

Autodesk® **Revit® 2023 BIM Management**

Template and Family Creation



Visit the following websites to learn more about this book:



Creating Custom Templates

Custom templates can save you time and effort when creating similar projects by providing an efficient way to apply your organization's graphic and documentation standards. Templates can include items such as levels, views, sheets, schedules, and annotation types for text, dimensions, and tags. A custom title block is a typical family that is added to templates that ensures that sheets are created with the appropriate information. You may also want to add rule-based view filters and view templates to project template files for improved workflow within the project.

Learning Objectives in This Chapter

- Create project templates.
- Use resource projects to store additional system families, details, schedules, and other data.
- Create standard text and dimension types for use in your projects.
- Modify callout, elevation, and section tags and specify which tags are loaded in a template.
- Create title blocks, including detail lines, text, labels, symbols, regions, and revision schedules.
- Set up visibility/graphic override filters for various categories of elements.
- Create and apply view templates.

1.1 Preparing Project Templates

A project template is a file that contains information that can be used over and over to create new projects. The goal is to save time by using company standards, enabling you to concentrate on the design. For example, predefined levels (as shown in Figure 1–1 for a residential project) and the associated plan views and elevations provides a starting point for a model.

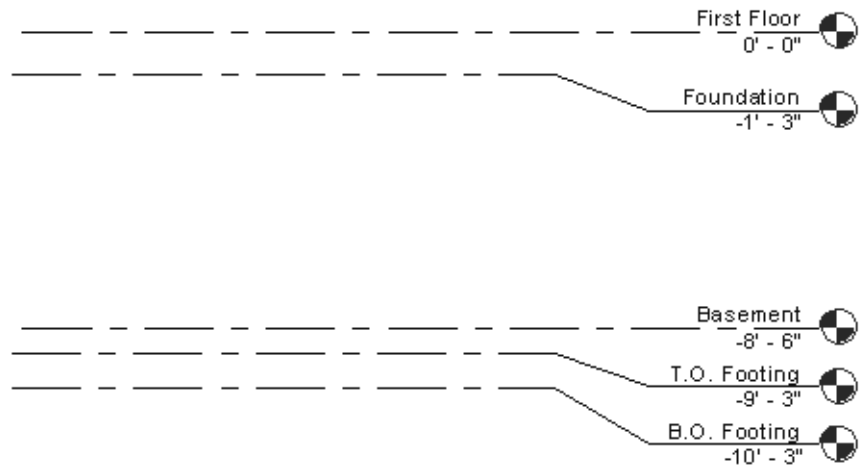





Figure 1–1

- Some items in a project template include:
 - **Project views:** Levels, schedules, legends, sheets, plan views, and view templates.
 - **Project-based settings:** Project units, object styles, fill patterns, line styles, discipline-specific settings, etc.
 - **Families:** System families, component families, custom families, and title blocks.
 - **Print settings:** Define printers and print settings.
 - **Annotation types:** Dimension style, text, arrowheads, and tags.
- If you provide constant work to a specific client (e.g., a school system or government entity), you can create a template specific to their projects with associated title blocks and other information.
- You can also store items such as sheets, schedules, families, and drafting views (details) in a separate resource file and add the elements to the current project, as needed.
- As you create new templates, families, and title blocks, it is recommended that you save them in a safe location where they will not be deleted and are outside of the Revit file structure.

Project templates are located in the
 C:\ProgramData\Autodesk\RVT 2023\Templates\English (Metric) or English-Imperial folder.

How To: Create a Project Template File

- In the *File* tab, expand  (New) and click  (Project).
 - Alternatively, on the Revit Home screen, click  (New...) in the *MODELS* area, as shown in Figure 1–2.

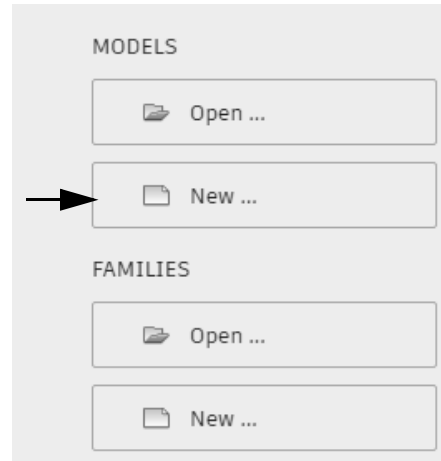


Figure 1–2

- In the New Project dialog box, in the *Template file* area, select a template file to begin with or select **<None>** to use a blank project file.
- In the *Create new* area, select **Project template**, as shown in Figure 1–3.
 - Project template files have the extension .rte.

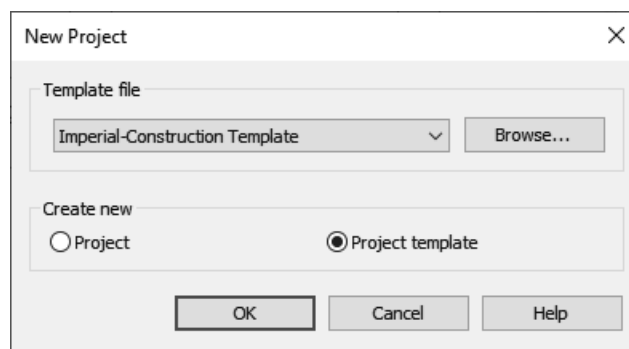


Figure 1–3

- Click **OK**.
- Add settings, families, views, etc., as needed to the new file.
- Save the project template file.
 - To save time, use an existing project or template that includes some of the basics you need rather than starting from scratch. Note: Make sure to clean up all existing project data that is not standard.

Managing Settings

- If you select **<None>** in the *Template file* list, you are prompted to specify the initial unit system for the project: **Imperial** or **Metric**, as shown in Figure 1–4. Choosing this option requires all settings to be defined and updated versus choosing a predefined template that is similar to your needs.

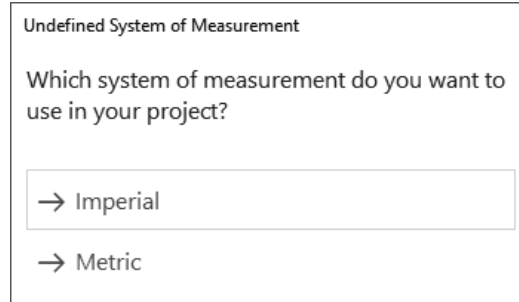


Figure 1–4

Most of the settings stored in a template file are found in the *Manage* tab>Settings panel, as shown in Figure 1–5. These settings include Materials, Object Styles, Snaps, and Additional Settings (e.g., Line Styles, Fill Patterns, Annotations, etc.)

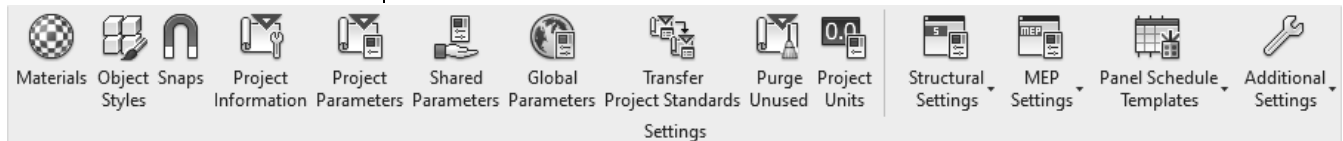


Figure 1–5

- Specific Structural Settings, MEP Settings, and Panel Schedule Templates are also included in the Settings panel.

For more information on managing settings, refer to the following sections in Appendix A:

- A.1 Project Browser Organization
- A.2 General Settings
- A.3 Creating Object Styles
- A.4 Creating Fill Patterns
- A.5 Creating Materials
- A.6 Settings for Mechanical Projects
- A.7 Settings for Electrical Projects
- A.8 Settings for Structural Projects

Families in Templates

There are two kinds of families that can be set up in template files: *system families*, such as the duct shown in Figure 1–6, and *component families*, such as the air terminal shown in Figure 1–6.

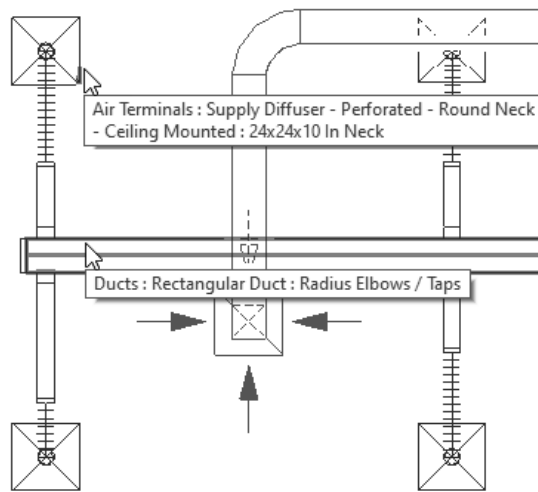


Figure 1–6

For more information on setting up system families, see Chapter 3: Custom System Families.

System Families are families that are predefined in Revit projects and templates. Unlike external loadable families, system families can be created by duplicating existing types and modifying the *Type Parameters*, as shown in Figure 1–7. This can only be done within a project and helps to establish the company standard for the families set up in a template file. System families include walls, wall foundations, floors, structural slabs, ceilings, stairs, railings, and roofs. They also include duct, pipe, cable tray, and conduit types, along with some annotation types, such as text and dimensions.

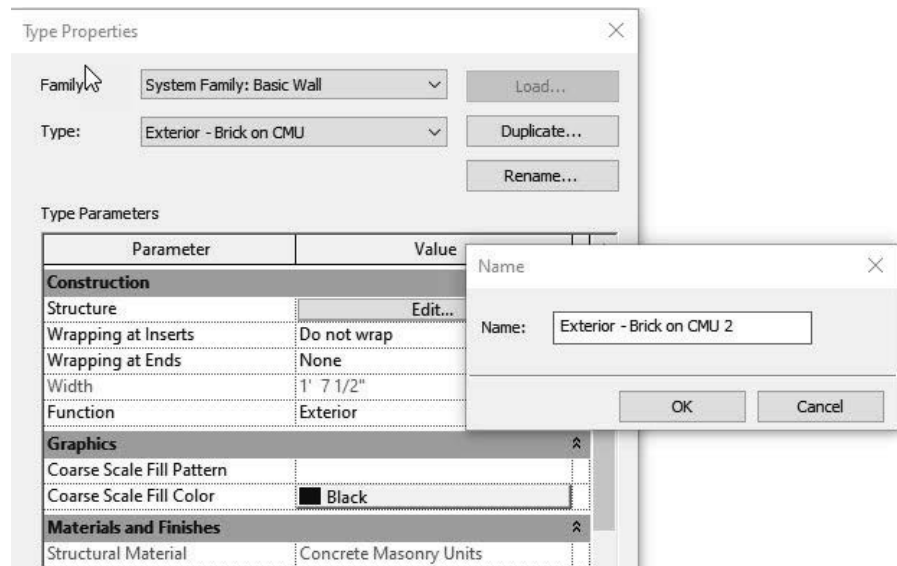




Figure 1–7

For more information on creating component families, see Chapter 4: Component Family Concepts.

Go to the Autodesk.com website and search Autodesk Revit 2023 Content.

Component Families are external loadable families that are created outside of a project and can be loaded directly in a template file with types and sizes that are used frequently. Component families include elements such as furniture, trees, beams, columns, mechanical equipment, and electrical fixtures.

How To: Load a Family from the Revit Library

1. In the *Insert* tab>Load from Library panel, click  (Load Family).
 - Alternatively, you can load a family by starting a loadable family command, then in the *Modify* contextual tab>Mode panel, click  (Load Family).
 - Note: To use the Load Family method, you must install the **Autodesk Revit 2023 Content** in your desired language from the Autodesk website.
2. In the Load Family dialog box, locate the folder that contains the family or families you want to load, as shown in Figure 1–8. To load more than one family at a time, hold <Ctrl> while selecting.
 - The program remembers the last-used folder. If the Load Family dialog box does not default to the Revit Library folder, click on **Imperial Library** in the Places panel.
 - If the Load family dialog box does not default to the Revit Library folder, click on **Imperial Library** in the Places panel.

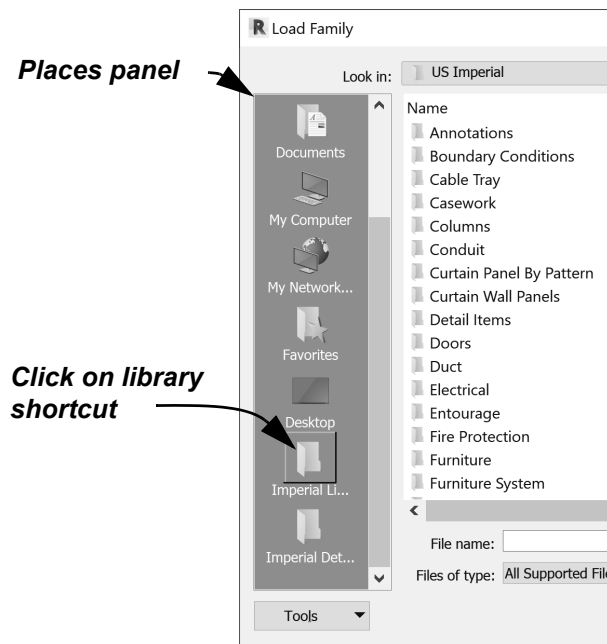


Figure 1–8

3. Click **Open**.

- Note: When inserting a family using a loadable family command, after you load the family your cursor will have the loaded element at the end of the cursor to prompt you to place the element. You will need to press <Esc> twice or click



(Modify) to clear the cursor.

4. For some families, the Specify Types dialog box displays, as shown for a door in Figure 1–9. Select the types you want to include in your project and click **OK**.

- To select more than one type, hold <Ctrl> as you select.
- You can use the drop-down lists under the columns to filter the sizes.

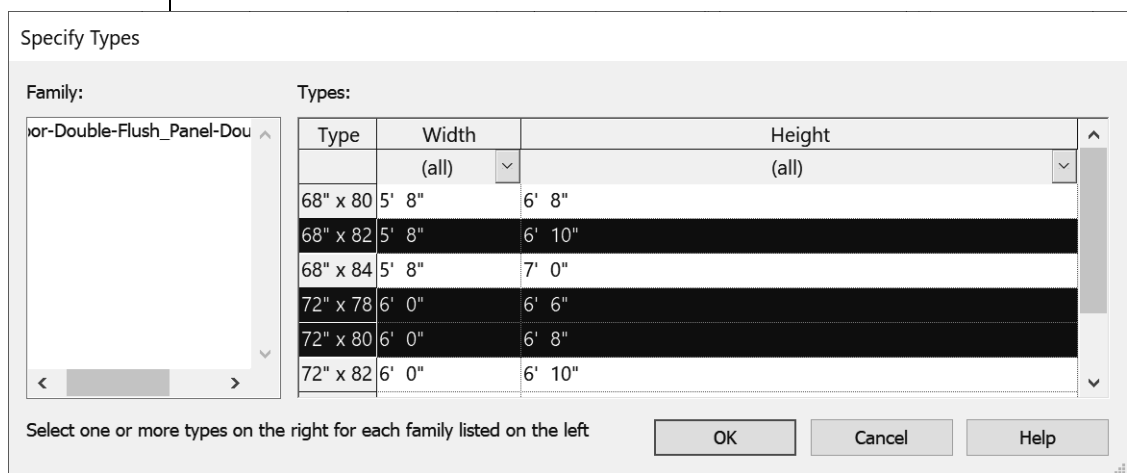


Figure 1–9

5. Once the families are loaded, from Properties, expand the Type Selector, as shown in Figure 1–10, and select the type you want to use.

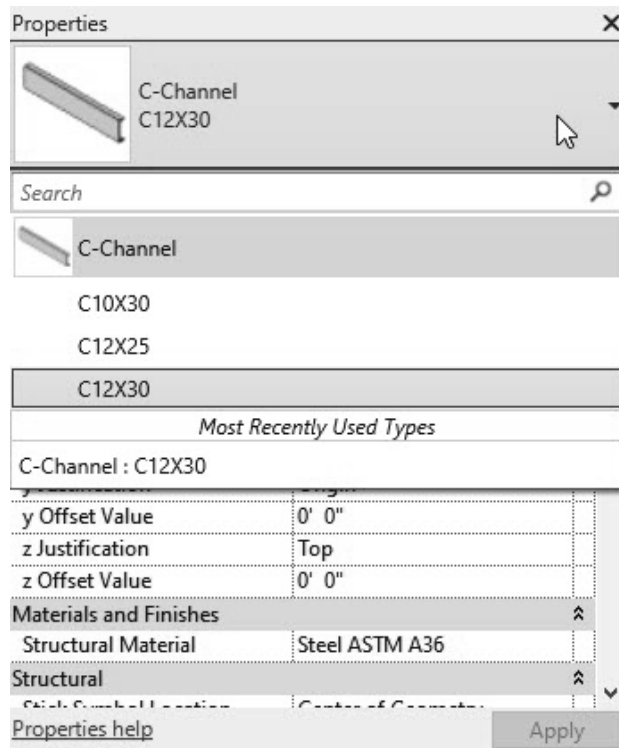


Figure 1–10


Hint: Using Families with this Learning Content

For the practices in this learning content, all families that are used have been provided with the practice files. This was done to ensure that all users can easily locate and use the required files to successfully complete all practices. In general, it is recommended that you use families from the provided Autodesk Revit Content via downloaded content or the cloud, or from your own custom company library.

Connection to the Internet is required.

How To: Use Load Autodesk Family

In addition to loading families from the installed Revit Library, you can also load families from the Autodesk online library using the **Load Autodesk Family** command.

1. In the *Insert* tab>Load from Library panel, click  (Load Autodesk Family).
2. In the Load Autodesk Family dialog box, filter your search by typing in what kind of family you are looking for or click on a category in the *Browse* section, as shown in Figure 1–11.

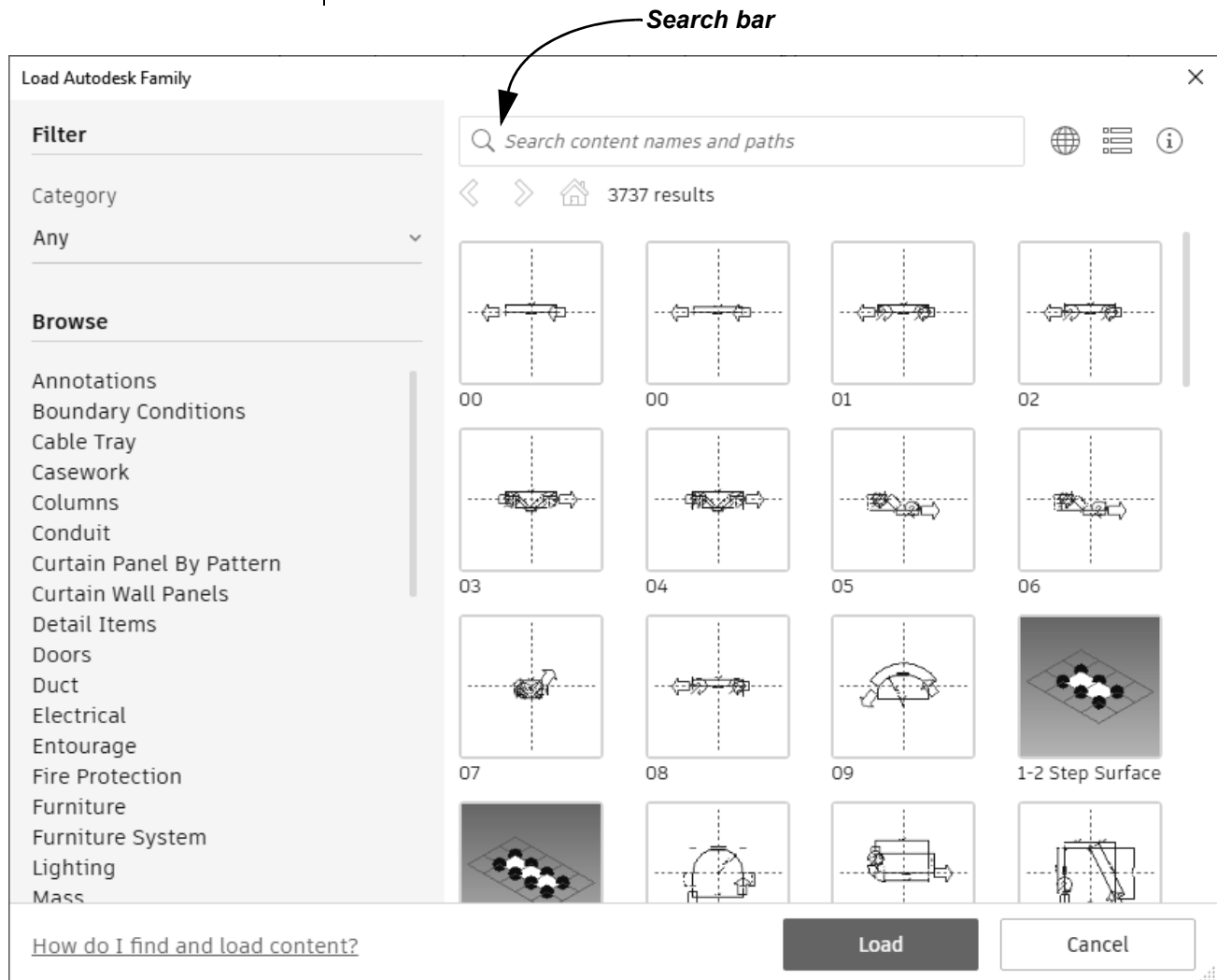


Figure 1–11

3. You can select as many families from the category as needed, and then click **Load** to load them into your project.

Review Loaded Families

You can review which families have already been loaded to determine which families still need to be loaded.

How To: Review the Loaded Families

1. In the Project Browser, expand the **Families** node.
2. Expand various nodes within the Families node, such as the **Cable Trays>Cable Tray with Fittings** node shown on the left in Figure 1–12, to verify which families (in this case, which cable tray families) have been loaded into the template.
3. Select the family name, such as **Channel Cable Tray**, to review its Properties, as shown on the right in Figure 1–12.

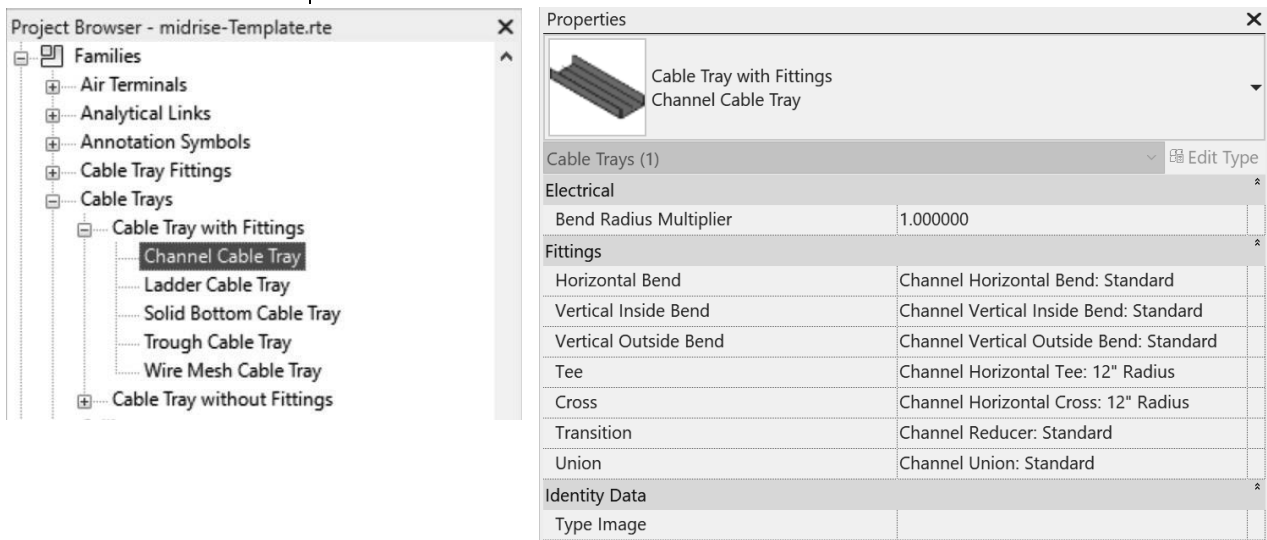


Figure 1–12

- Alternatively, you can start a command like **Door**, **Air Terminal**, or **Plumbing Fixture** to verify from the Type Selector which families are loaded. If a family is not loaded, a dialog box will display (as shown in Figure 1–13). Click **Yes** to launch the Load Family dialog box.

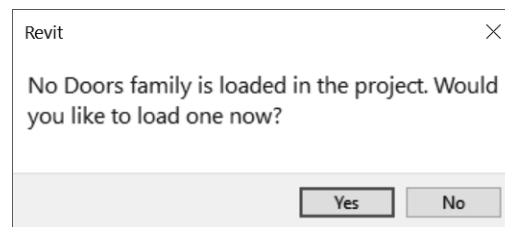


Figure 1–13

Purging Unused Components

You can clean up a template by removing unnecessary elements from a project, including individual component types, as shown in Figure 1–14.

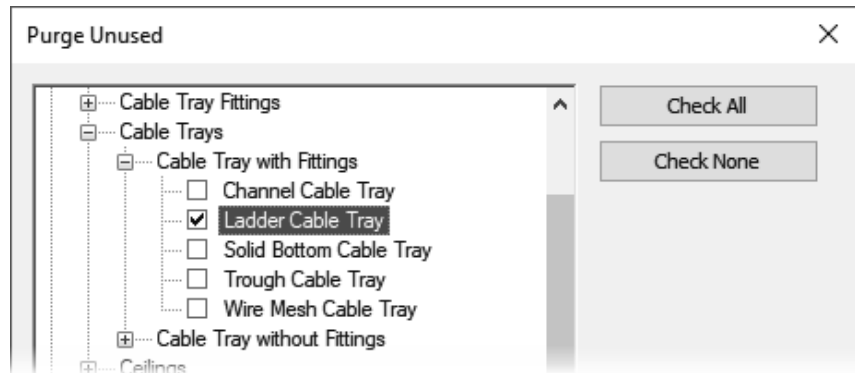



Figure 1–14

- Some elements are nested in other elements, and it might require several rounds of purging the project to remove them.

How To: Purge Unused Elements

1. In the *Manage* tab>Settings panel, click  (Purge Unused).
2. The Purge Unused dialog box opens and all elements will be selected. Click **Check None** to clear the selection.
3. Select only the elements that you want to purge.
4. Click **OK**.

Purging unused components not only helps simplify the component list, but also, more importantly, reduces the project file size.

Using Resource Projects

Although you can use a template file to start a project, you might also want to have resource projects that include additional system and component families, pre-drawn details (as shown in Figure 1–15), schedules, and sheets. You can then copy these elements into a new template or the current project, as needed.

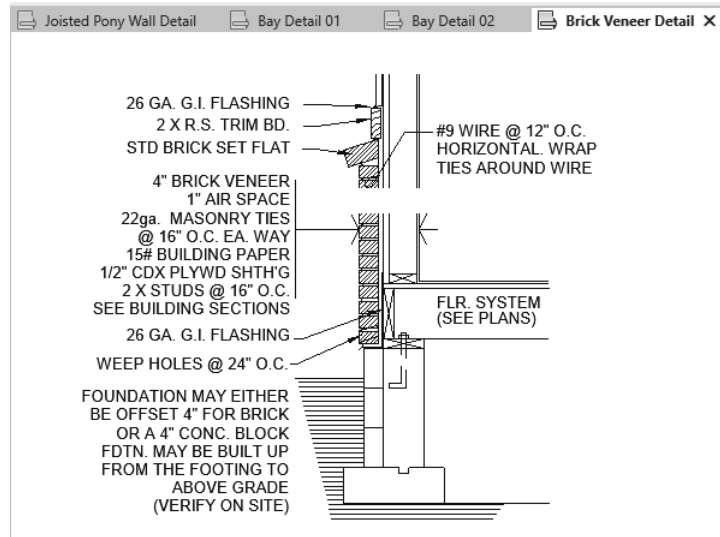




Figure 1–15

- To copy drafting views (details), sheets, schedules, or reports into the current project, use **Insert Views from File**.
- To copy system families (e.g., wall, floor, duct, pipe, wire types, etc) or annotations (e.g., text and dimension styles, materials, etc.), use **Transfer Project Standards**. Make sure that both the template/model you want to copy from and the host template/model you are copying to are open. Also, ensure that the host template/model is the active project before you start copying.
- To copy component families from a resource project, use **Copy to the Clipboard** and either **Paste Aligned to Selected Levels** or **Paste Aligned to Selected Views**.

How To: Insert Views from an Existing Project

1. In the *Insert* tab > Load from Library panel, expand  (Insert from File) and click  (Insert Views from File).
2. In the Open dialog box, select the project file you want to copy from.
3. In the Insert Views dialog box, select the views you want to insert into the current project, as shown in Figure 1–16.

- In the lower left corner, you can select **Preview selection** to preview your selection.

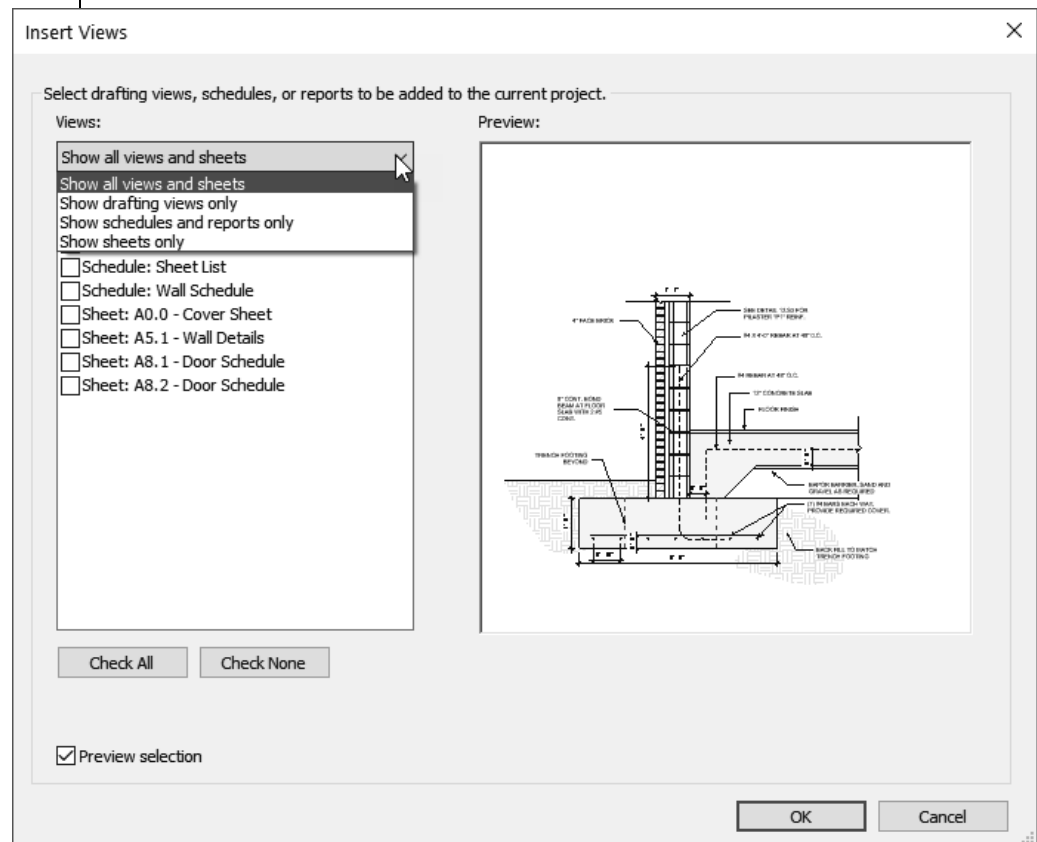



Figure 1–16

4. Click **OK**. The views are added to the file.
 - Schedules are completed with the information in the current project. Sheets are added, but do not include any views.

How To: Transfer Project Standards

1. Open the project from which you want to transfer information.
2. Switch to the current project you are copying to.
3. In the *Manage* tab>Settings panel, click  (Transfer Project Standards).
4. In the Select Items To Copy dialog box, expand the Copy from drop-down list and select the file to copy from.

Click **Check None** or **Check All**, as needed.

5. Select the items you want to copy into the current project, as shown in Figure 1–17. Then, click **OK**.

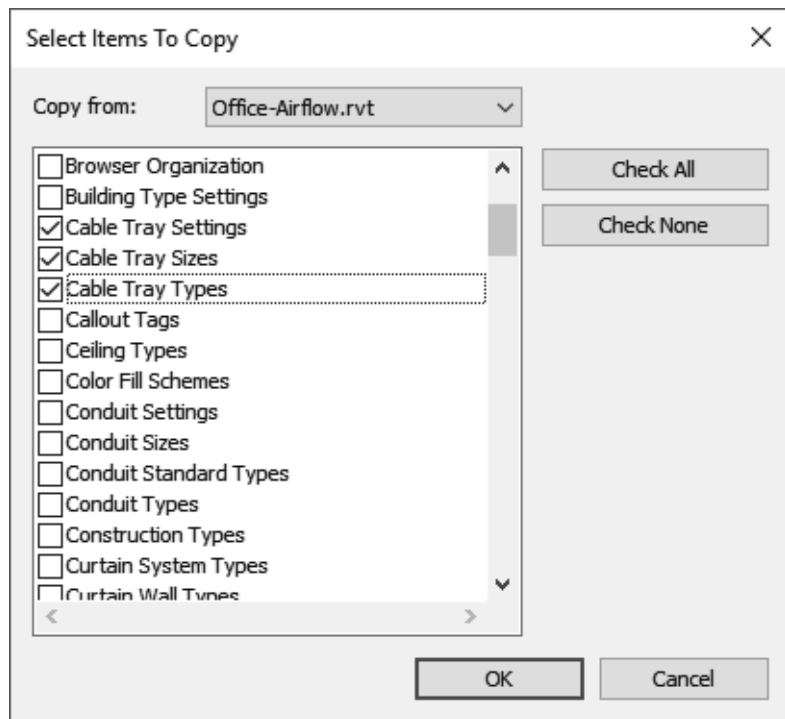


Figure 1–17

- All types of the selected category will be copied. You do not have the option to select individual types.
- If the Duplicate Types dialog box displays (shown in Figure 1–18), choose **Overwrite** or **New Only** to update the existing project.

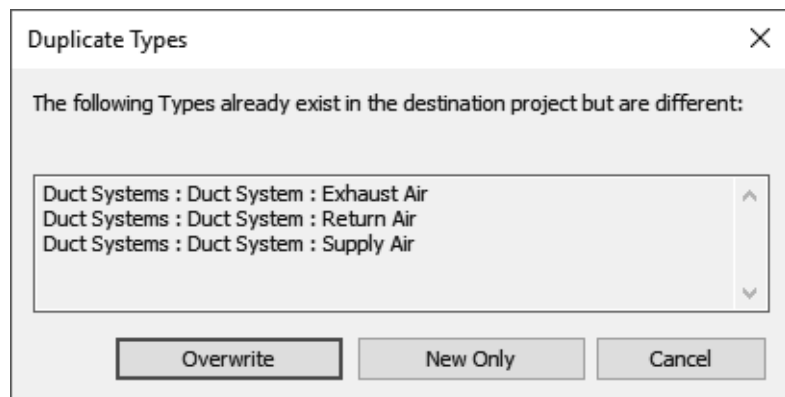


Figure 1–18

- Floor, ceiling, and elevation section plan view types and Revit link visibility settings cannot be transferred and need to be set up manually.

Setting Default Template Files

If your company uses several different templates, you can create a list that displays in the New Project dialog box, as shown in Figure 1–19.

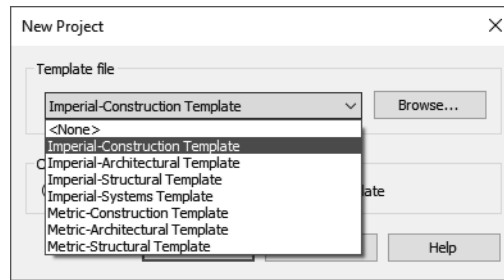


Figure 1–19

How To: Set the Default Template Files List

1. In the *File* tab, click **Options**.
2. In the Options dialog box, in the left pane, select **File Locations**, as shown in Figure 1–20.

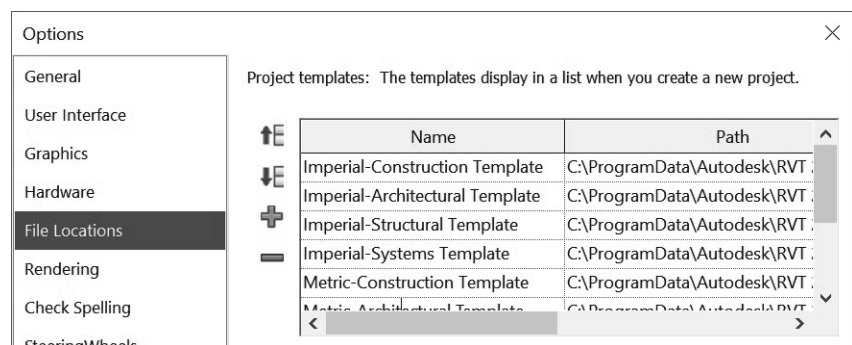







Figure 1–20

- Use  (Add Value) to add additional templates (RTE).
 - To put your templates in order, use  (Move Rows Up) and  (Move Rows Down). Move the templates that are used most often to the top.
 - Use  (Remove Value) if you do not need a template anymore.
3. Once the template is loaded, you can click on the name in the *Name* column to change it or leave it with its default file name. You can also click on any of the other names in the *Name* column and change them if needed.
 4. To update a template, click on the file path in the *Path* column and select the  (Browse) button.
 5. In the Browse for Template File dialog box, navigate to the correct folder, select the template file, and click **Open**.

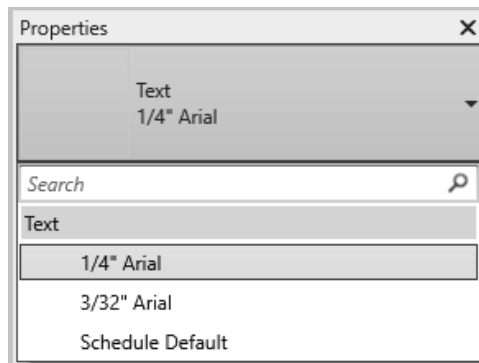
Practice 1a

Prepare Project Templates: Architecture

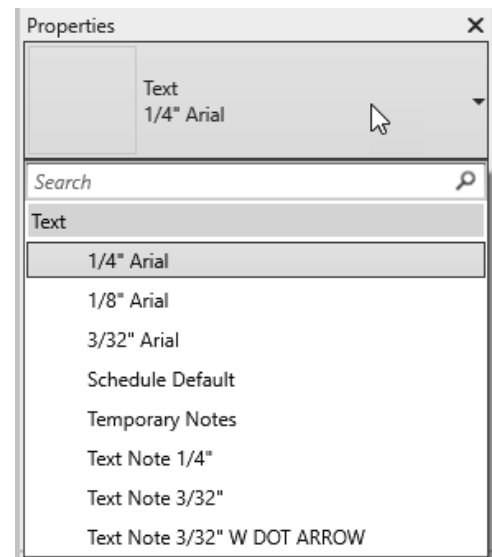
Practice Objectives

- Create a new project template file.
- Add levels with plan views.
- Review existing system and component families.
- Load a component family.
- Insert views and transfer project standards from a resource project.

In this practice, you will create a new template file based on an existing template and add several levels to the project. You will review the existing system and component families and load a component family. You will then insert views and transfer project standards from a resource project, as shown for text types before in Figure 1–21 and after in Figure 1–22.





Before
Figure 1–21



After
Figure 1–22

Task 1 - Establish a project template file.

1. On the Home screen, click **New...** in the *MODELS* area, or if currently in a model, in the *File* tab, expand  (New) and click  (Project).

2. In the New Project dialog box, select **Imperial-Architectural Template.rte**.
 - Alternatively, if you do not have templates installed, click **Browse...** in the New Project dialog box and navigate to the practice files *Architectural >RTE* folder.
3. In the *Create new* area, select **Project template**, as shown in Figure 1–23, and click **OK**.

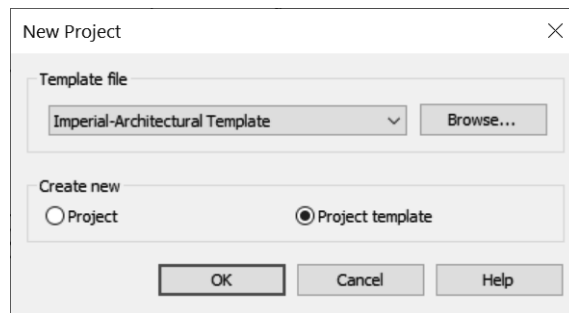



Figure 1–23

4. In the Quick Access Toolbar, click  (Save) and save the template in the practice files *Architectural >RTE* folder as **Midrise-Template.rte**.

Task 2 - Add default levels.

1. Open an elevation view.
2. Click on the level head and rename *Level 1* to **Floor 1** and *Level 2* to **Floor 2**. Click **Yes** to rename the corresponding views.
3. Change the **Floor 2** height to **16'-0"**, as shown in Figure 1–24.

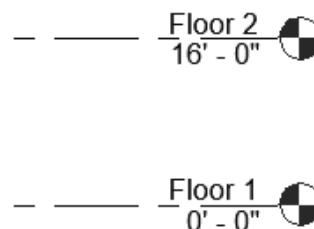



Figure 1–24

4. In the *Architecture* tab>Datum panel, click  (Level).
5. In the Options Bar, verify that the **Make Plan View** option is selected and click **Plan View Types....**

6. In the Plan View Types dialog box, select the **Ceiling Plan** and **Floor Plan** view types, as shown in Figure 1–25, and click **OK**.

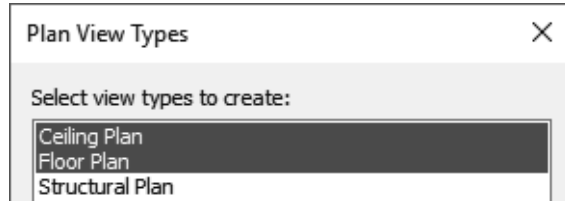


Figure 1–25

7. Add three more levels above **Floor 2** with a distance of **12'-0"** between each level, and two levels below **Floor 1** with a distance of **10'-0"** between them. Rename them as shown in Figure 1–26. Click **Yes** to rename the corresponding views.

Scale change and dimensions are added for clarity.

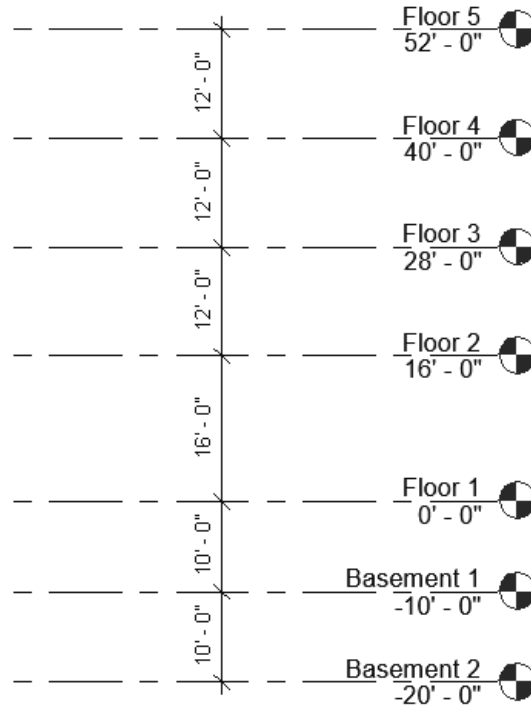



Figure 1–26


8. Return to the Floor 1 plan view.
9. Save the template.

Task 3 - Load a component family.

1. In the *Insert* tab>Load from Library panel, click  (Load Family).
 - Using the **Load Family** command, you can load any type of component. However, if you use a specific command such as **Column** or **Door**, you can only load that type of family.
2. In the Load Family dialog box, navigate to the practice files *Architectural>RFA* folder and select the **Doric Column.rfa** family to load, then click **Open**.
3. Save the template.

Task 4 - Review existing family elements in the template.

In this task, you will review existing families in a project using both the Type Selector and the Project Browser.

1. In the *Annotate* tab>Text panel, click  (Text).
2. Expand the list in the Type Selector. Only a few text types are available, as shown in Figure 1–27.

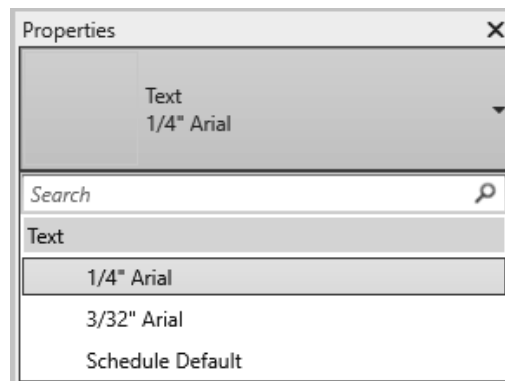




Figure 1–27

3. In the *Architecture* tab>Build panel, select  (Component) and review the list of families in the Type Selector.
4. In the *Architecture* tab>Build panel, click  (Column: Architectural) and note that **Doric Column** is showing in the Type Selector.

- In the Project Browser, expand the **Families>Columns** node and note that **Doric Column** is listed there as well, as shown in Figure 1–28. Continue to expand nodes within the Project Browser to see what other families are loaded in the project.

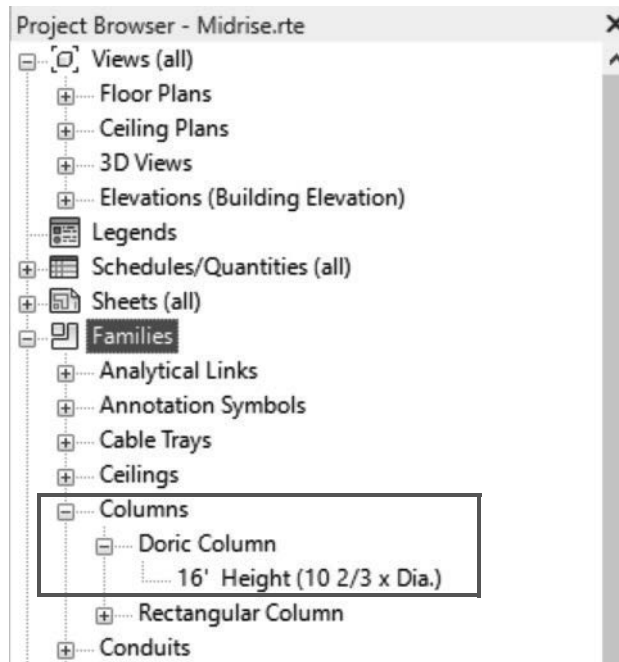




Figure 1–28

- Save the template.

Task 5 - Copy information from a resource project.

Inserting views from another Revit model does not require the model to be open when performing this task.

- Close any open projects other than the template file.
- In the *Insert* tab>Load from Library panel, expand  (Insert from File) and click  (Insert Views from File).
- In the Open dialog box, navigate to the practice files *Resource Project* folder, select **Construction Resource Project.rvt**, and click **Open**.
- In the Insert Views dialog box, set the Views drop-down list to **Show all views and sheets**.
- Select one or two drafting views and one or two schedules from the list, as shown in Figure 1–29.

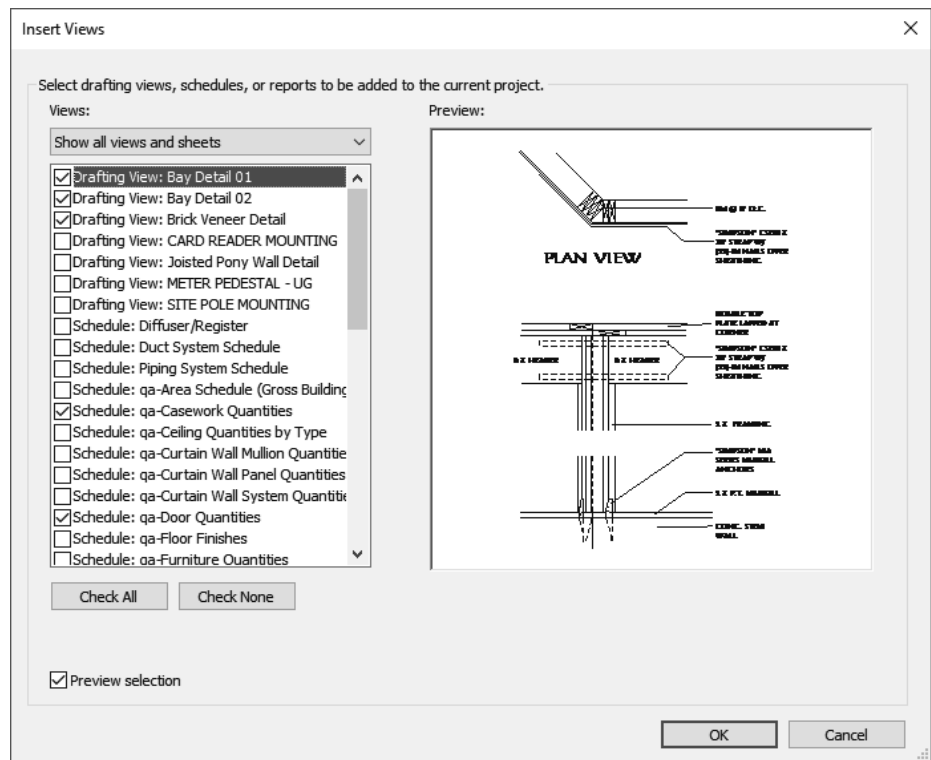



Figure 1–29

6. Click **OK**.
7. If the Duplicate Types warning displays, click **OK** and close any warning messages that pop up.
8. In the Project Browser of your template file, review the new drafting views and schedules that are added.
9. Return to the floor plan view.

Task 6 - Use Transfer Standards

Using Transfer Standards to copy elements from a Revit model require the model to be open when performing this task.

1. In the Open dialog box, navigate to the *Practice Project>Resource Project* folder, select **Construction Resource Project.rvt**.
2. Click on the view tab to make the **Midrise-Template.rte** file the active project.
3. In the *Manage* tab>Settings panel, click  (Transfer Project Standards).
4. In the Select Items To Copy dialog box, note that the Copy from drop-down list is set to **Construction Resource Project.rvt**, which is the project that was just used for inserting a view from a file.

5. Click **Check None**, select **Text Types** (as shown in Figure 1–30), and click **OK**.

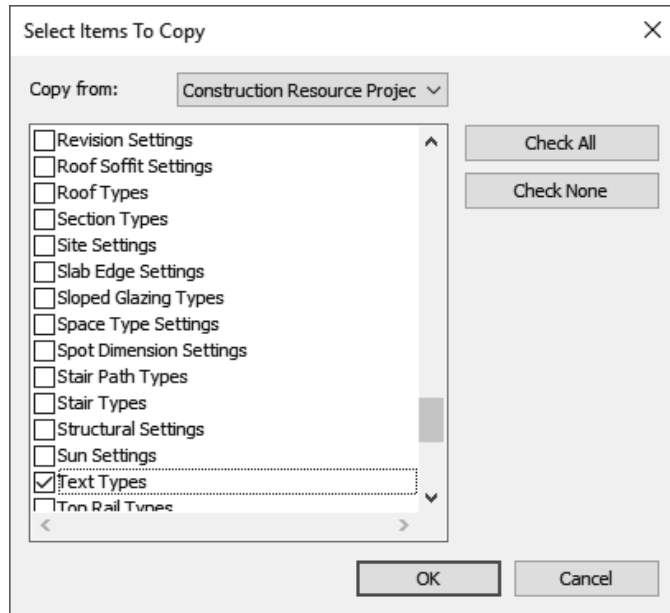


Figure 1–30

6. If the Duplicate Types dialog box displays, select **New Only** because you do not want to overwrite existing text types in your template.
7. Start the **Text** command and look at the expanded list of text types that are now available, as shown in Figure 1–31.

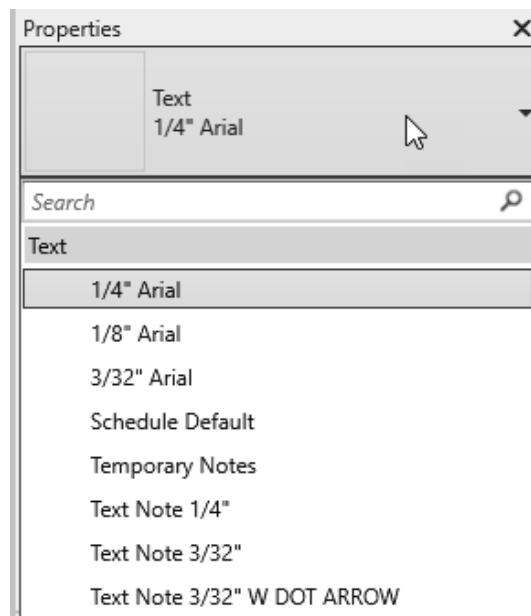



Figure 1–31

8. Click  (Modify).
9. Save and close the template file.

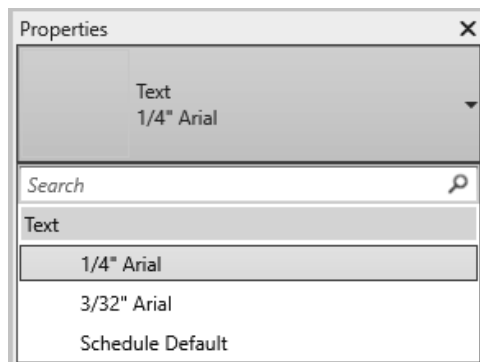
Practice 1b

Prepare Project Templates: MEP

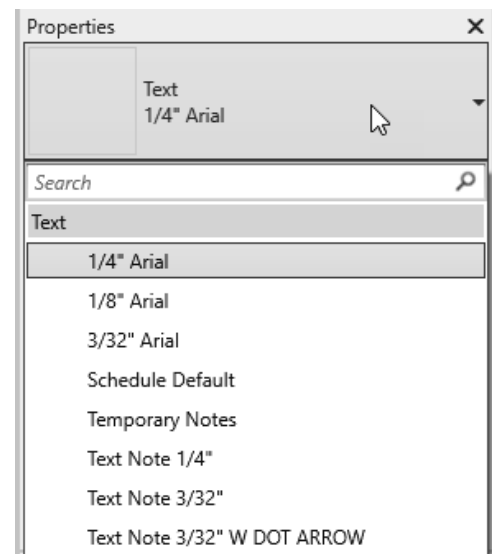
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- Create a new project template file.
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Before
Figure 1–32



After
Figure 1–33

Task 1 - Establish a project template file.

1. On the Home screen, click **New...** in the *MODELS* area, or if currently in a model, in the *File* tab, expand  (New) and click  (Project).

2. In the New Project dialog box, select the **Imperial-Systems Template.rte**. This template will have electrical, mechanical, and plumbing views and families in it.
 - For an electrical template, click **Browse...** and select **Electrical-Default.rte**.
 - For a mechanical template, click **Browse...** and select **Mechanical-Default.rte**.
 - For a plumbing template, click **Browse...** and select **Plumbing-Default.rte**.
 - Alternatively, if you do not have templates installed, click **Browse...** in the New Project dialog box and navigate to the practice files *MEP>RTE* folder.
3. In the *Create new* area, select **Project template**, as shown in Figure 1–34, and click **OK**.

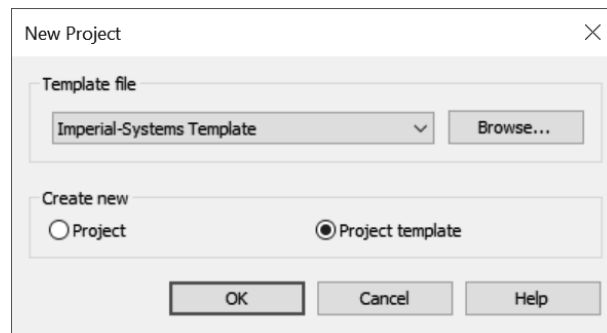




Figure 1–34

4. In the Quick Access Toolbar, click  (Save) and save the template in the practice files *MEP>RTE* folder as **Midrise-Template.rte**.

Note: MEP templates typically do not have additional levels. Levels are created using **Copy/Monitor** with a linked file.


Task 2 - Load a component family.

1. In the *Insert* tab>Load from Library panel, click  (Load Family).
 - By using the **Load Family** command, you can load any type of component. If you use a specific command, such as **Mechanical Equipment**, you can only load that type of family.

2. In the Load Family dialog box, navigate to the practice files *MEP>RFA* folder and select the **Indoor AHU - Horizontal - Chilled Water Coil.rfa** family to load, then click **Open**.

Task 3 - Review existing family elements in the template.

In this task, you will review existing families in a project using both the Type Selector and the Project Browser.

1. In the *Annotate* tab>Text panel, click  (Text).
2. Expand the list in the Type Selector. Only a few text types are available, as shown in Figure 1–35.

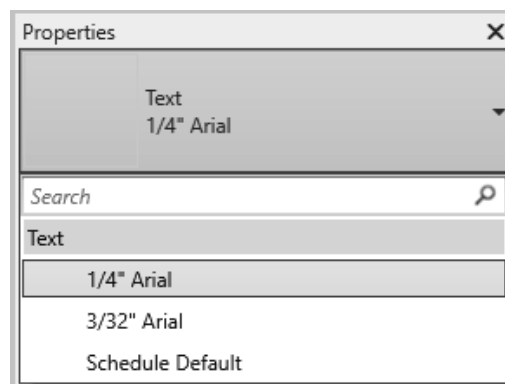




Figure 1–35

3. In the *Systems* tab>Model panel, select  (Component) and review the list of families in the Type Selector.
4. In the *Systems* tab>Mechanical panel, click  (Mechanical Equipment). Note that **Indoor AHU - Horizontal - Chilled Water Coil** is showing in the Type Selector.

- In the Project Browser, expand the **Families>Mechanical Equipment** node and note that **Indoor AHU - Horizontal - Chilled Water Coil** is listed there as well, as shown in Figure 1–36. Continue to expand nodes within the Project Browser to see what other families are loaded in the project.

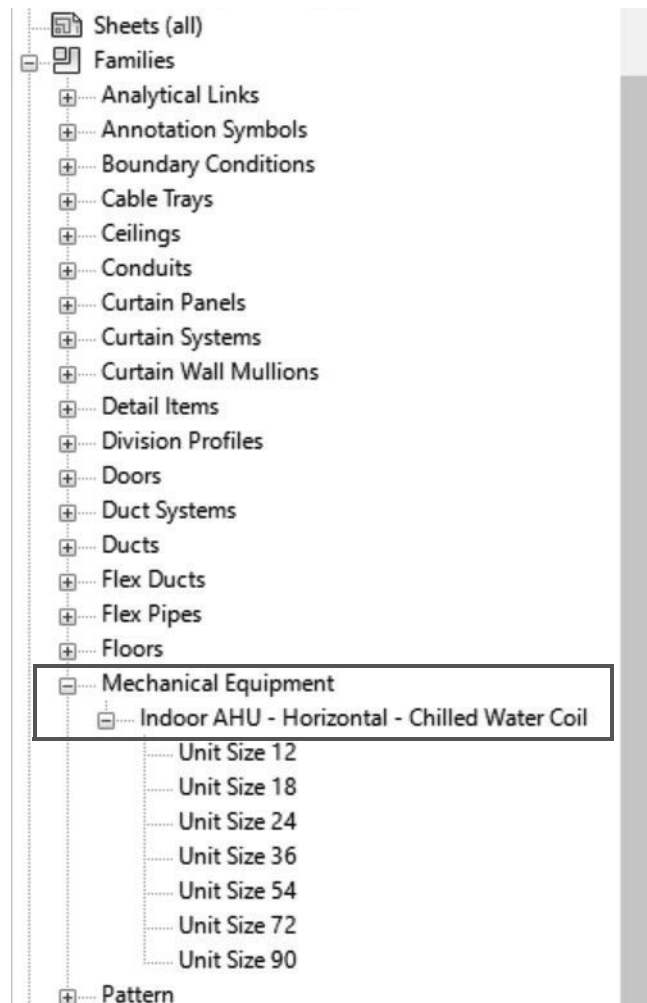




Figure 1–36

- Save the template.

Task 4 - Copy information from a resource project.

- Close any open projects other than the template file.
- In the *Insert* tab>Load from Library panel, expand  (Insert from File) and click  (Insert Views from File).
- In the Open dialog box, navigate to the practice files *Resource Project* folder, select **Construction Resource Project.rvt**, and click **Open**.

4. In the Insert Views dialog box, set the Views drop-down list to **Show all views and sheets**.
5. Select one or two drafting views and one or two schedules from the list, as shown in Figure 1–37.

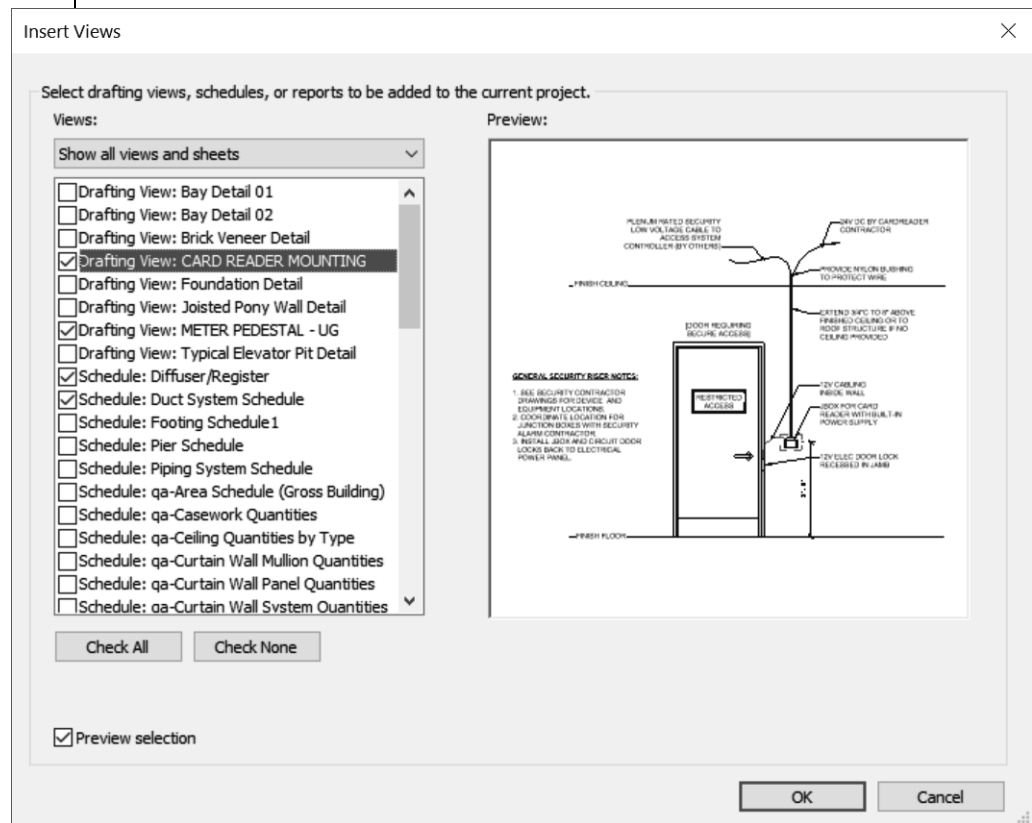


Figure 1–37

If you started with the systems or electrical template, the drafting views will be in the Coordination section in the Project Browser.


6. Click **OK**.
7. If the Duplicate Types warning displays, click **OK** and close any warning messages that pop up.
8. In the Project Browser of your template file, review the new drafting views and schedules that are added.
9. Return to the floor plan view.

Task 5 - Use Transfer Standards.

Using Transfer Standards to copy elements from a Revit model require the model to be open when performing this task.

1. In the Open dialog box, navigate to the practice files *Resource Project* folder, select **Construction Resource Project.rvt**.
2. Click on the view tab to make the **Midrise-Template.rte** file the active project.

Note: If the Insert from File command was not used, you would have had to open the project in order to transfer standards.

3. In the *Manage* tab>Settings panel, click  (Transfer Project Standards).
4. In the Select Items To Copy dialog box, note that the Copy from drop-down list is set to **Construction Resource Project.rvt**, which is the project that was just used for inserting a view from a file.
5. Click **Check None**, select **Text Types** (as shown in Figure 1–38), and click **OK**.

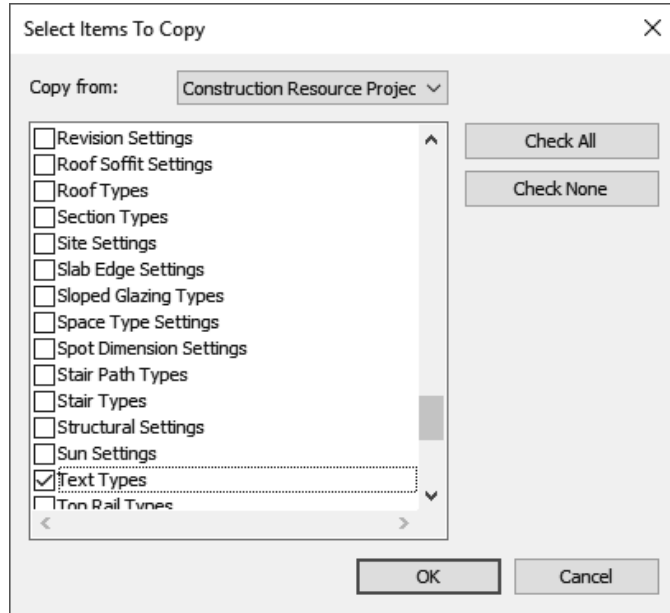


Figure 1–38

6. If the Duplicate Types dialog box displays, select **New Only** because you do not want to overwrite existing text types in your template.

7. Start the **Text** command and look at the expanded list of text types that are now available, as shown in Figure 1–39.

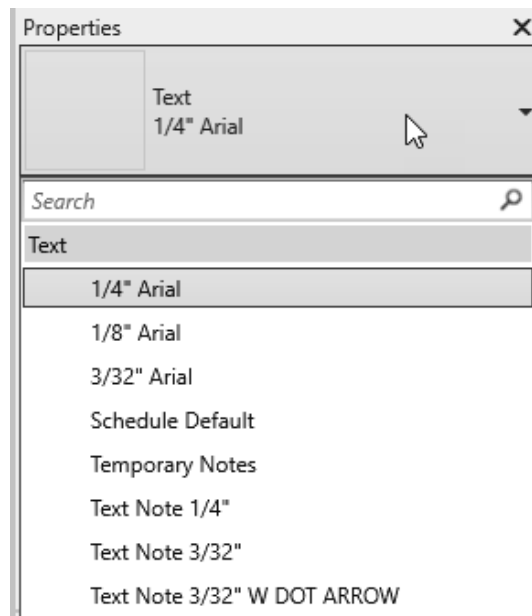



Figure 1–39

8. Click  (Modify).
9. Save and close the template file.

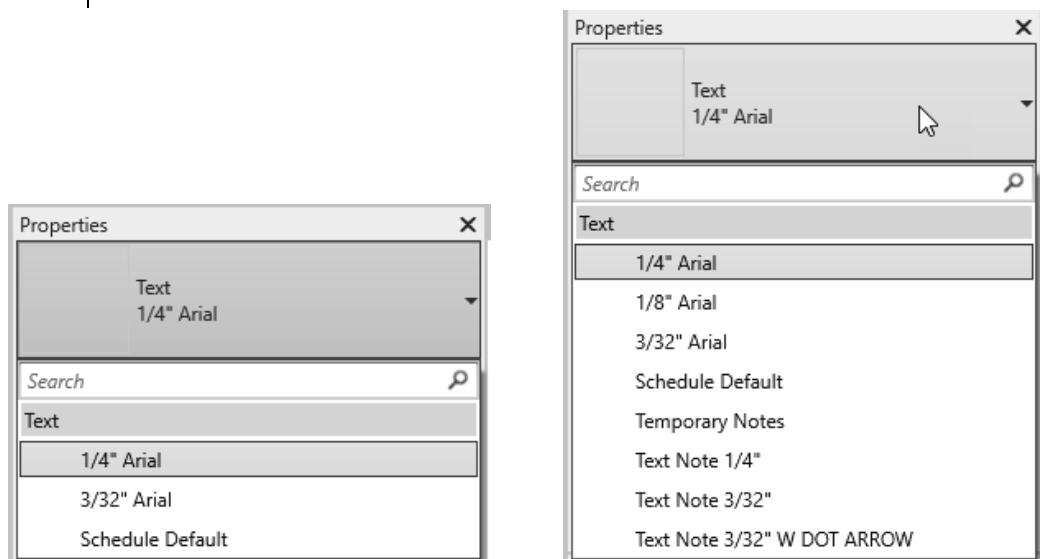
Practice 1c

Prepare Project Templates: Structural

Practice Objectives

- Create a new project template file.
- Add levels with plan views.
- Review existing system and component families.
- Load a component family.
- Insert views and transfer project standards from a resource project.

In this practice, you will create a new template file based on an existing template and add several levels to the project. You will review the existing system and component families and load a component family. You will then insert views and transfer project standards from a resource project, as shown for text types before in Figure 1–40 and after in Figure 1–41.





Before

Figure 1–40

After

Figure 1–41

Task 1 - Establish a project template file.

1. On the Home screen, click **New...** in the *MODELS* area, or if currently in a model, in the *File* tab, expand  (New) and click  (Project).

2. In the New Project dialog box, select the **Imperial-Structural Template.rte**.
 - Alternatively, if you do not have templates installed, click **Browse...** in the New Project dialog box and navigate to the practice files *Structural > RTE* folder.
3. In the *Create new* area, select **Project template**, as shown in Figure 1–42, and click **OK**.

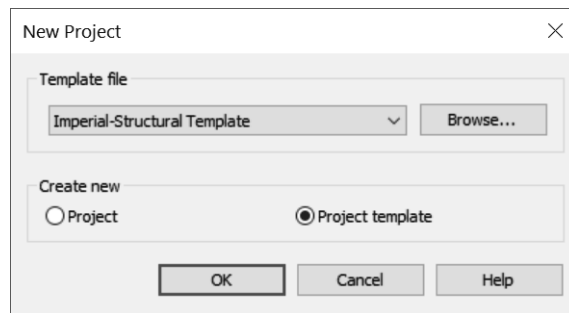



Figure 1–42

4. In the Quick Access Toolbar, click  (Save) and save the template in the practice files *Structural > RTE* folder as **Midrise-Template.rte**.

Task 2 - Add default levels.

1. Open an elevation view.
2. Click on the level head and rename *Level 1* to **Ground Floor** and *Level 2* to **TOS-Floor 1**. Click **Yes** to rename the corresponding views.
3. Change the **TOS-Floor 1** height to **14'-7"**, as shown in Figure 1–43.

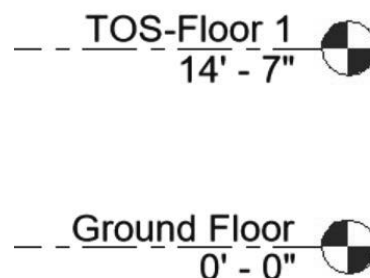


Figure 1–43

4. In the *Structure* tab > Datum panel, click  (Level).

5. In the Options Bar, verify that the **Make Plan View** option is selected and click **Plan View Types...**
6. In the Plan View Types dialog box, select the **Structural Plan** view type, as shown in Figure 1–44, and click **OK**.

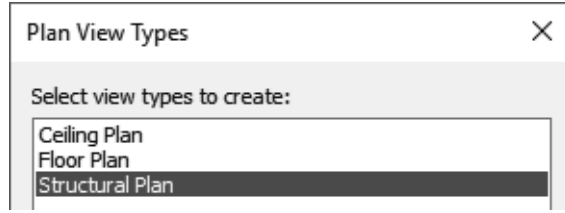


Figure 1–44

7. Add three more levels above **TOS-Floor 1** with a distance of **15'-0"** between each level, and one level below **Ground Floor** with a distance of **15'-0"** between them. Rename them as shown in Figure 1–45. Click **Yes** to rename the corresponding views.

Scale change and dimensions are added for clarity.

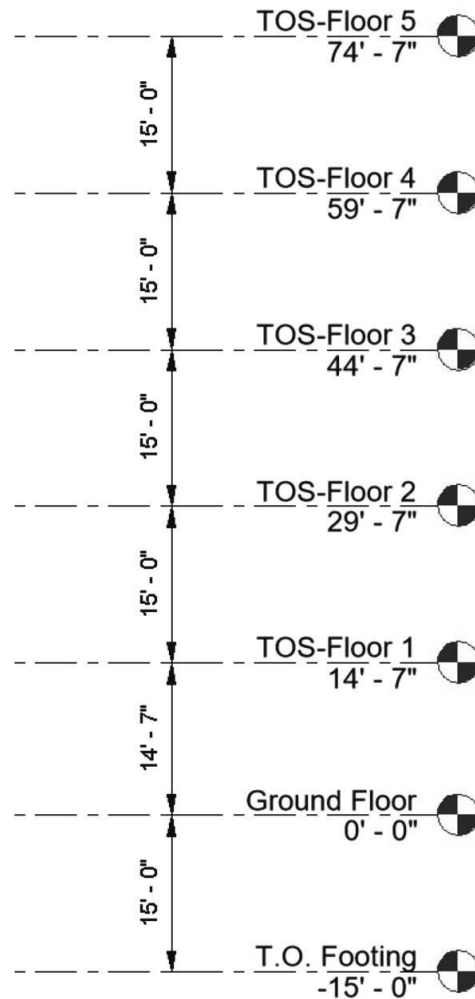



Figure 1–45


8. Return to the Ground Floor plan view.
9. Save the template.

Task 3 - Load a component family.

1. In the *Insert* tab>Load from Library panel, click  (Load Family).
 - By using the **Load Family** command, you can load any type of component. If you use a specific command, such as **Column** or **Truss**, you can only load that type of family.
2. In the Load Family dialog box, navigate to the practice files *Structural>RFA* folder, select **Pipe-Column.rfa**, and click **Open**.
3. In the Specify Types dialog box, select **Pipe8STD** and click **OK**.
4. Save the template.

Task 4 - Review existing family elements in the template.

In this task, you will review existing families in a project using both the Type Selector and the Project Browser.

1. In the *Annotate* tab>Text panel, click  (Text).
2. Expand the list in the Type Selector. Only a few text types are available, as shown in Figure 1–46.

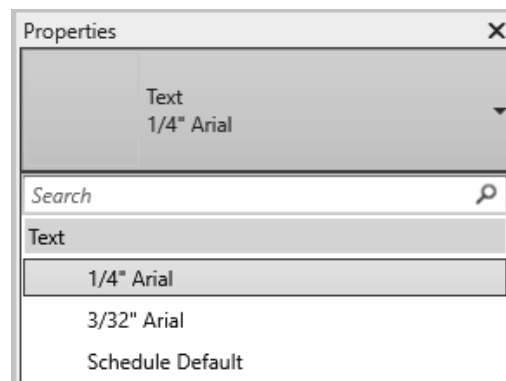




Figure 1–46

3. In the *Structure* tab>Model panel, select  (Component) and review the list of families in the Type Selector.

4. In the *Structural* tab>Structure panel, select  (Column). Note that **Pipe8STD** is displayed in the Type Selector.
5. In the Project Browser, expand the **Families>Structural Columns>Pipe-Column** node and note that **Pipe8STD** is listed there as well, as shown in Figure 1–47. Continue to expand nodes within the Project Browser to see what other families are loaded in the project.

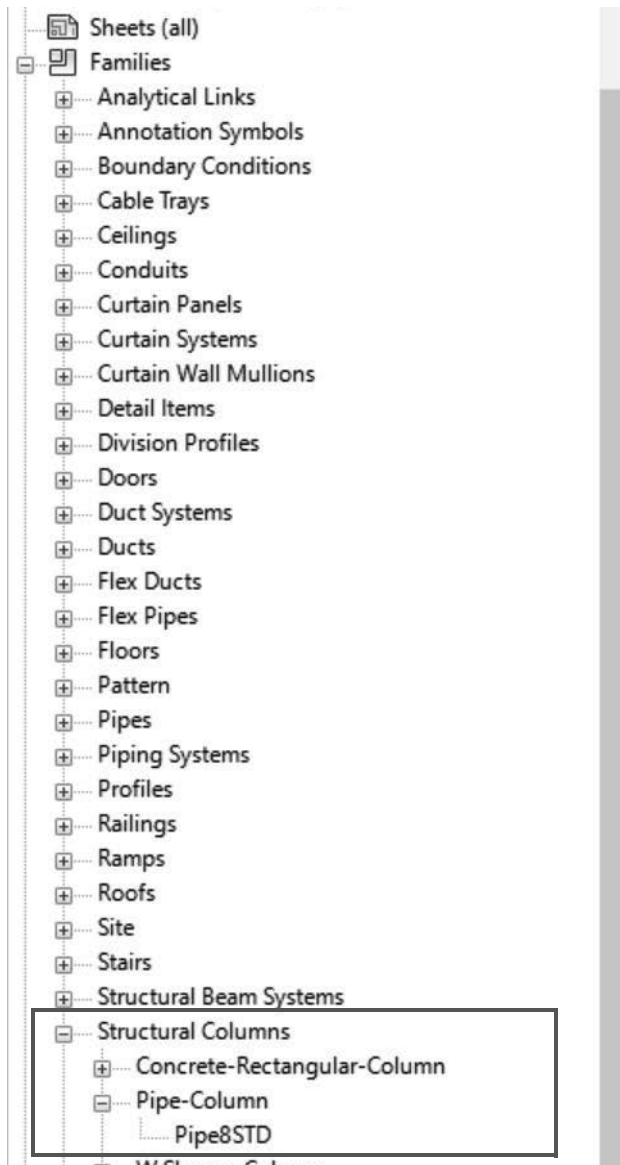




Figure 1–47

6. Save the template.

Task 5 - Copy information from a resource project.

1. Close any open projects other than the template file.
2. In the *Insert* tab>Load from Library panel, expand  (Insert from File) and click  (Insert Views from File).
3. In the Open dialog box, navigate to the practice files *Resource Project* folder, select **Construction Resource Project.rvt**, and click **Open**.
4. In the Insert Views dialog box, set the Views drop-down list to **Show all views and sheets**.
5. Select one or two drafting views and one or two schedules from the list, as shown in Figure 1–48.

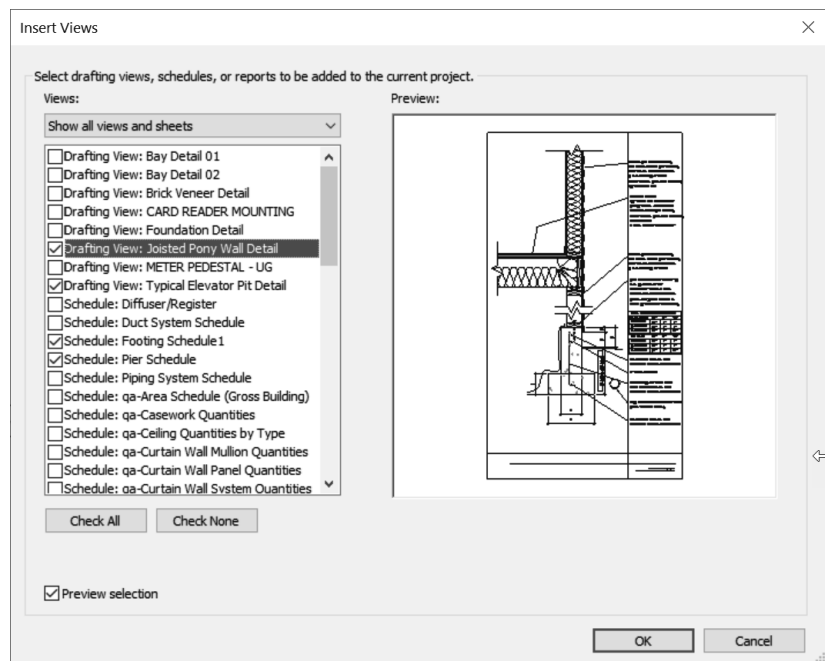



Figure 1–48

6. Click **OK**.
7. If the Duplicate Types warning displays, click **OK** and close any warning messages that pop up.
8. In the Project Browser of your template file, review the new drafting views and schedules that are added.
9. Return to the floor plan view.

Using Transfer Standards to copy elements from a Revit model require the model to be open when performing this task.

Task 6 - Use Transfer Standards.

1. In the Open dialog box, navigate to the practice files *Resource Project* folder, select **Construction Resource Project.rvt**.
2. Click on the view tab to make the **Midrise-Template.rte** file the active project.
3. In the *Manage* tab>Settings panel, click  (Transfer Project Standards).
4. In the Select Items To Copy dialog box, note that the Copy from drop-down list is set to **Construction Resource Project.rvt**, which is the project that was just used for inserting a view from a file.
5. Click **Check None**, select **Text Types** (as shown in Figure 1–49), and click **OK**.

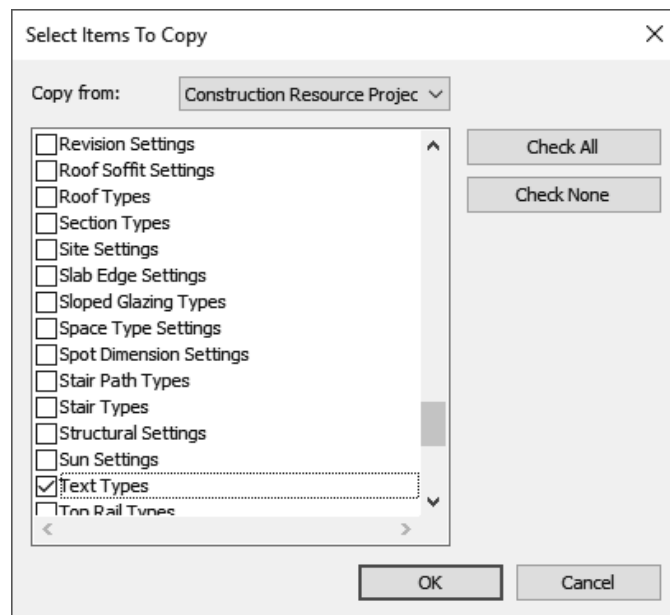


Figure 1–49

6. If the Duplicate Types dialog box displays, select **New Only** because you do not want to overwrite existing text types in your template.

7. Start the **Text** command and look at the expanded list of text types that are now available, as shown in Figure 1–50.

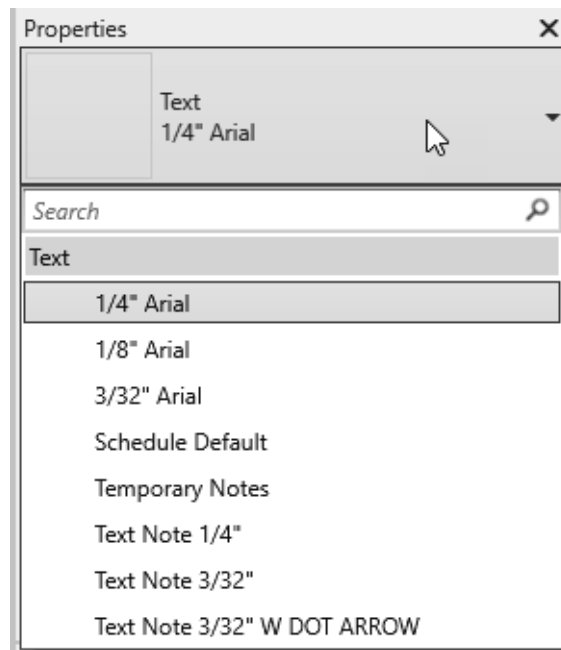



Figure 1–50

8. Click  (Modify).
9. Save and close the template file.

1.2 Customizing Annotation Types

Establishing annotation style types is an important part of template creation. You can customize annotation types in your project template file, including dimensions, text, arrowheads, and tags. Figure 1–51 shows the different types of annotations. Within each annotation type, you can customize font, text size, background, leaders, etc.

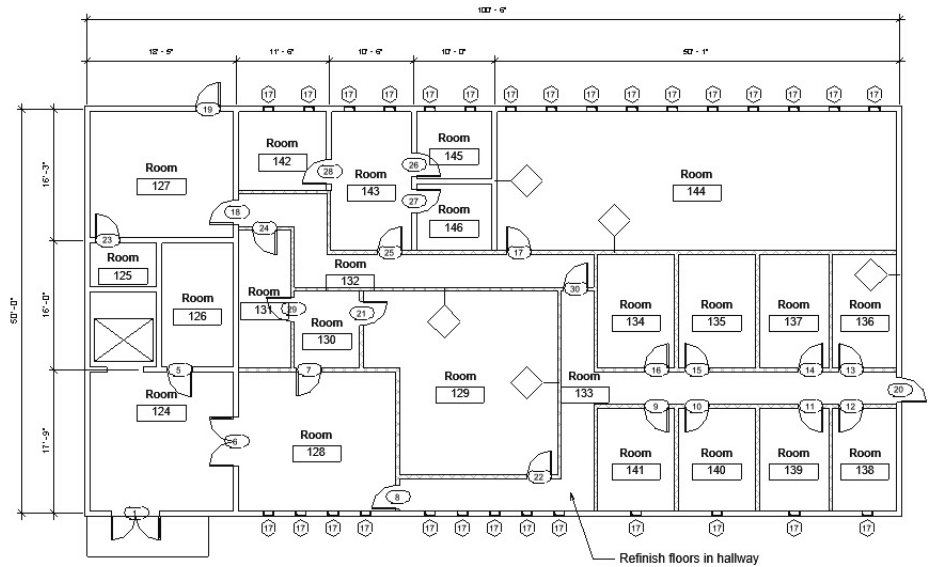


Figure 1–51

Text, Dimensions, and Arrowheads are all system families and are depicted with the label **System Family** in front of the name in their Type Properties (as shown in Figure 1–52) and component families. This means they have a standard set of parameters, which you can modify and save as a type.

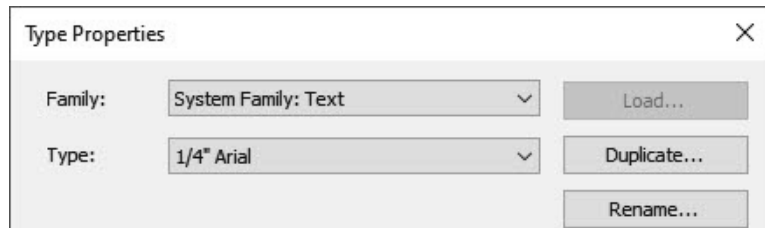


Figure 1–52

Callout, section, and elevation tags can be modified in Revit. Most other tags, like door, window, and beam tags, are created using component families.

Creating Text Types

Text types are used to standardize text formatting (such as the font, text height, etc.), as shown in Figure 1–53. They can be created for both annotative text and model text.

ARIAL AT 1/4"
 CITY BLUEPRINT AT 1/8"
ARIAL AT 3/32", BOLD

Figure 1–53

- The **Text** command places 2D text at the height you need for the final plot. The view scale controls the height of the standard text in the views.
- The *Text Size* parameter represents the height of an upper case letter. (Verify that the text in projects created in earlier versions of the software displays as expected.)
- The **Model Text** command places work plane based 3D text that is typically used on buildings, walls, doors, or signs, as shown in Figure 1–54. Text types for model text should be the actual height of the final signage element and are not affected by the view scale.

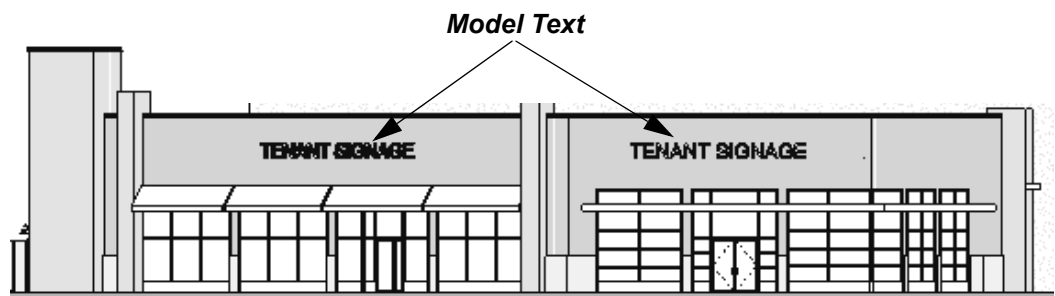




Figure 1–54

How To: Create a Text Type

1. Start the **Text** command.
2. In Properties, click  (Edit Type) or in the *Annotate* tab> Text panel title, click  (Text Types).
3. In the Type Properties dialog box, click **Duplicate....**
4. Type a new name and click **OK**. The new type is activated.
5. Modify the parameters as needed for the new type, as shown for annotation text in Figure 1–55.






Type Parameters	
Parameter	Value
Graphics 	
Color	 Black
Line Weight	1
Background	Opaque
Show Border	<input type="checkbox"/>
Leader/Border Offset	5/64"
Leader Arrowhead	Arrow 30 Degree
Text 	
Text Font	Arial
Text Size	1/4"
Tab Size	1/2"
Bold	<input type="checkbox"/>
Italic	<input type="checkbox"/>
Underline	<input type="checkbox"/>
Width Factor	1.000000

Figure 1–55

6. Click **OK** to finish.

How To: Create a Model Text Type

1. In the *Architecture* tab>Model panel, click  (Model Text). Alternatively, in the *Structure* tab>Model panel, click  (Model Text).
2. In the Edit Text dialog box, keep the default text and click **OK**, then place the text in the view.
3. Select the model text and from Properties, click **Edit Type**.
4. In the Type Properties dialog box, click **Duplicate....**
5. Type a new name and click **OK**. The new type is activated.
6. Modify the parameters as needed for the new text type.
7. Click **OK** to finish.

Creating Dimension Types

Dimensions are one of the more complex system families in terms of the number of parameters you can modify. They include options for the Dimension Text, Dimension Line, Tick Marks, and Witness Lines. You can specify information such as the units, color, and all of the gap sizes between elements, as shown in Figure 1–56.

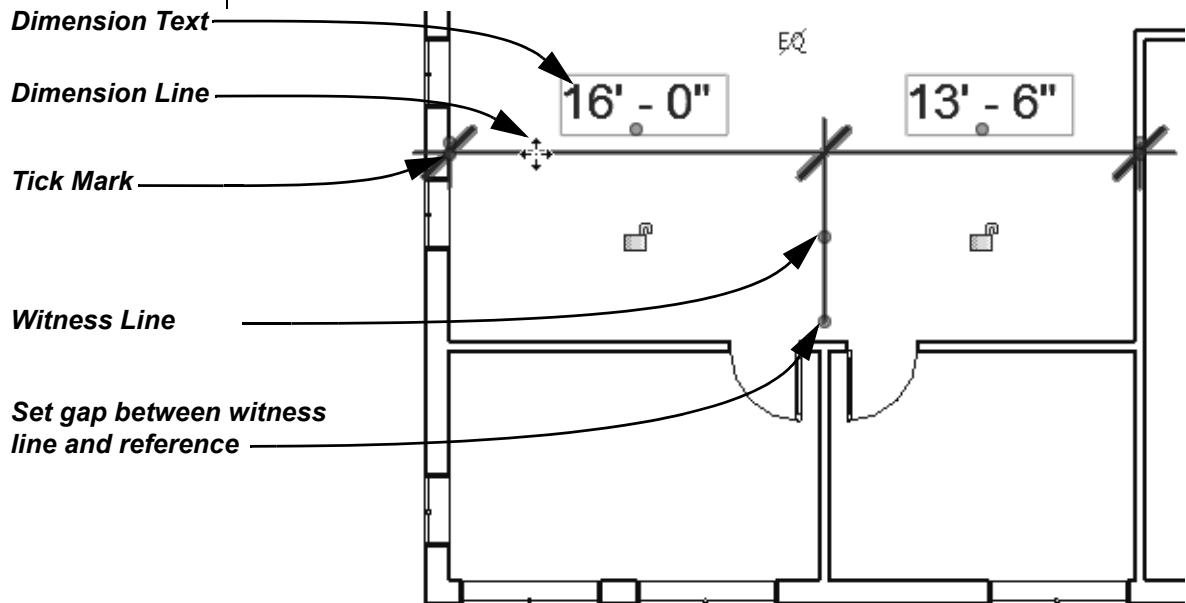



Figure 1–56

- You can add a suffix or prefix to a dimension type by creating a type-driven dimension style. Duplicate the dimension style and specify a set prefix and suffix within the type parameters. This eliminates the need for users to manually modify the dimension every time they need to add a prefix or suffix.

You create separate types for each dimension method.

How To: Create Dimension Types

1. In the *Annotate* tab>Dimension panel, expand the Dimension panel title (as shown in Figure 1–57) and click the dimension type with the  icon next to it that you want to create.

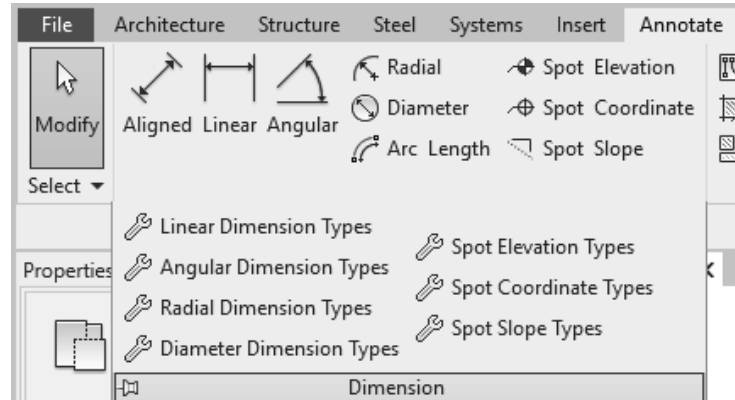


Figure 1–57

2. In the Type Properties dialog box, click **Duplicate....**
3. Type a new name and click **OK**. The new type is activated.
4. Modify the parameters as needed for the new type, as shown in Figure 1–58.
 - Values for parameters (such as text size, witness line extension, etc.) are the actual plot size for these elements. The view scale controls how large they are in the specific view.

- Specify a prefix or suffix for *Primary Units*, as shown in Figure 1–58.

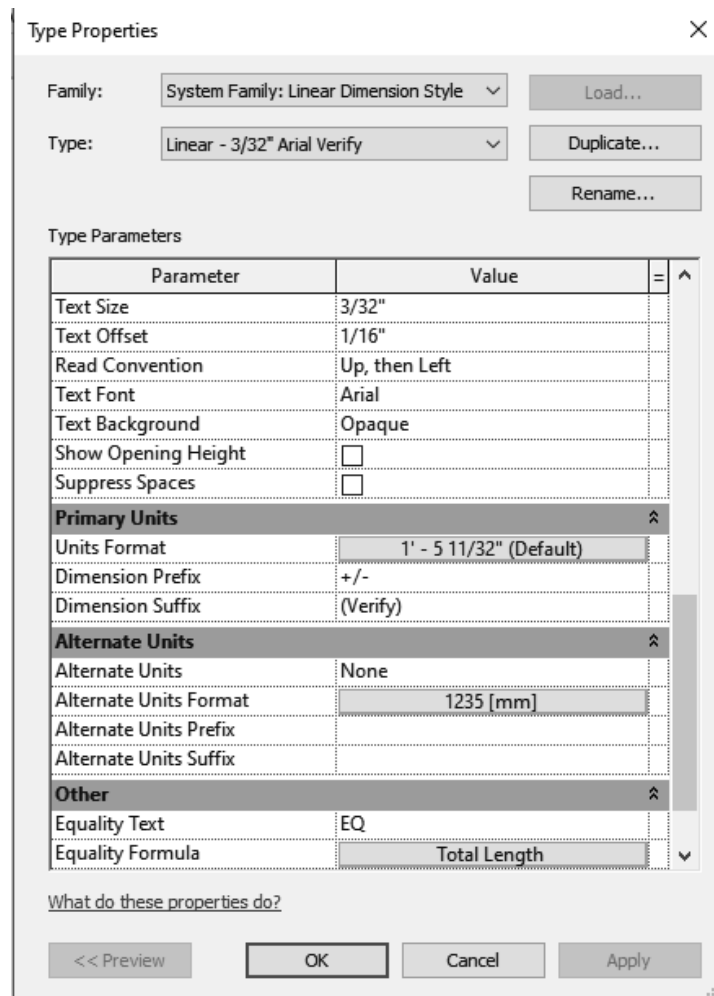


Figure 1–58

- Click **OK** when you are finished.
 - For linear dimensions, you can specify a *Leader Type*, *Shoulder Length*, and *Leader Tick Mark*, as well as the *Show Leader When Text Moves* option that is used when the text is pulled away from the dimension string. You can also specify the text inserted for *Equality Text* (the default is **EQ**).
 - You can specify a *Text Background* option. If you set the value to **opaque**, it automatically masks any elements behind the text. If it is set to **transparent**, anything the text overlaps is still visible.
 - If you are dimensioning doors and windows by their widths rather than their centers, you can also have the opening height displayed with the dimension. Select **Show Opening Height**.

Labeling Dimensions

If you have a distance that needs to be repeated multiple times, such as the *Wall to Window* label shown in Figure 1–59, or one where you want to use a formula based on another dimension, you can create and apply a global parameter, also called a label, to the dimension.

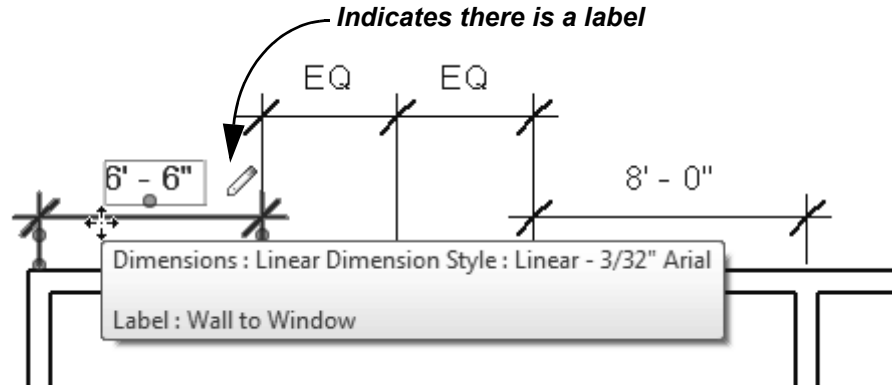


Figure 1–59

- To apply an existing label to a dimension, select the dimension and in the *Modify | Dimensions* tab>Label Dimension panel, select the label in the drop-down list, as shown in Figure 1–60.

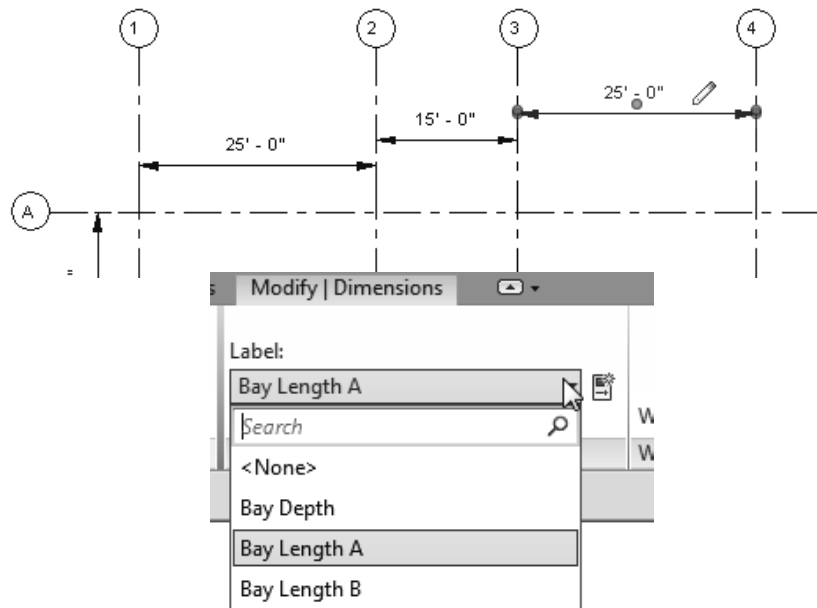

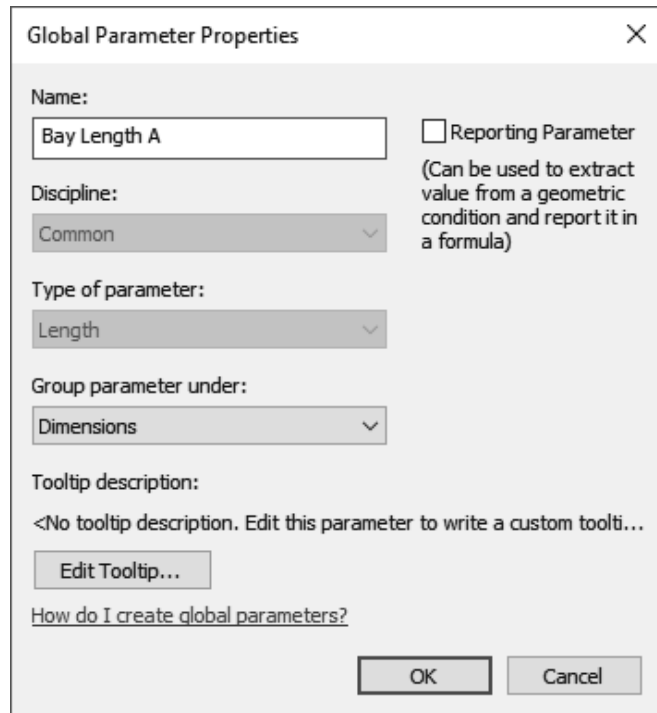


Figure 1–60

How To: Create a Label

1. Select a dimension.
2. In the *Modify | Dimensions* tab>Label Dimension panel, click  (Create Parameter)
3. In the Global Parameter Properties dialog box, type in a *Name*, as shown in Figure 1–61, and click **OK**.




The dialog box titled "Global Parameter Properties" contains the following fields and options:

- Name:** A text input field containing "Bay Length A".
- Discipline:** A dropdown menu set to "Common".
- Type of parameter:** A dropdown menu set to "Length".
- Group parameter under:** A dropdown menu set to "Dimensions".
- Reporting Parameter:** An unchecked checkbox with the text "(Can be used to extract value from a geometric condition and report it in a formula)".
- Tooltip description:** A text area containing "<No tooltip description. Edit this parameter to write a custom toolti...". Below it is an "Edit Tooltip..." button.
- Help:** A link labeled "How do I create global parameters?".
- Buttons:** "OK" and "Cancel" buttons at the bottom right.

Figure 1–61

4. The label is applied to the dimension.

How To: Edit the Label Information

1. Select a labeled dimension.
2. Click  (Global Parameters), as shown in Figure 1–62.

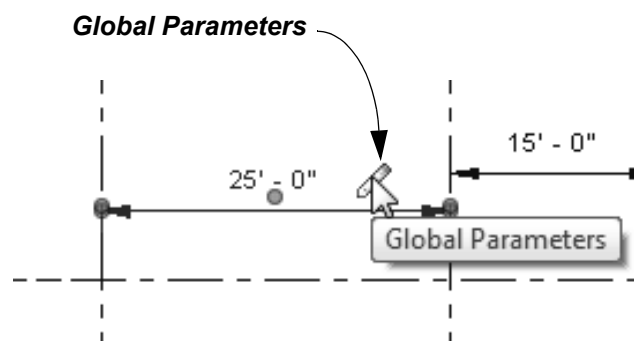


Figure 1–62

- In the Global Parameters dialog box, in the *Value* column, type the new distance, as shown in Figure 1–63.

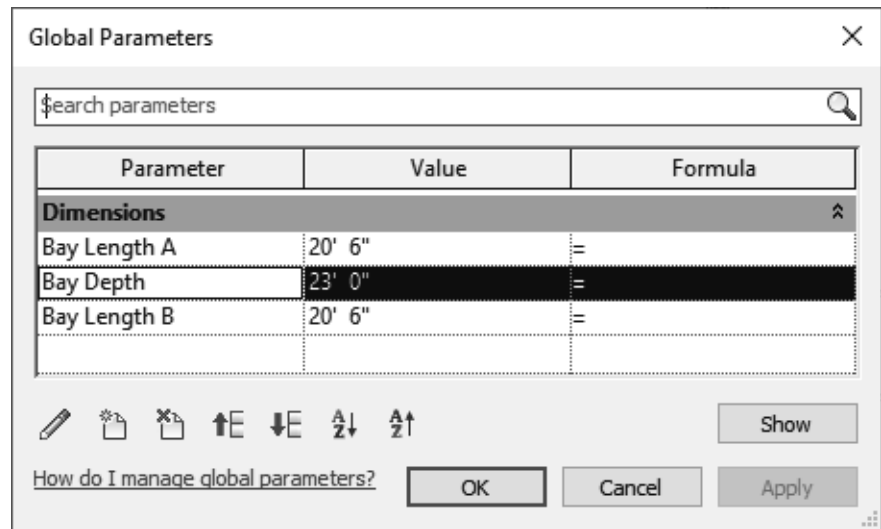


Figure 1–63

- Click **OK**. The selected dimension and any other dimensions using the same label are updated.
- You can also edit, create, and delete global parameters in this dialog box.

Loading Tags and Symbols

Tags and symbols are 2D component families that must be loaded into a project. Not all types of tags need to be in each project, so you can choose which ones you want to include in your templates. For example, if you are working in an architectural project, you can load tags such as the door, window, and wall shown in Figure 1–64.

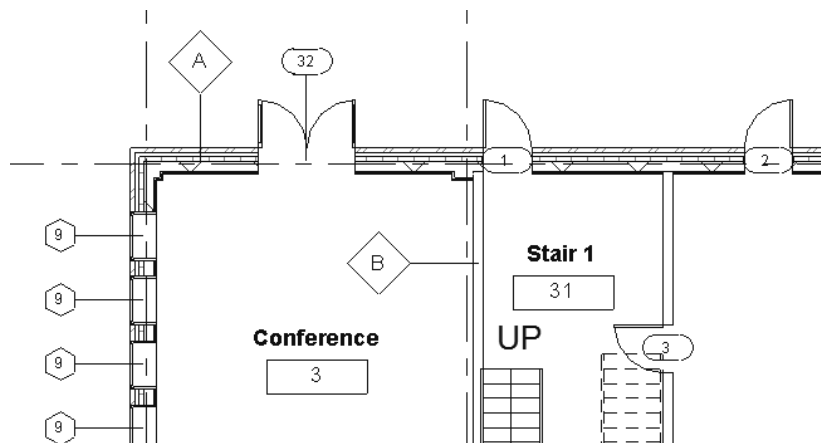



Figure 1–64

How To: Specify Loaded Tags and Symbols

1. In the *Annotate* tab>Tag panel, expand the panel title and click  (Loaded Tags and Symbols).
2. In the Loaded Tags and Symbols dialog box, use the *Filter list* field to limit the types of tags you are looking for by discipline, as shown in Figure 1–65.

Some elements, such as Floors and Structural Fabric Reinforcement, have both tags and symbols. They can both be specified in this dialog box.

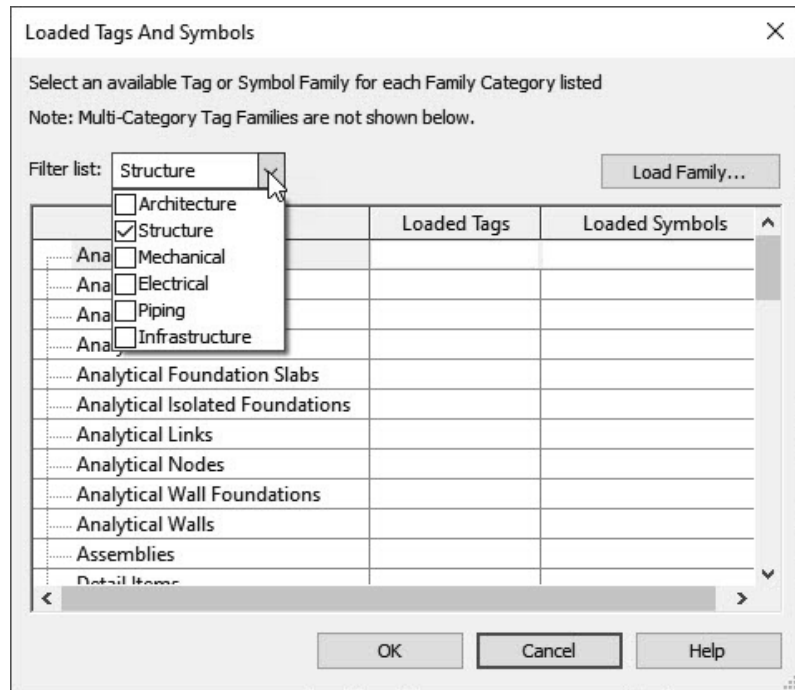


Figure 1–65

3. Click **Load Family...**
4. In the Load Family dialog box, navigate to the appropriate library and folder. Note, tags are typically found in the Revit Library's *Annotations* folder and sorted within discipline sub-folders.
5. Select the required tags and click **Open**. Hold <Ctrl> or <Shift> to select multiple tags.
6. The selected tags are assigned to their appropriate categories.
7. When you have loaded all of the tags that you need for a project, click **OK**.

- If multiple tags are loaded for a category, you can choose which one is the default tag by choosing it in the *Loaded Tags* column, as shown in Figure 1–66.

Category	Loaded Tags	Loaded Symbols
Parts		
Planting		
Plumbing Fixtures		
Railings		
Revision Clouds	Revision Tag	
Roofs		
Rooms	Room Tag <input checked="" type="checkbox"/>	
Sheets	Room Tag	
Site	Room Tag : Room Tag With Area Room Tag : Room Tag With Volume	
Property Lines		
Property Line S...		
Specialty Equipment		

Figure 1–66

Specifying View Tags

Callouts, Elevations, and Section markers are system family view tags and can be modified to suit office standards. For example, you can create a new Elevation view type containing a tag that displays the view name by duplicating an existing one and modifying the properties, as shown in Figure 1–67.

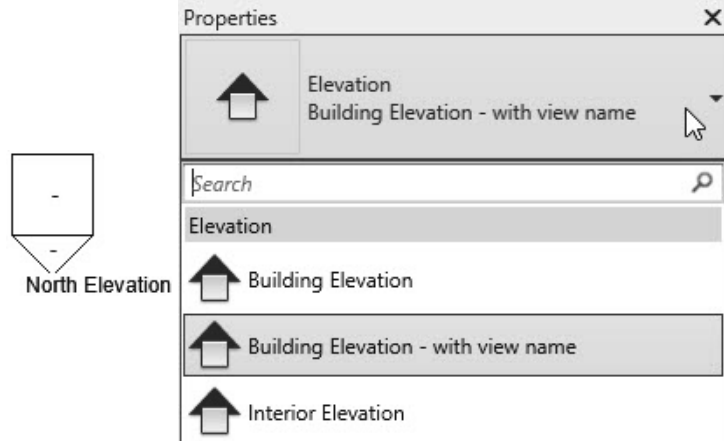






Figure 1–67

How To: Create Custom System Family Tags for View Types

1. In the *View* tab>Create panel, click  (Callout),  (Elevation), or  (Section), and in Properties, click  (Edit Type). In the Type Properties dialog box, select an existing type, then duplicate and name the new view type, as shown for an elevation view in Figure 1–68.

Each view type has different parameters.

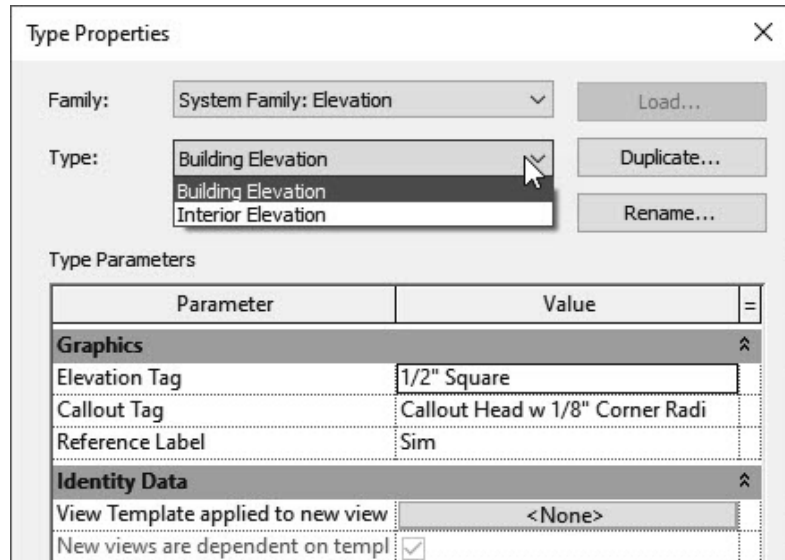



Figure 1–68

2. Beside any of the tag parameters, click in the *Value* column and then click  (Browse).

- In the Type Properties dialog box for the tag, select from an existing tag type or duplicate a tag type, and specify a new mark element from a list of families that have been loaded into the project, as shown in Figure 1–69.

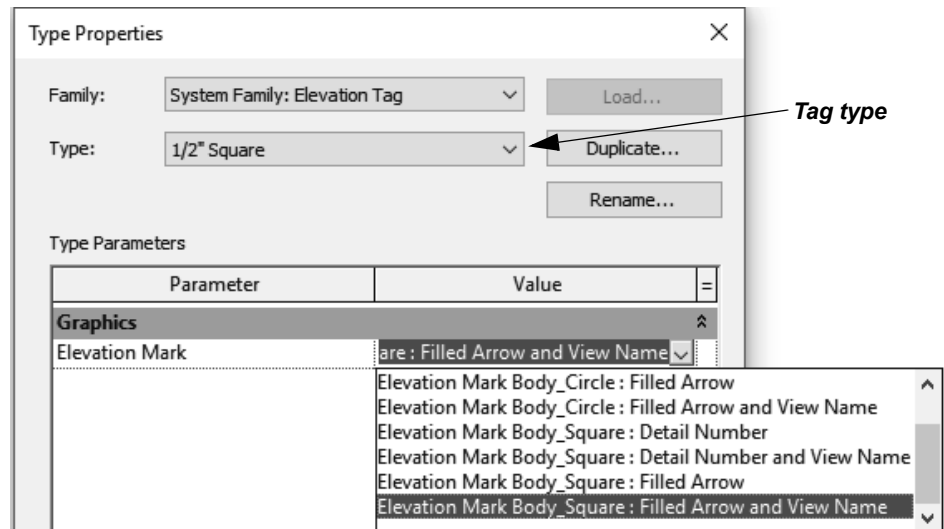


Figure 1–69

- Click **OK** to apply the tag type.
 - Modify the other parameters as needed and click **OK** to close the Type Properties dialog box.
- Levels (shown in Figure 1–70) and grids (shown in Figure 1–71) are also system families that are set up in Type Properties and include component families such as the **Symbol Level Head-Circle** and **Grid Head-Circle**.

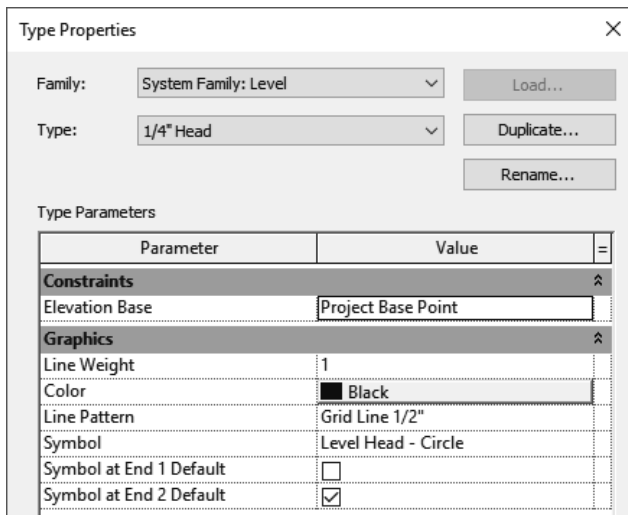


Figure 1–70

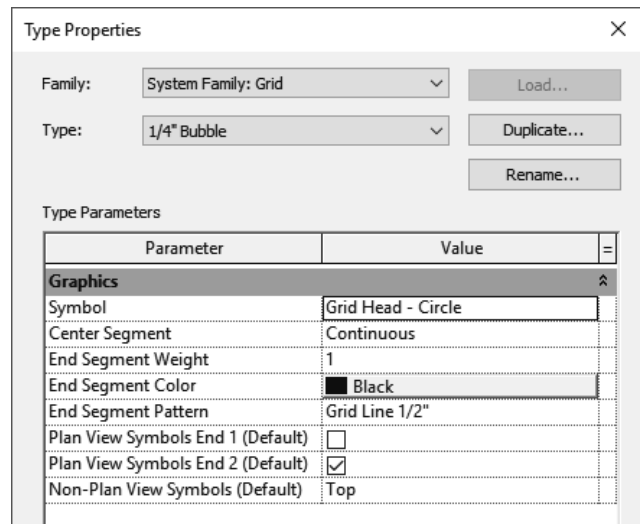








Figure 1–71

How To: Create Custom System Family Tag Types from an Existing Tag

1. In the *Manage* tab>Settings panel, expand  (Additional Settings), expand  (Annotations), and select  (Callout Tags),  (Elevation Tags),  (Arrowheads), or  (Section Tags).
2. In the Type Properties dialog box for the tag, select from an existing tag type or duplicate a tag type, as shown in Figure 1–72.

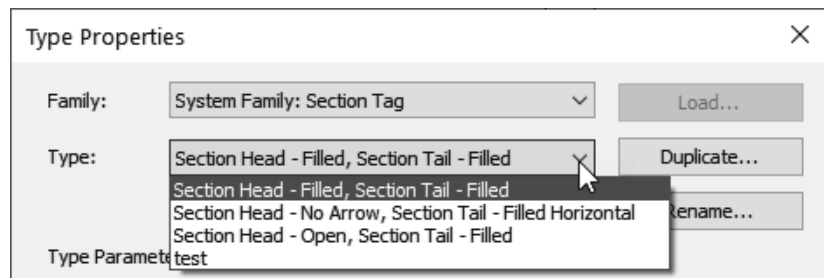


Figure 1–72

3. In the Type Parameters area, in the *Graphics* section, specify a new mark element from a list of families that have been loaded into the project, as shown in Figure 1–73.

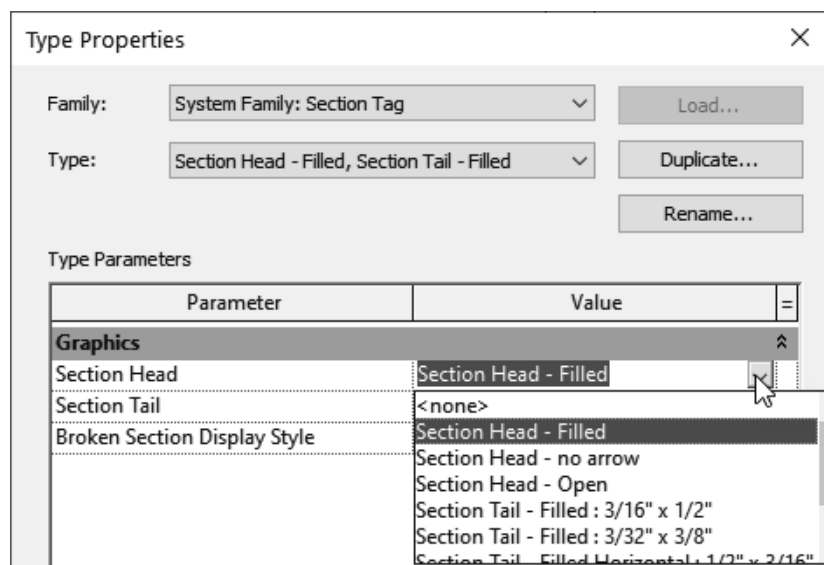


Figure 1–73

4. Click **OK**.