Starting a Revit Project

Revit provides a number of approaches for creating a project. If you have an existing CAD drawing, you can use it to begin the project. When you migrate CAD drawings to Revit, you can maintain consistency between the original drawings and the migrated drawings by setting project standards for the drawings. Using sheets in Revit, imported or linked CAD data placed in views can be printed as part of a Revit project.

Objectives

After completing this chapter, you will be able to:

- Use CAD data to set up a Revit project.
- Create and transfer project standards.
- Create and manage sheets.
Lesson: Setting Up Projects with CAD Data

Overview

This lesson describes how to use CAD data to set up a Revit® Architecture project. You begin the lesson by learning about Revit projects and the different CAD drawing types that you can import and link into Revit. Next, you learn the process of creating a Revit project with CAD data and some recommended practices for its creation. The lesson concludes with an exercise on creating a project from AutoCAD® data.

The concepts conveyed in this lesson apply to the entire Revit family of products. Revit Architecture is being used to teach these concepts.

Revit provides a number of approaches for creating a project. For example, if you have an existing CAD drawing, you can use it to start the project of a building model. This reduces the setup effort and lets you leverage existing data.

Objectives

After completing this lesson, you will be able to:

- Describe Revit projects.
- Identify the CAD drawing types that you can import and link into Revit.
- Identify the steps in the process of creating a Revit project with CAD data.
- State the recommended practices for creating a project with CAD data.
- Create a project from AutoCAD data.
About Revit Projects

A CAD project typically consists of a set of drawings, such as floor plans, elevations, sections, and schedules, created as 2D graphics in separate files. However, a Revit project consists of a single file that contains all the 2D and 3D views and documentation related to a building design.

Definition of a Revit Architecture Project

A Revit Architecture project is a complete 3D representation of an architectural design together with the associated construction documents such as plans, elevations, sections, details, and schedules. In a Revit Architecture project, the information related to the building model is represented in 2D and 3D views stored in a single project file. The project consists of components for creating a building model, annotation tools for documenting the model, and views for representing the model. This is the same for the other Revit products as well.
**Project Environment**

When you design a building model in Revit, you also define the project environment. The project environment includes the building model components, annotation components, views, and visibility settings. For example, you can turn the display of furniture on or off in plan views depending on the requirements for the views.

You navigate the project environment from the Project Browser. In addition, you can work on the project in plan, elevation, section, 3D, or sheet views by using the Project Browser.

To create a new project, you use a project template. Depending on the chosen project template, views such as floor plans, ceiling plans, and elevations are automatically loaded into the Project Browser. The project environment settings are saved with the project, and you can customize them at any point in the design process.
Components and Views

The Revit project environment provides components for creating a building model. You can add parametric building components, such as windows, doors, and walls, to a project. A project environment contains predefined views, such as floor plans, ceiling plans, and exterior elevations. In addition, in the project environment, you can create various views, such as plan, section, elevation, and 3D views. However, if you make any changes to the model in a particular view, all other views, which are organized in the Project Browser, are automatically updated to reflect the change. The view that you activate in the Project Browser is displayed in the view window.

Examples of Projects

The following illustrations show examples of CAD and Revit Architecture projects.
Chapter 1: Starting a Revit Project

CAD Data in Revit

CAD data provides vector drawings that you can use as references in Revit. To use CAD data, such as details, note blocks, or plans, you link or import the data into a Revit project.

Revit Architecture project arranged on a drawing sheet

CAD drawing linked into Revit Architecture
Linked CAD Drawings

Linked CAD drawings in Revit behave like xrefs in CAD. Changes that you make and save in a linked CAD drawing are updated in the Revit Architecture project whenever the link is reloaded. To control linked CAD drawings in a Revit project, you use the Manage Links dialog box that is accessible from the File menu. Using this dialog box, you can unload and reload linked drawings. You can link details, note blocks, 2D and 3D topsurface maps, and legends.

You can place a linked CAD drawing in a view in a Revit project and place the view on a sheet. You can use section tags, detail tags, and callout tags to reference the view. All the associated CAD drawing information remains linked to the Revit Architecture project.

You can also acquire and publish coordinate systems between Revit and linked CAD files to synchronize the Revit Architecture coordinate system with the CAD coordinate system.

Imported CAD Drawings

You can import a CAD drawing into Revit. When you import CAD drawings into Revit, no link is maintained with the original drawing and subsequent changes made in CAD are not reflected in Revit. You can snap to and trace over imported CAD drawings to create Revit project components.

You typically import rather than link CAD drawings that do not change from project to project, such as standard details. You can use imported CAD drawings as backgrounds and 2D profiles for Revit family objects.

Process of Creating a Project with CAD Data

Before you leverage CAD data to create a Revit project, you need to create levels and views in the Revit project to which you will import or link the CAD data. You may also need to prepare an import line weights text file to correctly map the DWG™ or DXF™ pen colors to the corresponding Revit line weights.

Process: Creating a Project with CAD Data

The following illustration shows the process of creating a Revit project with CAD data.
The following steps describe the process of creating a Revit project with CAD data.

1. **Create views.**
   Create views to include CAD drawings that you want to import or link to a Revit project.

2. **Import or link CAD drawings.**
   Import or link the CAD drawings to Revit views, such as floor plans or drafting views.

3. **Snap to and trace the CAD geometry.**
   Snap to and trace the CAD geometry to create a building model.

4. **Make changes to the linked drawings.**
   Make changes to the linked drawings in AutoCAD, if required. The changes are updated automatically the next time you open the Revit project.

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**Guidelines for Creating a Project with CAD Data**

Many Revit users already have a lot of legacy data from CAD. This data can be leveraged in a Revit project for greater efficiency. The following recommended practices help you successfully create a Revit project using CAD data.

- Import or link CAD drawings that contain geometry you can snap to and trace over. This leverages the previously created data in the CAD files to make the process of creating Revit building model components quicker, more accurate, and efficient.
- Use an Import/Link mapping text file to import pen numbers from a DWG or a DXF file and map them to a Revit line weight. This automatically places correct line weights in CAD files that you link or import in black and white. The correct placement of line weights prepares the CAD files immediately for printing.
- Use the Import/Link CAD Formats dialog box to determine the color, placement, and scaling of imported geometry.
- Use the imported or linked CAD drawings that contain 2D correct standard details rather than drafting these details in Revit. You can use these drawings directly on a sheet for plotting, so that you can save time and increase accuracy.
- Use CAD drawings as backgrounds for creating Revit projects or components. You can also import note blocks and titleblock geometry from CAD. You can modify CAD geometry in Revit by exploding and changing the line work and text properties. This practice helps you keep the CAD information that is useful as is and change only what needs to be modified within a project.
- Learn to control the visibility of linked CAD files in each view. Use the Manage Link dialog box to manage the loading and unloading of DWG files in an entire project to save time and reduce system memory usage.
Exercise: Create a Project from AutoCAD Data

In this exercise, you create a project in Revit Architecture by importing AutoCAD drawings.

You want to import existing AutoCAD drawings to Revit Architecture and use them as backgrounds to develop your project. The AutoCAD drawings contain dimensions and tags that you do not want to import. Therefore, you use the Specify option from the Layers list in the Revit Import/Link CAD Formats dialog box to remove them before importing the drawing.

You do the following:

- Create a Revit Architecture project.
- Import AutoCAD background data for a project.

**Create a Revit Architecture Project**

1. Click File menu > New > Project.
2. In the New Project dialog box, click Browse to open the Imperial Templates (Metric Templates) folder.
3. In the Choose Template dialog box:
   - Select `default.rte` (DefaultMetric.rte) to start a new project.
   - Click Open.
4. In the New Project dialog box, click OK.
5. Save the project on the desktop as House1.

   Notice that the current project contains only two levels.

   This residential project will have a basement level, a ground floor level, and a roof level.
6. In the Project Browser, under Views (All), Elevations (Building Elevation), double-click East.

7. On the Design Bar, Basics tab, click Level.

8. To create a new level, in the view window:
   ▪ Draw a new level from left to right above Level 2.
     **Tip:** You do this by placing and moving the cursor over the start and end of Level 2 to align the new level.
   ▪ Press ESC two times to end the Level command.

9. In the view window:
   ▪ Double-click the height parameter at the level head you just created.
   ▪ Enter 20'-0" (8000 mm) if this is not already the new level height.
   ▪ Click outside the text box.

10. In the Project Browser, under Views (All), verify that Level 3 views are added under Floor Plans and Ceiling Plans.

11. To rename the levels and views to suit the new project, in the view window:
   ▪ Double-click the Level 1 text.
   ▪ Enter **Basement**.

12. In the Revit dialog box, click Yes to rename the corresponding views.

13. Repeat steps 11 and 12 to rename Level 2 as **Ground** and Level 3 as **Roof**.

14. Save the project.
Lesson: Setting Up Projects with CAD Data

Import AutoCAD Background Data for a Project

1. In the Project Browser, under Views (All), Floor Plans, double-click Basement to open the view.
2. Click File menu > Import/Link > CAD Formats.
3. In the Import/Link CAD Formats dialog box:
   - Browse to the directory where you installed the courseware datasets.
   - Select `c_basement.dwg`.
   - Select the Current View Only check box.
4. In the Import/Link CAD Formats dialog box:
   - Select Black and White from the Colors list.
   - Ensure that Auto-Center to Center is selected in the Positioning list.
   - Select Specify from the Layers list.
   - Click Open.
5. In the Select Layers/Levels to Import/Link dialog box, clear the following check boxes:
   - A-Anno-Dims
   - A-Anno-Note
   - A-Door-Iden
   - A-Glaz-Iden
6. Click OK to import the AutoCAD drawing into Revit Architecture.
7. In the Project Browser, under Views (All), Floor Plans, double-click Ground to open the view.
8. Repeat steps 2 through 6 to import the AutoCAD drawing `c_floor 1.dwg`.
9. Close the file without saving.

These AutoCAD backgrounds will be used to develop building components on the appropriate levels of the Revit Architecture project.
Lesson: Creating and Transferring Project Standards

Overview

This lesson describes how to create and transfer project standards. You begin the lesson by learning about project standards and the style and display settings for a project. Next, you learn the steps to create project standards and project templates, and apply view templates. Then, you learn some recommended practices for working with templates. The lesson concludes with an exercise on creating and transferring project standards.

The concepts conveyed in this lesson apply to the entire Revit family of products. Revit Architecture is being used to teach these concepts.

You create project standards to manage the default display of a model or annotation elements. For creating project standards, you define customized line weights, line styles, and line patterns and save these customized settings in project templates and view templates.

Customized line weights, line colors, and line patterns as part of project standards
Objectives

After completing this lesson, you will be able to:

- Describe project standards.
- Describe the style and display settings for a project.
- Create project standards.
- Create project templates.
- Apply view templates.
- State the recommended practices for working with templates.
- Create and transfer project standards.

About Project Standards

When you work as a team on a CAD project that uses numerous drawing files, each team member can work on a different aspect of the project in a separate file. If there is inconsistency in drawing styles used by each team member, the combined project drawings become difficult to interpret and use. You can prevent these problems and ensure consistency by standardizing the styles and display settings in the drawings that make the project.

In Revit, standardizing the styles and display settings for projects is easier than standardizing for CAD projects. To standardize the styles and display settings, you define project standards in the project templates and then apply the project templates to projects.

Definition of Project Standards

Project standards in Revit define the styles and display settings that you use to establish, maintain, and synchronize standards across views in a project. These standards include family type display, line weights, materials, view templates, model object styles, and annotations.

By default, Revit uses line types and line weights that adhere to most drafting and printing standards worldwide. You can use these standards across projects by saving them to a project template. You can also use the standards information that has not been saved into a template by transferring those standards from one project to another.
Example of Project Standards

The following illustrations show a project plan view before and after applying line weight standards.

Before applying line weight standards

After applying line weight standards

Styles and Display Settings

Revit provides a black-on-white interface that automatically manages printed line weights. When you import or link CAD drawings into Revit Architecture, you can maintain consistency between imported CAD data and the original files by specifying various display settings for the CAD imports, such as line weights and line patterns.

Revit text and annotation elements scale automatically with the view they are in, which makes text and dimension styles easy to manage.
Line Weights

You can control line widths for building model elements and annotation elements by specifying the line weights for these elements in the Line Weights dialog box.

**Line Weights**

You can control line widths for building model elements and annotation elements by specifying the line weights for these elements in the Line Weights dialog box.

**Line Weights dialog box**

The Line Weights dialog box has three tabs that you can use to set the line weights for different elements. The following table describes these tabs.

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model Line Weights</strong></td>
<td>Specifies the line widths for building model components in orthographic views. Each Revit line weight displays and prints at a specific thickness according to the scale of the view. You can modify the standard line widths for different view scales.</td>
</tr>
<tr>
<td><strong>Perspective Line Weights</strong></td>
<td>Specifies the line widths for building model components in perspective views. For example, you can set the line width for a door frame to a different value in perspective view than it is in an orthographic elevation or 3D view.</td>
</tr>
<tr>
<td><strong>Annotation Line Weights</strong></td>
<td>Specifies the line widths for annotation symbols. For example, you can use different line widths to distinguish between section lines and dimension lines.</td>
</tr>
</tbody>
</table>

**Import Line Weights**

When you import CAD drawings, you can map the CAD data to any of the 16 line weights in Revit. This mapping ensures that the CAD drawing is properly displayed.

Using the Import Line Weights dialog box, you can map colors from the DWG or DXF files to line weights in Revit. You can then save the results of the mapping as an external text file, so that you can reuse it or share it with other team members.
Revit provides standard pen and line weight mappings that follow the AIA, BS1192, ISO13657, or CP83 standards. You can load and use the existing mappings or create customized mappings to match your organization’s CAD plotting standards or those of clients and collaborators.

**Line Patterns**

Revit line patterns are a series of dashes or dots alternating with blank spaces. You specify the line patterns for a project to define the display of lines in that project.

The following illustration shows a plan view of a building model with different line patterns.
You can use the predefined line patterns or create new line patterns using the Line Patterns dialog box.

![Line Patterns dialog box](image)

**Line Patterns dialog box**

**Line Styles**

Line styles are a combination of line weight, line color, and line pattern. You use different line styles for different elements. For example, you can use a dashed line for a reference plane.

Revit provides several predefined line styles. Each predefined line style has a name that describes either the line style, such as Thin Lines, or the location where the program uses the line style, such as Sketch Lines. You create or modify line styles using the Line Styles dialog box.

![Line Styles dialog box](image)

**Line Styles dialog box**
Object Styles

You can set object styles for model, annotation, and imported objects by specifying line weights, line colors, line patterns, and materials for different components or imported geometry layers. You set the object styles in the Object Styles dialog box.

Object Styles dialog box

You can override the default appearance of objects in a particular view using the Visibility/Graphic Overrides dialog box.

Visibility/Graphic Overrides dialog box
Annotations

You define the appearance of text, loaded tags, dimensions, and annotation symbol styles in a project using the Type Properties dialog box for the selected object. Using this dialog box, you can edit the existing annotation types or create new types to match the project standards.

The following illustration shows a plan view of a building model with room tags and two types of dimensions. The tag family specifies the text height and fonts for room names and areas, and the dimension type properties define the text height and font style for different dimensions.
Creating Project Standards

You create project standards by creating custom line patterns, line styles, and object styles for projects.

Procedure: Creating a Line Pattern

The following steps describe how to create a line pattern.

1. Click Settings menu > Line Patterns.
2. In the Line Patterns dialog box, click New to create a new line pattern.

   ![Line Patterns dialog box]

3. In the Line Pattern Properties dialog box, specify the name, type, and value for the line type.

Procedure: Creating a Line Style

The following steps describe how to create a line style.

1. Click Settings menu > Line Styles.
2. In the Line Styles dialog box, under Modify Subcategories, click New.
3. In the New Subcategory dialog box, for Name, enter a name for the line style.
4. In the Line Styles dialog box, specify values for Line Weight, Line Color, and Line Pattern to define the line style.

Procedure: Creating a Model Object Style

The following steps describe how to create a model object style.

1. Click Settings menu > Object Styles.
2. In the Object Styles dialog box, Model Objects tab, under Modify Subcategories, click New. A new object style is always a subcategory of an existing category.
3. In the New Subcategory dialog box, specify a name and category for the object style.
4. In the Object Styles dialog box, define the settings for the new subcategory by specifying values for projection and cut line weights.

<table>
<thead>
<tr>
<th>Category</th>
<th>Line Weight</th>
<th>Line Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASework</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Ceilings</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Columns</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Curtain Panels</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**NOTE:** The projection line weight controls line weight for elements that are not cut in a view, such as in an elevation view. However, the cut line weight controls the line weight for elements that are cut in plan and section views. Cut line weights are heavier than projected line weights.

5. In the Color dialog box, specify a line color for the new object style.

**TIP:** Click Pantone in the Color dialog box to select the exact shade of a desired line color.

6. In the Object Styles dialog box, select a line pattern from the list of line patterns.

7. Specify a material for the new object style.

8. Click OK to close all dialog boxes.
Creating Project Templates

You create project templates to define and maintain project standards that you can apply to new projects. Using project templates, you can set line weights, line styles, object styles, annotation styles, and default project units. You can also create default building levels and standard views, specify wall, ceiling, floor, roof, and stair types, and load components that are appropriate for a new project.

Project Template Settings

The following table describes the various settings that you can specify for a project template.

<table>
<thead>
<tr>
<th>Settings</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titleblocks</td>
<td>Creates a set of titleblocks for the project and then loads it to a project template.</td>
</tr>
<tr>
<td>Families</td>
<td>Loads commonly used families to a project template.</td>
</tr>
<tr>
<td>Line Styles</td>
<td>Defines line styles for components and lines in a project.</td>
</tr>
<tr>
<td>Line Weights</td>
<td>Defines line weights for model and annotation components.</td>
</tr>
<tr>
<td>Fill Patterns</td>
<td>Defines fill patterns for materials.</td>
</tr>
<tr>
<td>Materials</td>
<td>Defines materials for building model components. The material settings affect the appearance of a building image after rendering.</td>
</tr>
<tr>
<td>Units</td>
<td>Specifies the unit of measurement for length, angle, and slope angle.</td>
</tr>
<tr>
<td>Snaps</td>
<td>Controls snapping increments for model views.</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Defines the display and size of dimensions for the project.</td>
</tr>
<tr>
<td>Temporary Dimensions</td>
<td>Controls the display and placement of temporary dimensions.</td>
</tr>
<tr>
<td>Object Styles</td>
<td>Defines the display of components in various views.</td>
</tr>
<tr>
<td>Wall Types</td>
<td>Defines custom and predefined wall types for the project.</td>
</tr>
<tr>
<td>Text</td>
<td>Controls the text properties for modeling and annotation components.</td>
</tr>
</tbody>
</table>

Procedure: Creating a Project Template

The following steps describe how to create a project template.

1. Click File menu > New > Project.
2. In the New Project dialog box:
   - Under Template File, click Browse to select a template file for creating a new project template.
   - Under Create New, click Project Template. This opens the new template file.
3. Specify settings for levels, views, and sheets. You can also rename existing levels and views, and add levels, drawing sheets, and schedules to the template.

4. Save the new project template with a new name and .rte file extension.

**NOTE:** You can also save a project file as a template file by using the Save As option from the File menu.

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If you do not want to use any template file, you can select the None option in the New Project dialog box, rather than a template file, and select the initial unit system, such as imperial or metric, for the project. Without a template file, a simplified project is created with only one level, one plan view, and one reflected ceiling plan view. In addition, only basic wall, curtain wall, and stacked wall components are loaded, elevations are not created, and windows, doors, and other components are not loaded.

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## Applying View Templates

View templates provide default display settings, such as view scale, view range, and object visibility, for different views of a building model. You create view templates to specify the project standards for the views in a project. After creating view templates, you can apply them to an existing view, a new view, and to multiple views. You can either apply the same view template to multiple views or apply specific view templates. For example, for all elevation views in a project, you can apply the Architectural Elevation template. You can also specify a default view template for each view. If you apply the default template to a view or selection of views, the view template defined in the view properties is applied to each view.

### View Template Settings

The following table describes various display settings that you can specify for a view template.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>View Scale</td>
<td>Defines the view scale of a building model.</td>
</tr>
<tr>
<td>Scale Value 1</td>
<td>Defines a custom scale for a view when View Scale is set to Custom.</td>
</tr>
<tr>
<td>Visibility</td>
<td>Defines the visibility of objects in a building model.</td>
</tr>
<tr>
<td>Model Graphics Style</td>
<td>Defines the visual effects applied to a view, such as shading or shading with edges.</td>
</tr>
<tr>
<td>Detail Level</td>
<td>Defines the detail level settings for a view, such as coarse, medium, or fine.</td>
</tr>
<tr>
<td>Discipline</td>
<td>Sets the visibility of nonbearing walls and discipline-specific annotation symbols such as framing elevations.</td>
</tr>
<tr>
<td>Display Model</td>
<td>Controls the display of the model and detailed view-specific elements in a detail view.</td>
</tr>
<tr>
<td>Phase Filter</td>
<td>Defines the phase properties for a view.</td>
</tr>
<tr>
<td>View Range</td>
<td>Defines the range in which objects are visible in a plan or RCP view.</td>
</tr>
</tbody>
</table>
Procedure: Applying a Default View Template

The following steps describe how to apply a default view template.

1. Right-click in the view window. Click View Properties.
2. In the Element Properties dialog box, under Value, click the Default View Template row and select a view template from the list of templates to make it the default view template.
3. Click OK to close the Element Properties dialog box.
4. Click View menu > Apply Default View Template.

Guidelines for Working with Templates

The following recommended practices help you work efficiently with various templates in a project, such as project templates and view templates.

Guidelines for Creating Project Templates

- Include object styles, view settings, and project content appropriate for different types of projects in the project templates to make the templates universally applicable. For example, you should include different wall types in a template for single-family residential projects and multistory office projects.
- Do not overload templates with unnecessary content, so that the designers do not have to view long lists of choices when creating or placing model components. This practice speeds up work and improves efficiency.
- Use the Transfer Project Standards command on the File menu to quickly transfer standards to a template file. You can also transfer project standards into a project that has already been created.
- Use a completed project file to create a project template with all the project-specific settings. You can simply delete the model content after you have saved the file and retain the sheets with views, schedules, line types, and objects styles. This practice saves considerable time on future projects.

Guidelines for Applying View Templates

- Create a view template from a view that you want to reuse as a standard for other views. By following this practice, you can quickly apply the settings of the standard view to other views.
- Apply view templates to views before exporting or plotting them. This practice ensures that all views have the desired view properties.
- Apply different view templates to multiple views simultaneously by specifying a template name for the Default View Template parameter of each view.
- Reapply a modified view template to the views that you created using the view template. By following this practice, you can update the views according to the changes in the view template.
Exercise: Create and Transfer Project Standards

In this exercise, you create project standards in a project file and transfer the project standards to a template for use in other projects.

You are migrating from CAD to BIM and Revit Architecture. You prepare a Revit project file by customizing settings for object styles. You then create a custom view template and apply the template to views in the project. Finally, you transfer the customized settings to a project template that you can use for all your projects.

You do the following:
- Create custom project standards.
- Transfer project standards.

The completed exercise

Completing the Exercise
To complete the exercise, follow the steps in this book or in the onscreen exercise. In the onscreen list of chapters and exercises, click Chapter 1: Starting a Revit Project. Click Exercise: Create and Transfer Project Standards.

Create Custom Project Standards

1. Open i_standards.rvt or m_standards.rvt. The project opens in the default 3D view.

2. Click Settings menu > Object Styles.
3. To change the color of doors in all views, in the Object Styles dialog box, Model Objects tab:
   - Under Category, expand Doors.
   - For the Panel row, double-click in the Line Color field.
4. In the Color dialog box:
   - Under Custom Colors, click Blue, as shown.

   ![Color Dialog Box](image)

   - Click OK.
5. Click OK in the Object Styles dialog box. Notice that the doors update in the view.

   **Tip:** You can zoom in to a door to notice the change.
6. Place the cursor over the wall on the far right, as shown. The tooltip displays the wall type.

7. In the Project Browser, under Views (All), Floor Plans, double-click Level 1 to open the view.
8. To change the settings for the view, on the View Control Bar:
   - Click View Scale > 1/4" = 1'-0" (1 : 50).
   - Click Detail Level > Medium.
9. Enter **VG** to open the Visibility/Graphic Overrides dialog box.
10. To change the display of doors in the view, in the Visibility/Graphic Overrides dialog box, Model Categories tab:
    - Under Visibility, expand Doors.
    - For the Panel row, click in the Projection/Surface > Lines field.
    - Click Override.
11. In the Line Graphics dialog box, click the button for Color.
12. In the Color dialog box:
    - Select Black.
    - Click OK.
13. Click OK to close the Line Graphics dialog box.
14. Repeat steps 10 through 13 to update the Cut > Lines field for the Panel row.
15. Click OK to close the Visibility/Graphic Overrides dialog box. Notice that all doors are now black in color.
16. To create a view template, in the Project Browser, right-click Level 1. Click Create View Template from View.
17. In the New View Template dialog box:
    - For Name, enter **Medium Plan Black**.
    - Click OK.
18. Click OK to close the View Templates dialog box.
19. To apply the new view template to other views, in the Project Browser:
   - CTRL+select Level 2, Level 3, and Roof floor plan views.
   - Right-click the selected views. Click Apply View Template.

20. In the Apply View Template dialog box:
   - Under View Templates, verify that Medium Plan Black is selected in the Names list.
   - Click OK.

Transfer Project Standards

1. Click File menu > Open.
2. In the Open dialog box:
   - Browse to the folder where you installed the courseware datasets.
   - Select the template file default.rte (DefaultMetric.rte).
   - Click Open.

3. Click File menu > Transfer Project Standards.
4. In the Select Items to Copy dialog box:
   - Click Check None to clear all the check boxes.
   - Select the Object Styles, View Templates, and Wall Types check boxes.
   - Click OK.

5. In the Duplicate Types dialog box, click New Only.

6. Click Settings menu > Object Styles.

7. In the Object Styles dialog box:
   - Under Category, expand Doors.
   - Notice the settings for Panel.
   - Click OK.

8. In the Project Browser, under Views (All), Floor Plans, right-click Level 1. Click Apply View Template.

9. In the Apply View Template dialog box:
   - Under View Templates, select Medium Plan Black from the Names list.
   - Click OK. The view scale and detail level are updated.

10. Click Window menu > Tile to display all the open views.

11. On the View toolbar, click Zoom In > Zoom All to Fit.

12. Close all files without saving.
Lesson: Creating and Managing Sheets

Overview

This lesson describes how to create and manage sheets. You begin the lesson by learning about sheets and titleblocks. Next, you learn the steps to create groups for organizing sheets in the Project Browser and some recommended practices for creating and managing sheets. The lesson concludes with an exercise on creating a sheet by using CAD data.

The concepts conveyed in this lesson apply to the entire Revit family of products. Revit Architecture is being used to teach these concepts.

Sheets are the basis for construction document sets. A sheet enables you to place different views side by side on a page with titleblock information about your company and the project. Imported or linked CAD data placed in views can be plotted as part of a Revit project. You can organize sheets in the Project Browser by placing them in groups.

Objectives

After completing this lesson, you will be able to:

- Describe sheets.
- Describe titleblocks.
- Create groups for managing sheets in the Project Browser.
- State the recommended practices for creating and managing sheets.
- Create a sheet by using CAD data.
About Sheets

You use sheets to create a document set and plot model or drafting views. When you work with sheets, you can edit the model in the viewports on the sheets. You can plot CAD data from Revit by placing CAD files in drafting views and placing the drafting views on sheets.

Definition of Sheets

A sheet is a view to which you can add model views, drafting views, legends, and schedules. A sheet in Revit is similar to a Layout tab in AutoCAD.

When you add a view to a sheet, it is contained in a viewport. Viewports have type properties that you can modify and customize. You can activate a viewport on a sheet to edit the building model directly from the sheet.

The following illustration shows a sheet displaying a plan view, a section view, and a schedule.

1. Plan view
2. Section view
3. Schedule
Example of Sheets

The following illustration shows an example of a drafting view containing a linked CAD drawing on a Revit sheet.

About Titleblocks

After adding a sheet to a project, you can assign a titleblock to the project. A titleblock reports project information such as project name, project number, and sheet author. Titleblocks also help manage sheets. For example, you can use the sheet author information to identify the sheets created by a particular author.

Definition of Titleblocks

Titleblocks define the size and appearance of a sheet. They act as templates for sheets. Titleblocks exist as families in the content library. You can either use the predefined titleblocks provided by the software or create a new titleblock according to your organization’s standards.

To create a new titleblock, you begin by specifying the size. You add linework and create labels in a titleblock to display project and sheet information. Labels read parameters and properties in the project and display them in text format.

If you want to use an existing CAD titleblock in a Revit sheet, you can import CAD titleblock geometry to the Revit titleblock family.
Predefined Titleblocks

You can add predefined titleblocks from the Imperial and Metric libraries. If the required titleblocks are unavailable in the libraries, you can also download predefined titleblocks from the Web library.

The following predefined titleblocks are available in the Imperial library:

- A 8.5 x 11 Vertical
- B 11 x 17 Horizontal
- C 17 x 22 Horizontal
- D 22 x 34 Horizontal
- E 34 x 44 Horizontal
- E1 30 x 42 Horizontal

The name of a titleblock represents the paper name, size (in inches), and orientation of the titleblock.

The following predefined titleblocks are available in the Metric library:

- A0 Metric
- A1 Metric
- A2 Metric
- A3 Metric
- A4 Metric

Example of Titleblocks

The following illustration shows the E1 30 x 42 Horizontal titleblock placed in a sheet. The label fields are updated after you edit the fields in the Project Information dialog box.
Managing Sheets

The Project Browser displays all the views and sheets in a project. If the project contains a large number of views and sheets, you can organize the Project Browser to group the views and sheets and display only those that you need to access. For example, you can set the Project Browser to group sheets by sheet title and then limit the sheets that are displayed in the Project Browser by applying a filter.

Procedure: Managing Sheets

The following steps describe how to create a new group for managing sheets in the Project Browser.

1. Click Settings menu > Browser Organization.
2. In the Browser Organization dialog box:
   - Click the Views or Sheets tab to specify the desired grouping.
   - Click New to create a custom grouping.
3. In the Browser Organization Name dialog box:
   - For Name, enter a name for the grouping.
   - Click OK.
4. In the Browser Organization Properties dialog box, Folders tab, select an option, such as Sheet Name or Sheet Number, from the Group By list.

![Browser Organization Properties dialog box](image)

**NOTE:** You can group views or sheets by any view property. For example, you can group by Discipline or by the desired number of leading characters of a sheet name.

5. Change any other secondary grouping settings and select a Sort By attribute.

### Guidelines for Creating and Managing Sheets

The following recommended practices help you work efficiently while creating and managing sheets.

- Use existing CAD titleblocks to create sheet titleblocks. You can import a CAD titleblock into the Revit Family Editor and use this as a background for a Revit titleblock. This helps leverage the existing CAD library to save time.
- Use labels as dynamic fields in titleblocks so that they can read and display project data from the project when loaded. This helps save time and reduces errors involved in manually updating the data.
- Use the Not on Sheets parameter to distinguish between the views that are placed on sheets and those that are not placed on the sheets while organizing the Project Browser views. This can simplify the Project Browser and construction document sets in a large project.
- Rotate views on a sheet and move the viewport title separately from the view to arrange the views and create an organized sheet for printing.
- Use dependent views and match lines to place large floor plans on multiple sheets. Dependent views keep view properties tied together. You can also use dependent views to place multiple copies of the same view on different sheets. This saves time when populating sheet sets for printing.
Exercise: Create Sheets Using CAD Data

In this exercise, you create a titleblock by using CAD data, load the titleblock into a project file, and then add a sheet using the new titleblock.

When you are ready to document and plot your project, you create custom titleblocks with a company logo and other company-specific and project-specific attributes. You can leverage existing CAD titleblocks to speed up the process. You add labels to the titleblock to make the attributes dynamic. These labels will display project information automatically when loaded into your project.

In your building model design, you need to create a new sheet with a custom titleblock. You also need to add a drafting view that contains imported CAD data to the sheet.

You do the following:

- Create a titleblock.
- Customize the titleblock.
- Create a sheet.
- Add a view to the sheet.

Create a Titleblock

1. Open `i_christensen_residence.rvt` or `m_christensen_residence.rvt`. The file opens in the Stair Detail drafting view containing an imported CAD file.

   **NOTE:** The illustrations for the metric dataset will be slightly different from those shown here.

2. To set project information for titleblocks, click Settings menu > Project Information.

3. In the Element Properties dialog box, under Instance Parameters, Other:
   - For Project Name, enter `New House`.
   - Click OK.

4. To create a new titleblock, click File menu > New > Titleblock.

5. In the New Title Block dialog box:
   - Browse to the `Imperial (Metric) Templates > Titleblocks` folder.
   - Select `E1 - 42 x 30.rft (A0 metric.rft)`.
   - Click Open.

6. To import existing CAD linework, click File menu > Import/Link > CAD Formats.

7. To select the CAD titleblock to import, in the Import/Link CAD Formats dialog box:
   - Browse to the folder where you installed the courseware datasets and select `i_titleblock e1.dwg (m_titleblock a0.dwg)`.
   - Ensure that Black and White is selected in the Colors list.
   - Select Auto - Origin to Origin from the Positioning list.
   - Click Open.

8. In the Revit dialog box, which prompts you to import valid elements from the Model space, click Yes.

Completing the Exercise

To complete the exercise, follow the steps in this book or in the onscreen exercise. In the onscreen list of chapters and exercises, click Chapter 1: Starting a Revit Project. Click Exercise: Create Sheets Using CAD Data.
9. Notice that the CAD titleblock is imported as an import symbol in the view window.

10. In the view window:
   - Move the cursor over the inner edges of the titleblock import symbol till the import symbol displays.
   - Click to select the import symbol.

11. To edit the content in the imported object, on the Options Bar, click Partial Explode.

   **NOTE:** You can explode imported CAD files fully or partially. Clicking Partial Explode is often preferred to fully exploding CAD imports because doing the latter converts the geometry completely to individual lines and text.

Customize the Titleblock

1. In the view window:
   - Zoom in to the titleblock.
   - Click the Project Name label.

   ![Project Name label](image)

   **NOTE:** You can explode imported CAD files fully or partially. Clicking Partial Explode is often preferred to fully exploding CAD imports because doing the latter converts the geometry completely to individual lines and text.

2. On the Design Bar, Family tab, click Label.
3. In the view window, click any point near the Project Name label that you just deleted to insert a new label at that point.

4. In the Edit Label dialog box:
   - Under Category Parameters, double-click Project Name to place the parameter in the Label Parameters list.
   - Click OK.

5. On the Design Bar, Family tab, click Modify to end the Label tool.

6. In the view window:
   - Select the Project Name label.
   - Drag the circular handle 90 degrees counterclockwise to rotate the label.
   - Press ESC to end the selection.

7. On the Options Bar, click Element Properties.

8. In the Element Properties dialog box:
   - Under Instance Parameters, Graphics, for Horizontal Align, select Center from the Value list.
   - Click Edit/New.

9. In the Type Properties dialog box:
   - Under Type Parameters, Text, for Text Size, enter 7/16" (12 mm).
   - Click OK to close each dialog box.


NOTE: If the Load into Projects dialog box appears because you have more than one project file open, select the i_christensen residence.rvt (m_christensen residence.rvt) check box and click OK.

Create a Sheet

1. Click View menu > New > Sheet.
2. In the Select a Titleblock dialog box:
   - Ensure that Family1 is selected.
   **NOTE:** Depending on the number of new titleblocks you create in this Revit session, the titleblock name will change accordingly. Select the titleblock that you have just created in the previous steps.
   - Click OK.

A new sheet opens with the customized titleblock.

3. In the view window:
   - Zoom in to the titleblock.
   - Verify that New House is displayed as the project name.

Add a View to the Sheet

1. Right-click anywhere in the view window. Click Zoom To Fit.
2. In the Project Browser, under Views (All), Drafting Views (Detail), drag Stair Detail into the view window.
3. In the view window:
   - Move the cursor near the New House label.
   - Click to place the Stair Detail view.
4. Close all files without saving.
Chapter Summary

Now that you have learned to use CAD data to set up a Revit project, you can reduce the setup effort as well as leverage existing data by using existing CAD drawings.

In this chapter, you learned to:

- Use CAD data to set up a Revit project.
- Create and transfer project standards.
- Create and manage sheets.