



Quick Start Tutorial

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Quick Start Tutorial

Introduction

Welcome to Cadsoft Envisioneer, a quick and easy modeling tool that helps you create home plans smoothly and efficiently, with the added flexibility of 3D viewing, rendering and estimating.

You can use this all-in-one design system for:

- Floor plans
- Interior design
- Exterior design
- Landscaping
- Elevations and Sections
- 3D Navigation
- Working Drawings
- Animations
- 3D RealView™ Rendering
- Estimates and Quotes

Since most of the features in Envisioneer are automated, it is very easy to learn and use. You can complete most tasks with a few clicks of the mouse. And with the built-in power of Cadsoft's advanced design technology, you can count on fast, accurate, professional-level drawings.

About this Guide

CONTENTS

This guide can be used with both *Building Essentials* and *Construction Suite*.

It is designed to get you up and running as quickly as possible. You'll start off with a brief tour of the interface. Next, the step-by-step tutorial shows you how to create a 3D model as well as landscaping, 3D viewing, rendering, quantity reports, construction documents, and more. For more information on each of the tools used, see the *Program Help* on the Help menu.

TUTORIAL AIDS

To clarify point and element selections, the tutorial includes diagrams and screen captures throughout. In diagrams containing multiple selection points, the points have been enhanced to aid in selection. For example,

○  Indicates the **first point** to be selected.

x  Indicates the **second point** to be selected.

System Requirements

Your user account should be set to Computer Administrator (not Limited) to install the program. Prior to installing, make sure your system meets the requirements listed below.

FOR MICROSOFT WINDOWS

- Microsoft® Windows® 10, 8, 7, or Vista
- 64-bit operating system (32-bit also available)
- 2.0 GHz or faster processor
- 6 GB RAM (4 GB minimum)*
- 10 GB minimum free hard disk space
- DVD-ROM drive or Internet connection for install
- 1024 x 768 display
- 2 GB dedicated video card (1 GB minimum)*
- Windows-compatible mouse
- An Internet browser to view the online help
- Internet connection for online features**

VR SYSTEM REQUIREMENTS

HTC Vive

- Graphics Card: GeForce GTX 970 or AMD Radeon R9 290 or better
- CPU: Intel Core i5 4590 or AMD FX 8350 or greater
- RAM: 4GB or more
- Video port: HDMI 1.4, DisplayPort 1.2, or better
- USB port: 1 USB 2.0 or faster port

- Windows 7 SP1 or newer

For current recommendations and performance testing tools, go to <http://www.htcvive.com/us/product-optimized/>.

Oculus Rift

- Graphics Card: GeForce GTX 970 or AMD Radeon R9 290 or better
- CPU: Intel Core i5 4590 or greater
- RAM: 8GB or more
- Video port: HDMI 1.3
- USB port: 2 USB 3.0 ports
- Windows 7 SP1 or newer

For current system requirements and a compatibility testing tool, go to <https://support.oculus.com/1633938460220125/>.

*Additional system and video memory will improve speed and 3D RealView™ rendering capabilities.

**User is responsible for all Internet access fees and phone charges.

FOR APPLE MACINTOSH

Boot Camp Option (recommended)

- Boot Camp
- Mac Book Pro or Mac Pro running Leopard OS X or newer with Microsoft® Windows® 10, 8, 7, or Vista (SP2) running on Boot Camp
- Same system requirements as Windows

Virtual Machine Option

- VMware Fusion or Parallels (separate purchase of either required)
- Minimum system requirements for Fusion or Parallels
- Minimum requirements for the virtual machine (i.e. Windows) will be exactly the same as the Boot Camp Option requirements above

Note: Of the Virtual Machine options, Fusion is recommended by Cadsoft as it provides better rendering performance, however both options will experience a performance decrease compared to Boot Camp.

Installing the Program

Make sure you exit all other programs, applications and screensavers before installing.

To install from a downloaded file:

- 1 Double-click the installation file (*.exe) that you downloaded.
- 2 Follow the on-screen instructions to complete the installation.

To install from a DVD:

- 1** Begin at the *Windows*® desktop.
- 2** Insert the installation DVD into your DVD-ROM drive. The InstallShield Wizard screen appears and loads the setup. If it doesn't appear automatically, see the instructions after step 3.
- 3** Follow the on-screen instructions to complete the installation.

To run the DVD installation if it does not begin automatically:

- 1** Make sure the installation DVD is in your DVD-ROM drive.
- 2** At the *Windows*® desktop, click the **Start** button, then select **Run**.
- 3** Type **D:\setup.exe** in the **Open** edit box. The letter **D** represents your DVD-ROM drive. If you are installing from a different drive, substitute the correct letter for the letter D.

Technical Support

ONLINE SUPPORT 24/7

Before contacting Technical Support, check out the Cadsoft web site, where you can find a variety of FAQs, white sheets, and videos.

To view reference materials, go to <http://www.cadsoft.com/clients/reference.php>.

You can also post questions on the Cadsoft Forum 24 hours a day, 7 days a week. Go to <http://www.cadsoft.com/forum/>.

All support options are available in the **Client Center** at <http://www.cadsoft.com/clients/>.

To access the **Client Center** directly from Envisioneer, select **Help > Customer Care** or

click  on the Help toolbar.

TECHNICAL SUPPORT

If you cannot find the answer you need from the resources above, please contact Cadsoft's technical support team.

When you contact technical support, be prepared to provide information about your computer name and model, and the brand name of the video card you are using. If possible, sit at your computer with the program running when you call.

CADSOFT CUSTOMER SUPPORT

Hours: Monday to Friday, 8:30 AM - 5:00 PM, EST

Phone: 1-888-CADSOFT (223-7638)

Fax: (519) 823-8821

E-mail: support@cadsoft.com

Starting the Program

Once you have installed the program, you can start using it.

- 1 On your Windows desktop, click the **Start** button.
- 2 Select **All Programs > Cadsoft > Envisioneer**. Or, click on the program's shortcut on your desktop.

Activating the Program

When you start the program for the first time, an **Activation** dialog appears.

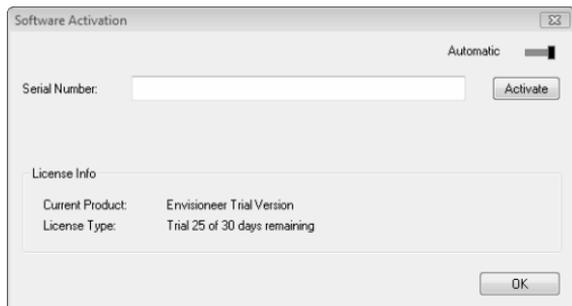


This is a good time to activate the program. If you would prefer to run a trial version at this time, click  at the bottom of the dialog.

During the 30-day trial period, you have full access to all features of the program except Print and Export. Once the trial period has ended, you need to activate the program to be able to run it.

To activate the software:

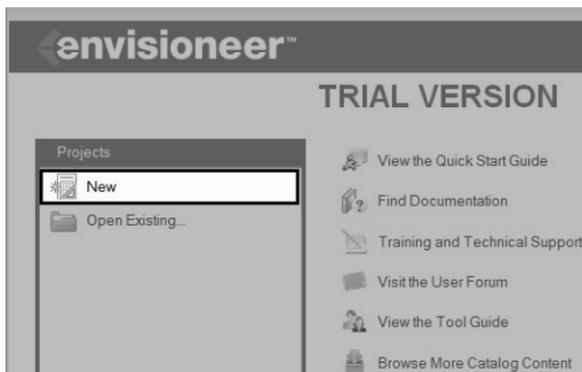
- 1 In the **Activation** dialog, click .
- 2 In the **Software Activation** dialogue, enter your product **Serial Number** and then click .



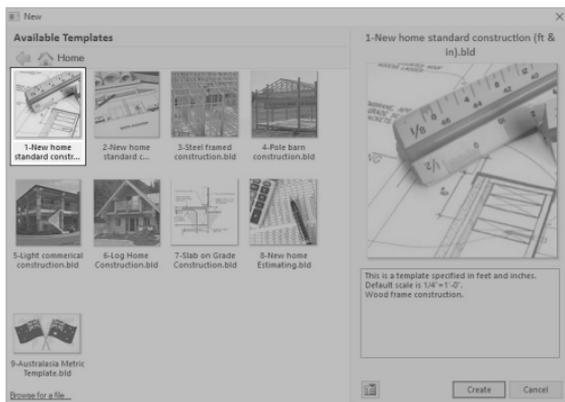
Starting a New Project

By default, a Startup screen appears every time you start the program. This screen lets you start new projects, and provides instant access to saved projects that you've been working on. It also contains links to various resources to help you get started, and displays the latest news from Cadsoft.

- 1 On the Startup screen, select **New** to start a new project.



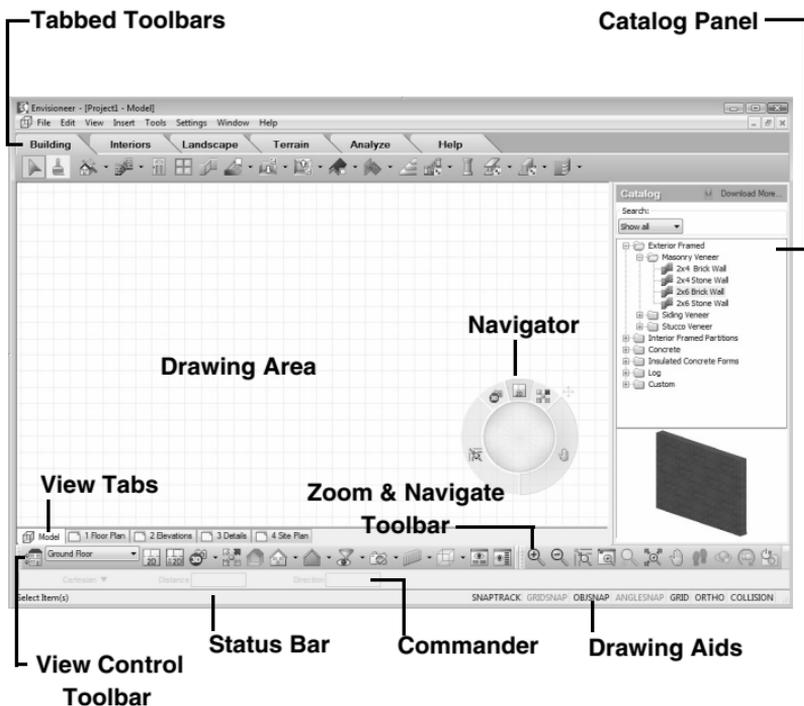
- 2 In the **New** dialog, select the **1- New home standard construction (ft & in)** template, then click **Create**.



A new, blank project is started for you.

Getting to Know Envisioneer

Take a moment to familiarize yourself with the Envisioneer interface.



TOOLBAR TABS

In Model View, six tabs are located just beneath the menu bar: *Building*, *Interiors*, *Landscape*, *Terrain*, *Analyze* and *Help*. These are actually toolbars displayed in tabbed format. They provide you with instant access to the tools you need, when you need them.



BUILDING TOOLBAR

The Building toolbar contains the tools you need to build a home or any architectural structure. It includes tools such as Walls, Doors, Windows, and Roofs.

INTERIORS TOOLBAR

The Interiors toolbar contains the tools you need to furnish, decorate and equip the interior of your home. It contains tools such as Cabinets, Countertops, Appliances, Furniture, Lighting and Plumbing Fixtures.

LANDSCAPE TOOLBAR

The Landscape toolbar contains all the tools you need to create a complete landscape plan for the exterior of your home. Tools include Plants, Fences/Gates, Decks, and Irrigation.

TERRAIN TOOLBAR

The Terrain toolbar contains tools that you can use to recreate the topography of your building site, which is especially important in 3D views. Use the Import Site Data tool to import spot level points from a site recorder file and create an accurate triangulated mesh, or shape the existing terrain using tools such as Hills/Valleys, Slopes and Plateaus. Add hardscaping elements such as Paths, Pads and Retaining Walls. Show the extents of the property with the Site Boundary tool.

ANALYZE TOOLBAR

The Analyze toolbar provides instant access to a variety of tools that help you estimate or calculate information. You can view a project estimate, schedules (door, window and member), as well as area and perimeter calculations for different levels, areas or rooms in your model. You can also generate a customizable quote, and output your

model to Autodesk® Green Building Studio® and perform an energy analysis.

HELP TOOLBAR

The Help toolbar contains instant links to the Program Help, Glossary of Terms, the Cadsoft web site, and our Customer Care site. You can also control the display of the Tutor, which pops up when you use program tools, and the Startup screen that you see when the program is started.

VIEW CONTROL TOOLBAR

The View Control toolbar contains several essential view-related tools.



The toolbar's building location drop box displays the current building location, which is important when inserting elements in your drawing. The toolbar also lets you quickly switch between 2D view and 3D view, and view and create elevations and sections.

A display mode button lets you choose the current display type for the view (wireframe, hidden line, patterned, etc.). The toolbar also provides instant access to the View Manager, where you can create new view windows if you want.

ZOOM AND NAVIGATE TOOLBAR

Zoom tools on the Zoom and Navigate toolbar include Zoom In, Zoom Out, Zoom Realtime, Zoom Window, Zoom Previous, and Pan. The navigation features on the toolbar (Walk Around, Fly Around, Look Around, Reset Camera) are only active when you are in a 3D view. These tools let you

change the view in real time using your mouse.



NAVIGATOR

The most common viewing and navigation tools can also be found on the onscreen Navigator, which is kind of like a video game controller. It lets you switch between 2D and 3D, zoom and pan, and navigate in 3D, all from a simple control panel displayed on the screen. Motion is controlled by clicking and dragging the central trackball.



COMMANDER

The Commander lets you enter precise values when inserting or editing elements. Initially the Commander will look grayed out because it is inactive. It will become active when you insert or edit elements.



VIEW TABS

By default, each project has a number of view tabs displayed below the drawing area. Tabs vary depending on the product you have. The **Model** view window is where you build and edit your 3D model. If you are using *Construction Suite*, there are some numbered

view tabs beside the **Model** view tab, such as **1 Floor Plan** and **2 Elevations**. These are Worksheet View windows, where you can create your construction documents.

View tabs help you easily switch between view windows. If you create new view windows, the tab display updates automatically. You can edit the name of view tabs and other properties.



Note: If you are using *Building Essentials*, your project has only one view window by default (**Model**).

MODEL VIEW VS. WORKSHEET VIEW

When you open a new project, the **Model** view window is displayed. This is where you build, edit and view your 3D model. If you are using *Construction Suite*, you have access to a 2D drafting mode called Worksheet View. This mode contains a number of different drafting tools that help you create professional-looking working drawings. Worksheet View is accessed by selecting the view tabs beside the **Model** view tab, or by opening Worksheet View windows from the **View Manager**.

Note: Worksheet View is not available in *Building Essentials*.

GRID AND GRID SNAP

By default a grid is displayed in the drawing area. This set of vertical and horizontal lines is simply an on-screen visual aid that helps you orient objects to one another. The distance between grid lines is 4 feet. The grid can be turned off if desired, and you can control the grid spacing and appearance in your program settings.

By default the Grid Snap is also turned on. This feature snaps your pointer to an invisible grid when inserting elements. The default Grid Snap spacing is 1 inch. You can control the spacing of the snap grid as well as turn the Grid Snap off if you want to. You can also match the snap grid to the visible drawing grid by editing your program settings.

AUTO SCROLL

If you are drawing an element such as a wall and need to scroll the drawing area to be able to finish drawing the element, simply press and hold the CTRL key when your cursor is near the edge of the drawing area. This activates the Auto Scroll feature and scrolls the drawing area in the direction in which you move your mouse, allowing uninterrupted drawing.

CATALOG PANEL

The catalog panel displays the elements contained in the program's Master Catalog, or whatever catalog is currently open. This is where you select elements to insert into your drawing.



STATUS BAR

The Status bar is located at the bottom of the screen. It displays helpful prompts while you are working on your design project. For example, if you are inserting a wall, it may display “Pick first insertion point”. The Status bar also includes a selection of drawing aid buttons such as ORTHO and OBJSNAP.

Select Item(s)

SNAPTRACK GRIDSNAP OBJSNAP ANGLSNAP GRID ORTHO COLLISION

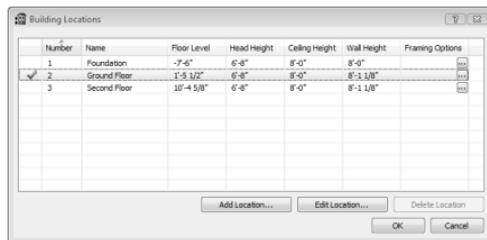
Setting Up a Project

Once you've familiarized yourself with the Envisioneer environment, you're ready to start your first project. Before you begin, make sure you have a new, blank project open (**File > New**).

BUILDING LOCATIONS

When you insert an element in your drawing, it is inserted on the current building location. It is important to define your building locations before inserting elements.

- 1 Select **Settings > Building Locations**.



- 2 Note the settings in the **Building Locations** dialog. You can edit the settings for the existing locations, as well as create new locations. When you define building locations, you are basically doing two things:
 - setting the wall height for each floor (level) in your model
 - specifying where each floor is positioned relative to grade or another building location
- 3 Click **OK** to accept the default settings.

UNIT OF MEASURE

Before you start drawing you need to make sure you're using the correct unit of measure for your project, and select a level of precision for your measurements.

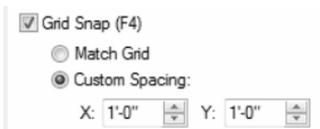
- 1 Select **Settings > Program Settings**.
- 2 In the **Program Settings** dialog, select **Units of Measure** in the left pane.
- 3 Make sure the **Imperial** radio button is selected, and that **Feet-Inches** is selected in the **Units** drop box.
- 4 Click the **Precision** drop box below the **Units** drop box, and select the full feet and inches option (**#'-#"**). This is a good setting for this tutorial.



GRID SNAP

Let's define a new grid snap spacing.

- 1 In the **Program Settings** dialog, select **Drawing Aids** in the left pane.
- 2 Make sure that the **Grid Snap (F4)** check box is enabled, as well as the **Custom Spacing** radio button below that.
- 3 Highlight the value in the **X** edit box and then type **12**. Do the same in the **Y** edit box. This defines a grid snap spacing of 12" (1'-0").

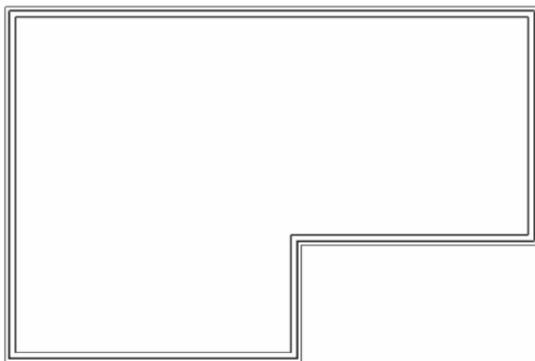


- 4 Click **OK**. You are ready to draw!

Drawing Walls

EXTERIOR WALLS

Now you're ready to start drawing. We're going to create a simple exterior wall layout that looks like this:



- 1 Look at the View Control toolbar and make sure the current location is the **Ground Floor**.



- 2 Make sure the **Ortho** is enabled on the status bar below the drawing area. This will constrain your walls to 90-degree angles.



- 3 Select **Insert > Walls > Walls**, or click the Walls button on the Building toolbar.

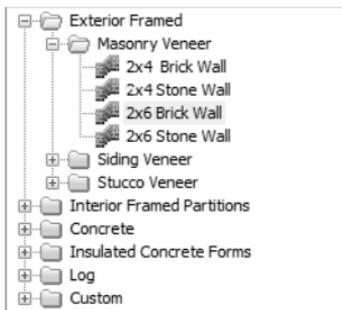




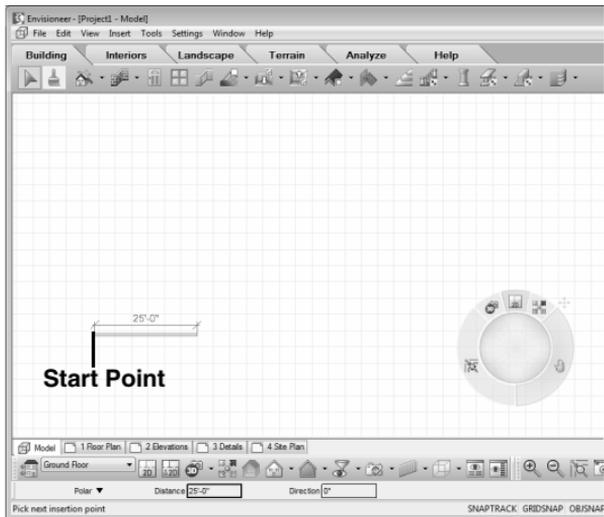
Note

If the Tutor window pops up, enable the **Don't show the Tutor again** check box at the bottom of the window, then close the window. This will keep the Tutor off while you are completing the tutorial (recommended). The Tutor is a context-sensitive help aid that pops up when you select most tools. You can turn it back on again later by selecting **Help > Tutor**.

- 4 In the catalog panel on the right side of the screen, select the **2 x 6 Brick Wall** in the **Masonry Veneer** folder.



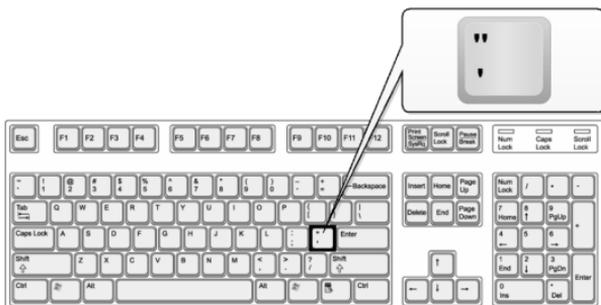
- 5 Move your pointer into the drawing area, then click a point near the lower left quadrant of the drawing area.



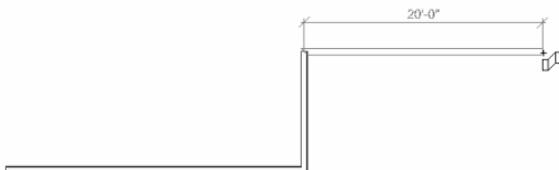
- 6 Without dragging, move your pointer to the right, and watch the on-screen dimensions as you stretch the wall. When the dimension reads **25'**, click to select the wall's end point.
- 7 Move your pointer upward. When the dimension reads **10'**, click to select the wall's end point.



- 8 Start moving your pointer to the right. This time, type **20'** and press Enter, making sure that you include the feet symbol (') after the 20. To type the feet symbol, hit the quotation mark key on your keyboard.



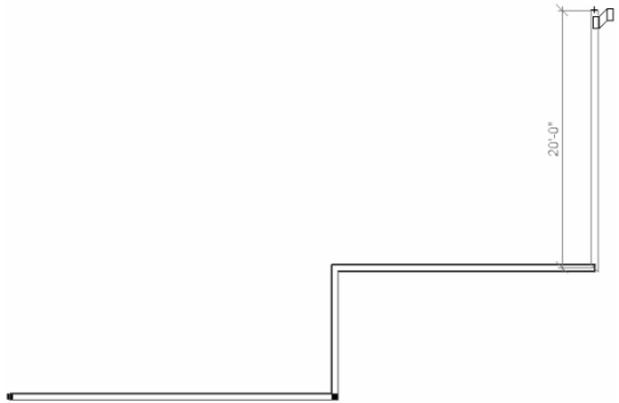
If you do not include the feet symbol when typing a value, the value will be taken as inches.



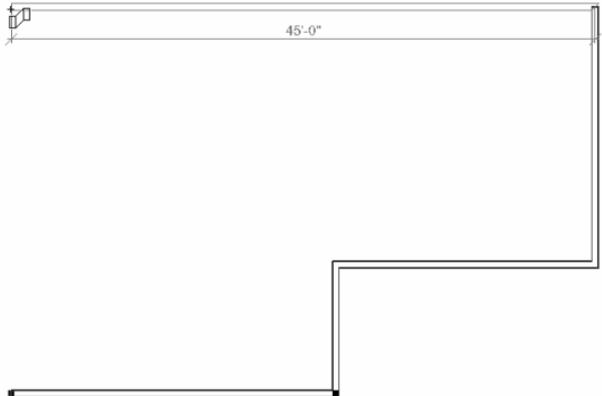
This illustrates another method of drawing walls where you can type precise values. As you type the value, it appears in the *Distance* edit box of the Commander, and the angle appears in the *Direction* edit box.



- 9 Start moving your pointer upward. Type **20'** and press Enter.

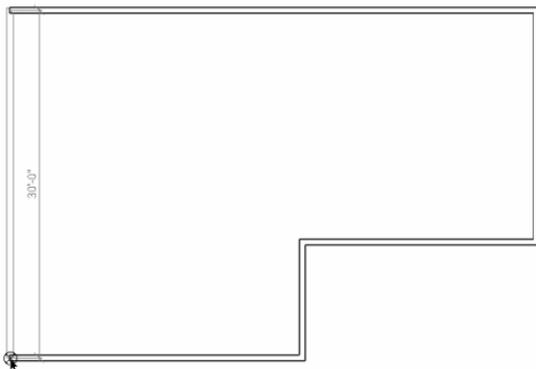


- 10 Move your pointer to the left. Type **45'** and press Enter.



- 11 Hover your cursor over the original start point.

When you see the intersection snap icon at this point, click to finish the wall layout.

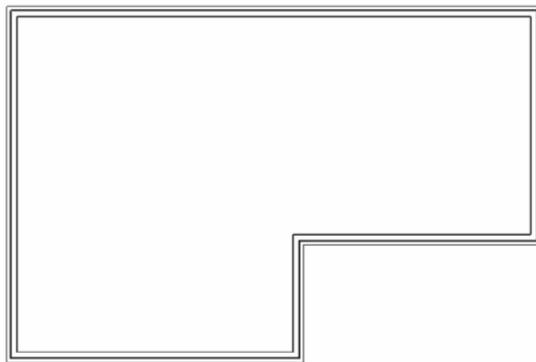


- 12 Right-click and select **Finish**.



Note

Because we created a closed wall layout using a wall type with composite properties, the walls automatically become *composite walls*. A composite wall is a structural wall and veneer wall put together, with an air space in between.



- 13 Select **File > Save**.

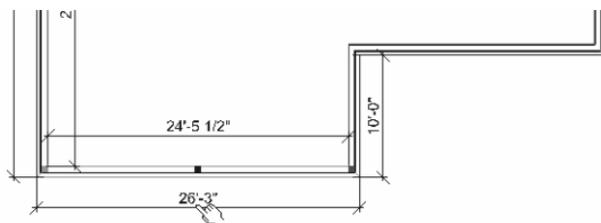
- 14 In the **Save** dialog, type **Quick Start Tutorial** in the *File name* edit box, then click **Save**.



If you make a mistake or change your mind about something, simply select **Edit > Undo**, or press CTRL + Z. You can undo until the last time you saved. To cancel out of a task or dialog, just press the ESC key on your keyboard.

EDITING WALL DIMENSIONS

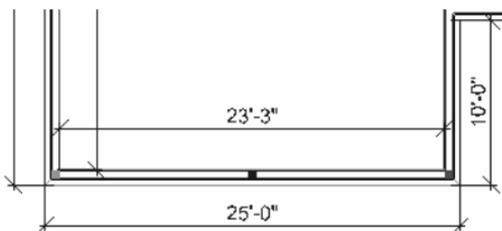
- 1 Click on the bottom wall. Notice that the exterior dimension on this wall is not 25', which is the value we used when drawing the wall. That is because walls are drawn *on center* when you use the Walls tool.
- 2 Click on the bottom exterior dimension value.



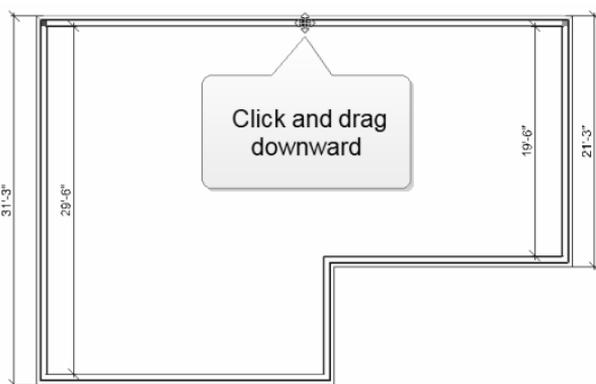
- 3 In the **Edit Dimension** dialog, type **25'**, then make sure that the lefthand arrow is selected so that the left end of the wall adjusts instead of the right end. Press ENTER or click **OK**.



The wall layout adjusts automatically so that the bottom wall measures exactly 25' on the exterior face.



- 4 Press **ESC** on your keyboard to hide the dimensions. Now let's look at another way of editing the dimensions of your wall layout.
- 5 Click on the top exterior wall. Notice that the dimension on the right side of the model is not 20'.
- 6 Position your pointer over the top wall's center blue grip, then click and drag the wall downward.



- 7 When the dimension on the right side of the model is closer to 20', release your mouse button. The wall layout is adjusted again.

QUICK TIP: DRAWING WALLS ON A BASELINE

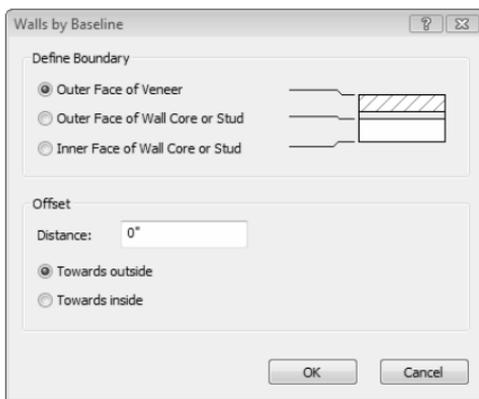
(For reference only)

When you draw walls with the Walls tool, the walls are drawn on center. You can use the **Walls by Baseline** tool to draw walls along a different baseline. For example, you could offset them from the outer veneer line.

Use this tool when you know precisely what you want your finished dimensions to be.

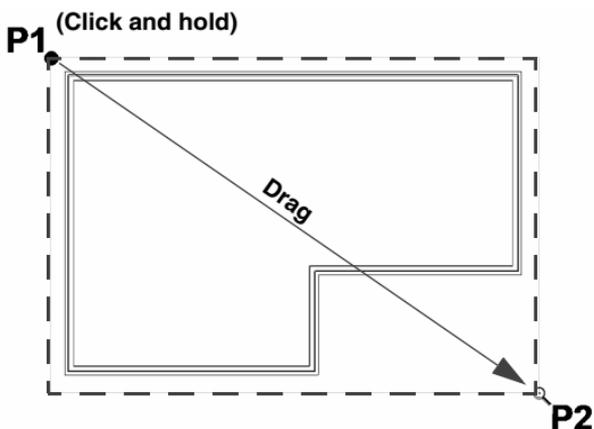
To draw walls on a baseline:

- 1 Select **Insert > Walls > Walls by Baseline**, or click the down arrow next to the Walls button on the Building toolbar and select Walls by Baseline.
- 2 Draw the outline of your exterior wall layout, then right-click and select **Finish**. This is the baseline you will offset the wall thickness from.
- 3 Once you've drawn the outline the **Walls by Baseline** dialog pops up, and you can define your offset.



INTERIOR WALLS

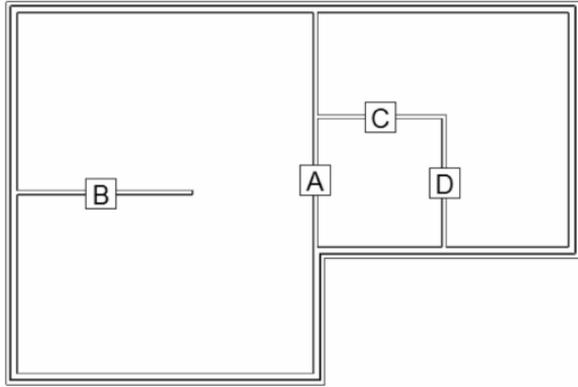
- 1 Before we continue, let's maximize the view. Select **View > Zoom and Navigate > Zoom Window**.
- 2 Referring to the following figure, click and hold your mouse button above the top left corner of the model (**P1**), then drag diagonally to the bottom right corner of the model (**P2**) to form a selection window around the model. Release your mouse button to perform the zoom.



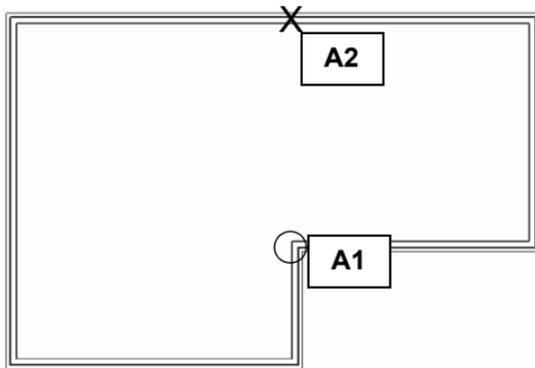
- 3 Turn the Grid Snap off by clicking the **GRIDSNAP** button on the status bar.



- 4 Now let's continue with the interior walls. We're going to draw four of them.



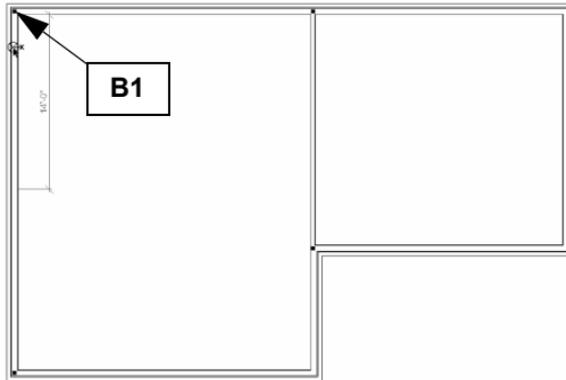
- 5 In the catalog, double-click the **Interior Framed Partitions** folder, then in that folder double-click the **Wood Framed** folder. In the Wood Framed folder select the **2 x 4 Interior Wall**.
- 6 Referring to the diagram below, hover your cursor over the corner marked **A1**. When you see a small black square pop up, which is a snap point, click to select that point. Then, click inside the top wall at point **A2** to create **Wall A**.



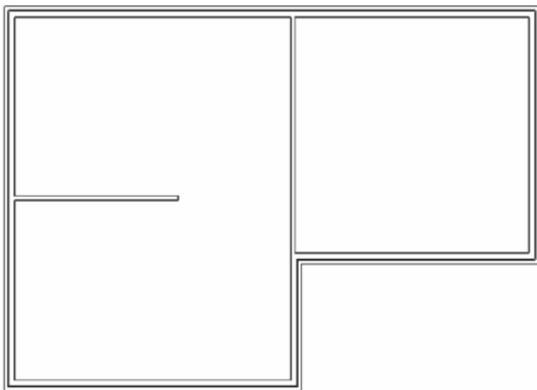
- 7 To insert **Wall B**, we're going to enter a precise offset. Right-click in the drawing area and select **Enter insertion offset**.
- 8 Type **14'**, then press ENTER or click **OK**.



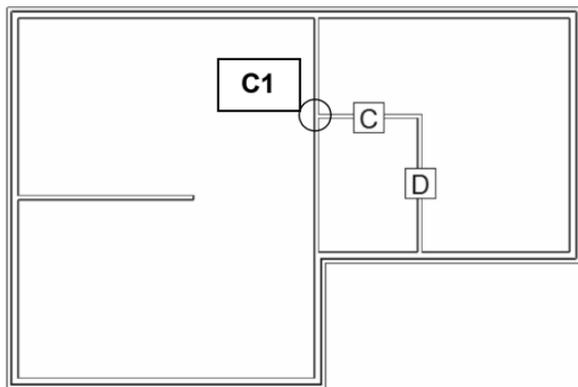
- 9 Referring to the diagram, position your cursor slightly below point **B1**. A 14'-0\"/>



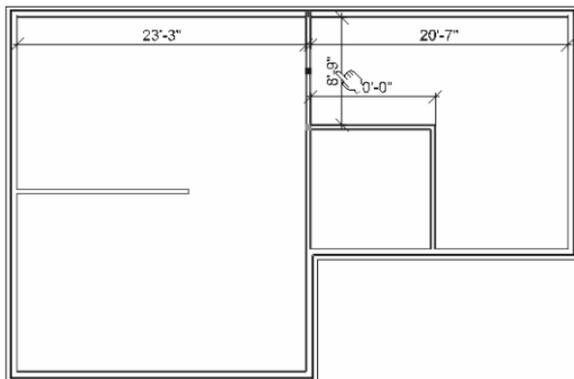
- 10 Click to select the wall's start point, then start moving your pointer to the right.
- 11 Type **14'** and press Enter to create a 14-foot wall.



- 12 Right-click and select **Repeat**. This lets you start a new wall elsewhere instead of continuing from the current one.
- 13 Referring the diagram, select a point roughly where point **C1** is located.



- 14 Start moving your pointer to the right, then type **10'** and press Enter to create **Wall C**.
- 15 Continuing from the end of **Wall C**, click in the lower exterior wall to create **Wall D**.
- 16 Right-click and select **Finish**.
- 17 Click on the vertical wall above **Wall C**, then click on its dimension.



- 18 In the **Edit Dimension** dialog, change the dimension to **8'** and make sure that the down arrow is selected. We want to make sure that the lower endpoint adjusts and not the top endpoint.



- 19 Click **OK**. The length of the wall is now **8'-0"** exactly.
- 20 Press ESC to deselect everything. Your walls are complete.
- 21 Save the drawing.

Quick Tip: Adding a Level

(For reference only)

There are three ways to add another level to your model.

Method 1: Floor/Foundation Wizard

If you already have one level drawn, you can use the Floor & Foundation Builder Wizard to automatically create a foundation level or new story. Select **Insert > Design Wizards > Floor & Foundation Builder**, then simply follow the screens to build your new level.

Method 2: Duplicate to Locations

Another quick way of creating a new level is to duplicate walls from an existing level. To do this, simply select the walls that you want to copy, and then right-click and select **Duplicate to Locations**.

In the **Duplicate to Locations** dialog, select the Second Floor location, or whatever location you are copying to. The walls are then copied to the selected location. To continue working on the new level, select the appropriate building location from the location drop box on the View Control toolbar.

Method 3: Draw Walls

Alternatively you can select a new building location from the location drop box, then select the **Walls** tool and start drawing.



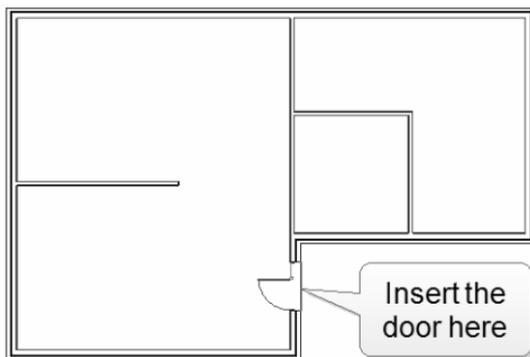
Conveniently, the walls on the ground floor are visible (but dimmed) so that you can trace over them or use them as a visual reference when drawing your second floor walls.

Inserting Doors

You can insert a variety of doors with point-and-click simplicity. Because doors are intelligent elements, they fit themselves into walls and become part of them automatically. However, you can edit doors separately from the walls that contain them.

We will insert 3 doors in our design.

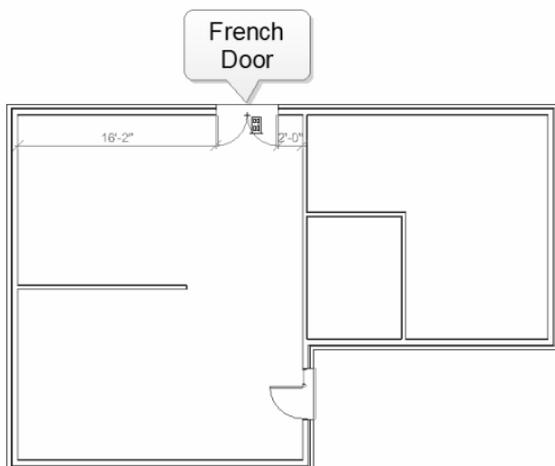
- 1 Select **Insert > Doors**, or select the Building toolbar tab and click the Doors button. 
- 2 In the catalog, open the **Entry 2x6 Wall** folder, then open the **w/Single Sidelite** sub-folder. Select the **32" Solid Wood Door w/ Sidelite**.
- 3 Right-click and select **Center on wall**.
- 4 Position the door in the wall where shown in the figure below. While you are positioning the door, you may need to pull to the left slightly to get the door to swing to the inside of the model. Notice that the door is automatically centered in the wall for you.



- 5 Click to insert the door.

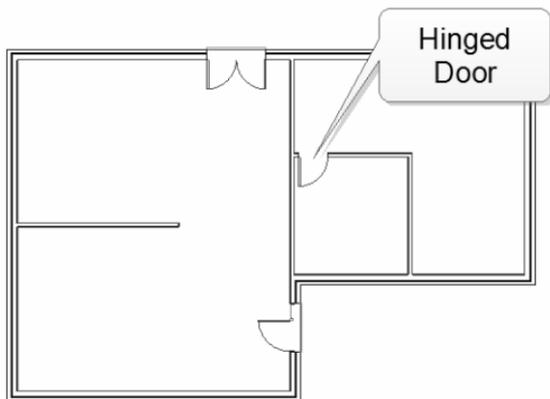
Note that door marks have been hidden in the figures to improve clarity. You can turn off element marks using your View Filter.

- 6 In the catalog, open the **French Doors** folder and then the **Double Door** sub-folder. Select the **60" Double French Door**.
- 7 Referring to the figure below, position the door in the top exterior wall where shown. Dimensions appear on either side of the door. When the right-hand dimension reads approximately 2'-0", click to insert the door.



- 8 In the catalog, open the **Hinged** folder and select the **30" Hinged Door - 6 panel**.
- 9 In the drawing area, right-click and select **Enter insertion offset**.
- 10 In the **Enter insertion offset** dialog, type 4 and then press Enter or click **OK**.

- 11 Position the door in the wall where shown in the figure below. It snaps into place exactly 4" from the end of the wall. Click to insert the door.

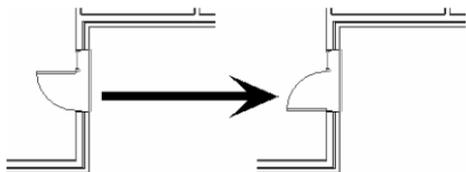


- 12 Right-click and select **Finish**.

FLIPPING DOOR SWINGS

The Flip Swing command lets you instantly flip a door's hinge side. Let's do this now.

- 1 Click on the front door.
- 2 Right-click in the drawing area and select **Flip Swing**. The swing is flipped.



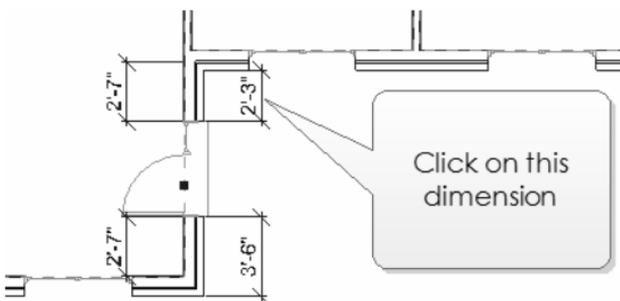
Tip

If you need to flip a door around so that its swing is on the other side of the wall, use the **Flip Opening** tool on the right-click menu.

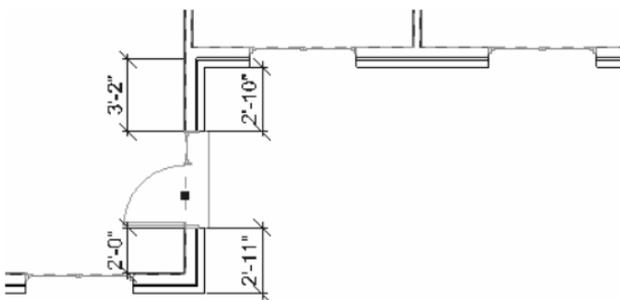
MOVING A DOOR

To move a door you can simply click and drag it within the wall, or edit the on-screen dimensions around it. Let's move the front door.

- 1 Click on the front entry door to select it. Dimensions appear around the door.
- 2 Click on the top right dimension indicated in the figure below.



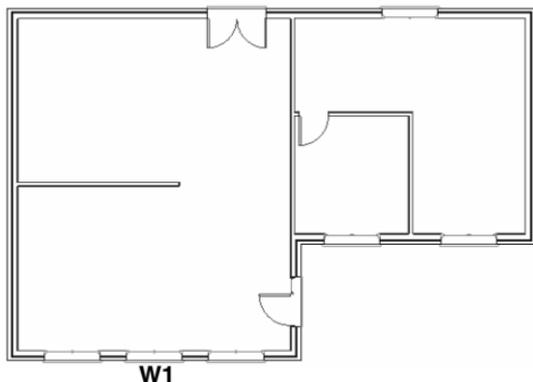
- 3 In the **Edit Dimension** dialog, type **2'10** and press Enter or click **OK**. The door is moved.



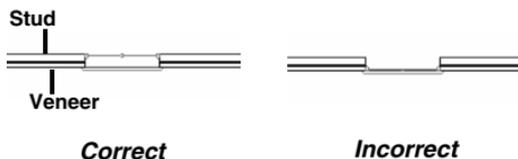
- 4 Press ESC or click in blank space to de-select the door, then save the drawing.

Inserting Windows

We're going to insert six windows in our model.



- 1 Select **Insert > Windows**, or click the Windows button on the Building toolbar. 
- 2 In the catalog, open the **Double Casement** folder, then select the **4'-9" X 4' Double Casement Window**.
- 3 In the drawing area, right-click and select **Center on Wall**.
- 4 Position the first window (**W1**) where indicated above. For this exercise, pull slightly towards the inside of the model when positioning each window so that the window is inside the stud wall.

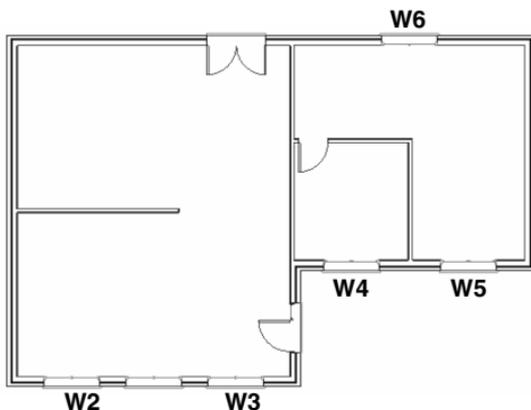




Tip

If necessary you can use the **Flip Opening** tool on a window's right-click menu to flip the window around after you have inserted it.

- 5 With the **Center on Wall** option still active, insert the remaining windows.



- 6 Right-click and select **Finish**.
- 7 Save the drawing.

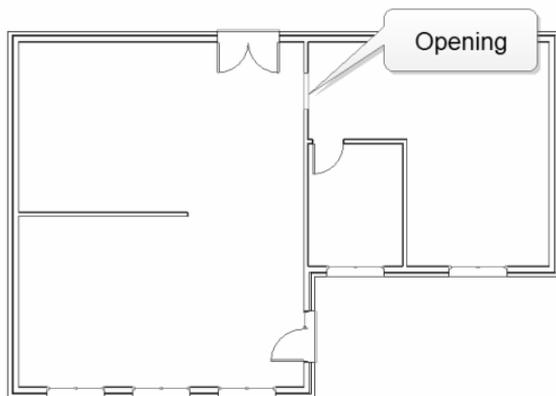
Inserting Openings

An opening is simply a cutout in a wall, or a pass-through. You insert openings in the same way that you insert doors and windows.

Let's insert an opening now.

- 1 Select **Insert > Openings**, or click the Openings button on the Building toolbar. 
- 2 In the catalog, open the **Arched (Doorways)** folder, then select the **3' Arched top Doorway**.

- 3 Position the opening where indicated below, then click to insert it.



- 4 Right-click and select **Finish**.
- 5 Save the drawing.

Viewing in 3D

Let's take a look at what we've done so far in 3D. There are various tools available for viewing in 3D, including 3D QuickView and 3D Camera.

3D QUICKVIEW

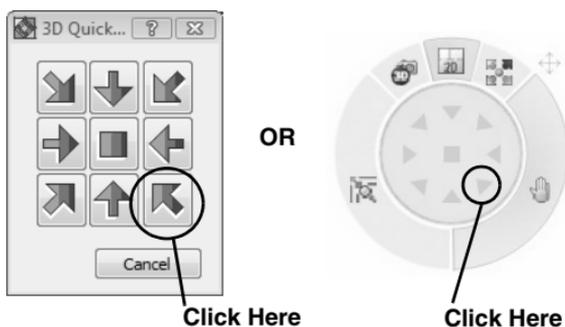
The 3D QuickView tool lets you choose a preset viewing angle for quick 3D viewing.

- 1 Select **View > 3D QuickView**, or click the 3D QuickView button on the View Control toolbar.

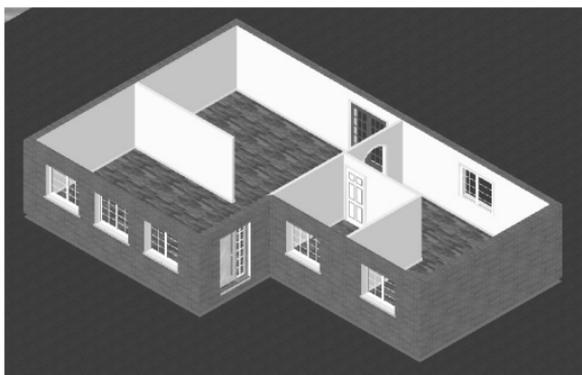


The 3D QuickView button is also available on the Navigator controller.

- 2 In the **3D Quick View** dialog or on the Navigator's control pad, click the lower right arrow.



The model is displayed in 3D from a Southeast viewpoint.



3D CAMERA

The 3D Camera tool displays a 3D perspective view of your model which you can adjust by controlling the view's camera. Interactive camera settings are displayed in the panel on the right side of the screen while the camera view is active.

- 1 Select **View > 3D Cameras > 3D Perspective**, or click the 3D Cameras button on the View Control toolbar and select 3D Perspective.



The 3D Camera button is also available on the Navigator.



In a 3D Perspective view, the scale of an element decreases according to its distance from the viewer, creating a more realistic view.

Navigating in 3D

Not only can you view in 3D, but you can also move around in 3D using a variety of realtime navigation tools.

Navigation tools are available on the View menu and Zoom & Navigate toolbar, but you may prefer to use the onscreen Navigator instead. The choice is yours.

WALKING AROUND

The Walk Around tool lets you walk forward, backward, left or right while in a 3D camera view. You can even walk inside the model! Let's walk around and take a look at the model now.

- 1 Make sure you are still in the 3D Perspective camera view.
- 2 Select **View > Zoom and Navigate > Walk Around**, or click the Walk Around button on the Zoom and Navigate toolbar.



If you prefer to control your navigation with the Navigator, click the Walk button on the Navigator.

- 3 Click and hold down your mouse button, then drag to walk around. If you used the menu or toolbar to activate the Walk tool, click and drag in the drawing area. If you activated the Walk tool on the Navigator, click and drag the Navigator's central trackball.
 - To walk forward, drag upward.
 - To walk backward, drag downward.
 - To walk left or right, drag left or right.

FLYING AROUND

The Fly Around tool revolves the camera around the target, which by default is at the center of the model. This creates a spinning effect.

- 1 Select **View > Zoom and Navigate > Fly Around**, or click the Fly Around button on the Zoom and Navigate toolbar, or on the Navigator. 
- 2 Click and hold down your mouse button, then drag to fly around.

LOOKING AROUND

In a 3D camera view, the Look Around tool revolves the target around the camera.

- 1 Select **View > Zoom and Navigate > Look Around**, or click the Look Around button on the Zoom and Navigate toolbar, or on the Navigator. 
- 2 Click and hold down your mouse button, then drag to look around.

RESETTING THE CAMERA

If you have moved the camera or lost your orientation in your 3D view, you can use the Reset Camera tool to move the camera back to the position it was in before you started navigating around.

- 1 To reset the camera, select **View > Zoom and Navigate > Reset Camera**, or click the Reset Camera button on the Zoom and Navigate toolbar. 

Switching Back to 2D Plan View

When you are in a 3D view or elevation view, you can switch back to 2D plan view at any time using the 2D Plan tool. Let's do this now using one of four available methods.

- Click the 2D Plan button on the View Control toolbar. Or,
- Click the 2D Plan button on the Navigator. Or,
- Select **View > 2D Plan**. Or,
- Right-click in the drawing area and select **2D Plan**.



Customizing Floors

By default, a floor is inserted automatically when you create a closed wall layout. Initially the floor spans the entire model and then splits into individual floors as you create rooms inside the model.

By default, the floor type inserted is a wood-framed floor with hardwood flooring applied. You can customize floors in your model in many ways.

We are going to change the floor in the bathroom to a tiled floor.

2D DESIGNER'S VIEW

Floors are not visible or selectable in 2D wireframe view because the floor edge lines can interfere with the display of the wall lines. You can use the 2D Designer's Plan tool to quickly display a rendered version of the 2D plan. In this view you can see and select floors.

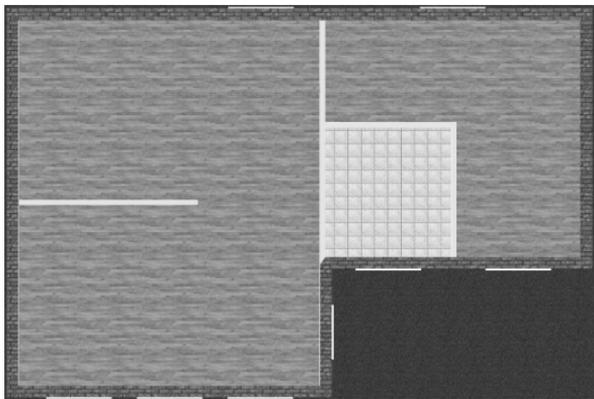
- 1 Select **View > 2D Designer's Plan**, or click the 2D Designer's Plan button on the View Control toolbar.



USING THE MATERIALS PAINTBRUSH

Now let's change the hardwood flooring in the bathroom to tiled flooring. We can do this quickly with the Materials Paintbrush.

- 1 With the 2D Designer's View still active, select **Edit > Materials Paintbrush**, or click the Materials Paintbrush button on any tabbed toolbar. The panel on the right side of the screen displays the materials library. 
- 2 In the materials library, scroll down in the *Groups* pane and select the **Tile - Generic** group.
- 3 In the *Materials* pane, select a tile that you'd like to use in the bathroom.
- 4 Click inside the smallest room. The tile is applied to the floor.



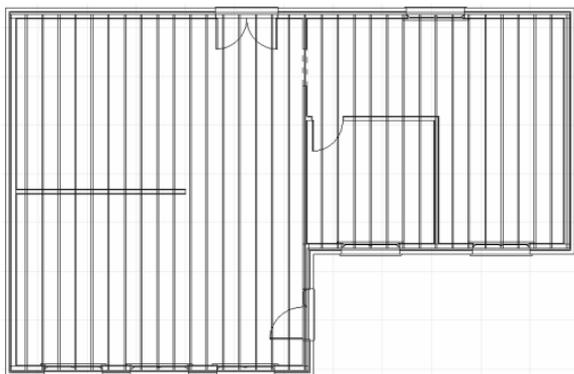
- 5 Right-click and select **Finish**.

Inserting a Structural Floor

A structural floor is needed to support the flooring surface.

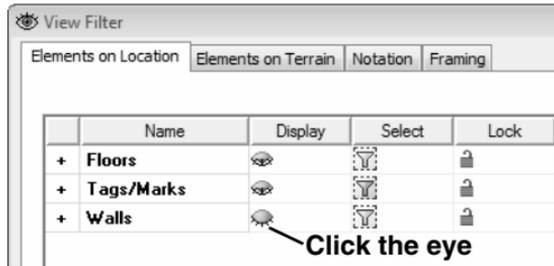
- 1 Return to standard 2D plan view. 

- 2 Select **Insert > Structural Floor > Structural Floor by Perimeter**, or click the Structural Floor button on the Building toolbar and select Structural Floor by Perimeter. 
- 3 In the catalog, select the **2x10 Floor System w/ 3/4" OSB**.
- 4 Click inside the model. A framed floor with OSB sheathing is inserted throughout the model. Notice that the joists on the left side of the model span a significant distance, and need to be broken into shorter lengths.

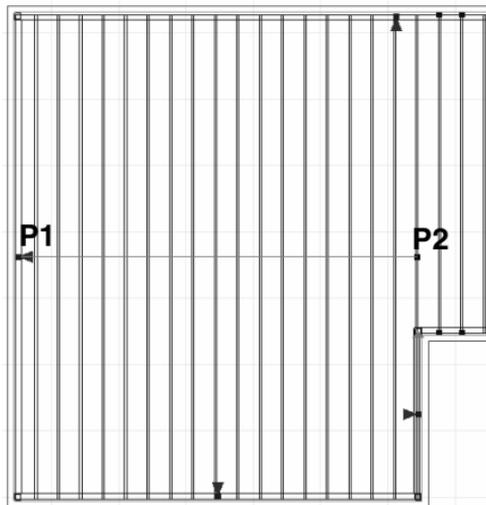


- 5 To make the structural floor easy to select, we're going to hide the walls temporarily. Select **View > View Filters > View Filter** or click the View Filter button on the View Control toolbar. 
- 6 In the **View Filter** dialog, click the eye icon next to the **Walls** item. This closes the eye, indicating that walls will be hidden. You

may also want to turn off **Tags/Marks**.
Click **OK**.



- 7 Hover your cursor over the outer edge of the floor and use the tooltip to confirm that you are selecting the structural floor and not the hardwood floor. Click on the floor edge to select the floor, then right-click and select **Structural Floor > Insert Bearing Line**.
- 8 Select two points (**P1** and **P2**) to create a bearing line across the left half of the model.



The joists are broken and overlapped along the bearing line.

- 1 Select **View > View Filters > View Filter**, then click the eye icon next to the **Walls** item to turn the walls back on. Also expand the **Floors** item and hide the **Structural Floor** components. Click **OK**.

Inserting Ceilings

Let's insert a ceiling in each room of our model using the Ceiling by Room tool.

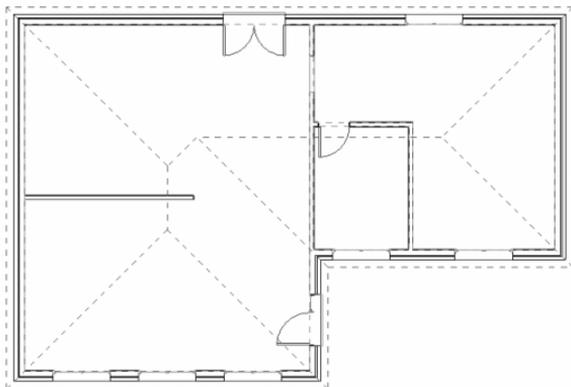
- 1 Select **Insert > Ceilings > Ceiling by Room**, or click the Ceilings button on the Building toolbar and select Ceiling by Room. 
- 2 In the catalog, open the **Unframed** folder and select the **1/2" Drywall Ceiling**.
- 3 Click inside the left room. A ceiling is inserted.
- 4 Insert a ceiling in each of the other two rooms, then right-click and select **Finish**.

Inserting a Roof

Inserting a roof couldn't be easier. All it takes is one mouse click.

- 1 Select **Insert > Roofs > Roof by Perimeter**, or click the Roofs button on the Building toolbar. 
- 2 In the catalog, select the **8/12 Slope Hip Roof - Shingles**.

- 3 Click anywhere inside the model. The roof is automatically inserted. Roof surface edges are represented by a dashed line.



Customizing a Roof

Once you have inserted a roof you can edit the properties of each roof segment individually to create a complex roof with varying pitches, styles and plate heights.

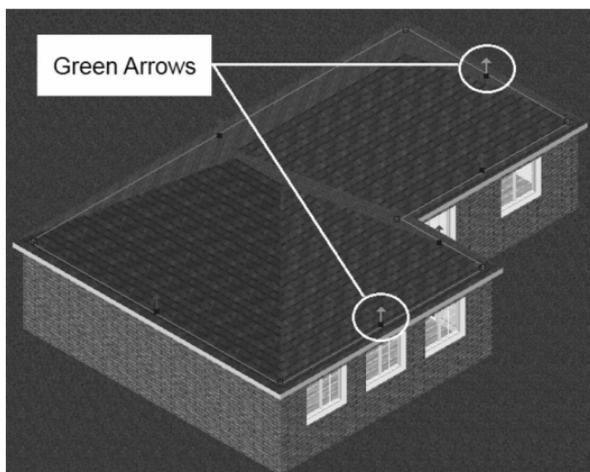
For example, you can convert a hip end to a gable end, edit the support height, edit the overhang distance, edit the slope, and control the appearance of fascias, soffits and gables.

CREATING GABLES

We are going to convert two of the roof's hip ends to gable ends by editing the properties of selected roof edges.

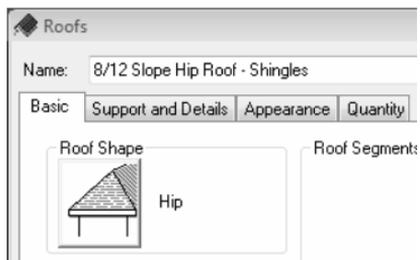
- 1 Select **View > 3D QuickView**, or click the 3D QuickView button on the View Control toolbar. 
- 2 In the **3D QuickView** dialog, click the lower left arrow.

- 3 Click on the very front roof edge. A green arrow projects from the plate line of this roof edge. Red arrows project from all other plate lines.
- 4 Click on the red arrow projecting from the plate line on the right side of the model. It will turn green. A green arrow indicates that a particular roof edge is selected and will receive changes you subsequently make. Edges marked with a red arrow will not be changed.

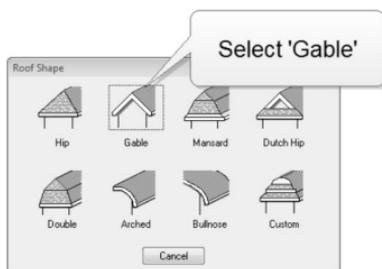


- 5 Right-click and select **Properties**.

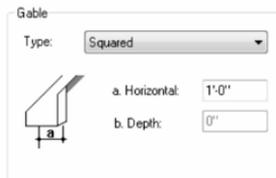
- 6 In the **Roofs** dialog, click on the button in the *Roof Shape* area, which is currently set to **Hip**.



- 7 In the **Roof Shape** dialog, click on the **Gable** option.

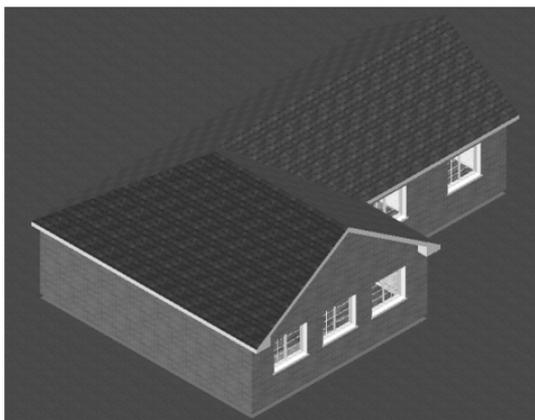


- 8 Back in the **Roofs** dialog, select the **Support and Details** tab.
- 9 In the *Gable* area, select **Squared** from the **Type** drop box, then type **12** in the **Horizontal** edit box.



- 10 Click **OK**. The selected roof edges are now gables.

11 Save the drawing.



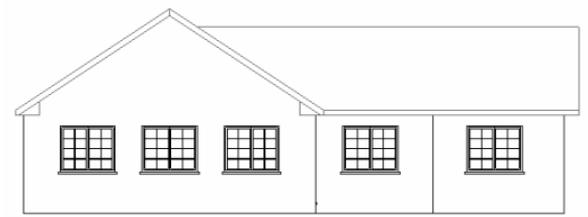
Viewing Elevations

You can view front, back and side elevations of your model with a couple of mouse clicks. There are four default elevations available. You can modify the properties of these elevations, or create new ones on the fly.

As you edit your model in other views, elevation views update automatically.

Let's view a front elevation of our model now.

- 1 Select **View > Elevations > Front Elevation**, or click the down arrow next to the Elevations button on the View Control toolbar and select Front Elevation. 



- 2 By default, elevations are displayed in Hidden Line display mode. Select **View > Display Mode**, or click the down arrow next to the Display Mode button on the View Control toolbar, then select **Patterned**. This displays material patterns such as shingles and brick. 



Filtering the View

In the next exercise we're going to work on the interior of the model, so let's hide the roof from view to make that easier.

- 1 Select **View > 2D Plan** or click the 2D Plan button on the View Control toolbar or the Navigator. 
- 2 Select **View > View Filters > View Filter**, or click the View Filter button on the View Control toolbar. 
- 3 In the **View Filter** dialog, click the eye icon next to the **Roofs** item.
- 4 Click **OK**. The roof is hidden from view.

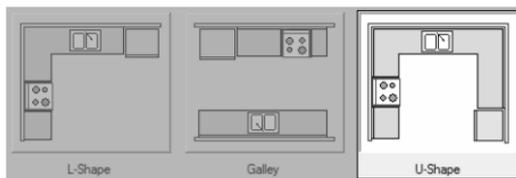
Creating a Kitchen

Using the Kitchen Builder Wizard you can quickly and easily create a kitchen layout that includes upper and lower cabinets, a sink, refrigerator and stove. There are a number of layouts and styles to choose from. Once the kitchen has been created you can move, edit and delete elements as well as add more elements if you want.

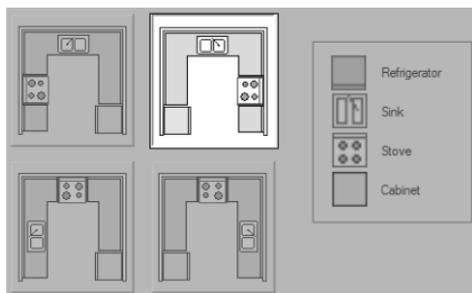
Let's create a kitchen now.

- 1 Select **View > Zoom and Navigate > Zoom Window**, then click and drag a selection window around the kitchen to zoom in on the kitchen. The kitchen is the rear, left room with the French door.
- 2 Select **Insert > Design Wizards > Kitchen Builder**.
- 3 On the first Kitchen Builder Wizard screen, click **Next**.

- 4 On the General Kitchen Style screen, click on the **U-Shape** style, then click **Next**.



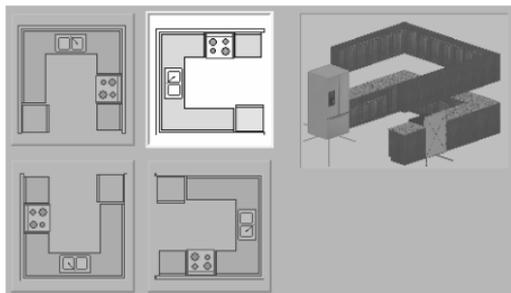
- 5 On the General Kitchen Layout screen, select the top right kitchen layout, then click **Next**. Remember that you can move and edit things later.



- 6 On the General Kitchen Theme screen, select a theme for the kitchen, then click **Next**. The selection you make determines the materials used for the cupboards and countertops.

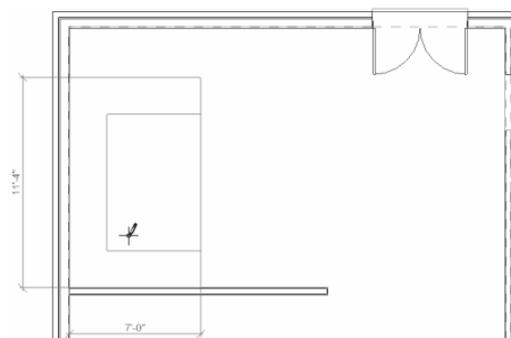


- 7 On the Kitchen Rotation screen, select the top right rotation option, then click **Next**.



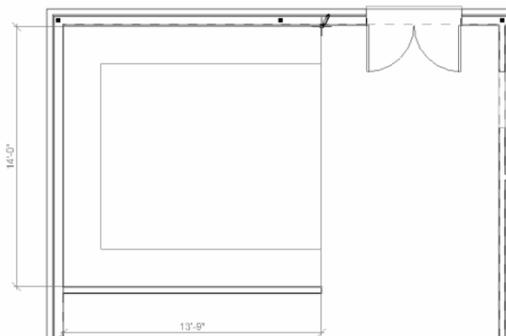
- 8 Click **Finish**. The kitchen configuration is attached to your cursor.
- 9 Position the kitchen layout in the lower left corner of the kitchen area. It will automatically snap to the walls when you get close to them. Click to anchor the kitchen elements.

Dynamic dimensions are displayed to show you the size of the layout.

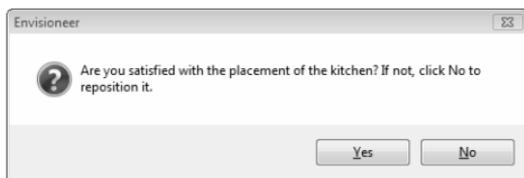


- 10 Move your cursor toward the upper right corner of the kitchen to stretch the layout. Stretch it until the kitchen touches the rear exterior wall and the lower run of cabinets

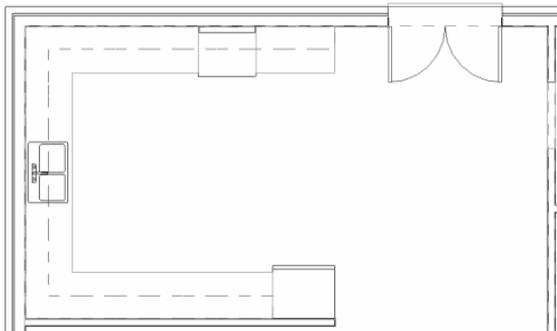
meets up with the end of the horizontal interior wall.



- 11 Once the dimensions are correct, click to finish the insertion. The following dialog appears:



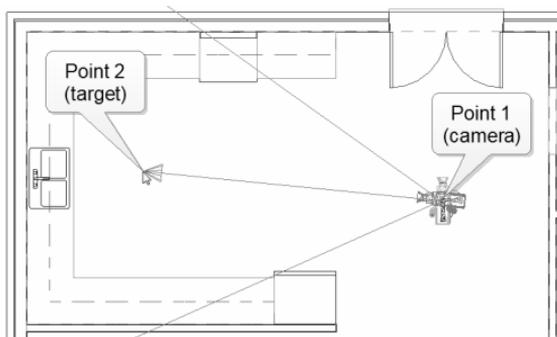
- 12 Click **Yes** to finish the task. If you click **No** you can reposition or resize the kitchen.
- 13 Save the drawing.



Creating a New 3D Camera View

You can create a new 3D view by placing a new camera in your 2D plan view. Once you've inserted the camera, you specify the camera angle and viewing field angle by rotating and clicking your mouse. Let's insert a camera in the kitchen area so that we can see what the kitchen looks like in 3D.

- 1 Select **View > 3D Cameras > Place New Camera**, or click the 3D Cameras button on the View Control toolbar and select Place New Camera. 
- 2 Referring to the diagram below, click where **Point 1** is shown to insert the camera, and then click where **Point 2** is shown to indicate the target of the view.



- 3 The 3D view is created instantly. It should look something like this:



Inserting Lighting

Light fixtures are one of the many different elements that you can use to enhance your design. You can insert a variety of light fixtures and see lighting effects in real time as you insert them.

Light fixtures add lighting to a 3D scene, which is important if you plan to generate 3D RealView renderings of your home's interior. Since we're in the kitchen, let's insert a light fixture there.

- 1 Select **Insert > Interiors > Interior Lighting**, or select the Interiors toolbar tab and click the Interior Lighting button. 
- 2 In the catalog panel, open the **Ceiling Lights > Ceiling Fixture** folder and then select **Ceiling Fixture 1**.
- 3 Position the light on the kitchen ceiling. Notice how the room lights up as you

bring the fixture into the room. Click to insert the fixture on the ceiling.



- 4 Right-click and select **Finish**. The model is now complete.
- 5 Save the drawing.

3D RealView™ Rendering

Rendering involves generating a photo-realistic 3D view complete with textures, light, reflection and shadows. You can render any interior or exterior 3D camera view with a simple mouse click.

Rendering consists of two steps: Radiosity and Raytracing. Raytracing begins right after the radiosity solution has been calculated, making the whole process seamless.

When a rendering is complete, you can save the image to a BMP, JPG or TGA file that can be opened in most graphic editing applications.

Let's render the view of the kitchen.

- 1 With the 3D kitchen view displayed, select **View > Render 3D RealView**.
- 2 In the **3D RealView** dialog, click the **Size** drop box and select **640 x 480**.
- 3 Click the **Start Render** button.

The radiosity solution is calculated, then raytracing begins right after that. The progress of the rendering is displayed in the preview window in real time.

- 4 When the rendering is complete, click the **Save** button in the *Image* area, then specify a name and save location for the rendered image in the **Save As** dialog.
- 5 Once the rendering is saved, click **Close** in the **3D RealView** dialog.
- 6 Save the project.



Tip

If you want to add more light to the scene, add light fixtures to the room, then render again.

Creating a Section

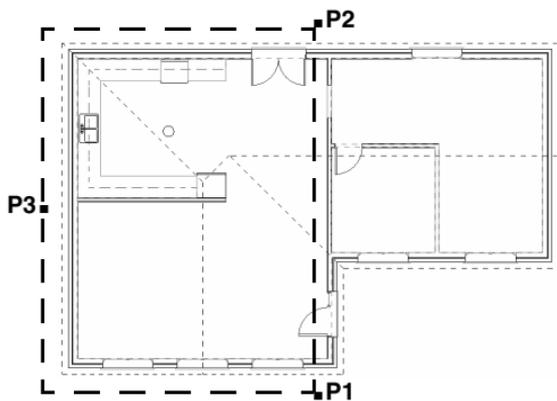
Section views are cross-sections through your model. You create one by defining a cut line and viewing distance. Let's create one now.

- 1 Return to 2D Plan view by selecting **View > 2D Plan** or clicking the 2D Plan button on the View Control toolbar or the Navigator. 
- 2 Select **View > Zoom and Navigate > Zoom Realtime**, or click the Zoom Realtime button on the Zoom and Navigate toolbar. 
- 3 Position your cursor in the drawing area. Click and hold your left mouse button, then start dragging downward to start zooming out. When the entire model is visible, release your mouse button.
- 4 Select **View > View Filters > View Filter**, or click the View Filter button on the View Control toolbar. 

- 5 In the **View Filter** dialog, click the eye icon next to the **Roofs** item to turn the roof back on.

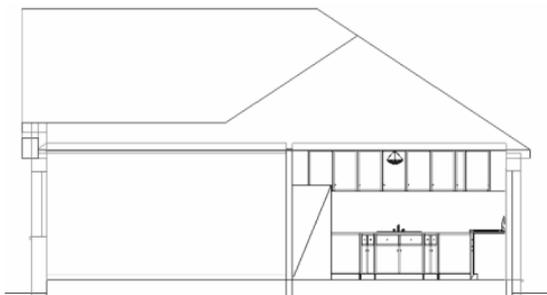
Note that the eye will be only half open. This is because the Roofs item has framing associated with it, but the framing is locked in a hidden state. The half eye indicates that some of an element's components are visible, and others are hidden. Click **OK**.

- 6 Select **View > Sections > Create New Section**, or click the Sections button on the View Control toolbar and select Create New Section. 
- 7 Referring to the following figure, select a point outside the front of the model (**P1**).



- 8 Select a point outside the rear of the model (**P2**). The cut line is defined.
- 9 Select a point outside of the left exterior wall (**P3**). This defines the viewing direction and distance.

The section is generated automatically.



We will work with the section in a later exercise.

Landscaping

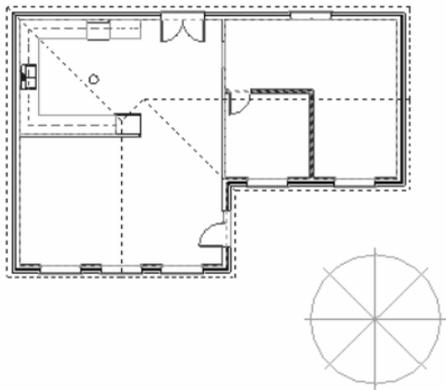
Envisioneer offers a wide variety of landscaping tools to help you create a complete landscape plan and design all of your outdoor living areas. These include decks, fences, garden beds, edging, plants, furniture and lighting.

INSERTING TREES

Let's insert a tree in the front yard.

- 1 Return to **2D Plan** view.
- 2 Select **Insert > Landscape > Plants**, or select the Landscape toolbar tab and click the Plants button. 
- 3 In the catalog, open the **Deciduous Trees** folder and select **Maple**.

- 4 Insert the tree where shown in the figure below.



- 5 Right-click and select **Finish**.



Adding Dimensions

Now we're ready to start annotating the drawing. Although you'll probably want to add things like text and dimensions when creating your construction documents in Worksheet View, there are a few powerful dimension tools that are available only in Model View.

FILTERING THE VIEW

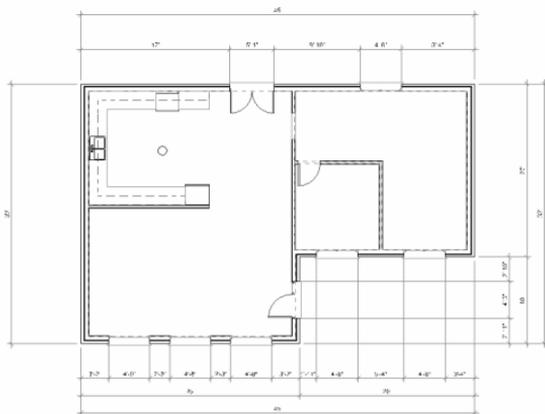
In the next exercise we're going to add dimensions to our plan. To optimize the view for that exercise, let's hide the roof, terrain and tree from view.

- 1 Select **View > View Filters > View Filter**, or click the View Filter button on the View Control toolbar. 
- 2 In the **View Filter** dialog, click the eye icon next to the **Roofs** item to turn the roof off.
- 3 Now select the *Elements on Terrain* tab.
- 4 In the *Display* area, click **None**.
- 5 Click **OK**.

AUTO EXTERIOR DIMENSIONS

Let's add automatic exterior dimensions to the model now.

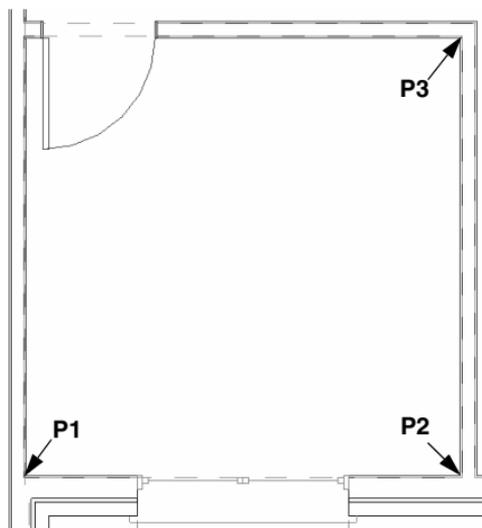
- 1 Select **Tools > Dimensions > Auto Exterior Dimensions**. Dimensions automatically appear around the exterior of the model.



ROOM DIMENSIONS

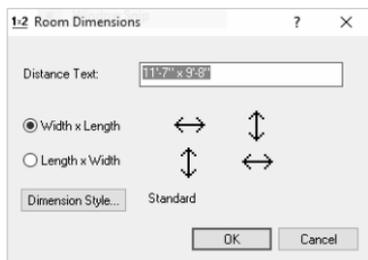
Room dimensions are commonplace on floor plans, and Envisioneer calculates and inserts them automatically. All you need to do is pick three points to define a room's length, width and rotation.

- 1 Use the **Zoom Window** tool to zoom in on the bathroom.
- 2 Select **Tools > Dimensions > Room Dimensions**.
- 3 Referring to the following figure, select the inside bottom left corner (**P1**) of the bathroom.



- 4 Select the room's inside bottom right corner (**P2**). This defines the width of the room.
- 5 Select the room's inside top right corner (**P3**). This defines the length of the room.

The resulting dimensions are displayed in the **Room Dimensions** dialog.



- 6 Click **OK**. The room dimensions are automatically inserted in the center of the room.



- 7 Insert room dimensions in the two rooms on the left side of the model. When you are finished, right-click and select **Finish**.

Adding Text

Next we'll use the Text tool to label the rooms in the design.

- 1 Select **Tools > Text > Text**.
- 2 In the **Text** dialog, click **Text Style...**.
- 3 In the **Text Styles** dialog select the **Labels** text style and then click **OK**.
- 4 Back in the **Text** dialog, type **Family Room** in the text editing window.



- 5 Enable the **Multiple text insert** check box at the bottom of the dialog. This will return you to the **Text** dialog after you have inserted the text.
- 6 Click **OK**. The text is attached to your cursor.
- 7 Insert the Family Room text in the room below the kitchen.
- 8 In the **Text** dialog, make sure the Family Room text is highlighted.
- 9 Double-click the **Kitchen** label in the list of pre-defined labels. The Family Room text is replaced with the Kitchen text in the text editing window.



Tip

You can save time by dragging a pre-defined label from the list into the text editing window, or by selecting the label and clicking  below the list.

- 10 Click **OK**.
- 11 Insert the Kitchen text in the kitchen.
- 12 Insert the remaining labels as shown below, then click **Cancel** in the **Text** dialog.



Editing Text

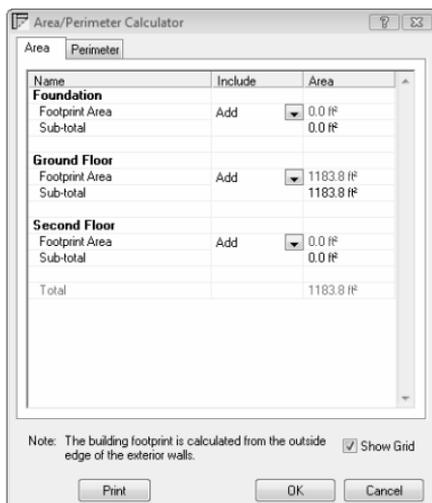
You can edit the style or content of text after it has been inserted.

- 1 Click on the Family Room text to select it, then right-click and select **Properties**. Or simply double-click the text.
- 2 In the **Text** dialog, change the text to **Living Room**, then click **OK**. The text updates in the drawing automatically.
- 3 Save the drawing.

Calculating Square Footage

You can use the Area/Perimeter tool to instantly view the square footage and perimeter measurements of your design.

- 1 Select **Tools > Analyze > Area/Perimeter**, or select the Analyze toolbar tab and click the Area/Perimeter button.



The dialog has two tabs: one for area measurements, and one for perimeter measurements. You can print the calculations by clicking **Print** at the bottom of the dialog.

- 2 Click **OK**.

Viewing a Project Estimate

You've done all your modeling and design work. Now let's see how much the project will cost.

- 1 Select **Tools > Analyze > Generate Project Estimate**, or click the Generate Project Estimate button on the Analyze toolbar.



Your project estimate is displayed.

Division	Description	Quantity	Unit	Price
06090	2x6x16 SFF	11	EA	\$0.00
06090	Roof Cut Nails	1	BOX	\$0.00
06110	10' Drip Edge	17	EA	\$0.00
06110	Aluminum Valley Flashing 50'	0	ROLL	\$0.00
06110	Ice and Water Shield	2	ROLL	\$0.00
06110	Ridge Vent 20' Roll	3	ROLL	\$0.00
06110	5/8" 4"x 8' OSB T&G Sheathing	49	EA	\$0.00
06110	Asphalt Shingles	48	BNDL	\$0.00
06110	Hip and Ridge Cap	3	BNDL	\$0.00
06110	Shingle Starter 120'	1	BNDL	\$0.00
06110	2x4x12 SFF	20	EA	\$0.00
06110	2x4x10 SFF	28	EA	\$0.00
06110	2x4x16 SFF	22	EA	\$0.00
06110	2x4x14 SFF	22	EA	\$0.00
06110	2x4x8 SFF	16	EA	\$0.00
06110	2x4x32 5/8 SFF Stud	55	EA	\$0.00
06110	2x6x12 SFF	44	EA	\$0.00
06110	2x4x8 SFF	37	EA	\$0.00
06110	2x6x10 SFF	16	EA	\$0.00

The project estimate, or bill of materials, lists all of the materials used to create your model. It lists information like the quantity, unit price and total cost of each material, as well as the total cost of the project. You can control what information is reported, how it is reported, and specify custom material pricing.

You can select a different report template from the report drop box to generate a different report file type. Some templates generate files that can be opened in an external estimating program.

- 2 When you are finished viewing the estimate you can click **Exit** to close the dialog without saving the estimate, or click **Save and Close** to save the estimate and return to your drawing.
- 3 Save the project.



The following section applies to Construction Suite only. If you are using Building Essentials, go to page 89.

Creating Construction Documents

Once you have created your model in Model View you can switch to Worksheet View to complete your working drawings.

Worksheet View is a quick and simple 2D drafting environment where you can set up drawing sheets, insert views of your model, annotate your drawings with text, dimensions and basic line objects, and add construction details. A wide variety of CAD editing tools are available to help you achieve the exact result you want.

In this section of the tutorial we are going to create documents containing the following:

- Floor plan
- Elevations
- Section

We'll also learn how to edit, annotate and customize documents.

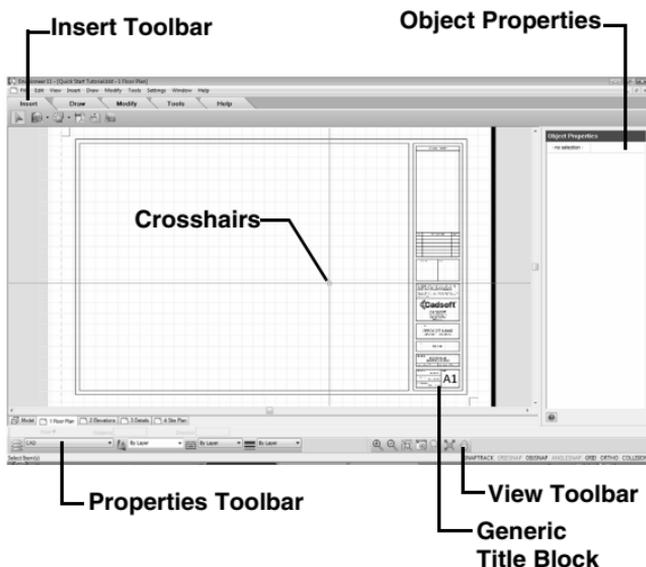
Worksheet View

When you are ready to start creating your construction documents, you need to switch to Worksheet View. Before switching it is a good idea to make sure that your model is as complete as possible and that any elements that you want displayed in your construction documents are turned on in Model View.

- 1 Select **View > View Filters > View Filter** or click the View Filter button on the View Control toolbar. 
- 2 In the **View Filter** dialog, turn the roof back on and click **OK**.
- 3 Just below the drawing area there are several view tabs. We are currently on the **Model** view tab. Select the **1 Floor Plan** tab.



You are now in Worksheet View.



INSERT TOOLBAR

The Insert toolbar contains the tools needed for setting up the main components of your worksheet. Use the Define SmartView tool to bring in a view of your model, such as a 2D plan or elevation. Use the Import tools to bring in outside CAD files in DWG or DXF format, PDFs or image files such as JPGs and BMPs. To save time you can use the Define Block tool to capture a group of objects in a block that can be saved and then inserted on other worksheets.

DRAW TOOLBAR

The Draw toolbar contains a number of drafting tools: Line, Polyline, Circle, Ellipse, Arc, Polygon, Rectangle, Polygon Hatch, Revision Cloud, Boundary Hatch, Rigid Insulation, Batt Insulation, Wood Section, Masonry Section, Cut Line, and Roof Symbol.

MODIFY TOOLBAR

The Modify toolbar contains a wide variety of tools for editing objects in your drawing: Delete, Move, Rotate, Duplicate, Array, Offset, Stretch, Scale, Mirror, Break, Extend, Trim, Fillet, Join Polyline, and Explode.

TOOLS TOOLBAR

Use the Tools toolbar to insert Text, Leaders, Dimensions, and Wall Panels. Use the Measure tool to quickly determine the distance between any two points.

PROPERTIES TOOLBAR

The Properties toolbar indicates the current layer, and the color, line type and line weight assigned to that layer. You can override layer settings by making selections from the layer setting drop boxes. The toolbar also provides access to the Layer Properties dialog.

VIEW TOOLBAR

The View toolbar contains a complete set of zoom and pan tools: Zoom In, Zoom Out, Zoom Realtime, Zoom Window, Zoom Previous, Zoom to Fit, and Pan.

DRAWING AREA

The drawing area contains a generic drawing sheet border and title block that you can delete or edit to suit your needs. You can insert any pre-defined or custom title block,

as well as various views of your model. From there you can edit, detail and annotate your drawing to create a detailed, accurate construction document.

CROSSHAIRS, PICKBOX AND CURSOR

In Worksheet View you see crosshairs, which are lines that represent the two coordinate axes. At the center of the crosshairs is a pickbox, a square used for selecting objects. When you move your pointer outside the drawing area you see a cursor, an arrow for accessing menus and toolbars. The cursor can also become a double-headed arrow when resizing windows.

OBJECT PROPERTIES PANEL

The Object Properties panel displays the properties of the currently selected object, such as the layer it is assigned to. You can edit properties by simply making different selections in the panel.

Inserting a 2D Plan

Let's create a floor plan drawing first. To do that, we need to insert a 2D view of the model onto our worksheet. We'll just use the generic drawing sheet border and title block for this exercise.

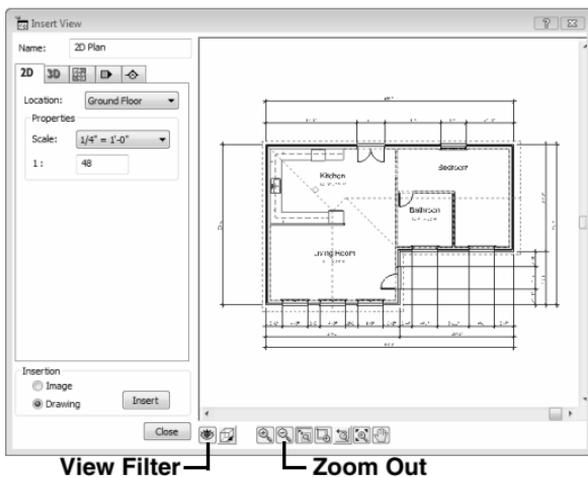
- 1 With the Floor Plan view tab current, select **Insert > SmartViews > Define SmartView**, or click the Define SmartView button on the Insert toolbar. 

- 2 On the **2D** tab of the **Insert View** dialog, make sure that the **Location** is set to *Ground Floor*.



- 3 From the **Scale** drop box, select the *1/4" = 1'-0"* scale. The scale is the ratio of units on paper to real-world units. In this case, that would mean that every foot of the physical model is represented by 1/4 of an inch on paper.
- 4 In the **Insertion** area, select the *Drawing* radio button. This option inserts a vector image. Vector data provides useful information about the geometry in a drawing, such as endpoints, curves and polygons. The *Image* option inserts a raster image (bitmap) which can be resized.

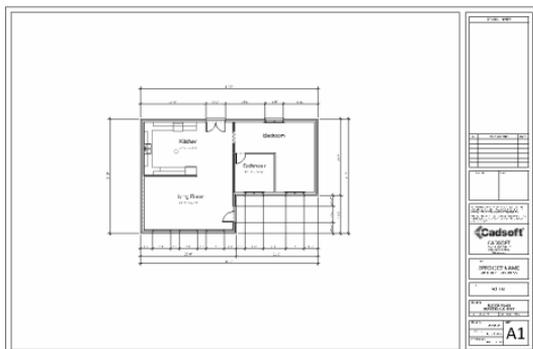
- 5 Click the **Zoom Out** button at the bottom of the dialog if necessary to zoom out until the entire floor plan (including exterior dimensions) is visible inside the window. Anything that is not visible in the preview window will not be visible when the plan is inserted on the worksheet.



- 6 For this particular view we want the roof turned off, so click the **View Filter** button at the bottom of the dialog and then turn off the roof in the **View Filter** dialog. Click **OK** to return to the **Insert View** dialog. The roof is now turned off in the preview window.
- 7 In the **Insert View** dialog, click **Insert**. The ground floor plan view is attached to your cursor.



- 8 Position the plan in the center of the drawing sheet, then click to insert it.



Inserting Elevations

There are four pre-defined worksheet views available, and you can create more if you want. Let's switch to a different worksheet and then insert our elevation views on that sheet.

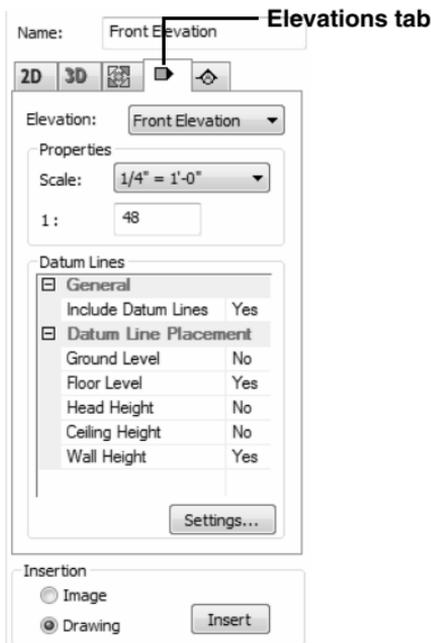
- 1 Below the drawing area, select the **2 Elevations** view tab.



- 2 Select **Insert > SmartViews > Define SmartView**. Or, click the Define SmartView button on the Insert toolbar.

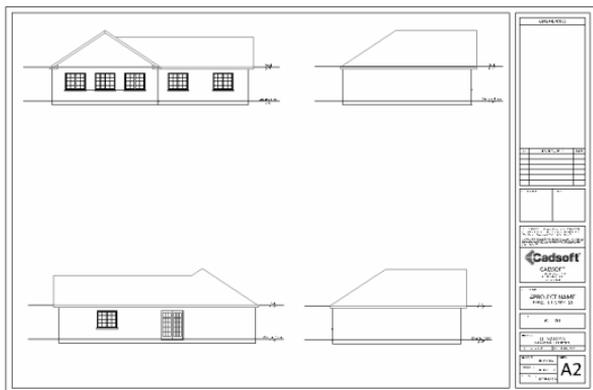


- 3 In the **Insert View** dialog, select the **Elevations** tab.



- 4 In the **Datum Lines** pane, set the **Datum Line Placement** to **Yes** for **Floor Level** and **Wall Height**. This will place datum lines and measurements at the floor level and top of wall.
- 5 Make sure that the entire elevation is visible in the preview window.
- 6 Click **Insert**.
- 7 Insert the front elevation in the top left corner of the drawing sheet.

- 8 Use the **Define SmartView** tool (**Insert > SmartViews > Define SmartView**) to insert the remaining three elevations as shown below.

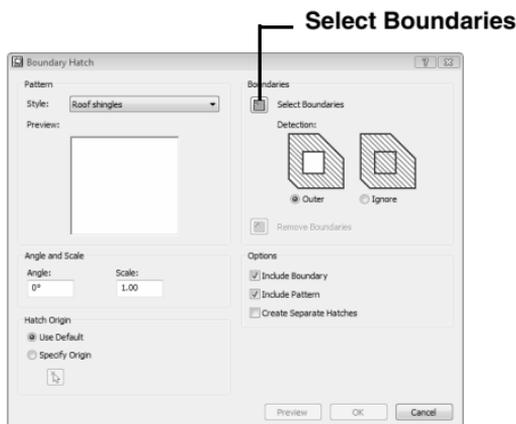


Hatching an Elevation

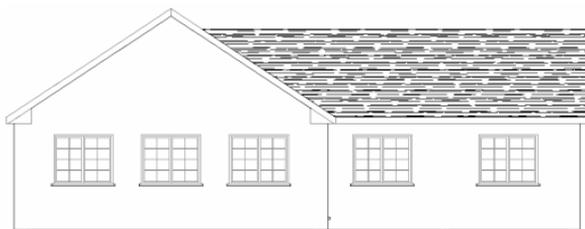
You can use the Boundary Hatch tool to apply patterns to areas of a drawing. Let's work with the front elevation and apply a shingle pattern to the roof, and a brick pattern to the walls.

- 1 Select **View > Zoom Window**, or click the Zoom Window button on the View Toolbar. 
- 2 Click and drag a selection window around the front elevation, then release your mouse button. This zooms in on the front elevation.
- 3 Select **Draw > Boundary Hatch**, or select the Draw toolbar tab and click the Boundary Hatch button. 
- 4 In the **Boundary Hatch** dialog, select *Roof shingles* from the **Style** drop box.

- Click the **Select Boundaries** button. This takes you back out to your drawing.

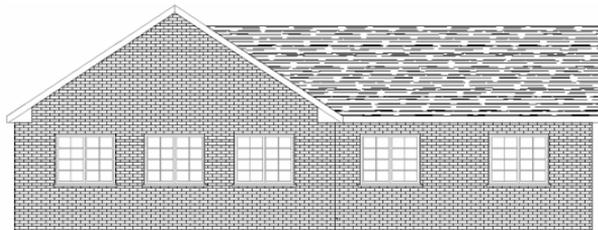


- Click anywhere inside the roof surface. The roof boundary highlights green to indicate that it has been selected.
- Right-click and select **Enter**.
- Back in the **Boundary Hatch** dialog, click **Preview** to see what the hatching will look like.
- Press ESC or right-click and select **Cancel** to return to the **Boundary Hatch** dialog.
- Click **OK** to apply the hatching to the roof.



- Select the **Boundary Hatch** tool again and this time select *Brick pattern*.

- 12 Click the **Select Boundaries** button, and then click inside the wall in the elevation.
- 13 Right-click and select **Enter**.
- 14 In the **Boundary Hatch** dialog, click **OK**.



Tip

You can insert elevations that are already hatched by setting the display mode to *Patterned* in the Insert View dialog when inserting the elevations onto your worksheet. The patterns applied depend on the material settings in each element's properties.

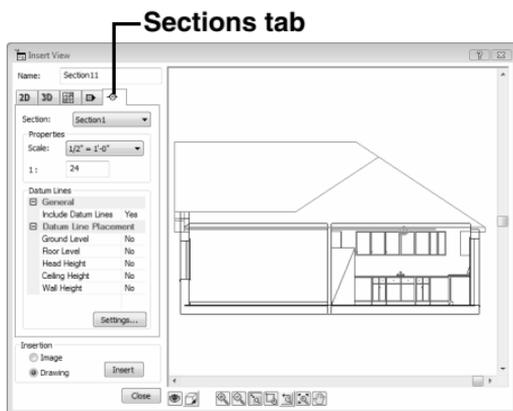


Inserting a Section

Now let's switch to another worksheet and insert the section we created earlier.

- 1 Below the drawing area, select the **3 Details** view tab.
- 2 Select **Insert > SmartViews > Define SmartView**.

- 3 In the **Insert View** dialog, select the **Sections** tab.



- 4 From the **Scale** drop box, select the **1/2" = 1'-0"** scale, which is a common scale for building sections.
- 5 Make sure that the entire section is visible inside the preview window, then click **Insert**.
- 6 Insert the section in the center of the sheet.
- 7 Save the project.

Congratulations!

You have successfully completed the Quick Start Tutorial. By completing the tutorial you have learned the basics of:

- Model building
- Zooming and view control
- 3D viewing and navigation
- Elevations and sections
- Estimating
- Annotation
- Landscaping
- Creating construction documents
- 3D RealView™ rendering

With your new basic skill set you can start creating your own designs in Envisioneer.

Resources

See and learn more about Envisioneer by viewing our comprehensive library of documents and videos.

To access resources:

- In Envisioneer, select **Help > Customer Care**, and then click on **Tutorials**. Or,
- Open your Internet browser and go to <http://www.cadsoft.com/clients/reference.php>.

