The Revit Architecture User Interface

In this chapter, we'll explore the Revit Architecture user interface (UI). If you have never used Revit Architecture before, then you will quickly notice that this doesn't even come close to resembling AutoCAD or MicroStation. There is no command prompt, there are no crosshairs, and the background is white, not black (though you can adjust that). Revit Architecture is similar to other Windows-based applications that utilize the Microsoft Office ribbon interface. Users familiar with the ribbon should find learning Revit Architecture's UI relatively straightforward after they have learned the underlying concepts.

In this chapter, we'll cover the following:

- ■ **The recent files screen**

- ■ **The main screen**

The Home Screen

After you start Revit, you are taken to the Recent Files screen (see Figure 1.1). This window provides you with quick access to a list of the most recently opened projects or families. The main area of the screen is divided into three areas. The top section, Projects, provides options for opening and creating new projects as well as icons to the right listing any recent projects that you have been working on. The middle section, Families, provides options for opening and creating new families as well as icons to the right listing any recent families that you have been working on. The bottom section, Resources, provides access to additional resources on learning Revit.

If you have started Revit for the first time, then you will only be given the option to open or create new projects or families. The recent files icons will display two sample projects and two sample families.

So you can further explore the user interface, we will show how to create a new project; Revit provides two methods to accomplish this. The first is to click the New button in the Projects area. When you do this, Revit will create a new project using the default settings found in the default template called default.rte. This method allows you to start working immediately but is normally not the best method. Later in the chapter we will discuss how to create a new project using a user-selected template.

Figure 1.1
Recent Files screen
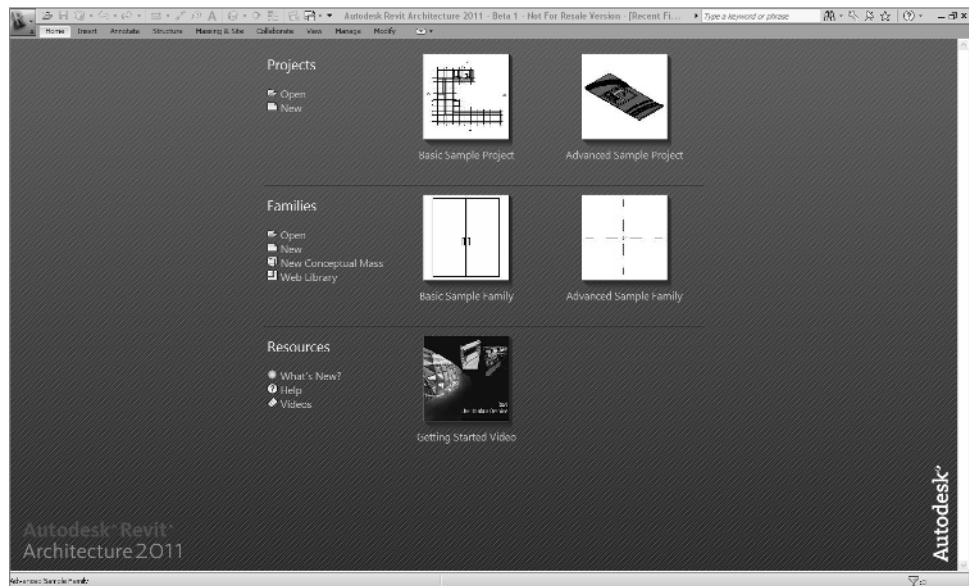
The Main Screen

Now that you have started a project using the template file by clicking New, the window shown in Figure 1.2, which is the main screen, appears. The user interface is divided into several areas; we will discuss each of them in the following sections.
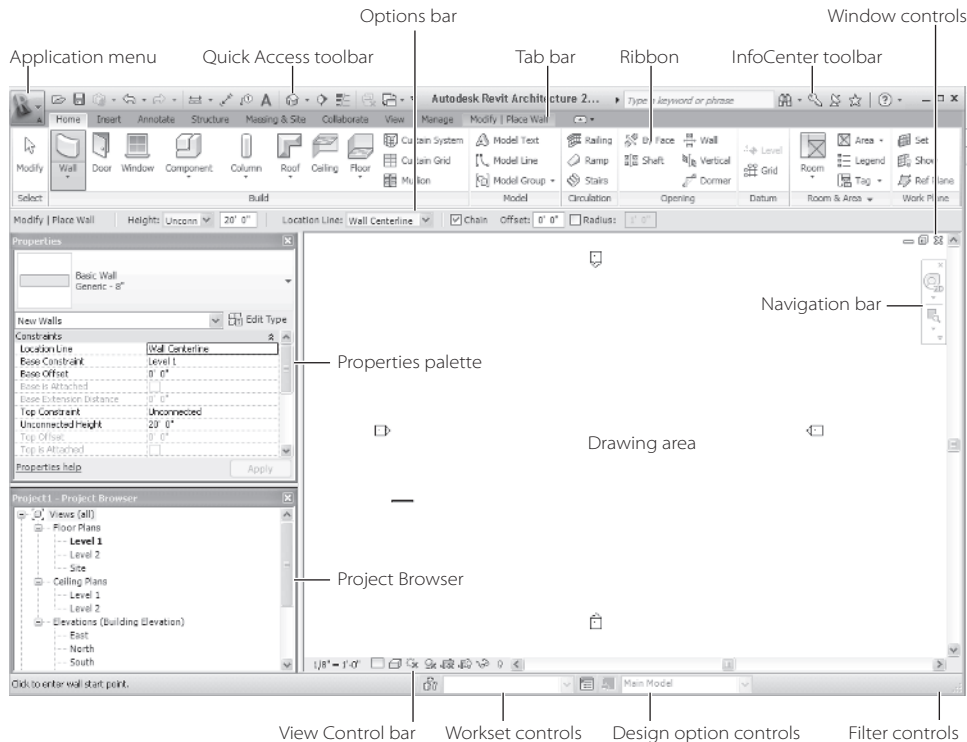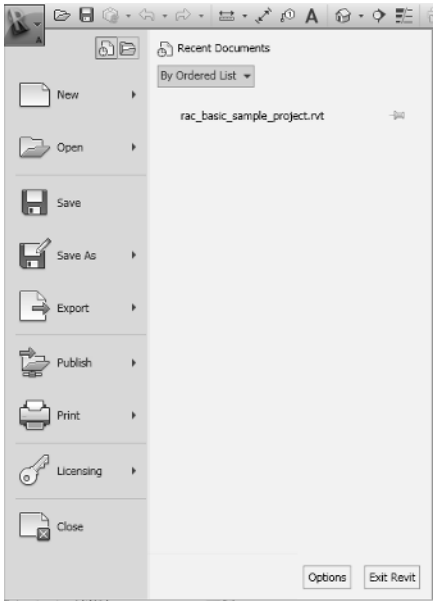

Figure 1.2
Main screen

Menu and Toolbar

Located at the top left of the screen (see Figure 1.3), the application menu gives you access to most of your file management tasks such as New, Open, Save, and so on, as well as access to exporting tools, printing, recent documents, and the Options dialog box, which allows you to tailor some custom settings in Revit that we will discuss later in the book. The right side of the application menu contains a list of recently opened files. You can use the pushpin icon located to the right of the filename to "pin" that file to the list, making it easier to find it each time you start Revit. In addition to providing quick access to project operations in one place, the application menu also allows you to sort and access recent documents.

Figure 1.3
Application menu

The Quick Access toolbar (QAT) is filled with some of the most popular commands and is user customizable (Figure 1.4). There are two ways to customize the QAT. To add a tool to the QAT, right-click the tool on the ribbon, and then choose Add To Quick Access Toolbar. The second method is to use the Add/Remove buttons (Figure 1.5) at the end of the QAT to add, remove, and rearrange the buttons on the QAT. You can also right-click the QAT to remove icons, add a QAT separator line, and customize the QAT.

Figure 1.4
Quick Access toolbar

1. Click the Add/Remove button.

Figure 1.5
Customizing the QAT

3. Use the move, separator, and delete buttons.
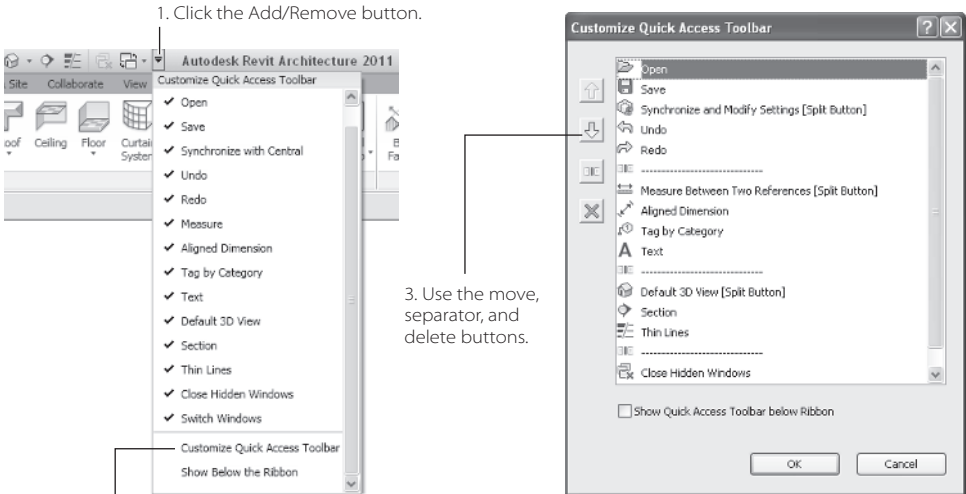
2. Choose Customize Quick Access Toolbar.

The QAT can appear above or below the ribbon. To change the location, follow these steps:

1. Click the Customize Quick Access Toolbar drop-down.

2. Scroll to the bottom of the dialog box, and select either Show Below The Ribbon or Show Above The Ribbon.

To the right of the QAT is the InfoCenter toolbar (Figure 1.6). You use the InfoCenter to search for information using keywords or phrases, to access subscription services, and to search for topics in the help files.

When you want to choose a template for creating your project, use the following steps after you've started Revit:

1. Click the application menu, and select New → Project.

   This opens the New Project dialog box (Figure 1.7). Here, you have the ability to choose which template you want to utilize to start your project. You can also start your project without using a template file or create a new template file.

2. In the New Project dialog box, click Browse under Template File.

3. Navigate to your local project template location, select the template file (.rts file extension), and click Open.

4. For Create New, make sure that the Project radio button is selected.
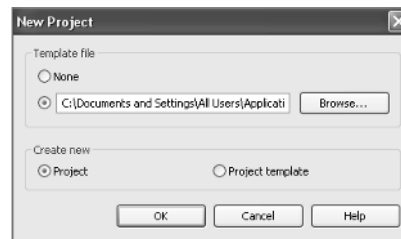
5. Click OK.

Ribbon

Below the application menu and QAT is the ribbon (Figure 1.8). The ribbon is the most common method for initiating commands in Revit to help you define your building project. The Revit user interface is based on Microsoft Office 2007's ribbon interface. The interface is a set of dynamic or contextual toolbars that are placed in tabs in a tab bar. What we mean by that is if you are placing a wall, a new Modify | Place Wall tab is displayed with specific functionality for placing or modifying walls. These new contextual tabs are visible only when that tool is active.
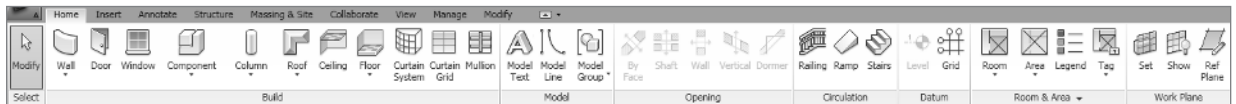
The ribbon is broken up into two main parts. The top is the tab bar. Nine main tabs hold all of the tools. Clicking a tab makes it active. Table 1.1 provides an overview of the tools in each tab.

TAB NAME	TOOLS
Home	The tools provided are commonly used tools for creating and placing building elements.
Insert	The tools provided are for linking, importing, and loading families, as well as for searching for family content online.
Annotate	The tools provided are for dimensions, detailing, adding text, tagging, keynoting, and adding symbols.
Structure	The tools provided are for adding structural members, foundations, and datum elements.
Massing & Site	The tools provided are for creating conceptual masses and creating and editing site elements.
Collaborate	The tools provided are for collaborating with both internal and external team members.
View	The tools provided are for controlling graphic settings of objects, creating views, adding sheets, and managing views.
Manage	The tools provided are for managing the project settings and environment, which include project settings, the project location, design options, phasing, and macros.
Modify | Tag	This a contextual tab that will change based upon the operation being performed. The tools provided are for modifying and tagging elements.

The second part of the ribbon is a set of toolbars, one for each tab. The toolbars are divided into panels with each panel holding tools or options pertaining to a specific activity or function. If you find yourself using a particular panel over and over again, it can be "torn off" the ribbon and placed where you want it on the screen (Figure 1.9). When you do this, you are making a floating toolbar on your screen. So if you are using multiple monitors, you can place some of your favorite and most often used ones on one screen, while your model is on another. When you do this, Revit will remember the user-defined locations of the panels the next time you open Revit. You can move a panel by clicking and dragging the panel label to the new location either within the toolbar or into the drawing area or other location on your desktop.
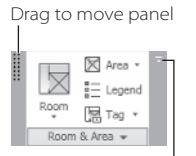
Figure 1.9

Panels can be "torn off" the ribbon and repositioned.

Figure 1.10

Panels positioning controls

Drag to move panel

Click icon to reset panel to original location

If you have "torn off" a panel and want to restore it, move your mouse cursor over the panel you want to restore. Gray bars will appear on both sides of the floating panel (Figure 1.10). The gray bar on the left side allows you to relocate the panel when you drag to the new location. On the right side of the gray bar, you will see a small icon; when you click that icon, the panel will be restored to the original location.

You can customize the ribbon further by changing the view state to one of the three settings. You can adjust the view state by clicking the arrow control to the far right of the tab bar to cycle through the options (Figure 1.11), as described here:

- Show the full ribbon. This is the default state and shows the tab labels, panel labels, and tool icons.

- Show the tab and panel labels. When you move your cursor over the panel label, the tools for those panels will be displayed.

- Show tab labels. When you move your cursor over the tab label, the tools for those panels will be displayed.
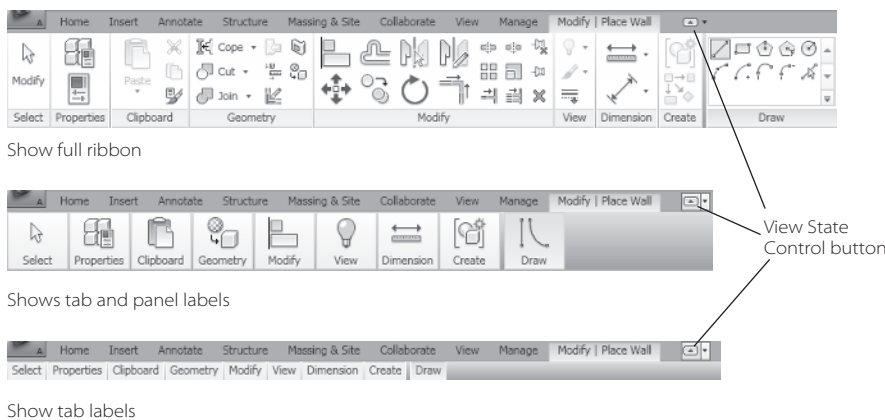
Figure 1.11
The three different ribbon view states

Show full ribbon

Shows tab and panel labels

View State Control button

Show tab labels

Ribbon Controls

The final elements of the ribbon are the tool controls, of which there are three types:

- Buttons that initiate a command, function, or option.

- Expanded panel arrow allows you to expand the panel to display additional related tools and controls.

- Dialog launcher buttons that allow you to open another dialog box to define additional options or settings to complete a task. The dialog launcher buttons are the small icons to the far right of a panel on the same line as the panel name (Figure 1.12).

Buttons come in three different types: button, drop-down, and split buttons. If you look on the Home tab, you can see the Door and Window tools on that Build panel; they are examples of buttons. When you click this type of button, the tool is invoked, and you are provided with options to place a door or window. In the Model panel, the Model Group tool is an example of a drop-down
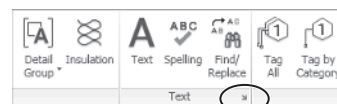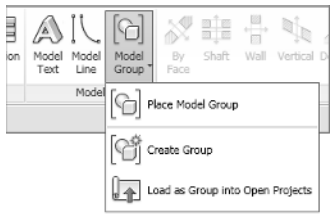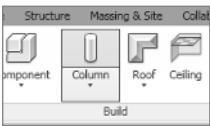
Figure 1.12
Dialog launcher icon

button (Figure 1.13). When you click that type of button, a list appears showing the different options for the tool. You can then pick the different tool options.

The split button serves two functions; when you move your cursor over a split button, you will see either a horizontal or vertical divider line on the icon. The Wall and Column buttons are examples of split buttons. The portion of the button that contains the small block triangle (Figure 1.14) functions like a drop-down button. The other half of the button functions like a regular button.

Some ribbon panels have a drop-down arrow next to the panel title (Figure 1.15) that indicates that the panel can be expanded to display additional related tools and controls (Figure 1.16). These are known as *expanded panels*.
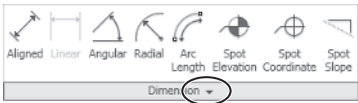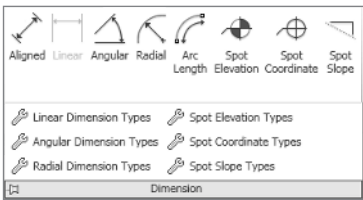
Ribbon Clues

You might have noticed that some buttons in different toolbars are grayed out (Figure 1.17). If a particular tool is not available, then it will be grayed out because the tool will not function. An example of this is the Level tool in the Datum panel of the Home tab if you are in a plan view. Revit does not permit you to create a new level in a plan view, so the Level tool is grayed out. Titleblocks can be added in plan views, rendering needs to be done in a 3D view, and walls can't be drawn in an elevation views—these are just some of the examples of the restrictions. If a tool is grayed out, switch to a different view type.

Another feature of the ribbon are tooltips (Figure 1.18). Tooltips provide a brief description of the tool's function. When you move your cursor over a tool on the ribbon, by default Revit will display a tooltip. If you leave your cursor over the tool a little longer, additional information in the form of an expanded tooltip will be displayed. While the tooltip is visible, you can press F1 for context-sensitive help to provide additional information about the tool. (Elements that are traditionally called *tooltips* are typically a word or phrase, but as you can see in Figure 1.18, some of Revit's tooltips are much larger, even a whole panel and illustration.)

Figure 1.13

Example of a drop-down button

Figure 1.14

Example of a split button

Figure 1.15

Dimension panel with expanded panel arrow

Figure 1.16

Dimension expanded panel

Figure 1.17

Examples of two grayed-out buttons

Figure 1.18

Expanded tooltip for the Trim/Extend tool

Options Bar

The Options bar (Figure 1.19) is located just under the ribbon and displays options that are specific to the active tool or selected elements. For example, if you are placing a wall, you are presented with options that include the height, location line, chain, offset, and radius. When you place a window, you are presented with options for window tag orientation, tag type, leader usage, and leader offset.
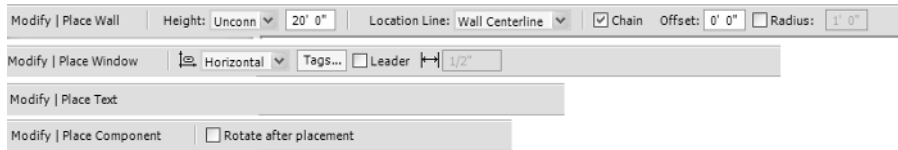
The Options bar is also active when you select an existing element to edit. If you select a window and want to copy that multiple times, simply select the window, click the Copy button on the Modify tab, and then select the Multiple check box on the Options bar (Figure 1.20).

It is very important to pay attention to the Options bar as you work, no matter your experience level. The Options bar will provide you with options to help you create elements in your project.
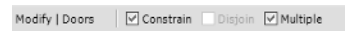
Properties Palette

The Properties palette (Figure 1.21) is where you can view and modify the various parameters that define the properties of elements in Revit. By default the Properties palette is located under the Options bar and to the far left; it is broken up into two main areas.

The top portion is the Type Selector and lists all of the various types available for given elements that are currently loaded into the project file. In Revit, *families* are components you use to build your model, such as walls, windows, doors, columns, and so on. A door family can have multiple variations or, in Revit terms, *types.* Types are different sizes, materials, and so on. For example, a Single-Flush window might have sev-

eral different standard-size configurations. If you make a change to a type that is already used in the project, then it is updated in every instance throughout the project. If you have a window type called 24×80 and you change the size to 30″×75″, then all the 24×80 windows will be updated so that they are now 30″×75″, regardless of their name.
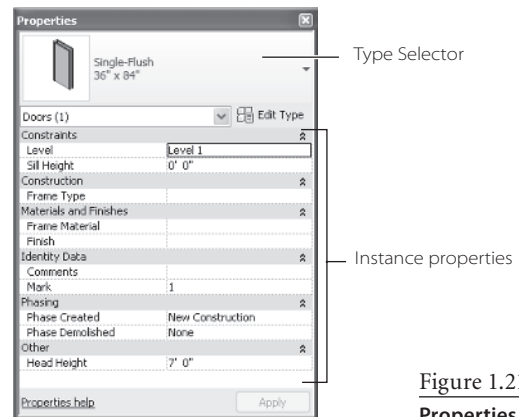
UNITS

This book references both imperial and metric units (imperial first, followed by metric equivalent in parentheses). We make an exception for instances like this, where we're talking only about the element in general rather than the actual dimensions of something.

When you create new elements, you use the Type Selector to select the family and type that you want to insert into your project. If you select an element that is already in the model, you can use the Type Selector to change it to a different type.

Families are broken up into different element categories. Some examples of categories are doors, walls, windows, floors, and so on. When you use the Door tool to place a door, only door categories will be shown in the Type Selector. So, the Type Selector is only going to display the appropriate category, families, and types for the one in use. We will discuss more about families in later chapters.

The bottom portion of the Properties palette contains the instance properties. *Instance properties* control only the instances (in other words, the elements) you have selected.

Figure 1.22

Properties palette with door and window selected

Instance properties are sometimes referred to as *element properties*. For example, when you change the door's finish material, then only the door you selected will have that finish description. When you change the door mark, then only that particular door is changed.

If you have selected multiple elements, the Type Selector will display the common type if possible. For example, if you selected five windows but they are not the same type (Single-Flush and Double-Flush) or if you have elements of different categories such as a door and window, Revit will display a message in the Type Selector: "Multiple Categories selected." The instance properties will display only those properties that are common to the selected elements (Figure 1.22).

While we are on the subject of properties, we should also discuss *type properties*. You can access them from the Properties palette by clicking the Edit Type button under and to the right of the Type Selector (Figure 1.23). Type properties control every instance (or all elements) of a specific type in the project, regardless of whether they are selected. Like instance properties, if multiple elements are selected, the Type Properties dialog box includes only those properties that all the selected elements have in common. Figure 1.24 shows an example of the type properties for a door.

Click to open the select element(s) type properties.

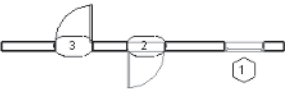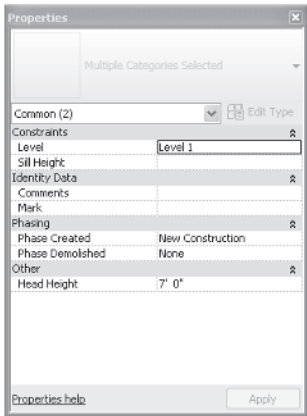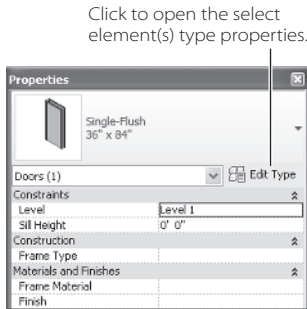Figure 1.23

Click the Edit Type button on the Properties palette to access the element's type properties.
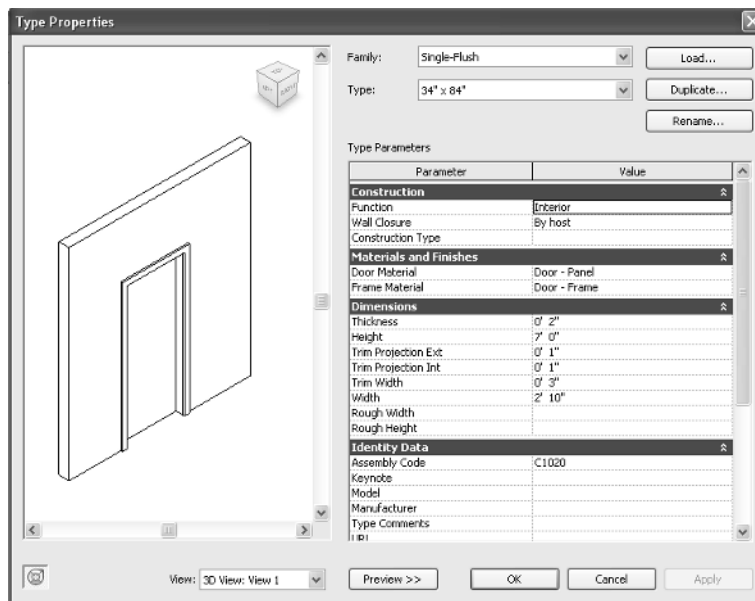
Figure 1.24
**Type properties
for a Single-Flush
34″×84″ door**

The Properties palette displays properties that are both user-editable and read-only. To edit a user-editable property value, click in the field to the right of the property name, and either enter a new value, select one from a drop-down list, or select/deselect a check box. For some properties, the value box contains a button to the far right that opens a dialog box or browser window in which you define the desired value.

Project Browser

As you work with Revit, you are going to find you are working on a fully integrated model. This means that all your views, details, sheets, schedules, and so on, are generally in a single workspace. Other applications, such as AutoCAD Architecture or Bentley Architecture, use a federated model approach where you might have tens if not hundreds of drawing files in multiple folders for a project. Rather than using Windows Explorer or some other tool to manage files, in Revit you can use the Project Browser to manage and navigate your projects.

You can find the Project Browser under the Properties palette (Figure 1.25). The Project Browser is organized by category in a Windows Explorer–like tree. All the different view categories such as floor plans, ceiling plans, 3D views, legends, schedules, details, sections, elevations, sheets, families, groups, and Revit links are displayed. These views in the Project Browser can be
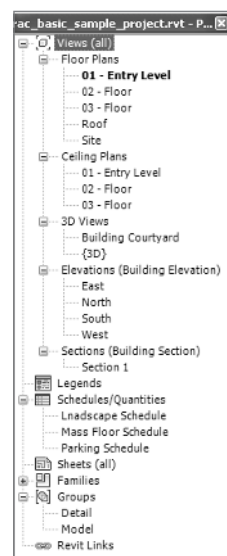

Figure 1.25

Project Browser

sorted, grouped, and filtered to help you organize your project. The Project Browser, like other dialog boxes in Revit, can be docked, or you can drag it to a new location such as a second monitor.

Using the Project Browser is very straightforward. We will cover a few of the basics here and get into more detail throughout the text. When you double-click a view name, that view is opened in the drawing area. When a view is active, the view name in the Project Browser is now bold.

Drawing Area

The drawing area is the large workspace under the Options bar; it's to the right of the Project Browser and Properties palette. The drawing area displays the current view that you are working on, and a new window will open for each view. If you have multiple views open and the views are maximized, then the other views will be under the current view.

View Control Bar

Figure 1.26

View Control bar

The View Control bar (Figure 1.26) is located in the lower-left corner of each drawing area window. The View Control bar serves a couple of different purposes to control the graphical view for each window. Working from left to right are the following functions for the View Control bar.

Scale This allows you to change the scale of a view. When you click the scale text, a pop-up menu will display allowing you to change the scale of your view (Figure 1.27). One of the great things about Revit is that when you change the scale of a view, annotations and symbols will automatically adjust. You don't have to worry about the scale factor or making adjustments to text sizes or dimension scales.

Figure 1.27

Scale listings from View Control bar

Detail Level This allows you to select from three different detail levels: Coarse, Medium, and Fine. If you want to see more graphical information, then you would set your detail level from Coarse to Fine.

Visual Style This allows you to you to specify visual style options, which are one of the following:

> **Wireframe** Displays the image of the model with all the edges and lines drawn but without surfaces

> **Hidden Line** Displays the image of the model with all edges and lines drawn except those obstructed by surfaces

> **Shaded** Displays the image of the model with all surfaces shaded according to their material color settings and project light locations
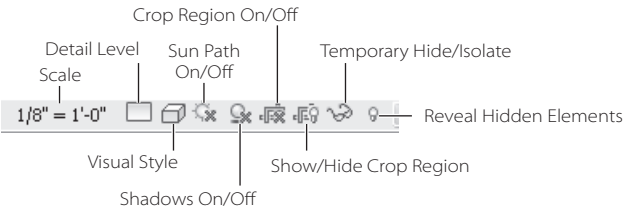
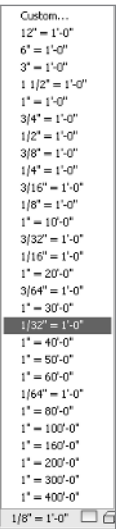**Shading With Edges** Displays the image of the model in shaded mode, but with all nonblocked edges drawn as well

Consistent Colors Displays an image of the model similar to Shading With Edges with more consistent colors

Realistic Displays the image of the model with materials in the active view

Sun Path On/Off This allows you to specify Sun Settings and to turn on or off Sun Path.

Shadows On/Off This allows you to specify to turn on or off shadows. There are additional graphic display options consisting of Shadows and Silhouette Edges.

Show/Hide Rendering Dialog This allows you to either display or hide the Render Settings dialog box.

Crop Region On/Off This allows you to turn on or off a crop region.

Show/Hide Crop Region This allows you to show or hide a crop region.

Temporary Hide/Isolate This allows you to temporarily hide or isolate elements or categories.

Reveal Hidden Elements This allows you to reveal hidden elements in the view.

Status Bar

The Status bar (Figure 1.28) is located at the very bottom of the UI. It provides you with the following information:

- Displays the name and family type of the element your cursor is over
- Prompts you for additional information regarding the active tool such as hints or what to do next

Figure 1.28

Status bar prompting for additional information

| Status bar information | Worksets | Design options | Filter |
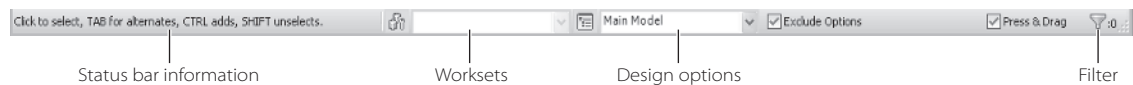
In addition to providing feedback and information, the Status bar contains the following controls:

Workset Provides access to the Workset dialog box and displays the active workset when worksharing has been enabled

Design Options Provides access to the Design Options dialog box and displays the active design option

Active Only Allows you to filter your selections to only select active design options components

Exclude Options Provides the ability to filter components that are part of a design option

Editable Only Allows you to filter your selections to only select editable workshared components

Press & Drag Allows you to drag an element without selecting it first

Filter Allows you to refine your selection set using element categories

KEYBOARD ACCELERATORS

If you are a seasoned AutoCAD user, then you probably initiated most of your commands by pressing a one- or two-key shortcut on the keyboard rather than picking a button or
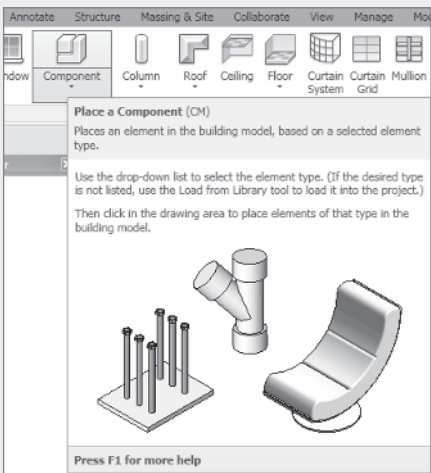
selecting a tool from a menu. Revit provides the same functionality for using and editing shortcuts. Many of Revit tools have predefined keyboard shortcuts. You can find them in several different ways. In the example shown here, the first line of the Component tooltip lists the name of the tool followed by the two-key shortcut.

You can also display and edit keyboard shortcuts by accessing the Keyboard Shortcut dialog box. You can access the dialog by clicking the View tab, clicking the Windows panel, clicking the User Interface drop-down, and selecting Keyboard Shortcuts.