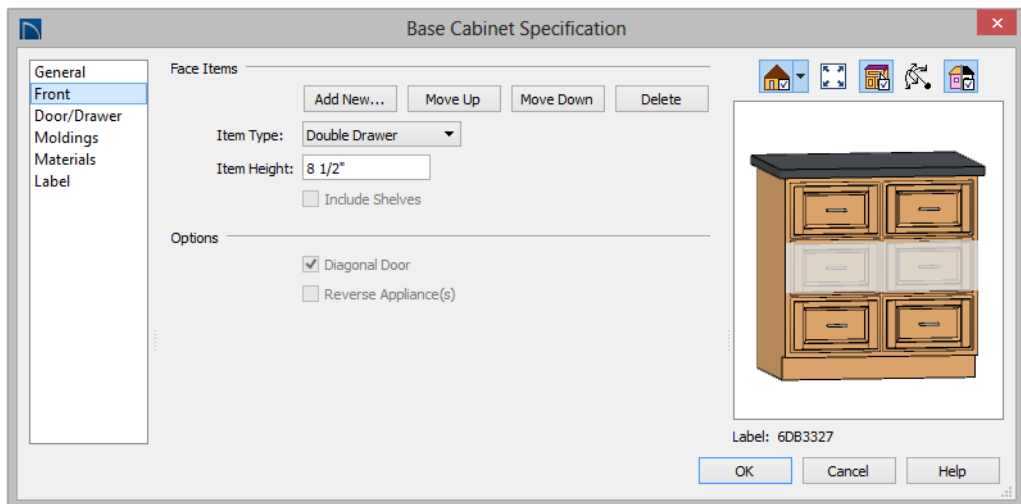
• On the Door/Drawer panel, set the Drawer Handle to **Knob**.
• Click **OK** to close the dialog and apply your changes.

4. With the Base Cabinet still selected, click the **Copy/Paste** ▣➜▣ edit button, then
    • Click and drag the Move edit handle downward on screen until the preview outline
      snaps directly below the existing cabinet.
    • Release the mouse button to create a copy of the original cabinet, as in the image
      below:
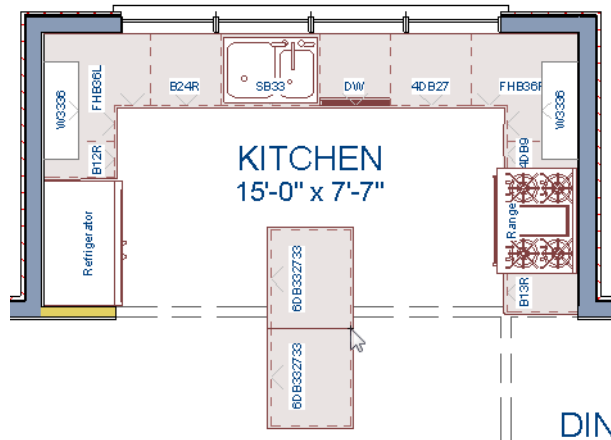
For the next portion of this tutorial, the display of cabinet labels is turned off. To do this, select

Tools> **Display Options** ☑ . In the **Layer Display Options** dialog, locate the "Cabinets,
Labels" layer, remove the checkmark in the **Disp** column, and click **OK**.

To create a custom countertop

1. Click the **Select Objects** ⬚ button, then click on the island cabinet closest to the sink to
    select it.

2. Click the **Generate Custom Countertop** 🛋 edit button. A new Custom Countertop
    polyline will be created, replacing the cabinet's countertop, and will be selected.

3. With the new custom countertop selected, use its edit handles to reshape it so it covers all
    of the island cabinets.

4. Click on the bottom vertical edge of the countertop polyline to make it the Selected Edge.
    For more information, see "Selected Edge" on page 137 of the Reference Manual.

5. Click the **Change Line/Arc** ⬆ edit button to change the Selected Edge from a straight
    line into a curved arc.
    • Use the triangular Reshape edit handle located along the arc's radius to adjust the
      cuvature of the arc.

122

• To temporarily suppress snapping, you can hold down the Ctrl key while you drag the Reshape handle.
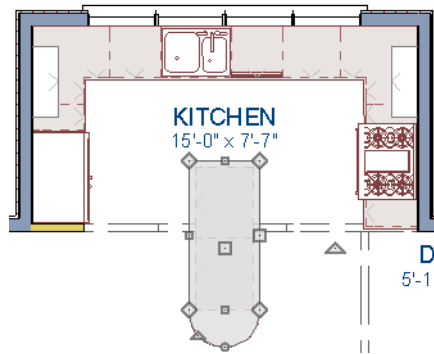
6. Create a **Full Camera** 📷 view to see the results.

A Custom Countertop can also be drawn using the **Custom Countertop** 🔲 tool. For more information, see "Custom Countertops" on page 541 of the Reference Manual.

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. While in floor plan view, group select all objects you would like to include in the architectural block.

2.   One way to group select the objects is to 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 136 of the Reference Manual.

3 objects currently selected
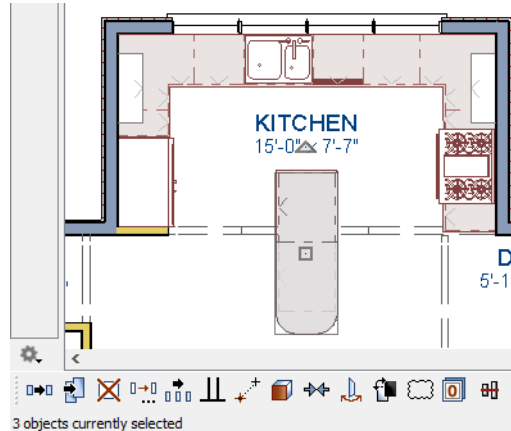
3.   Click the **Make Architectural Block** edit button.

To add an object to the library

1.   Select the architectural block.
2.   Click the **Add to Library** edit button to add the architectural block to the User Catalog in the Library Browser.
3.   Right-click on the new item in the User Catalog and select **Rename** from the contextual menu to change the name from "Untitled" to something descriptive like "Kitchen Bar".

If you want, you can organize the content in your User Catalog by creating folders and then moving items into those folders. For more, see "Organizing the Library" on page 650 of the Reference Manual.

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 working in 3D views, see "Working in 3D" on page 722 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 pointed directly at the 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 slightly wider than the base cabinet below it.
2. Click on the cabinet's bottom edit handle and drag it upwards.
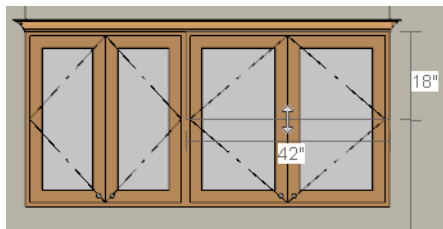
3. When the temporary dimension indicates that the cabinet height is 18 inches, release the mouse button.

> Note: If you do not see Temporary Dimensions when an object is selected, select View> Temporary Dimensions to toggle this feature back on.

To place a range hood
1. Find a range hood in the Fixtures catalog and select it for placement.
2. Click above the range to place the hood.
3. If necessary, you can adjust its position and size using its edit handles.
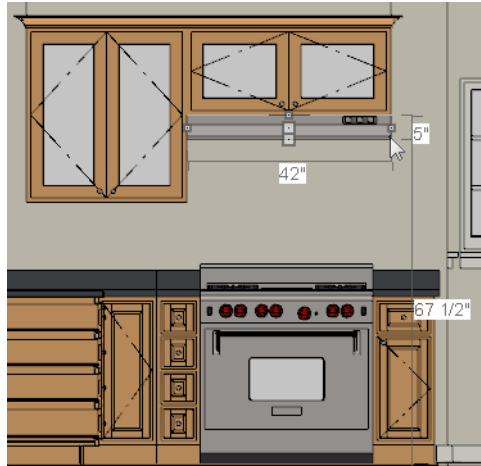
Finishing Touches

A wide variety of furniture, accessories, and other items is available in the Library Browser at Core Catalogs> Interiors, which you can use to furnish this and other plans.

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 41.

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 View Defaults** dialog. For more information, see "3D View Defaults Dialog" on page 703 of the Reference Manual.

4. Select **3D> Camera View Options> Cross Section Slider** to open the **Cross Section Slider** dialog.
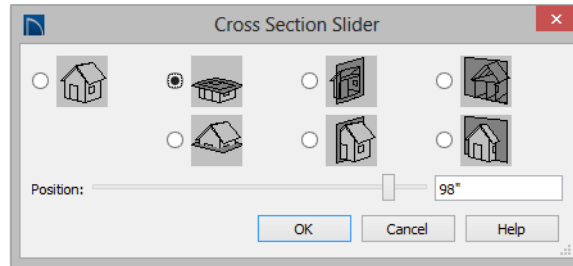
5. Select the flat cut line and use the **Position** slider to specify the location of the cutting plane. See "Cross Section Slider" on page 721 of the Reference Manual.

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

7. 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.

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 Panel
- Using the Material Painter
- 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 and Default Settings" on page 63 of the Reference Manual.

To set material defaults

1. Select **Edit> Default Settings** ⚙ to open the **Default Settings** dialog.
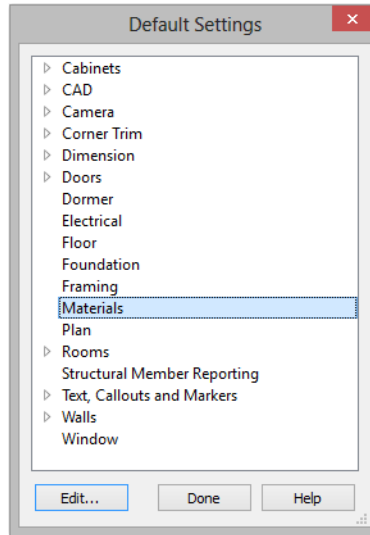
2. There are a two options. You can do either or both:
    - Select an item in the tree list and click the **Edit** button to open the defaults dialog for that type of object. The default dialogs for architectural objects such as doors and windows have a Materials panel that allows you to set the material defaults for object components. See "Using the Materials Panel" on page 131.
    - 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 686 of the Reference Manual.

130
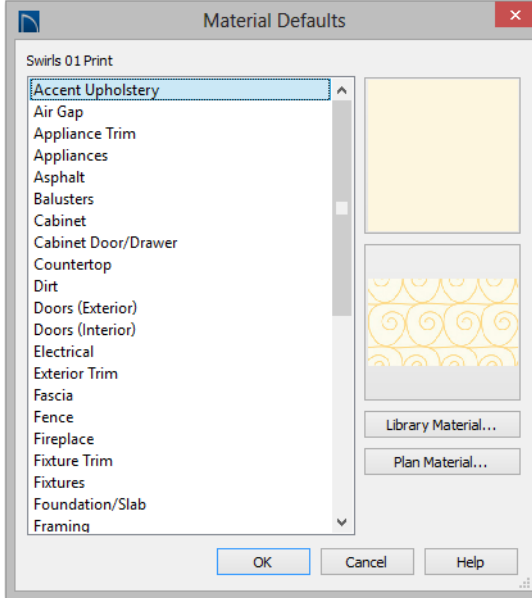
3. When you are finished, click **OK** to close the defaults dialog, then click **Done** to close the
    Default Settings dialog.

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 Panel

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 panel of the **Door
Specification** dialog. For more information, see "Materials Panel" on page 669 of the
Reference Manual.

To change material on an object using the Materials panel

1. Click the **Select Objects** button, then click on the double door leading from the master
    bedroom to the deck on Floor 2 to select it.

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

3. Select one of the door's components from the list on the left.
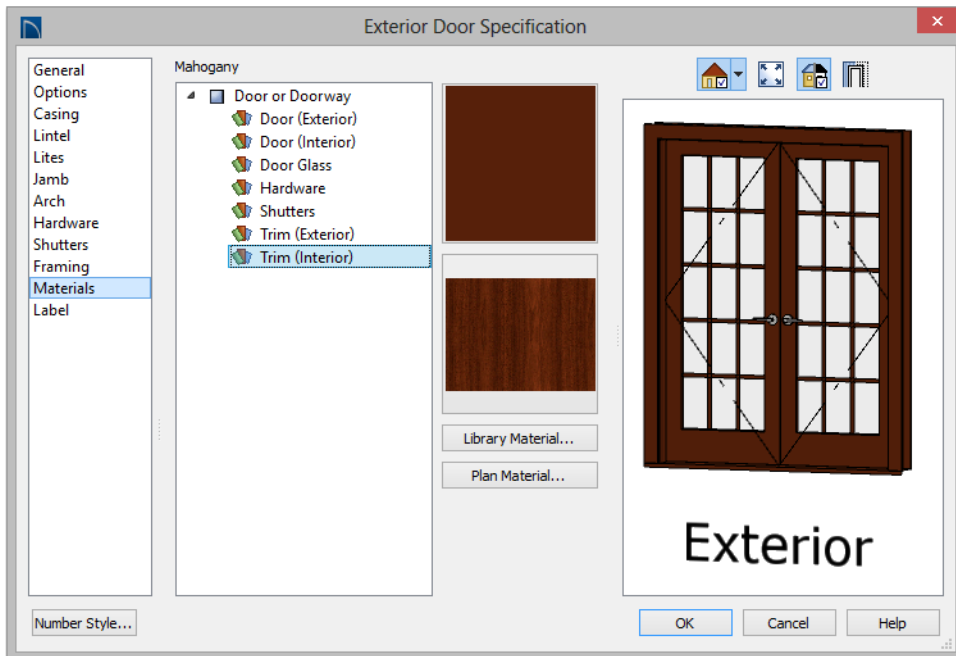
- • Click on the name of a material component in the tree list to select it.
- • Click the **Library Material** button to open the **Select Library Object** dialog.

4. Find and select a material and click **OK**. to apply it to the selected component.
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 to see the results.

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 panel

1.   Select the master bedroom and click the **Open Object** to open the **Room Specification** dialog.
2.   In the tree list on the Materials panel, select "Molding" under the Crown Molding component and click the **Library Material** button to open the **Select Library Object** dialog.
3.   In the **Select Library Object** dialog, 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 666 of the Reference Manual.

To apply a material using the Material Painter

1. While still in the 3D view of the door, select **3D> 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.
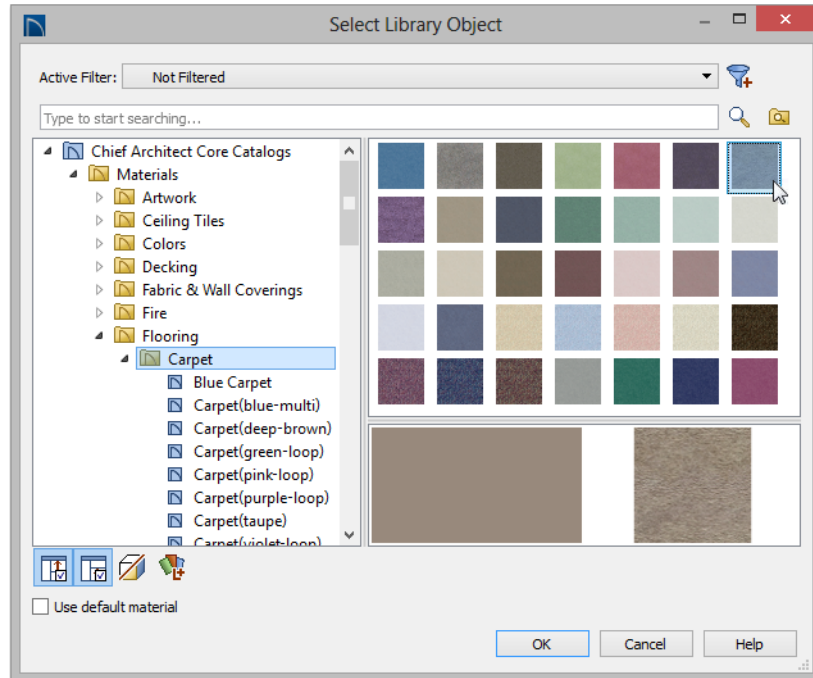
3. Move your cursor into the 3D view and notice that it displays a spray can icon .
4. Click on the floor of the master bedroom to apply the selected material to that surface, which is a component of the room.

> You can also place an area rug symbol from the library in a room and assign to it whatever material you wish. See "Placing Library Objects" on page 655.

With the **Material Painter** [icon] 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** [icon] or **Object** [icon] 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. A variety of frames can be found in the Interiors library category. Place a wall or desk frame in your plan and create a camera view in which it can be seen.

2. Select **3D> Material Painter** and confirm that there is a checkmark next to **Material Painter Component Mode** [icon].

3. Click the **Material Painter** [icon] 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 662 of the Reference Manual.

Blending Colors with Materials

Instead of using the **Material Painter** to replace a material with a new one, you can use it with the **Blend Colors With Materials** 🖌 feature to blend a color with a textured material such as the carpet in the master bedroom and create a new material. For more information, see "Blend Colors With Materials" on page 667 of the Reference Manual.

To blend a color with a texture

1. In a 3D view, select **3D> 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> 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.

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. For example, in the master bedroom the wood material assigned to the crown molding is different than the material assigned to the chair rail and base molding.They can easily be made the same using the **Material Eyedropper** 🖉 tool.

1. Return to the Camera view.

2. Select **3D> Material Painter> Material Eyedropper** 🖉 and notice that the mouse pointer displays an eyedropper icon 🖉.

3. Click once on the crown molding to load the wood material. Notice that the mouse pointer changes to a spray can 🗎, indicating that the loaded material is ready to apply to another object.

4. Click on the chair rail and base moldings to apply the loaded material.

Custom Materials, Images, and Backdrops

Home Designer Pro 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, and Walkthroughs" on page 847 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

You can create your own custom materials and save them in the library for use in any plan. Many materials are represented in 3D views using textures, which are digital images that have been specially edited to tile seamlessly when applied to a 3D surface. Bear in mind, therefore, that not all images will necessarily serve as effective material textures.

To add a new material to the library

1. Select **View> Library Browser** 📖 or press Ctrl + L to open the Library Browser.
2. Right-click on the User Catalog 'folder and select **New> Material** from the contextual menu to open the **Define Material** dialog.

3. Give the new material a short, descriptive **Name**.
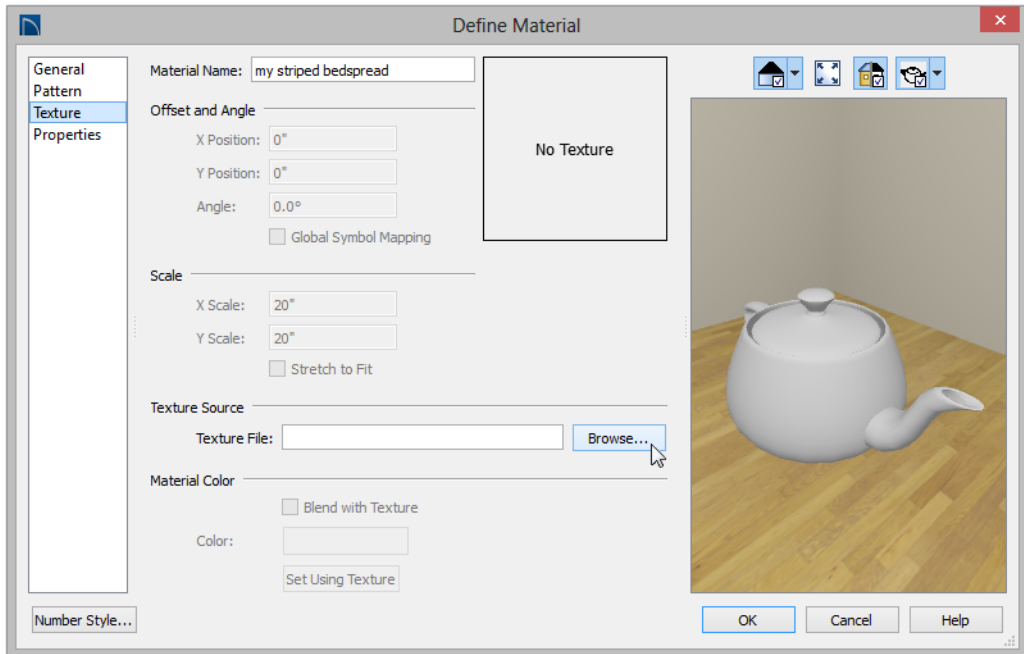
4. On the Texture panel, click the **Browse** button to open the **Select Texture File** dialog, where you can choose an image file saved on your computer to be the new material's texture.
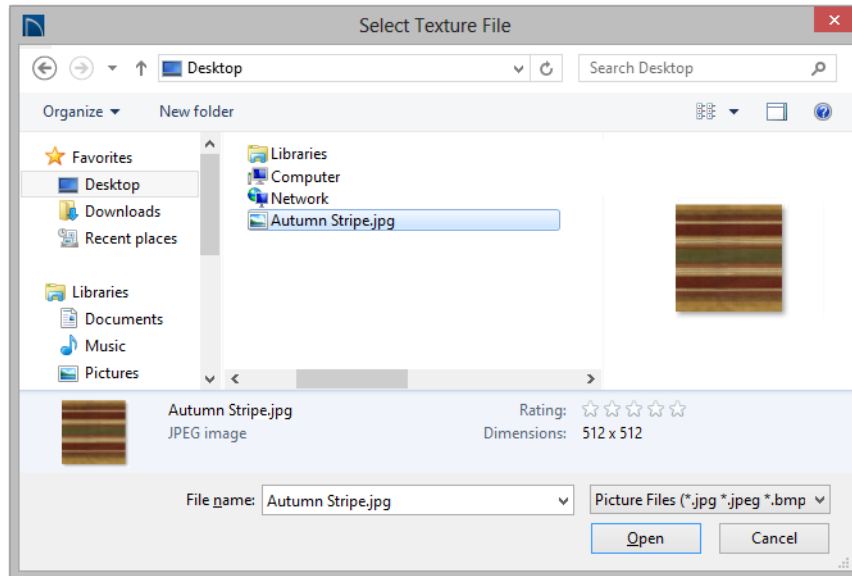
5. Select an image file and click the **Open** button to return to the **Define Material** dialog.
6. Specify the **Scale** of the texture, which controls how large the image will appear on the surfaces it is applied to.
7. Click **OK** to add the new material to the **User Catalog** .

For more information, see "Define Material Dialog" on page 678 of the Reference Manual.

Creating Images

In Home Designer Pro, 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.

To create an image and save it to the library

1. Right-click on the User Catalog folder, then select **New> Image** 🖼 from the contextual menu to open the **Image Specification** dialog. For more information, see "Image Specification Dialog" on page 850 of the Reference Manual.

2. On the Image panel, click the **Browse** button and browse to an image file saved on your computer. Here, an image of a cat that has transparency data associated with it is used; however, you can use any image.
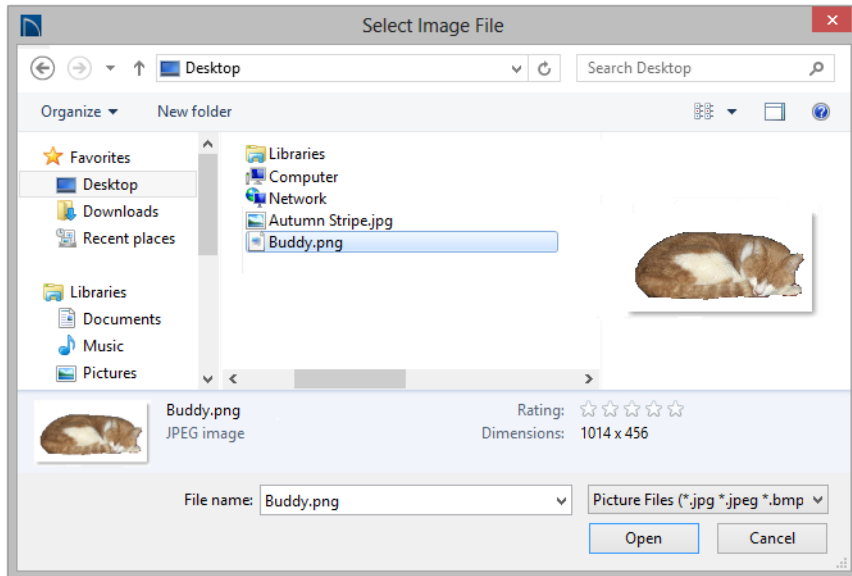
3. Click **Open** to return to the **Image Specification** dialog.
4. On the Image panel, enter the **Height** or **Width**, adjusting one will adjust the other, maintaining the correct proportion. Enter a **Height Above Ground** value to specify the elevation at which the image displays. A value of 24 inches works well in this case as we'll be placing the image on a piece of furniture.
5. Specify the transparency settings on the Transparency panel.
6. Click **OK** to close the **Image Specification** dialog and add the new image to the **My Images** category in the Images library.

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.

Importing Backdrops

Backdrops are images that display behind 3D views. In Home Designer Pro, 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.

142

2. Select the image and click **Open** to add it to the User Catalog.

To apply a backdrop to 3D views

1. Select **3D> 3D View Defaults** 🔲 to open the **3D View Defaults** dialog.
2. On the Backdrop panel, click the **Select Backdrop** button to open the **Select Library Object** dialog.
3. Click the **Select Backdrop** button and in the **Select Library Object** dialog, find and select your new backdrop in the User Catalog and click **OK**.
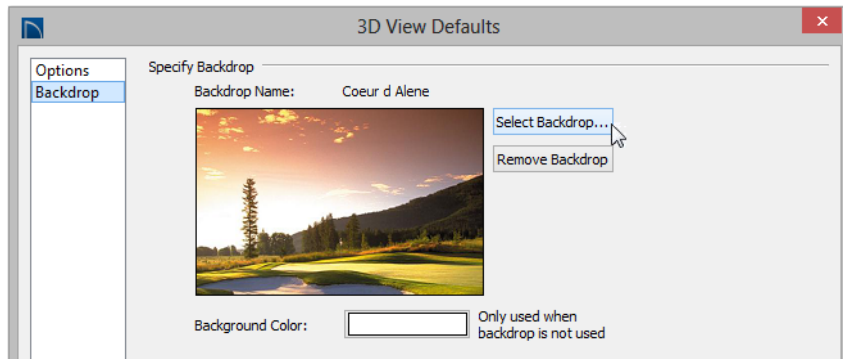
4. Click **OK** to close the **3D View Defaults** dialog.

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 935 of the Reference Manual.

> Note: The Materials List is only a rough cost estimate. Always compare the Materials List with a manual take-off before providing a quote or ordering materials for a project.

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 an item, such as one under the Fixtures category.
3. Click in the "Price" column and type in a value. 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 will give you the opportunity to name and save the Materials List before closing, if you wish.
6. 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 935 of the Reference Manual.

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 an area to display a materials list for the area within the rectangle. The resulting materials list only includes objects and materials located within the rectangle.

Landscaping Tutorial

This tutorial describes how to use Home Designer Pro's Terrain Tools. In it, 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:

*   Creating a Terrain Perimeter
*   Creating a Walkout Basement
*   Creating a Retaining Wall

*   Adding a Driveway
*   Adding Library Objects to Your Plan

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.

Creating a Terrain Perimeter

The Terrain Perimeter is a closed polyline that defines the boundary of the terrain that generates in 3D views, and of the contour lines that generate in floor plan view. It can also be used to represent a lot boundary. See "Terrain Perimeter" on page 568.

To create and resize a terrain perimeter

1. On Floor 1 of your plan, select **Terrain> Create Terrain Perimeter** 🏠 from the menu or click the corresponding toolbar button. See "Toolbar Arrangement" on page 103 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.
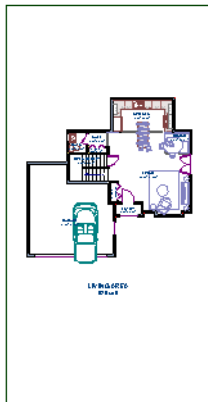
3. Select **View> Temporary Dimensions** ⬚ and make sure temporary dimensions are turned on. When they are enabled, a checkmark displays at the bottom corner of the tool icon.

4. Select the Terrain Perimeter by clicking on either the left or right vertical edges. Notice the temporary dimension indicating that the selected edge of the Terrain Perimeter is 100 feet from the opposite edge.

5. Click on the temporary dimension and enter 150 feet using an apostrophe to denote feet (150'), then press **Enter**. The program will default to inches if no apostrophe is included. For more information about using dimensions to relocate objects, see "Moving Objects Using Dimensions" on page 776 of the Reference Manual.

6. Select the top edge of the Terrain Perimeter and use the temporary dimension to position it 200 feet from the opposite edge using the same technique.

7. Click **Window> Fill Window** to fill the screen with the Terrain Perimeter.
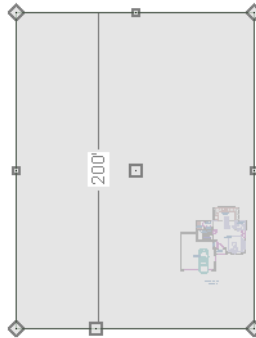
> The Reference Grid, or Virtual Graph Paper, is a visual aid that helps create a sense of scale when drawing. The Reference Grid is turned off for these tutorials but can be turned on or off in the Plan Defaults dialog. See "General Plan Defaults Dialog" on page 67 of the Reference Manual.

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 the Terrain Perimeter and place your pointer over the Move edit handle.

2. Move the Terrain Perimeter so that the house is centered.
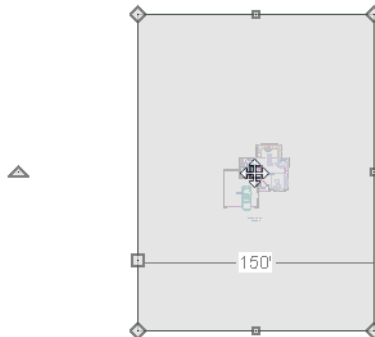
In addition to adjusting the size of your rectangular Terrain Perimeter, you can also use the **Change Line/Arc** ⬆ and **Break Line** ⤬ edit tools to modify its shape.

To edit the shape of the terrain perimeter

1. To place a break on the right segment of the Terrain Perimeter, creating a new corner edit handle at that location, and two separate edges on either side of that handle, use the **Break Line** ⤬ edit tool.
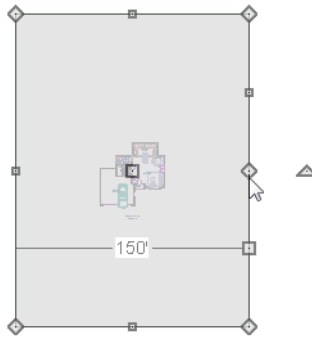
2. You can then use the new edit handles to adjust the size and shape of the Terrain Perimeter. For more information, see "Editing Closed-Polyline Based Objects" on page 150 of the Reference Manual.
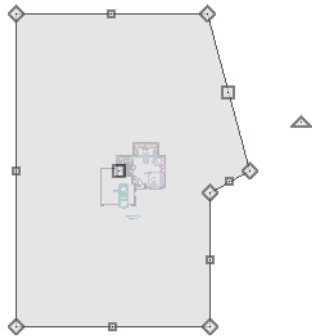
3. Select the bottom edge of the Terrain Perimeter, and click the **Change Line/Arc** ⬆ edit button, and notice that this segment changes in to an Arc, which can then be modified using its edit handles. For more information on modifying arcs, see "Editing Arc Based Objects" on page 142 of the Reference Manual.

4. Changes to the shape of the Terrain Perimeter can be seen in 3D views as well as in floor plan view.

• To tile floor plan view and a camera view, select **Window> Tile Vertically** [icon].
• When a 3D view is active, press the I key or the O key to move the camera In or Out.
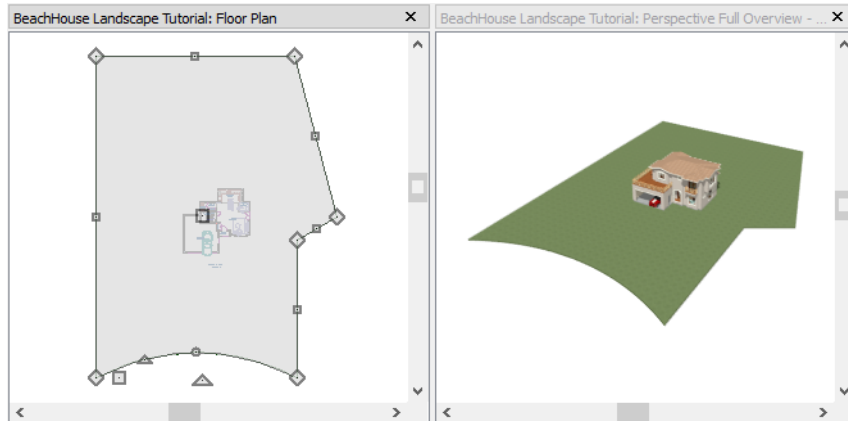
While you can work with two views tiled, you may see slower performance when you do. To avoid this, simply close a 3D view when you are done viewing or working in it.

Displaying Lot Line Information

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

To display bearing information in floor plan view

1. Select the Terrain Perimeter and click the **Open Object** [icon] edit button.

2. On the Line Style panel of the **Terrain Specification** dialog, check **Show Length** and **Show Angle**, then click OK. See "Terrain Specification Dialog" on page 583 of the Reference Manual.

3. Select **Edit> Default Settings** [icon] to open the **Default Settings** dialog, browse to **CAD> General CAD** and click on the Edit button to open the **CAD Defaults** dialog. See "To display bearing information in floor plan view" on page 149.

4. Click the radio button to Display Line Angle as **Quadrant Bearing** and click OK.

5. Click Done to close the **Default Settings** dialog, and move the Terrain Perimeter so that it looks similar to the image below.
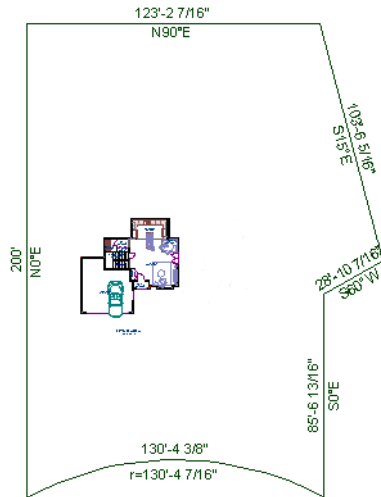
See "Creating a Plot Plan" on page 173 in the CAD Tutorial for information about creating a plot plan using a property's legal description.

Creating a Walkout Basement

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 570 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 104 of the Reference Manual.

To add elevation information to your plan

1. Select **Window> Fill Window** to fill the window with the Terrain Perimeter.

2. Using the **Select Objects** tool, select the Terrain Perimeter and click on the **Open Object** edit button to display the Terrain Specification dialog.

3. On the General panel, make sure **Flatten Pad** and **Auto Calculate Elevation** are unchecked, and change the **Elevation** to 12 inches.
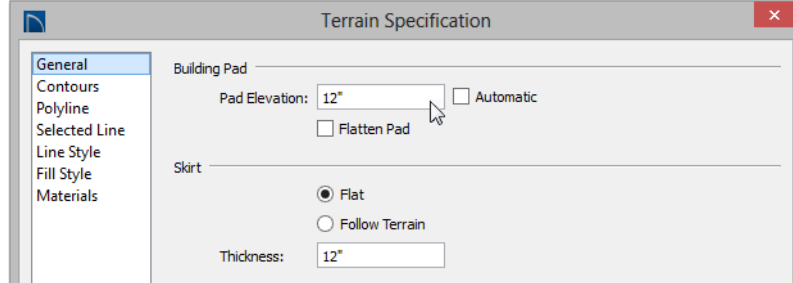
- **Flatten Pad** flattens the building pad around the house. When this is unchecked, the terrain can slope where it intersects the house.
- **Auto Calculate Elevation** places the house at average terrain height. When this is unchecked, the building's height relative to the terrain can be specified.
- The **Elevation** is the distance between the default floor height of Floor 1 and a terrain elevation of 0". In this example, an Elevation of 12 inches is used to lower the terrain 12 inches below the first floor.

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

5. Next, Select **Terrain> Elevation Data> Elevation Line** and draw elevation lines as shown in the following image.

   - When the ends of an Elevation Lines are drawn near one another, they will snap together to form a polyline.
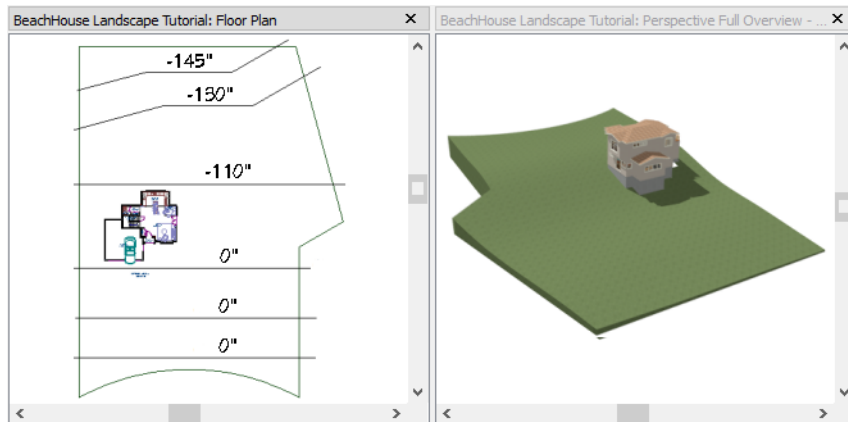
6. To enter elevation information, click the **Select Objects** button and select an Elevation Line.

7. Click the **Open Object** ▯ edit button and on the Elevation panel of the **Elevation Line Specification** dialog, enter an Elevation value.

    • Values entered are in inches unless the foot (') mark is added.

    • Negative values should be preceded with a hyphen (-).

8. Select **Terrain> Build Terrain** ⛰ and notice the contour lines that are created in floor plan view in between the Elevation Lines that you drew.

9. To make it easier to draw, you may want to turn off the display of these lines. Select

    Tools> Display Options ☑ to open the **Layer Display Options** dialog. Remove the check from the Disp column for the layer "Terrain, Primary Contours" and click OK. See "Layer Display Options Dialog" on page 116 of the Reference Manual for more information.

Creating a Retaining Wall

Adding a retaining wall helps create a flat building pad near the garage. For more information see "Retaining Walls" on page 580 of the Reference Manual.

To draw a retaining wall

1. Go to Floor 1.

2. Select **Terrain> Wall and Curb> Straight Retaining Wall** 🧱. Draw two straight wall sections as shown in the following image.
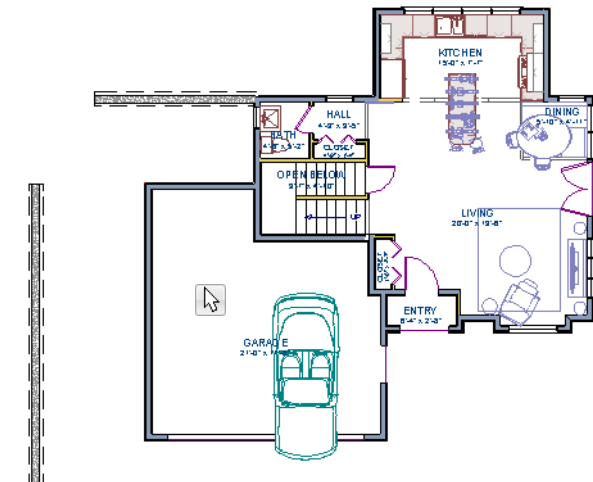
3. Select **Terrain> Wall and Curb> Curved Retaining Wall** and draw a curved retaining wall that connects at both ends to the two straight sections. Don't worry about the angle now: it will be adjusted in a moment.

4. Click the **Select Objects** button, then click and drag the small triangular Reshape edit handle that displays along the curved wall. As you drag this handle, the curved wall's centerpoint and length change.
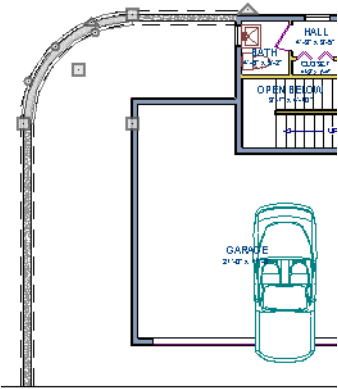
5. Draw two **Elevation Lines** just inside the retaining wall to define the height of this area when terrain is generated. These Elevation Lines can stay at their default height of 0″.
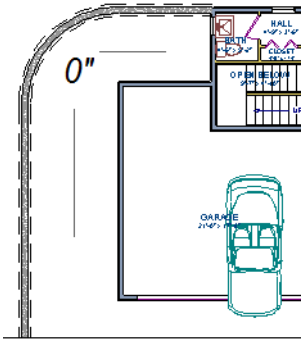
6. Take a look in a **Full Overview** . Your plan should look similar to the image below.

> 💡 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.

Adding a Driveway

A driveway can now be added to the 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. Select **Terrain> Road and Sidewalk> Driveway Area** ⛰ then click and drag to draw a driveway ⛰.

4. Click and drag the Driveway's edit handles to customize its shape as desired. See "Editing Spline Based Objects" on page 156.
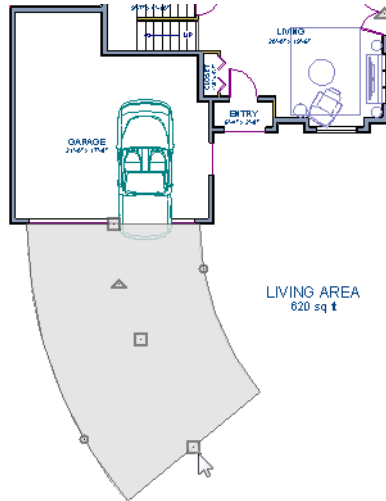
Once drawn, you can edit the driveway's shape using its edit tools.

To edit the driveway's shape

1. Click the **Select Objects** button, then click on the driveway to select it.

2. Click the **Break Line** edit button, then click along any edge of the driveway to place a new corner edit handle at that location. The edge that you clicked on becomes divided into two edges that join at the new handle.

3. Continue adding breaks to create as many edges as you wish. Click the **Select Objects** button when you are finished.

4. With the **Select Objects** tool active, click and drag any of the edit handles that display along the edges of the driveway to adjust its shape and size as needed.

5. If you would like to change a straight edge into a curved edge, click on that edge to select it and click the **Change Line/Arc** edit button.

6. To change a curved edge back into a straight edge, select it and click the **Change Line/Arc** edit button once more.

7. Next, add in a **Terrain> Road> Straight Road** and **Terrain> Sidewalk> Straight Sidewalk** to complete the design.

155
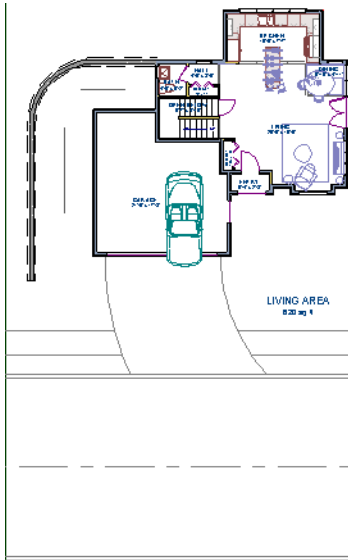
8. Finally, take a look at your plan in a **Full Overview** to see the results. Select **3D> Camera View Options> Final View** to smooth surface edges and improve the quality of the view.

Adding Terrain Features

A beach, a water line, and a pathway to the house can be created using Terrain Features. For more information, see "Terrain Feature Tools" on page 576 of the Reference Manual.

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> Rectangular Feature** 🔲 and draw a Terrain Feature that extends to the boundaries of the Terrain Perimeter.
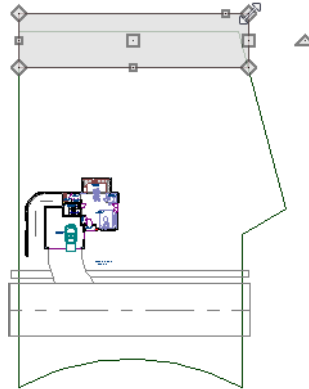
4. Select the Terrain Feature and the **Open Object** 🔲 edit button to open the **Terrain Feature Specification dialog**.

   • On the General panel, the **Height** should be at 0 inches.

   • On the Materials panel, select the Terrain Feature component in the tree list and click the **Library Material** button and assign a sand material from the landscaping materials folder.

      • 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. With the Terrain Feature still selected, use the **Break Line** ✂ edit tool to place two breaks in the front of the rectangular feature.

6. Next, select one of the segments you have created, and click the **Change Line/Arc** ⬆ edit tool, and use the triangular edit handle to adjust the shape of the curved segment, and

157

repeat this procedure for the remaining front segments of the Terrain Feature, as in the image below.
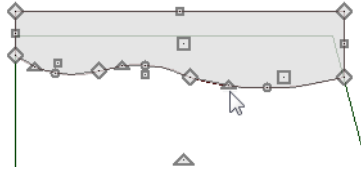
7. Take a look at the new beach in a **Perspective Full Overview** 🔲. Notice that only the portion of the Terrain Feature that is included within the Terrain Perimeter is modeled.

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 beach Terrain Feature and resize it similar to the following image:
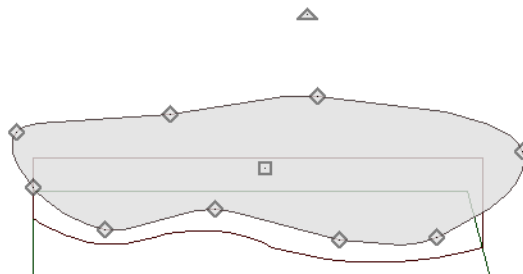
2. Select the pond and click the **Open Object** 🔲 edit button. On the General panel of the **Terrain Feature Specification** dialog, raise the **Height** to 1 inch. This will position the water material above the beach.

3. Click OK and take a look in a **Perspective Full Overview** .

4. Using the techniques described above, you can create nearly any type of landscaping features that you might want.
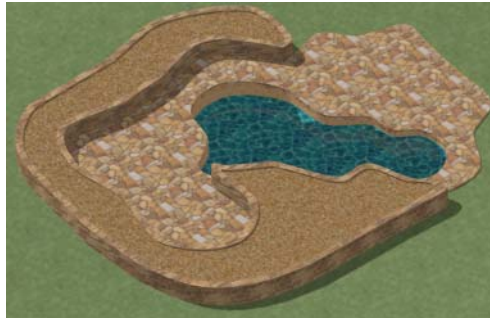
To use an Elevation Region

An Elevation Region contains absolute elevation data for an enclosed region and is ideal for creating a flat surface in your terrain.

1. Select **Terrain> Elevation Data> Elevation Region** , then click and drag to draw a rectangular region to the right of the structure in front of the door.
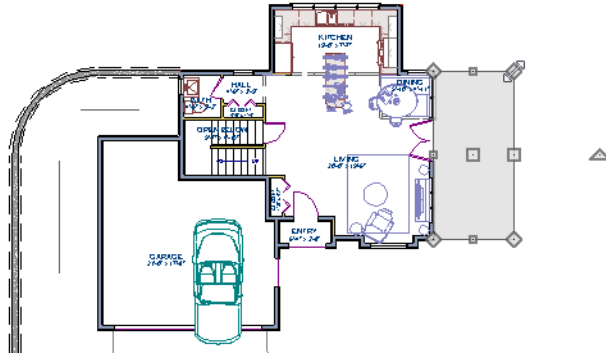
2. Select the Elevation Region and click the **Open Object** 🚪 edit button. On the Elevation panel of the **Elevation Region Specification** dialog, enter an **Elevation** of -8" and click OK.

3. Create a **Perspective Full Overview** 📦 to see the changes that this makes to the terrain.

4. Return to floor plan view and select **Build> Stairs> Click Stairs** 🪜, then click outside of the doorway to create a set of stairs from the door down to the newly created Elevation Region.

160
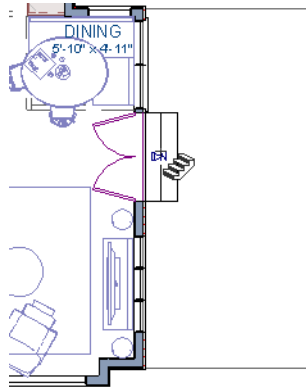
A typical walkout basement has an upper flat region where you enter the house on the first floor, and a lower flat region where you walk out to ground level from the basement. You can create the lower flat region by replacing the Elevation Line at that location with an Elevation Region that has the same Elevation value of -110".
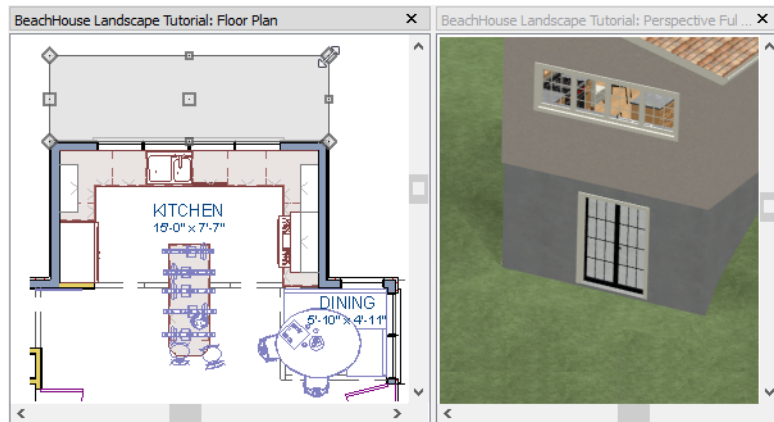
Adding Library Objects to Your Plan

The library contains many objects that can be added to a landscaping plan such as plant images, exterior fixtures, and outdoor furniture. 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 639 of the Reference Manual.

To browse the Plants library category

1. If the Library Browser is not open, select **View> Library Browser** to open it.

2. In the Core Catalogs, browse to Plants> Trees> Deciduous.

3. Note the many tree species to choose from. Many of these folders contain 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. On the Plant Information panel, enter "palm" in the **Common Names** field, and click the **Search** button to see the search results on the right.
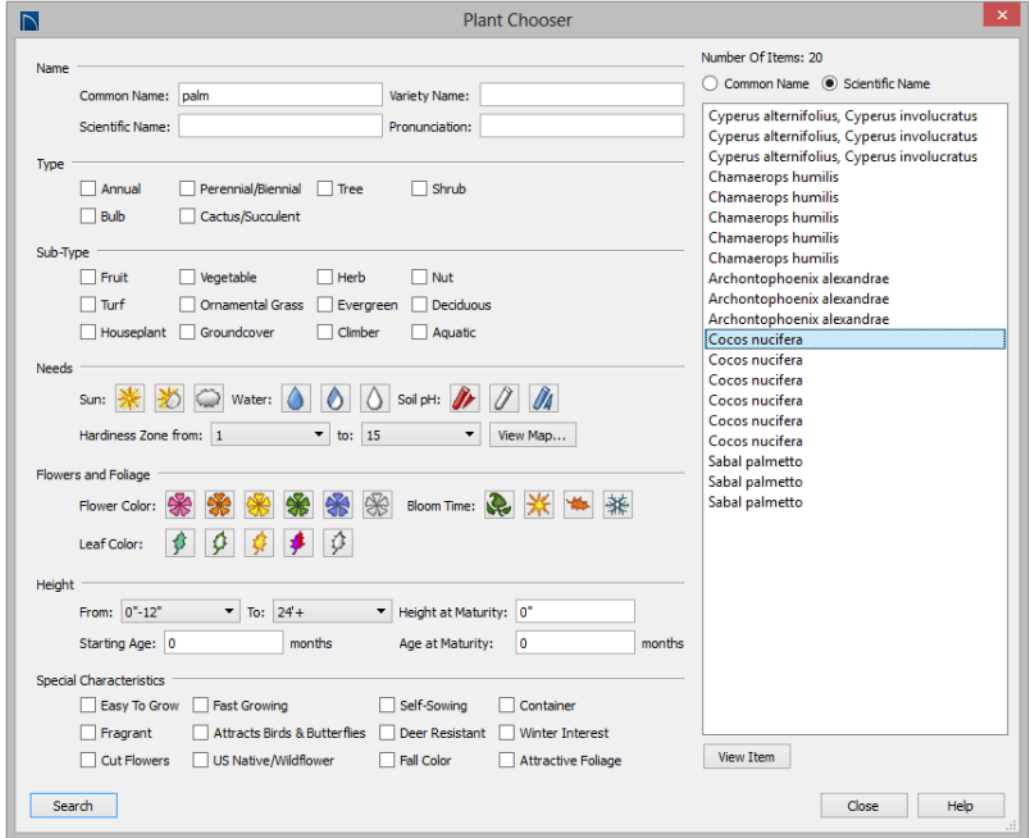
3. Select a Cocos nucifera from the search results. and click the **Close** button. This locates and selects this plant in the Library Browser for placement.

    • Click the View Item button to open the Plant Information dialog, where you can read size and growing information about the selected plant.
    • Click the **Close** button to close the dialog and select the plant in Library Browser for placement.

4. 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.

5. Once you have placed a grouping of plants, hold down the Shift key on your keyboard and drag a marquee around the plant objects and click the **Make Architectural Block** 🔲 edit tool to block these items together.

6. Repeat this process for any additional plants that you want to place in your design.
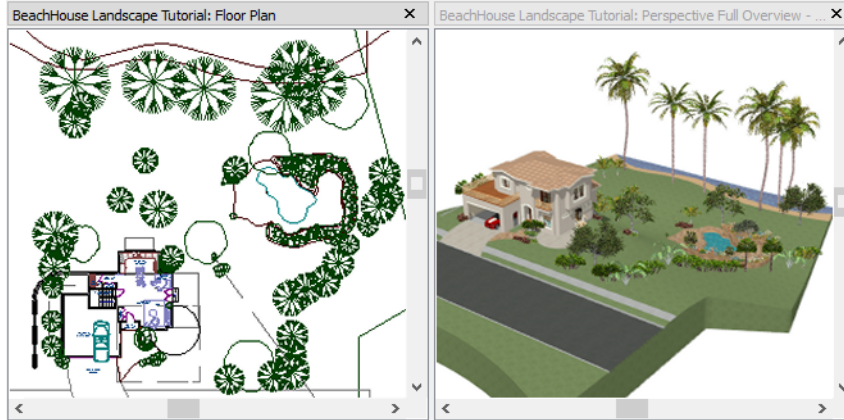
Finishing Touches

1. In the Library Browser 📚, expand the Core Catalogs.

2. The Exteriors catalog contains a selection of landscaping, deck and patio accessories, outdoor furniture, and other objects that you can place in your plan.

3. Additional objects, such as Fencing, Sprinkler Heads, exterior fixtures, and other objects such as rocks can also be added to customize your landscaping design.

4. Once you have completed adding items to your landscaping design, create a **Perspective Full Camera** 📷 view to see the results.

Deck Tutorial

The Deck Tutorial continues where the Landscaping Tutorial left off, and explains how to create a deck off the back of the house and connect it to the terrain 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:

• Decks and Porches	• Changing Planking Orientation
• Drawing Decks	• Adding Exterior Furniture
• Drawing Stairs	

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** 🪵 **t**ool, the room is automatically assigned the exterior room type of Deck. For more information, see "Room Types" on page 248 of the Reference Manual.

Drawing Decks

Railings and Deck Railings are drawn just like walls. For more information, see "Railing and Deck Tools" on page 193 of the Reference Manual.

To draw a deck

1. In floor plan view, select **Tools> Display Options** ☑ and click in the Disp to remove the checkmark for both the "Terrain, Elevation Data" and "Plants" layers and click **OK**.

2. Make sure **Angle Snaps** 🖉 and **Object Snaps** 🗗 are turned on.

3. Go to Floor 0 and **Zoom** 🔍 in on the back portion of the house.

4. Select **Build> Railing and Deck> Straight Deck Railing** 🖼.

5. Draw five Deck Railings as shown in the following image. The angled railings are drawn at a 45° angle to the others. For more information, see "Drawing Walls" on page 27.

   • The Status Bar at the bottom of the program window will state a wall's length and angle as it is being drawn.

   • Notice that when a room is created using Deck Railing 🖼, the room is automatically specified as a Deck and given a room label.
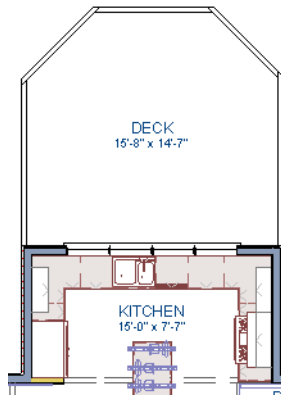
6. Click the **Select Objects** 🔍 button, then click in the Deck room to select it.

7. Click the **Open Object** 🗋 edit button to open the **Room Specification** dialog:

   • On the Structure panel, note that by default, Roof Over This Room and Ceiling Over This Room are unchecked for Deck rooms. You can select these options if you would like; however, for this tutorial they will remain unchecked.

8. Create a **Full Camera** 📷 view showing the first floor deck and notice that the program automatically generated planking, posts, and beams.

Drawing Stairs

A set of stairs can now be drawn to connect the deck to the terrain. For more information, see "Stairs, Ramps, and Landings" on page 421 of the Reference Manual

To draw deck stairs to the terrain

1. Select **Window> Tile Vertically** to see a side by side of both the 2D and 3D views.

2. In the floor plan view, and on Floor 0, select **Build> Stairs> Click Stairs** .

3. Click just to the outside of the deck platform, as shown in the following image:
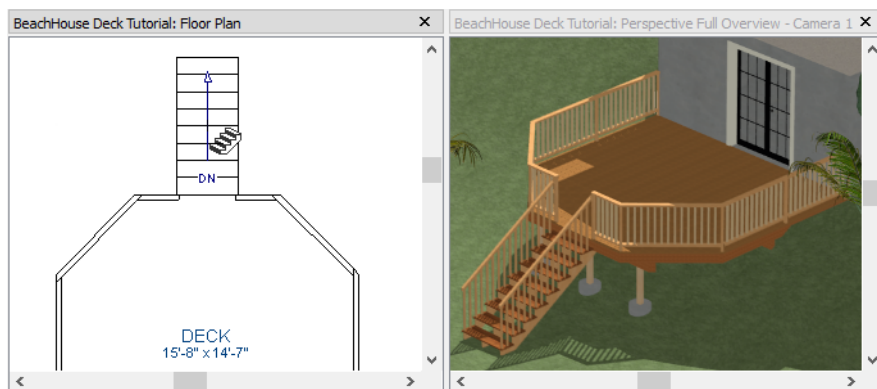
4. In most cases when using the **Click Stairs** tool, an opening will be added automatically to the deck railing at the top of a staircase.

5. 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.

Changing Planking Orientation

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

To create angled deck planking

1. Click the **Select Objects** �... button, then click in the Deck room in floor plan view to select it.

2. Click the **Open Object** ... edit button.

3. On the Deck panel of the **Room Specification** dialog:
    • Uncheck the **Automatic** checkbox next to **Plank Direction**, and then change the **Plank Direction** to 45° and click **OK**.
    • For more information about the settings on this panel, see "Deck Panel" on page 266 of the Reference Manual.

4. If you would like, you can also turn on the display of the deck planking in floor plan view.

    To do this, select **Tools> Display Options** ... and turn on the display of the "Framing, Deck Planking" layer.
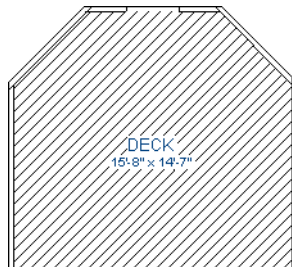
5. When deck planking is displayed in floor plan view and you wish to select the Deck room, you will most likely select a plank instead. When this happens, click the **Select Next**

    Object ... edit button or press the Tab key until the room is selected.

Adding Exterior Furniture

A selection of exterior furnishings is available in the Library Browser and can be accessed either by browsing or using the Search feature. For more information, see "The Library Browser" on page 640 of the Reference Manual.

To add furniture to the deck

1. Select **View> Library Browser** 📘 to open the Library Browser side window.

2. Browse to Home Designer Pro Core Catalogs> Exterior> Outdoor Living> Outdoor Furniture and select a chair for placement. In this example, a Wicker Dining Chair from the Furniture Sets folder is selected.
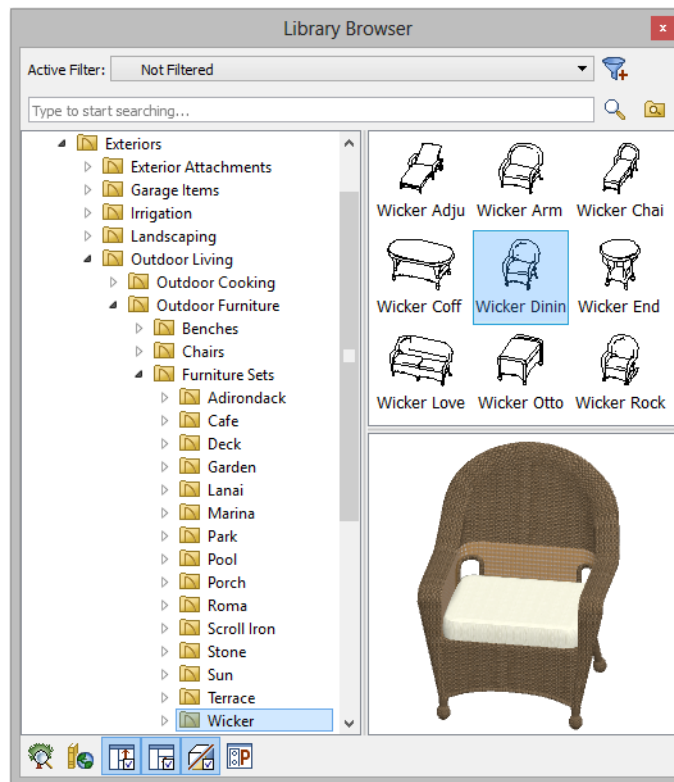
3. In floor plan view or a 3D view, click on the deck to place a chair symbol. You can continue clicking to place more chairs.

4. Use the Library Search to find an outdoor grill, select it for placement, and place it on the deck.

5. Next, add some exterior lighting and any other desired exterior elements to your deck design.

6. Finally, create a **Full Camera** view to see the results.

Creating a Plot Plan

In this tutorial you'll learn about:

• Creating a Plot Plan

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.

To create a plot plan polyline

1. Open a new Home Designer Pro plan. Select **CAD> Points> Input Point** to open the **New CAD Point** dialog. See "Input Point" on page 814 of the Reference Manual.
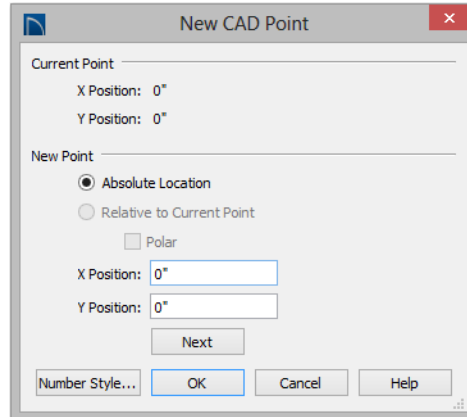
2. Select **Absolute Location** and define the point's position at (0,0) and click **OK**. This is the current point that serves as the Start Point for the first line of the plot plan. See "Point Tools" on page 814 of the Reference Manual.

3. Select **CAD> Lines> North Pointer** , then click and drag to create a North Pointer. For more information on this tool, see "North Pointer" on page 740 of the Reference Manual.

4. Select **CAD> Lines> Input Line** to open the **New CAD Line** dialog. Notice that the Start Point is at (0,0): the location of the Current CAD Point. See "Input Line" on page 818 of the Reference Manual.

5. Click the **Num Style** button and in the **Number Style/Angle Style** dialog:
    -   Select **Decimal Feet** for the **Number Style**;
    -   Select **Quadrant Bearing** for the **Angle Style**. See "Dialog Number/Angle Style Dialog" on page 100 of the Reference Manual.

6. Click **OK** to return to the **New CAD Line** dialog

7. Select **Relative to Start Point** and check the box beside **Polar**.

8. 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. To enter an angle using Quadrant Bearings, type:
    -   The primary direction (N or S), followed by a space; then,
    -   The angle in degrees, minutes, and seconds with a space after each value; then,

• The secondary direction (E or W).
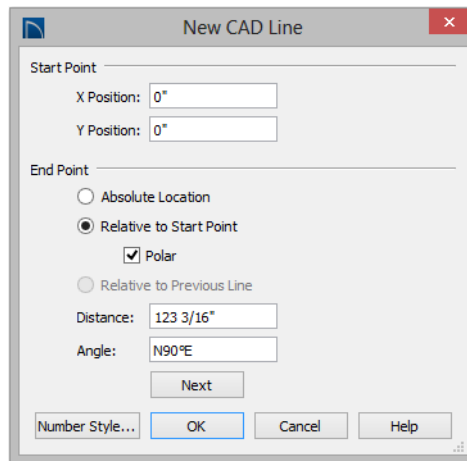
9. Click **Next** and enter the **Distance** and **Angle** of the next property line.

10. Continue until all property lines are entered, then click **OK** to close the **New CAD Line** dialog. The resulting polyline should be closed, with the end point of the last line the same as the start point of the first.

> Note: The angle of a given line can be described differently depending on which end is used as the start point. Some property descriptions proceed in the same direction around the perimeter, whereas some do not.

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 **Polyline Specification** dialog.

4.   On the Selected Arc panel, 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 826 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 Quadrant 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 panel of the **Polyline Specification** dialog, check **Show Length**, **Show Angle**, and **All Angles**.
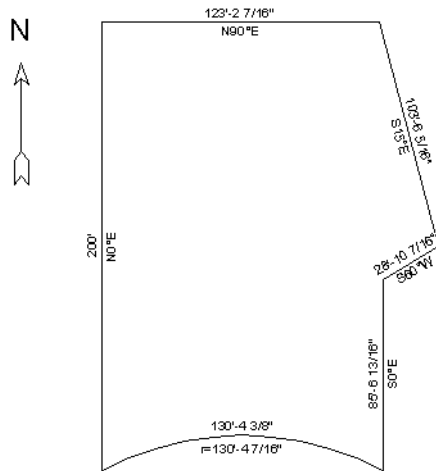
To create setback lines

1. Select **Edit> Preferences** 🔲, and on the Behaviors panel of the **Preferences** dialog, select the **Concentric** Edit Mode. See "Behaviors Panel" on page 87 of the Reference Manual.

2. In the **Jump** field, type in the required setback distance, 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 panel, select a dashed line style from the drop-down list, uncheck **Show Length** and **Show Angle**, then click **OK**.
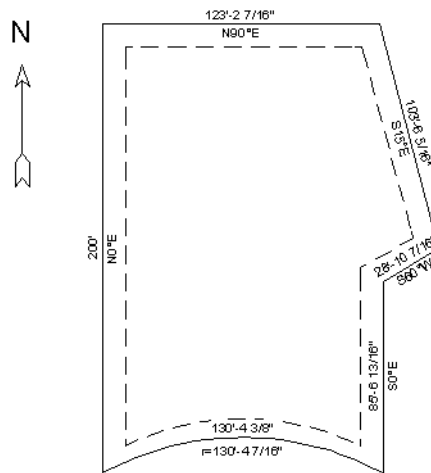
7. When you have finished creating your concentric copy, select **Edit> Edit Behaviors> Default** 🔲 to restore the default edit behavior.

To convert to a terrain perimeter

1. Select the plot plan polyline and click the **Convert Polyline** 🔲 edit button. See "Convert Polyline" on page 177 of the Reference Manual.

2. In the **Convert Polyline** dialog, select **Convert To: Terrain Perimeter**, then click **OK**.
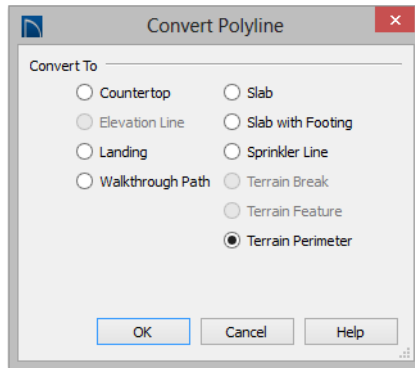
> 💡 If Terrain Perimeter is greyed out as an option, then a Terrain Perimeter already exists in your floor plan which you will need to locate and delete before you can convert the polyline.

3. Make any needed changes in the **Terrain Specification** dialog and click **OK**. See "Terrain Specification Dialog" on page 583 of the Reference Manual.

To accurately position a building

1. Select **CAD> Point> Place Point** ✕, and then click at a reference point along the perimeter of the building, such as at a corner.
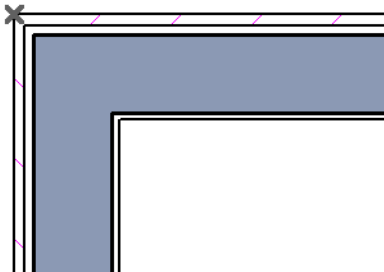
2. Select **CAD> Points> Input Point** 🖾 to open the **New CAD Point** dialog.
   • Select **Relative to Current Point**;
   • Using the **X Position** and **Y Position** fields, specify the distance that a known point on the property line should be from the Current CAD Point on the building perimeter.

Unless you want to specify the location in distance and bearing, **Polar (CCW from horz)** should remain unchecked.

- Unless you want to specify the location in distance and bearing, **Polar (CCW from horz)** should remain unchecked.

3.   When you click **OK**, a point is created at the specified location. Use this point as a reference to accurately position the Terrain Perimeter polyline.

Layout Tutorial

This tutorial will explain how create a layout template, send views to a layout page, then save the 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 Perspective Views to Layout
- Printing to PDF

Getting Started

Chief Architect uses two file types: plans and layouts. Plan files (.plan) are used to design a 3D model of a structure, while layout files (.layout) are used to arrange views of that model on a sheet along with text, callouts and other annotation to produce professional quality construction documents. For complete information about layouts, see "Layout" on page 911 of the Reference Manual.

The previous tutorials explore aspects of creating a 3D model in a plan file. This tutorial will describe how to create a layout file and arrange views of the model - including floor plans, cross section/elevations, presentation views - on the layout page.

Creating a Layout Template

Template files save default, layer, and print 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.

1. Set up your Drawing Sheet and create a title block and border. See "Creating a Border and Title Block" on page 183.

2. Select **Tools> Layer 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 912 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 page. Click OK when you are finished.
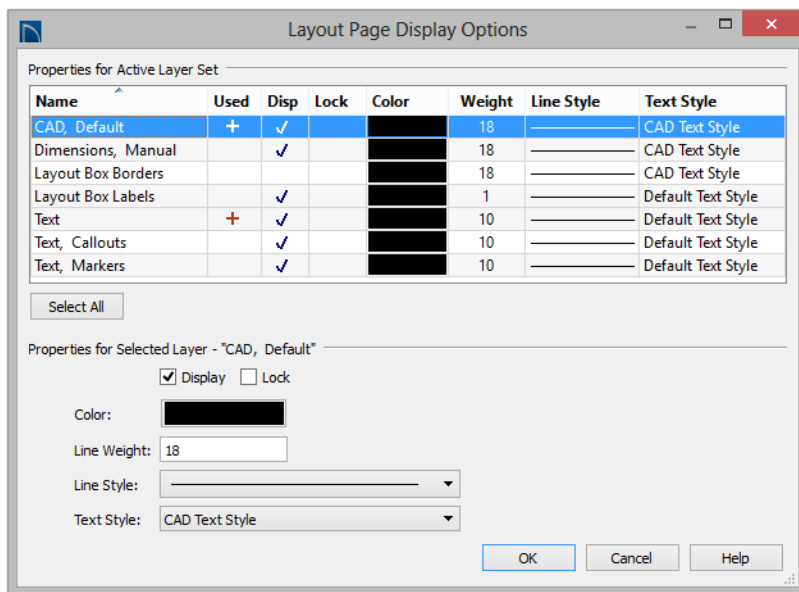
3. Select **Edit> Default Settings** 🔧 from the menu to open the **Default Settings** dialog. Make any changes to the Text, CAD and General Layout Defaults that you may need. See "Preferences and Default Settings" on page 63 of the Reference Manual.

4. Save your new layout template with a short, descriptive name such as "My 18 x 24 Template".

182

To use a custom layout template

1. Select **File> Open Layout** and browse to your custom layout template file.

2. When the new layout file is open, select **File> Save As** . In the **Save Plan File** dialog:
    *   Click the **Save in** drop-down and browse to the folder where the plan that you intend to send views to the layout is saved.
    *   Type a short, descriptive **File name** for the layout page.
    *   Click **Save**.

3. You are now ready to send views from a plan file to this layout.

Creating a Border and Title Block

Before sending views to layout, it is recommended that you set up your drawing sheet and then use the CAD, Text, and editing tools to create a border and title block for your layout page. For information about the Drawing Sheet, see "Drawing Sheet" on page 897 of the Reference Manual.

To set up the layout sheet

1.   Select **File> Print> Drawing Sheet Setup** 🔲 to open the **Drawing Sheet Setup** dialog.
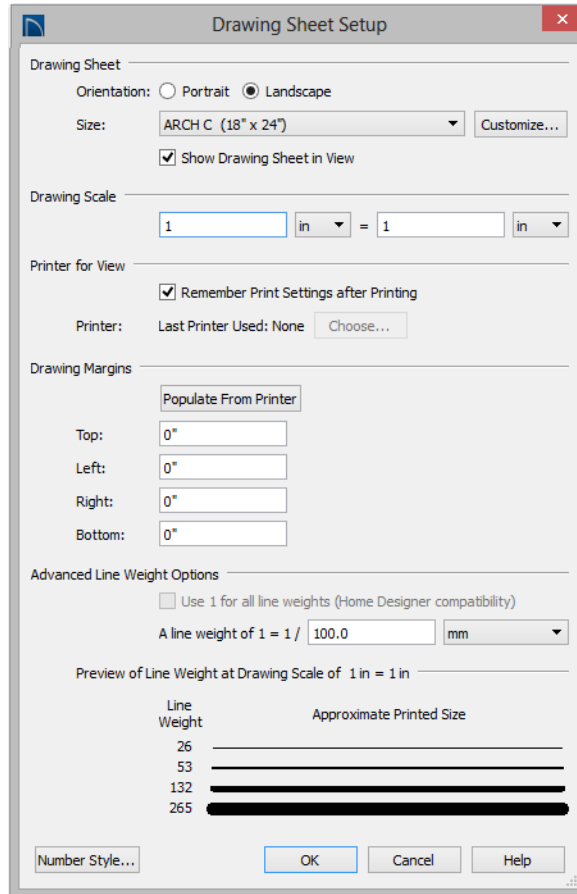
2.   Specify the **Orientation** and **Size** of the **Drawing Sheet**.
3.   The **Drawing Scale** for layout files should always be 1 in = 1 in (1 mm = 1 mm in metric files). For more information, see "Drawing Sheet Setup Dialog" on page 893 of the Reference Manual.
4.   You can also specify the drawing sheet's **Margins** if you want.
5.   Click **OK** when you are finished.
6.   Select **Window> Fill Window** 🔲 so that you can see the entire drawing sheet.

7. Select **File> Save** 🖫.

The layout template files that are installed with Home Designer Pro have a title block and border already drawn in them. You can use these as they are, modify them to suit your needs, or delete them and create your own.

To create a ne w layout border

1. Select **View> Drawing Sheet** ⊠ to turn off the display of the Drawing Sheet. This will prevent the Drawing Sheet from being selected when the title block and border are group-selected.

2. Select **Edit> Select All** to select all of the objects in the view as a group.

3. Select **Edit> Delete** ⊠, click the **Delete** ⊠ edit button, or press the Delete key on your keyboard to delete the entire title block and border.

4. Select **View> Drawing Sheet** ⊠ to turn the display of the Drawing Sheet back on.

5. Make sure that **Object Snaps** 🗗 are enabled, particular **Endpoint** ☐ snaps.

6. Select **Edit> Preferences** 🗗, then go to the Behaviors panel of the **Preferences** dialog. For more information, see "Behaviors Panel" on page 87 of the Reference Manual.
   • Under the **Edit Type** heading, select **Concentric**.
   • Specify the **Jump** value as the distance you would like your border to be drawn from the edge of the drawing sheet.
   • In this example, 1/2" is used.

7. Select **CAD> Boxes**> **Rectangular Polyline** 🖻, then click and drag a rectangle beginning at one corner of the drawing sheet and ending at the opposite corner.
   • Watch for the red snap indicators that will display at each corner when Endpoint snaps are enabled.

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

9. You can create a double border in a similar manner. With the polyline still selected:
   • Click the **Copy/Paste** 🗗 edit button.
   • Click and drag one of the corner edit handles towards the center. A concentric copy of the polyline is made when you reach the **Concentric Jump** distance.

10. When you are finished concentrically resizing and copying your border objects, it is a good idea to restore the **Default Edit Type**. To do this, select **Edit> Edit Behaviors> Default** 🗗.

You can adjust the line weight, style and color for any CAD object in its specification dialog. See "Line Style Panel" on page 822 of the Reference Manual.

To create filleted corners

1. Select one of the rectangular polylines and double-click the **Fillet Two Lines** [icon] 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** [icon] edit button and then select an adjacent side. The two lines fillet where they meet.

4. Repeat step 3 until all corners are filleted.

To create a new title block

1. Select **CAD> Boxes> Rectangular Polyline** [icon], then click at the bottom right corner of the border and drag up and to the left to create a rectangular polyline.

2. Select the new polyline and use Temporary Dimensions to resize it. In this example, a polyline 3/4" high and 1 1/2" wide is created.

3. With the polyline still selected, press the Left arrow key twice to Nudge the polyline to the left. Press the Up arrow key twice to Nudge it upward.

   • When an object is selected, you can use the arrow keys to Nudge it in any direction.
   • The Nudge distance is equal to the file's Grid Snap Unit, which is 1/8" by default in Imperial layout files.

4. If you would like, use the **Fillet Two Lines** [icon] edit tool to curve the polyline's corners, as described above.

   • You may want to adjust the **Fillet Radius** to a smaller value before doing so.

5. With the polyline still selected, click the **Copy/Paste** [icon] edit button, then:

   • Click and drag its Move edit handle straight upward.
   • When you release the mouse button, a copy of the original polyline is created directly above the first.

6. Use Temporary Dimensions to position the new polyline relative to the original.

7. Use Temporary Dimensions or the new polyline's edit handles to adjust the its height.

8. Select **CAD> Text> Rich Text** [icon], then click to open the **Rich Text Specification** dialog:

   • On the Text panel, type the word "SHEET:".
   • Click **OK** to close the dialog and create the text at the object where clicked.

9. Select the new text object and drag it into the second to bottom Title Block box.

10. If necessary, click the **Open Object** 🚪 edit button and adjust the text's size. See "Resizing Text" on page 797 of the Reference Manual.

Repeat these steps to produce a title block with all of the information that you require. A company logo can be added to the title block by importing and embedding an image. For more information, see "Importing Pictures" on page 854 of the Reference Manual.

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 45 of the Reference Manual and "Managing Layout Links" on page 921 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> Layer 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. Select **File> Print> Drawing Sheet Setup** and make sure that your **Drawing Scale** is correct in the **Drawing Sheet Setup** dialog. This will be the scale of the view once it is sent to layout.

> The information in the Drawing Sheet 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 file. When you open it in a cross section view window, its settings apply only to the current view.

6. Select **File> Send to Layout** to open the **Send to Layout** dialog.
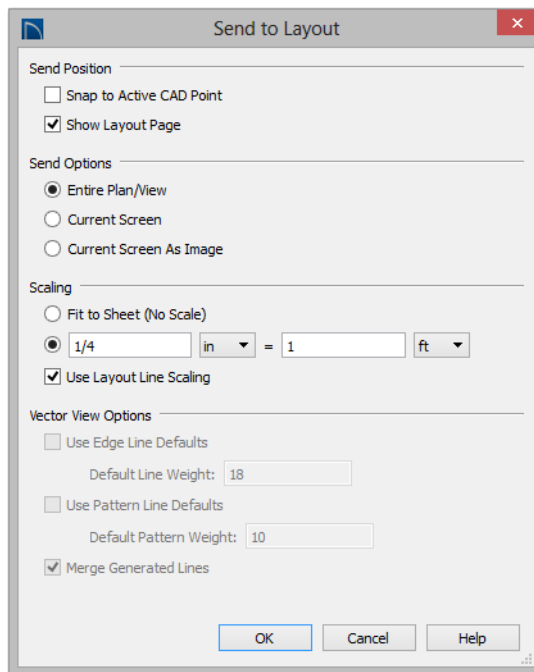
- Under **Send Position**, leave **Show Layout Page** checked so that when you click **OK**, the layout window will become active.
- Under **Send Options**, select **Entire Plan/View**.
- Confirm that the view is being sent to layout using the same **Scale** as in the **Drawing Sheet Setup** dialog.

7.   Click **OK** to send the view to layout.
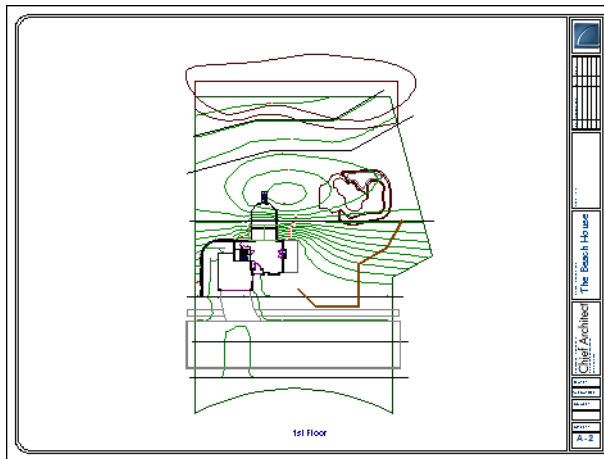
8.   Once sent to layout, the view can be selected and moved using its edit handles or edit buttons, and its edges can be edited like a CAD box. See "Editing Box-Based Objects" on page 154 of the Reference Manual.

9.   Select **Window> Select Next Tab** or press Ctrl + Tab to return to floor plan view.

> It is important to switch from the Plot Plan Set so that you do not make unwanted changes to the 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 side elevation view. See "Cross Section/Elevation Views" on page 710 of the Reference Manual.

189

2. You may want to **Zoom** 🔍 in on the house.
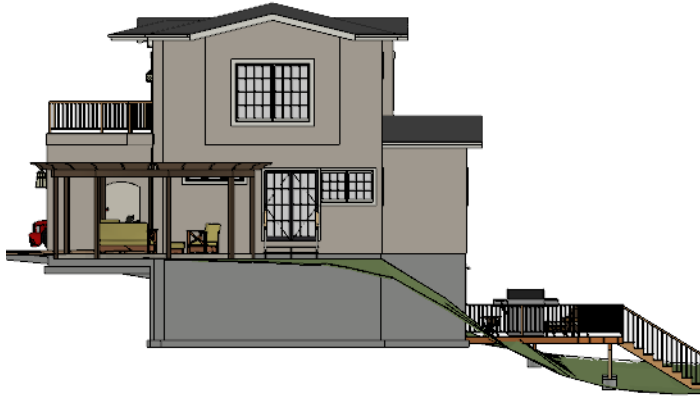
3. Use the CAD and Text tools to add any annotations that the view might require, such as roof heights, pitches, material specifications, or other notes.

4. Select **3D> Save Active Camera** 📷 so that the camera and your annotations are retained. See "Saving and Printing 3D Views" on page 724 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 "Exterior Elevation - Right".

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

7. Select **File> Send to Layout** 🖥 to open the **Send to Layout** dialog.
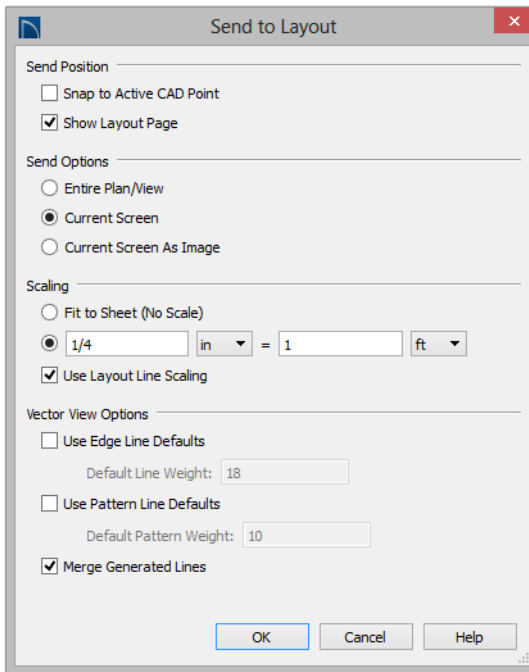
- Under **Send Position**, leave **Show Layout Page** checked so that when you click **OK**, the layout window will become active.
- Under **Send Options**, select **Current Screen**.
- Confirm that the view is being sent to layout using the same **Scale** as in the **Drawing Sheet Setup** dialog.
- When Orthogonal Views such as 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 915 of the Reference Manual.

8. Click OK.
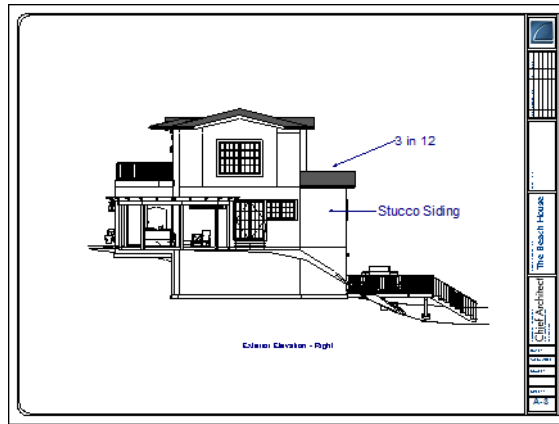
9. Return to the elevation view, then select **File> Close** to close the view. In the **Update View to Layout** dialog, click OK. If you had made changes in the elevation view, clicking OK would update those changes to the layout view. In this case, no changes were made, so it doesn't matter.

10. Return to floor plan view. A camera symbol now displays, indicating the position of your saved elevation camera.

11. Repeat this process for any additional desired elevation views. If sending more than one elevation view to the same page, keep in mind that the elevation views will need to be selected and repositioned so that they are not stacked on top of one another on the page.

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 719 of the Reference Manual.

4. Select **3D> Camera View Options> Final View** to redraw the view at a higher quality according to your settings in the **Preferences** dialog. See "Previews vs Final Views" on page 733 of the Reference Manual

5. Select **File> Send to Layout** ⊞ to open the **Send to Layout** dialog. When perspective
    views are sent to layout, the options are limited because these views are sent as static
    images rather than dynamic views.
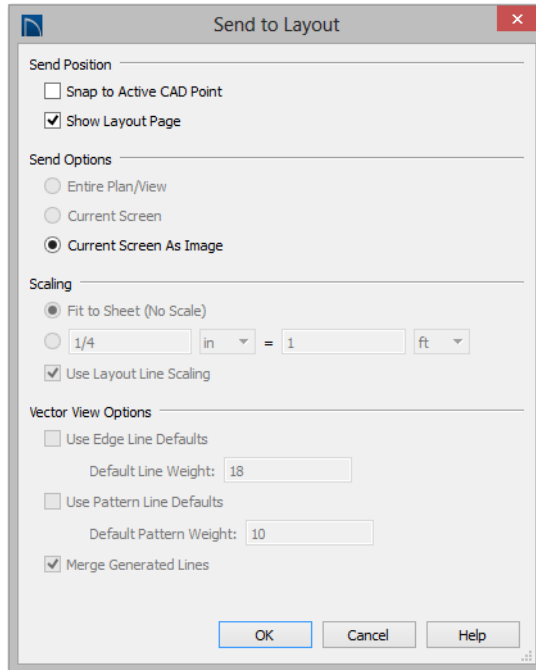
6. Click the **Select Objects** ⬚ button, then click on the view to select it.
    • Notice that in the Status Bar, it is described as a Picture File Box rather than a Layout
      Box.
7. Use the box's edit handles to resize and crop the image as needed:
    • Click and drag a corner Resize handle to change the size of the picture box while
      maintaining its aspect ratio.
    • Click and drag a side Reshape handle to crop the extents of the picture within the box.
    • For more information about editing picture boxes, see "Editing Pictures, Metafiles,
      and PDF Boxes" on page 862 of the Reference Manual.

Repeat this process for any other camera views you may want to send to layout.

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.

Home Designer Pro has a built-in PDF writer, which you can select as your printer in any of the program's Print dialogs. Alternatively, you can print to PDF using a PDF writer installed on your computer. For more information, see "Printing to a PDF File" on page 900 of the Reference Manual.

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Index

Numerics

C

E

F

G

H

I

L

M