

Autodesk® Revit® 2012

BIM Management

Architecture, Structure and MEP

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Chapter 1

Creating Custom Templates

In this chapter you learn how to prepare project templates, create preset annotation styles, create title blocks, and create and apply view templates. You will also review settings for structural, mechanical, and electrical projects.

This chapter introduces:

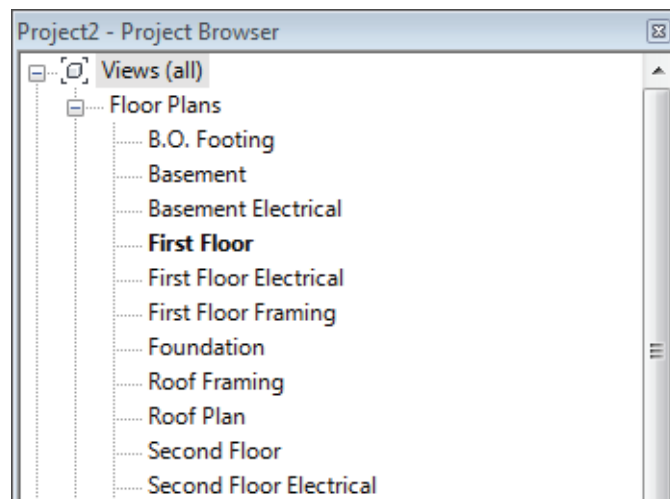
- ✓ **Preparing Project Templates**
- ✓ **Customizing Annotation Styles**
- ✓ **Creating Title Blocks**
- ✓ **View Templates**
- ✓ **Settings for Mechanical and Electrical Projects**
- ✓ **Settings for Structural Projects**

1.1 Preparing Project Templates

A project template is an existing file that contains preloaded families, settings, views, sheets, schedules, and sometimes geometry, that can be used to create a new project. You can have several project templates for different types of projects or building types, such as residential, commercial, and industrial. If you do a lot of work for a specific client (e.g., a school system), you can also create a template specifically for their projects with associated title blocks and other information. The aim is to save time with standards so that you can concentrate on the design.

Settings for Project Templates

Defining *Levels* in a project template is helpful. They could be just a few basic floor and/or ceiling plans for a residential project, as shown in Figure 1–1, or 100 stories for a high-rise.





Views Defined in the Residential Template

Figure 1–1

- Other settings that are typically added to project templates include Units, Snaps, Temporary Dimensions, Object Styles (Lineweights, Line color, and Line patterns), Line Styles, Materials, Fill Patterns, Annotation Styles (Text, Dimensions, Arrowheads, and Loaded Tags), Filters, Loaded Component Families, Views, Schedules, Sheets, and Views on Sheets. Discipline specific items such as Wall types, Column types, or Duct and Pipe types are also included.
- To set the default project template file, in the Application Menu, click . In the Options dialog box, select the *File Locations* tab and select a file for the **Default template file** location.

How to:**Create a Project Template File**

The first step in customizing a project template file is to create one where you can add the various settings, views, and other information. To save time, use an existing project template that includes some of the basics rather than starting from scratch.

1. In the Application Menu, expand  (New) and click  (Project).
2. In the New Project dialog box, select a template file to build from or select **None** for a blank project file.
3. In the *Create new* area, select **Project template**, as shown in Figure 1–2.

Project template files have the extension rte.

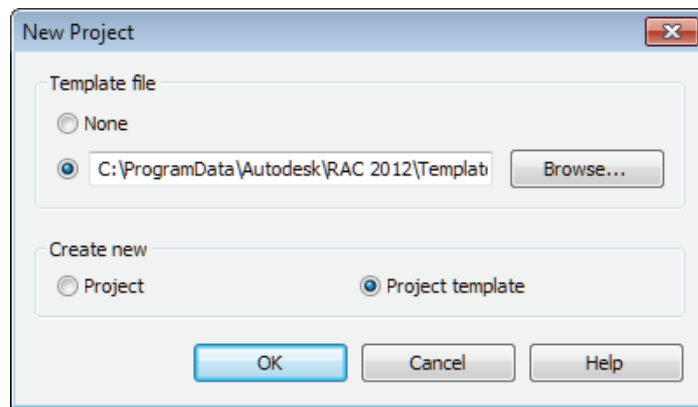
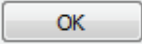


Figure 1–2

4. Click .
5. If you do not specify a project template file, you are prompted to specify the initial unit system for the project: **Imperial** or **Metric**, as shown in Figure 1–3.

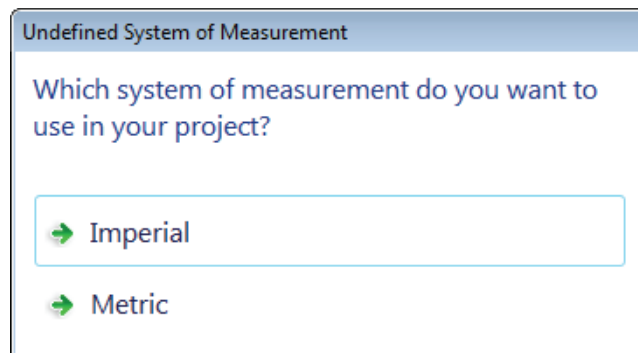


Figure 1–3


6. Add settings, families, views, and more as needed to the new file.
7. Save the project template file.

Specifying Units

Even though you select Imperial or Metric units when you create the project template, you can set up the Project Units with specific formats and options. For example, if you are working on a Civil project where everything is set up in feet, you would specify **Decimal Feet** as the Length Format. For an international metric project, you can specify whether the length units are Meters, Centimeters, or Millimeters.

How to:

Set Up Project Units

1. In the *Manage* tab > Settings panel, click  (Project Units) or type **UN**.
2. In the Project Units dialog box, as shown on the left in Figure 1–4, in the *Format* column, click the button next to the unit type that you want to modify. The related Format dialog box opens, as shown on the right in Figure 1–4.

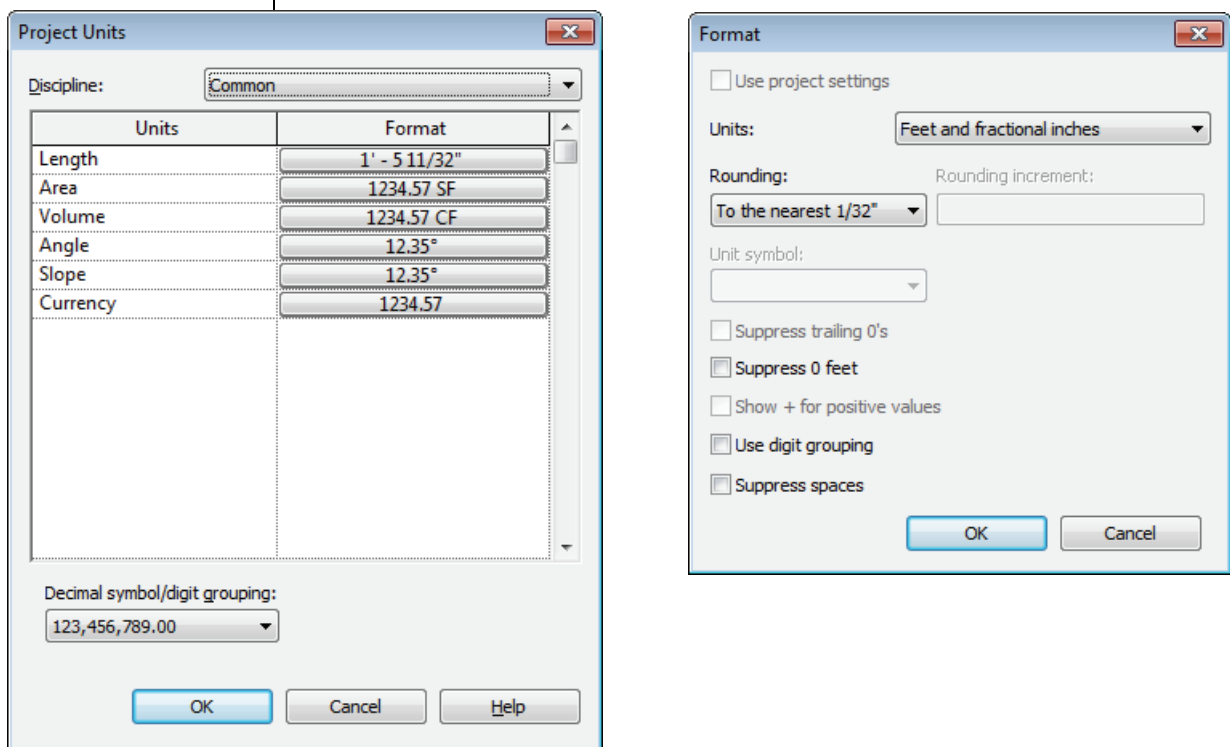
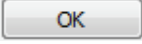


Figure 1–4

3. Set the *Units*, *Rounding*, and other options as needed.
4. In the Project Units dialog box, you can also select the *Discipline* (**Common** by default) and change the Unit format for each discipline. The other options are **Structural** and **Electrical**. **HVAC** and **Piping** are also included in Autodesk® Revit® MEP software.
5. Click  to close each dialog box.

Format Options

Each unit has specific formatting options. The option is grayed out if it is not applicable to that unit type.

Units

Select the type of units in the *Units* drop-down list, as shown in Figure 1–5.

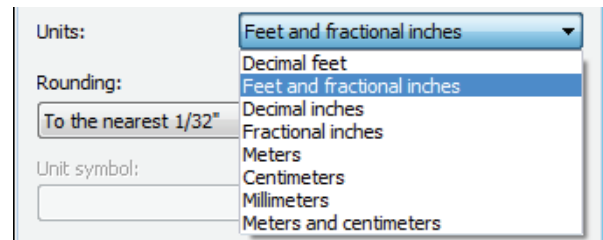


Figure 1–5

Rounding

Specify how precisely you want the dimensions to be rounded. The options depend on the *Units* you selected.

Unit Symbol

If you are using metric units, you can select a unit symbol, such as **cm** for centimeters or **None**.

Suppress trailing 0's

(For decimal-based units) If selected, this option removes any trailing 0s. For example, it displays 1.5 instead of 1.50 if you are using two decimal places.

Suppress 0 feet

(Length and Slope only.) If selected, this option removes the 0 in front of a dimension in inches only. For example, instead of 0'-4", you see 4".

Use digit grouping

If selected, the unit uses the Decimal symbol/digit grouping specified in the Project Units dialog box, as shown in Figure 1–6.

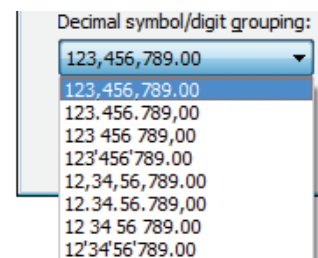


Figure 1–6


Suppress spaces

(Length and Slope only) If selected, this option removes the spaces between the feet and inches, so that a dimension reads 1'-2" rather than 1' - 2".

- The **Use project settings** and **Show + for positive values** options are grayed out when setting units for the project. This dialog box is also used when creating dimension styles or specifying label formats. At that point, the options are available.

Snap Settings

The Snaps dialog box controls *Dimension Snaps*, which are the increments you see in temporary dimensions, and *Object Snaps*, which are the points on elements that you can select. It also lists temporary snap overrides that can be used as keyboard shortcuts within an active command. In the *Manage* tab >

Settings panel, click  (Snaps) to open the dialog box, as shown in Figure 1–7.

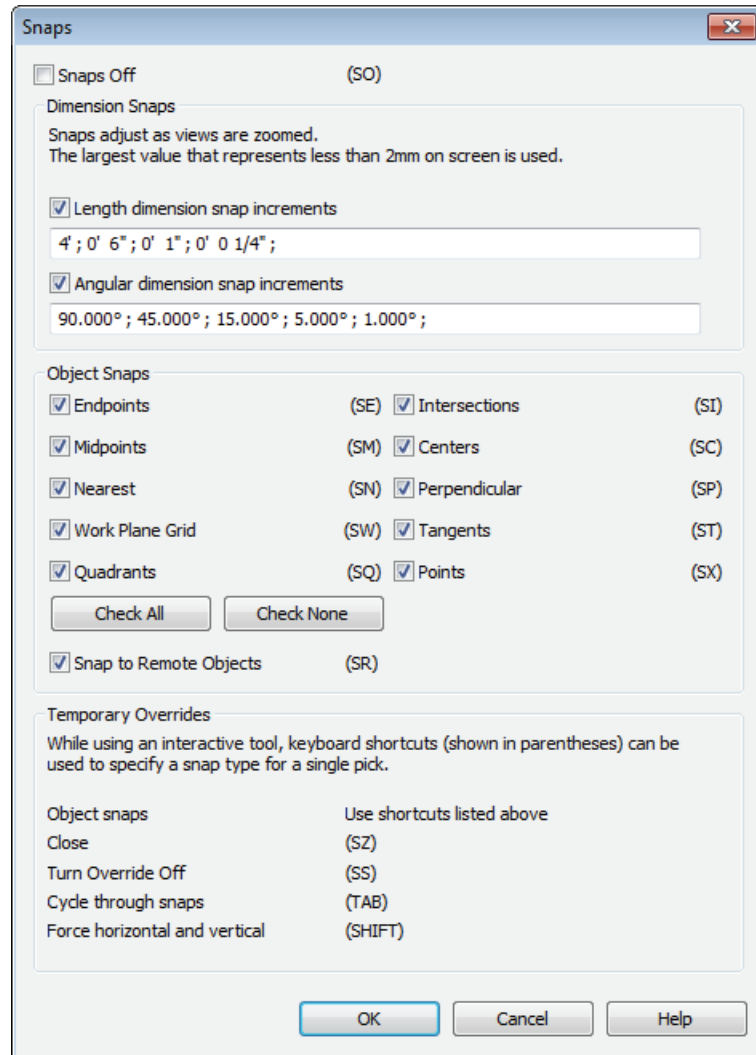


Figure 1–7

- Snap overrides are listed as keyboard shortcuts in parentheses, next to the corresponding snap. When a snap override is used, the cursor finds that specified snap type in your view until something is selected.

Customizing Shortcuts

When you type in keyboard shortcuts you do not need to press <Enter> or <Spacebar> after them.

You can use keyboard shortcuts for commands other than snaps. Hover your cursor over a tool, such as **Wall**, to display the tool tip which shows the associated shortcut, as shown in Figure 1–8. Keyboard shortcuts can be customized.

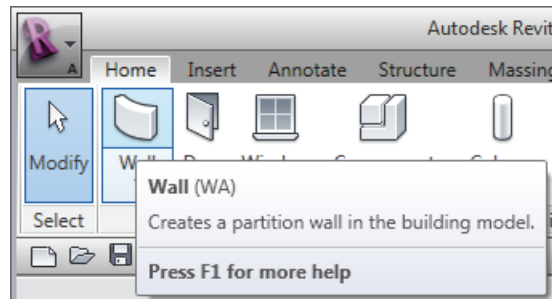



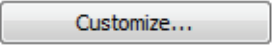


Figure 1–8

How to:

Customize Keyboard Shortcuts

1. In the *View* tab > *Windows* panel, expand  (User Interface) and click  (Keyboard Shortcuts) or, in the Application Menu, click  and in the Options dialog box, *User Interface* tab, *Configure* area, click .
2. In the Keyboard Shortcuts dialog box, use the *Search* or *Filter* options to narrow the search, as shown in Figure 1–9.

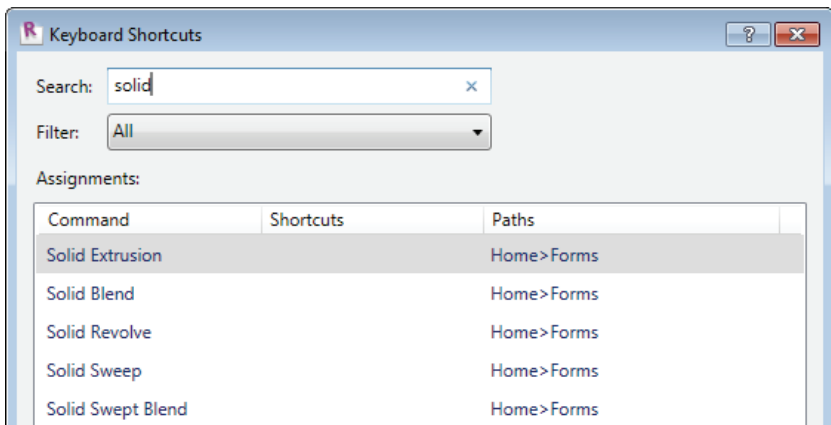
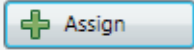


Figure 1–9

3. Select the command you want to add or modify.

4. In the *Press new keys* area, type in the shortcut you want to use, as shown in Figure 1–10, and click .

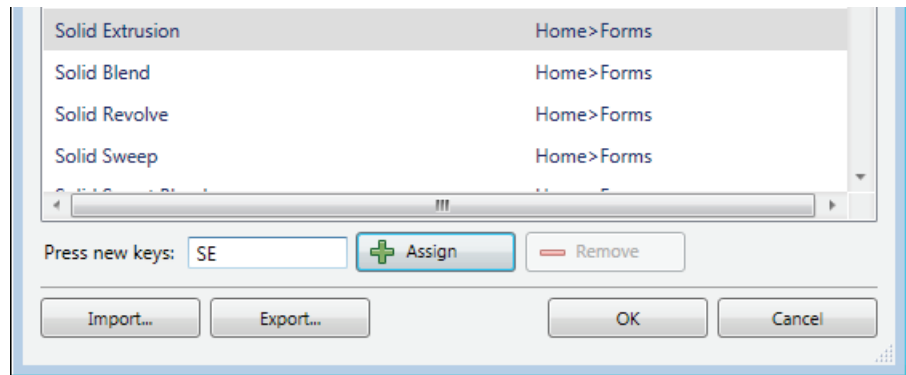
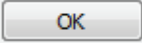



Figure 1–10

5. Click  when you are finished.
- To remove shortcuts, select the shortcut and click .
 - You can import or export the shortcut file to be used in other stations of Revit than the one where they were created. When you export to XML, all of the commands are exported. You can then add the shortcuts you want in the XML file and import them back into your program.

ENHANCED!

Temporary Dimension Settings

Temporary dimensions display when you draw or edit building elements in Autodesk® Revit® software. By default, they measure from the center lines of walls to the center lines of openings, as shown in Figure 1–11.

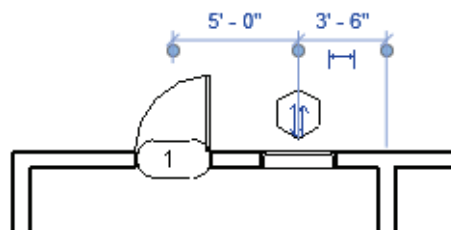


Figure 1–11

- When you move a witness line to another element or part of an element, the location is remembered within the current session of program.

You can control where temporary dimensions are placed by default. In the *Manage* tab > Settings panel, expand

 (Additional Settings) and click  (Temporary Dimensions) to open the Temporary Dimension Properties dialog box, as shown in Figure 1–12.

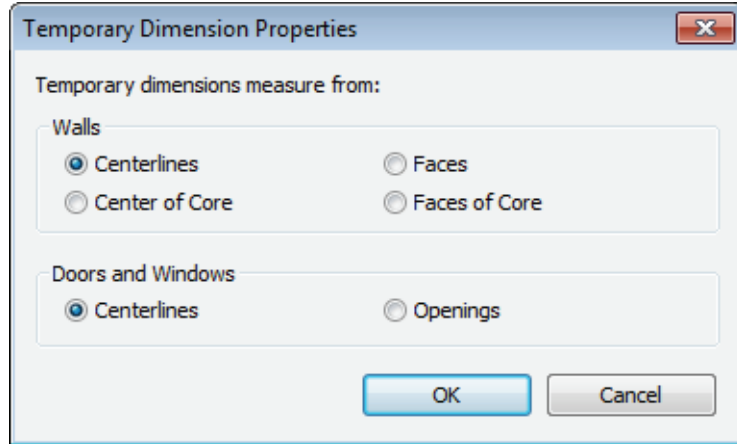


Figure 1–12

- Temporary dimensions can be attached to **Centerlines**, **Faces**, the center or face of the core objects in Walls, and the center lines or openings of Doors and Windows.
- You can set up these properties in the project template file or modify them at any time. They do not affect existing elements in your project.
- You can control the size of the temporary dimension text in the Options dialog box in the *Graphics* tab, as shown in Figure 1–13.

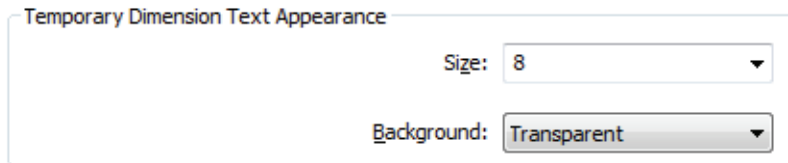


Figure 1–13

1.2 Customizing Annotation Styles

You can customize Annotation styles in your project template file including dimensions, text types, and tags, as shown in Figure 1–14.

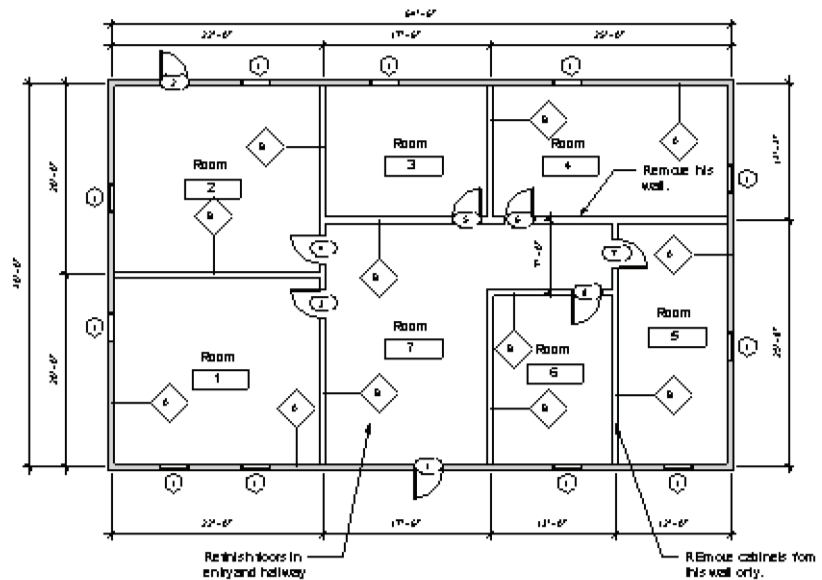


Figure 1–14

Text, Dimensions, and Arrowheads are all system families. This means they have a standard set of parameters, which you can modify and save as a type. Callout, Section, and Elevation tags can be modified within Autodesk Revit. Most other tags are created using families.

Creating Text Types

Text types are used to standardize text formatting (such as the font, text height, etc.), as shown in Figure 1–15. They can be created for to both annotative text and Model Text.

A FANCY FONT AT 1/4"

A HAND LETTERING FONT AT 1/8"

A HAND LETTERING FONT AT 5/32"

Figure 1–15



- The **Text** command places text at the height you need for the final plot (e.g., 1/8" high). The view scale controls the height of the standard text in the views.

- The **Model Text** command places text that is typically used on the building, such as the signage shown in Figure 1–16. Text types for Model Text should be the full height of the text and are not affected by the view scale.



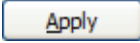
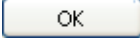
Figure 1–16

How to: Create a Text Type

1. Start the **Text** or **Model Text** command. (Place the **Model Text** and select it.)
2. In Properties, click  **Edit Type**.
3. In the Type Properties dialog box, click .
4. Type a new name.
5. Modify the parameters as needed for the new type, as shown for annotation text in Figure 1–17.

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 1–17

6. Click  if you want to create another type.
7. Click  twice if you are finished.

Dimensions

Dimensions are one of the more complex system families in terms of the number of parameters you can modify. You can create three typical types: linear, radial, and angular, as shown in Figure 1–18, as well as types for **Spot Elevation**, **Spot Coordinate**, and **Spot Slope**.

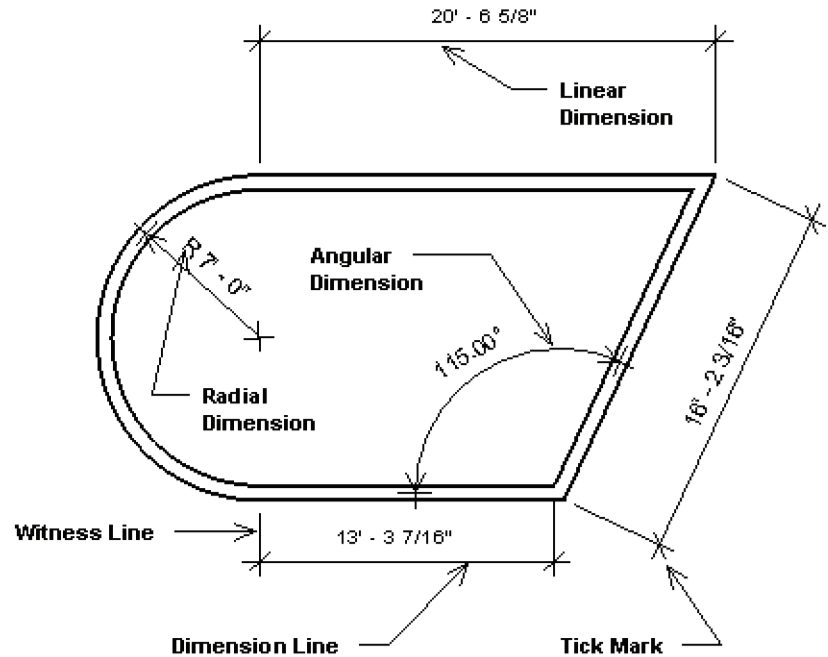



Figure 1–18

- Values for the 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.

How to:

Create Dimension Types

1. In the *Annotate* tab > Dimension panel, expand the

Dimension panel title, as shown in Figure 1–19, and click  next to the dimension type you want to create.

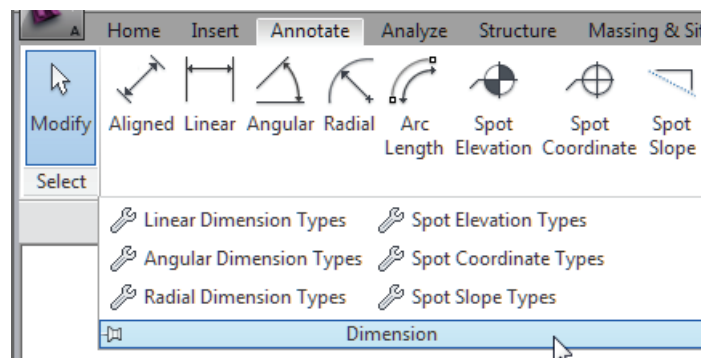
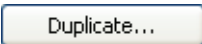
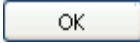


Figure 1–19

2. In the Type Properties dialog box, click  to create a new type.
3. Modify the parameters as needed for the new type.
4. Click  when you are finished.

Dimension Type Options

The dimension type parameters include the *Graphics* of the dimension (such as *Tick Mark* and *Line Weight*), as shown in Figure 1–20, for Linear dimensions, and the *Text* formatting (scroll down in the Type Parameter dialog box to view).

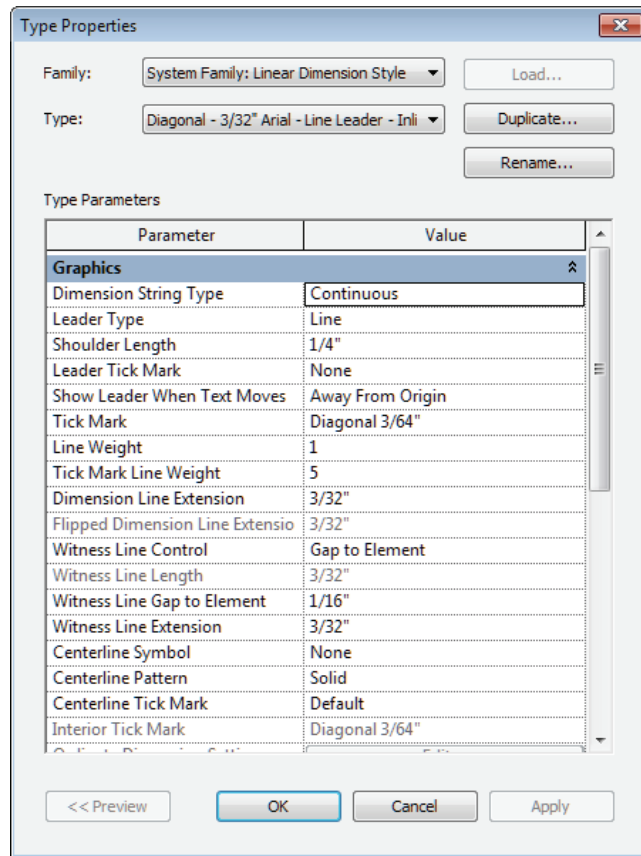


Figure 1–20

- For Linear dimensions, you can specify a *Leader Type*, *Shoulder Length*, *Leader Tick Mark*, and *Show Leader When Text Moves* 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 still 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.

NEW IN 2012!

Arrowheads

- 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 the **Show Opening Height** option.

A variety of arrowhead types are supplied with Autodesk Revit, including open and filled arrow styles, tick marks, and dots. You can also create custom styles by duplicating an existing style and defining the parameters, such as the *Arrow Style* shown in Figure 1–21. In the *Manage* tab > Settings panel, expand

 (Additional Settings) and click  (Arrowheads) to open the dialog box.


Type Parameters	
Parameter	Value
Graphics 	
Arrow Style	Arrow
Fill Tick	<input type="checkbox"/>
Arrow Width Angle	30.000°
Tick Size	1/8"
Heavy End Pen Weight	7


Figure 1–21

- Arrowheads are used by both text (with a leader) and dimensions.

Callout, Elevation, and Section Tags

Callout, Elevation, and Section tags can be modified to suit an office standard. In the *Manage* tab > Settings panel, expand

 (Additional Settings) and click  (Callout),  (Elevation),

or  (Section). Then, in the Type Properties dialog box, duplicate an existing tag and make changes to the type parameters.

The **Callout Tags** parameters specify a *Callout Head* and the *Corner Radius* of the callout box, as shown in Figure 1–22.


Type Parameters	
Parameter	Value
Graphics 	
Callout Head	Callout Head
Corner Radius	1/8"

Figure 1–22

The **Elevation Tags** parameter is the *Elevation Mark*. You can select from a variety of types that come with Autodesk Revit, as shown in Figure 1–23. For example, you may want to set the exterior elevation mark to display a square body and the detail number on the sheet where it is placed.

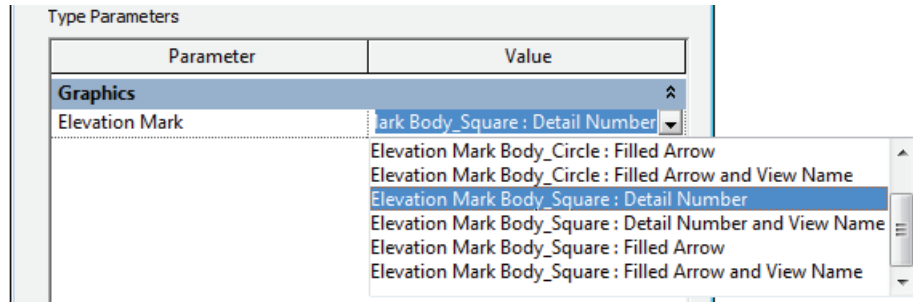


Figure 1–23

The **Section Tags** parameters include both the *Section Head* and *Section Tail*, as well as the *Broken Section Display Style*, as shown in Figure 1–24.

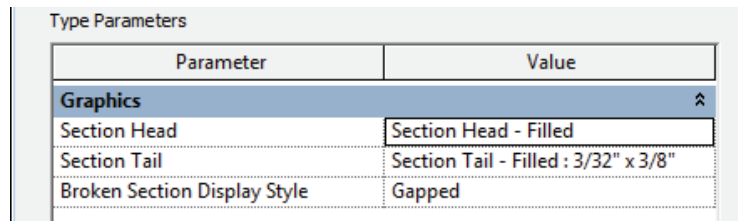


Figure 1–24

- Once you set up these tags, you can connect them with the tag types used in the (Callout), (Elevation), and (Section) commands. In Properties, click Edit Type and set up the type parameters, as shown for a Building Elevation in Figure 1–25.

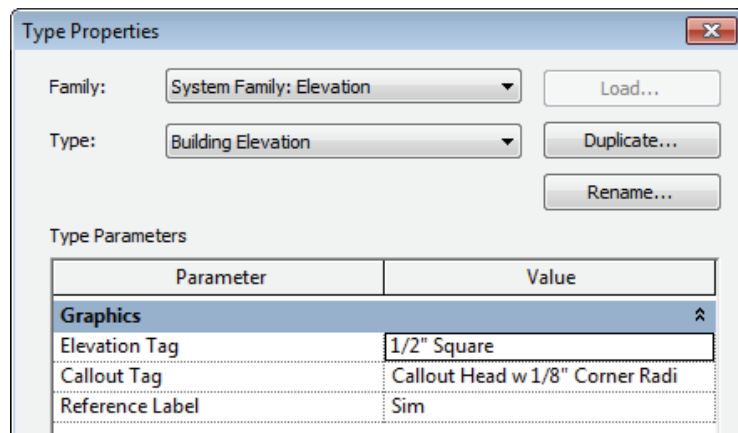


Figure 1–25

Loaded Tags

You can load tags, such as door, window, and wall tags, as shown in Figure 1–26, into a project template. Having the specific tags required for your projects increases adherence to company standards.

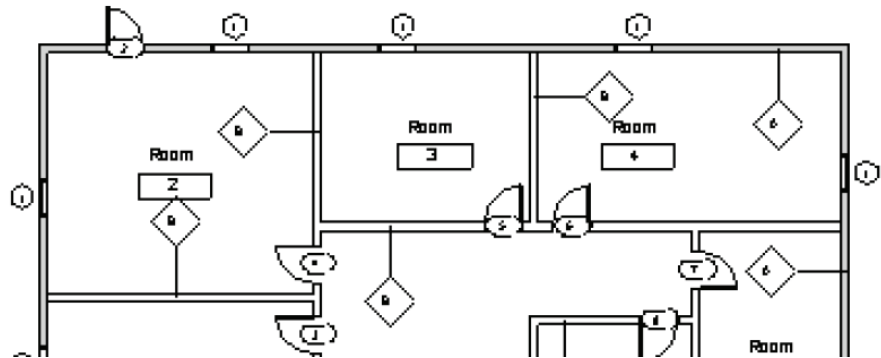


Figure 1–26

Tags are created as separate family files (RFA) and stored in the Library. In the Tags dialog box, as shown in Figure 1–27, you can easily load the tags you need from the Library into the project template. Therefore, when you start the **Tag** command, the one you need is available.

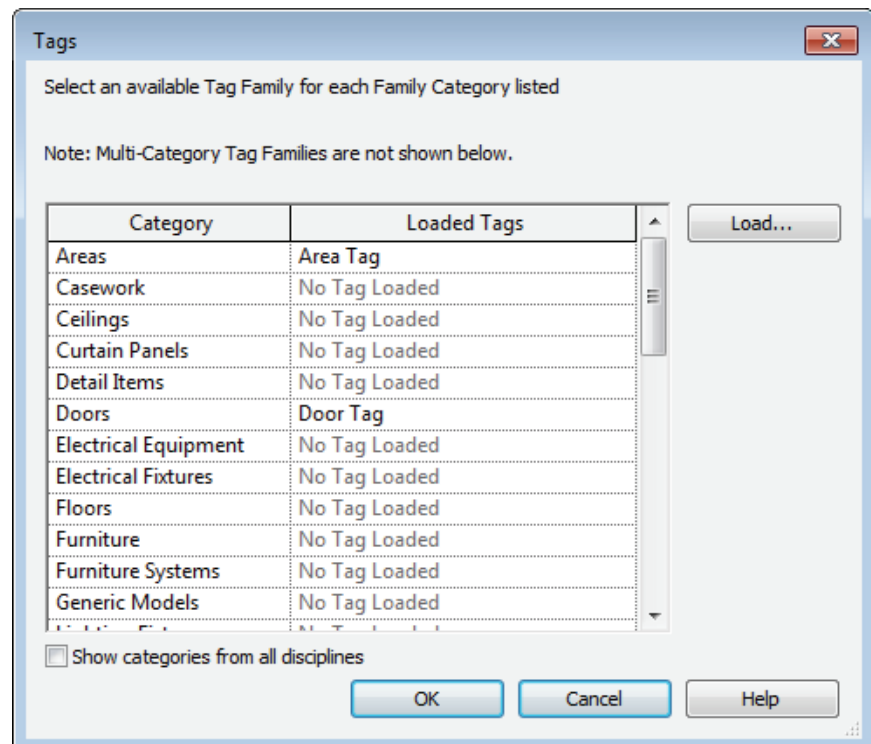

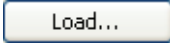
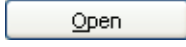
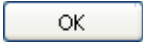


Figure 1–27

How to:

Specify Loaded Tags

1. In the *Annotate* tab > Tag panel, expand the panel title and click  (Loaded Tags).
2. In the Tags dialog box, click  .
3. In the Library, open the *Annotations* folder.
4. Select the required tags and click  . Hold down <Ctrl> to select multiple tags.
5. When you have loaded all of the tags that you typically need for a project, click  .

Practice 1a



Estimated time for completion: 15 minutes.

Preparing Templates for Autodesk Revit

In this practice you will create a new project template file, modify the units, snaps, temporary dimensions, and add several new levels. You will create several text types, add a dimension style that uses arrows, as shown in Figure 1–28, and load typical tags into the project template file.

1/8" Arial 1/8" Hand
 3/32" Arial 3/32" Hand

1/4" Title

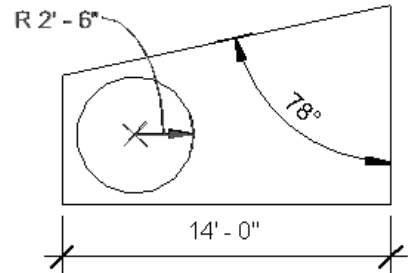






Figure 1–28

Task 1 - Establish a project template file.

1. In the Application Menu, expand  (New) and click  (Project).
2. In the New Project dialog box, select the default template file and **Project template** and click .
3. In the Quick Access Toolbar, click  (Save) and save the template in your class directory as **Midrise-Template.rte**.
4. In the *Manage* tab > Settings panel, click  (Project Units) or type **UN**. In the Project Units dialog box, set the formats as follows:

Length:	
<i>Units</i>	Feet and Fractional Inches
<i>Rounding</i>	To the nearest 1/16"
<i>Suppress 0 feet</i>	Check
Angle:	
<i>Rounding</i>	0 decimal places

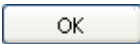




5. Click  to close the Units dialog box.
6. Set the Snaps and Temporary Dimensions as needed.
7. Switch to an elevation view.
8. Change Level 2 to **16'-0"**. Add three more levels above the current levels, at **12'-0"** apart. Add two levels below Level 1 and set them **10'-0"** apart. Rename these to **Basement 1** and **Basement 2**, as shown in Figure 1–29.



Figure 1–29

- If you draw the levels using  (Level), you can select the **Make Plan View** option in the Options Bar to create the associated views.
- If you copy the existing levels, you need to create the plan views and ceiling plan views. In the *View* tab > Create panel, expand  (Plan Views) and click  (Floor Plan) and/or  (Reflected Ceiling Plan).
- Rename above ground levels and corresponding views to match the other levels in the HVAC sub-discipline (3 - Mech, 4 - Mech, etc) and expand the ??? node and select all of the new ceiling plans. In Properties, change the *Sub-Discipline* to **HVAC**.

9. Switch back to the **Level 1** floor plan view and save the project template.



Task 2 - Preset annotation types.

1. Create the following text types:

1/8" Arial	Use the default, but set the <i>Height</i> to 1/8" .
1/8" Hand	Use a hand-lettering <i>Font</i> , such as Comic Sans MS , and select <i>Italic</i> .
3/32" Hand	Same as above with a <i>Height</i> of 3/32" .
1/4" Title	Use the font of your choice, in bold.
1" Title	Duplicate 1/4" Title and change the <i>Height</i> to 1"

2. Create or modify a Linear Dimension type and change the Units Format *Rounding* to the **nearest 1/8"**. Modify the angular dimension type to use arrowheads. Modify other parameters if required. You can create an additional arrow type if time permits.

3. Load the following tags into the project template:



Architectural	Casework, furniture, and furniture systems
Civil	Parking and planting



Fire Protection	Sprinkler-Symbol-Pendent on Drop and Sprinkler-Symbol-Pendent
Electrical	Lighting Fixture tag and Panel Name



Architectural	Wall and Floor
Structural	Select any different Structural tags you might want to use in place of those already loaded

4. Save the project template.

1.3 Creating Title Blocks

Title blocks contain information about the company and consultants designing the project, project information, and sheet-specific information, as shown in Figure 1–30. This information might include but is not limited to the following: the project name, address, number, sheet number, revisions, and other parameters. Some of these parameters never change, some are project-specific, and some are sheet-specific.

Labels and Revision Schedules are specifically used in title blocks.

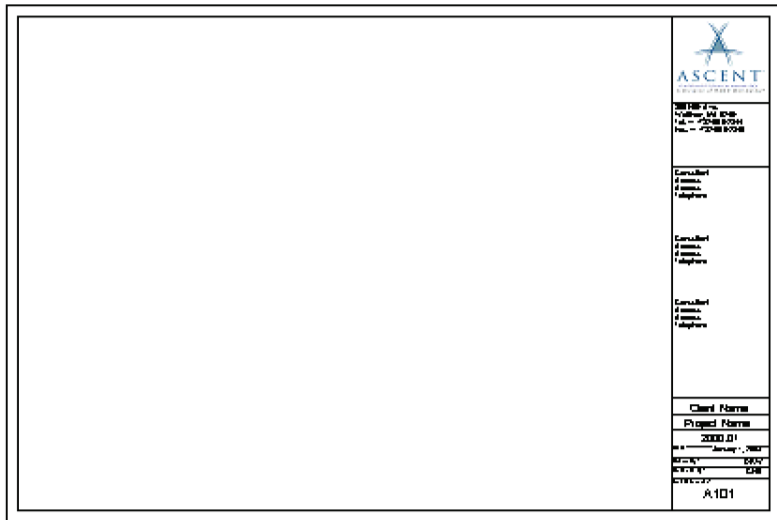


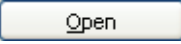


Figure 1–30

- Create the title block by sketching detail lines and adding text, symbols, and regions, as well as image files for company logos. The variable information is stored in labels.

How to:

Create a Title Block

1. In the Application Menu, expand  (New) and click  (Title Block).
2. In the New Title Block - Select Template File dialog box, select a template file size from the list and click . A new family file opens and the Family tools display in the Ribbon, as shown in Figure 1–31.

You can select from several preset sizes or create a custom size.

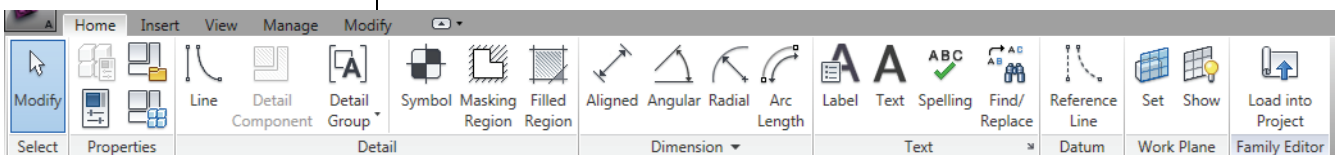


Figure 1–31

Adding Labels

- If you select a template with a standard size, a rectangle of that size displays in the view.
 - If you select **New Size**, a rectangle with dimensions displays. Edit the dimensions to modify the size.
3. Add dimensions, lines, filled regions, symbols, text, labels, etc., as needed.
 4. Save the file and close it.
- Dimensions in the family file are not displayed when the title block is inserted.

Labels are not just text but elements that are assigned to specific parameters and can be added to title blocks or tags. They can change without modifying the rest of the elements. For example, you would use annotation text for the words **Drawn By:** and a label for the initials of the person who did the work (by default displaying DRW in Figure 1–32), because that varies from sheet to sheet.




Figure 1–32

- The title block template comes with one text type and one label type already defined. You can create additional types in Properties by duplicating types. The Text and Label parameters are similar, but you must create separate types for each of them.

How to:

Create a Label

1. In the Family Editor, in the *Home* tab > Text panel, click  (Label).
2. In the *Modify | Place Label* tab > Format panel, specify the alignments: **Left**, **Center**, **Right**, **Top**, **Center Middle**, or **Bottom**, as shown in Figure 1–33.

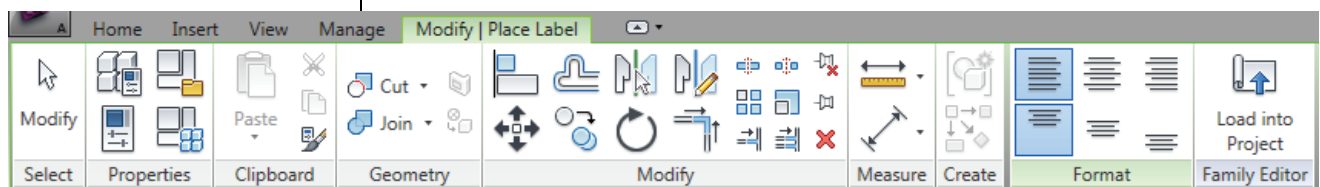



Figure 1–33

7. Rotate or stretch the label as needed (as shown in Figure 1–36), or select a point for an additional label.



Figure 1–36


8. Click  (Modify) or press <Esc> twice to finish the command.

Adding Revision Schedules

How to:

A table of revisions included in a project and/or sheet is typically added to a company title block. In Autodesk Revit, you can create a Revision Schedule that is then linked to the Revision Table in the project.

Add Revision Schedules to Title Blocks

1. In the Family Editor, in the *View* tab>Create panel, click  (Revision Schedule).
2. In the Revision Properties dialog box, select the fields you want to use. Several are already selected for you, as shown in Figure 1–37.

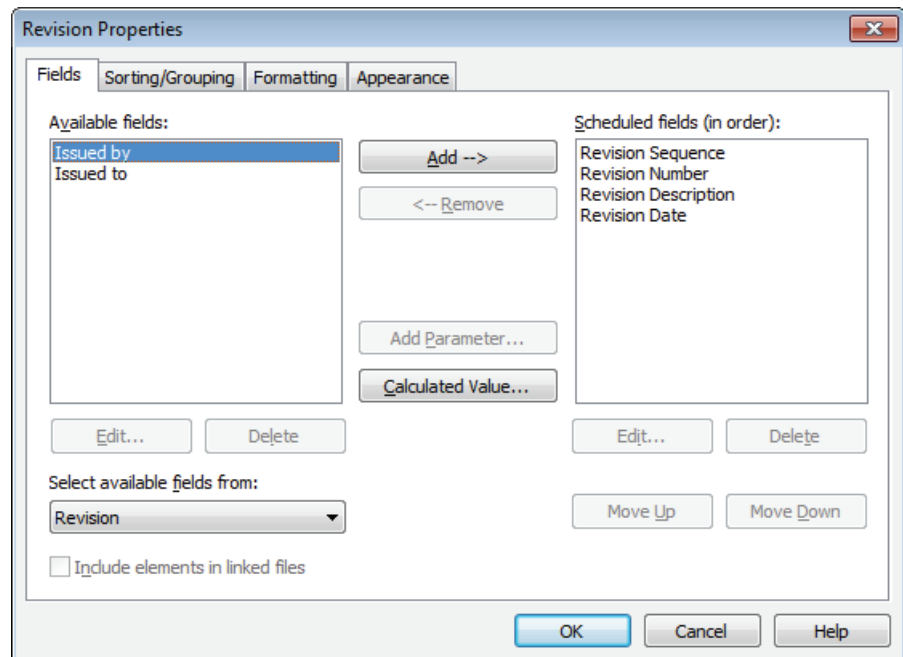
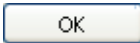


Figure 1–37

3. Modify the options in the *Sorting/Grouping* and *Formatting* tabs as needed.

If the height is set to **User-Defined**, an additional control is displayed at the bottom of the schedule. Use it to set the height of the schedule.

4. In the *Appearance* tab, select how you want to build the schedule: from the **Top-down** or **Bottom-up**. You can also set the *Height* to **Variable** or **User-Defined**.
5. Click . The schedule view displays.
6. In the Project browser, open the Sheet view (it has no name).
7. Drag and drop the schedule onto the sheet and modify the controls, as shown in Figure 1–38.

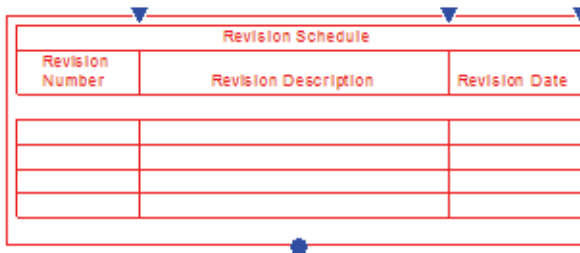


Figure 1–38


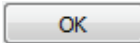

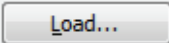
- In the Options Bar, you can change the *Rotation on the Sheet* to **None**, **90° Clockwise**, or **90° Counterclockwise**.

Adding Sheets to Project Templates

How to:

You can set up project templates using the custom title block in two ways. Add all or most of the sheets typically needed for a project, or create a Sheet List Schedule that can be used to automatically create sheets when they are needed.

Load a Title Block into a Project Template

1. Open the project template.
 2. Return to the custom title block family. In the Family Editor panel, click  (Load into Project).
 3. In the Load into Projects dialog box, select the project you want the title block loaded into and click . If only one project is open, it is loaded into the project automatically.
 4. The title block is now available when you create a sheet.
- If the title block family is not open, select *Insert* tab > Load from Library panel and click  (Load Family) to access it, or click  in the New Sheet dialog box.

- When you save a title block, it should be on the network where everyone has access to it. That way, it is not deleted if someone reinstalls Autodesk Revit. Set the default location for the family template files in the Options dialog box, in the *File Locations* tab, as shown in Figure 1–39.

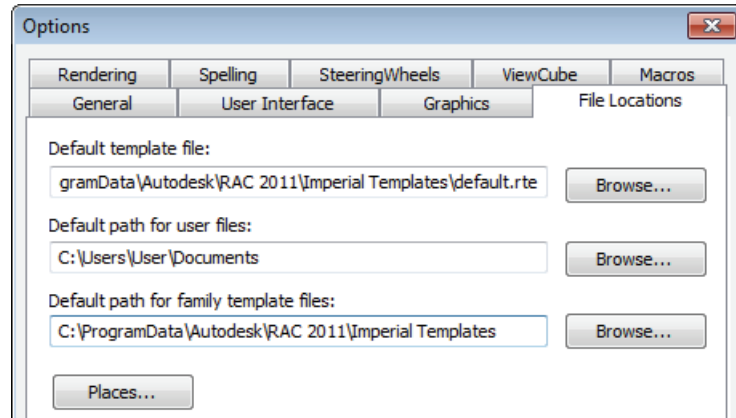




Figure 1–39

How to: Create a Sheet List Schedule

1. Open a project template file (or a project).
2. In the *View* tab > *Create* panel, expand  (Schedules) and click  (Sheet List).
3. In the Sheet List Properties dialog box, *Fields* tab, select the **Sheet Number** and **Sheet Name** and add them to the *Scheduled fields* list. Put them in the order shown in Figure 1–40.

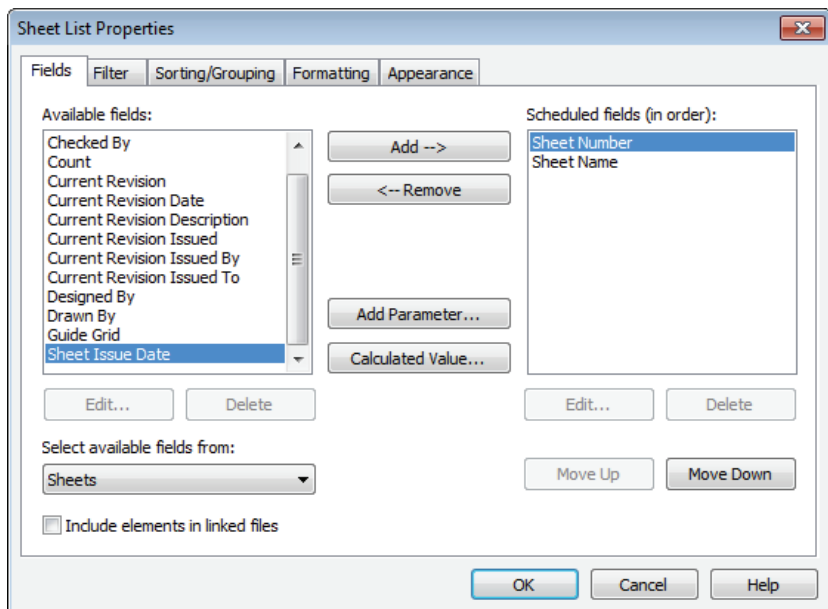
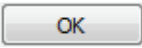



Figure 1–40

4. Depending on the complexity of your sheet naming scheme, you can also modify items on the *Filter* and *Sorting/Grouping* tabs.
5. Click  when you are finished.
6. You are placed in the schedule view with the two parameters displayed. Stretch out the columns as shown in Figure 1–41.

Sheet List	
Sheet Number	Sheet Name

Figure 1–41

7. In the *Modify Sheet List* tab, as shown in Figure 1–42, in the Rows panel, click  (New).

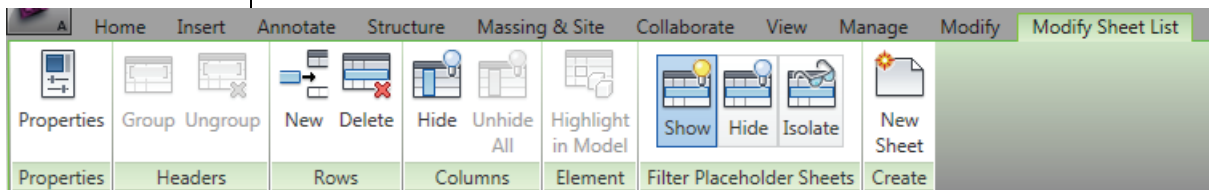



Figure 1–42

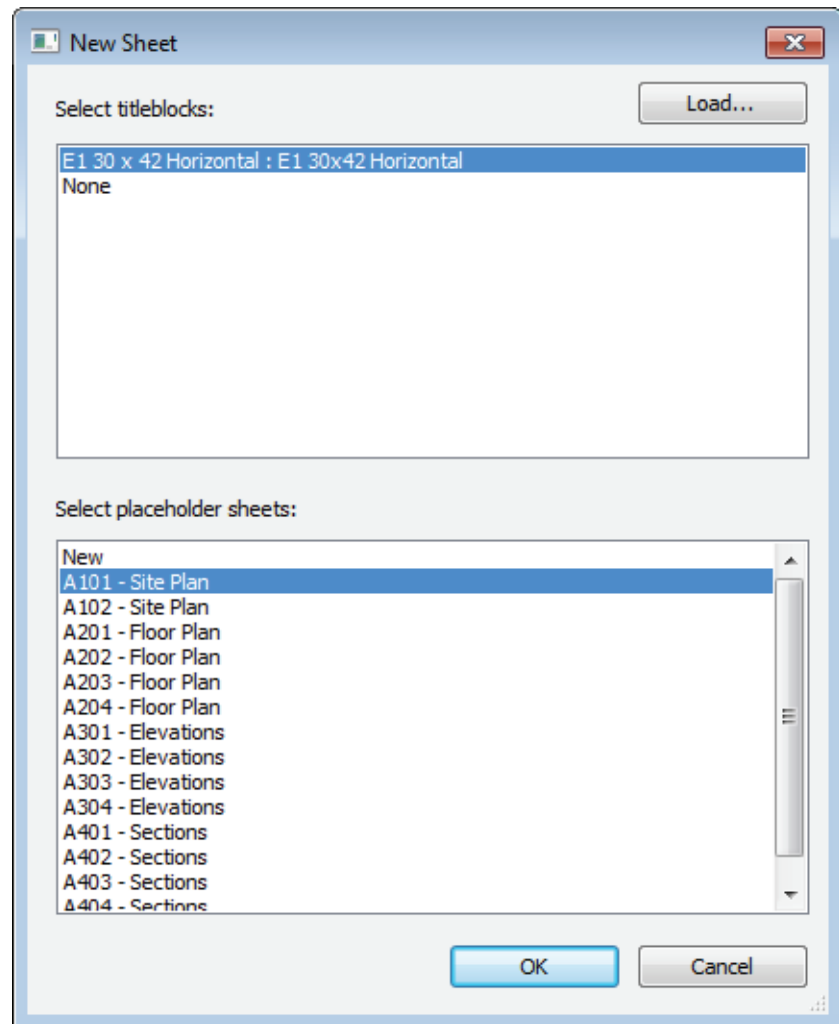
8. A new row is added below the schedule names. If no sheets are in the project, it comes in automatically as **A101** and **Unnamed**.
9. Add as many rows as you have sheets. If you are using a numbering scheme such as A1xx for site plans, A2xx for Floor Plans, A3xx for Detail plans, etc., then you should rename the sheet number for the first row of a set before creating more rows so that they increment automatically.
10. Enter the name of each sheet. Once you have added a new name, it is available in the drop-down list, as shown in Figure 1–43.

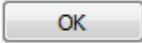
Sheet List	
Sheet Number	Sheet Name
A101	Site Plan
A102	Site Plan
A201	Floor Plan
A202	Floor Plan
A203	Floor Plan
A204	Unnamed
A301	Floor Plan
A302	Site Plan
A303	Unnamed
A304	Unnamed
A401	Unnamed
A402	Unnamed
A403	Unnamed
A404	Unnamed

Figure 1–43

How to:**Use Sheet List Tables**

1. Create a new sheet. In the Sheet List Schedule view, in the *Modify Sheet List* tab>Create panel, click  (New Sheet), You can also access the command on the *View* tab or right-click on *Sheets* in the Project browser.
2. In the New Sheet dialog box, select the placeholder sheets you want to use, as shown in Figure 1–44. To select more than one, hold down <Ctrl> or <Shift> as you select.

**Figure 1–44**

3. Click . The new sheets are created in the project.
 - This sheet list is available in all projects based on the project template where it was created.
 - You can import the sheet list schedule into another project, but it does not import the associated sheets. That is because they are part of the project, not the schedule view.

Presetting a Starting View

NEW IN 2012!

When you create a project template or a project, it can help to specify a starting view. This can be any of the standard views such as plan, elevation, 3D view, or one specifically created. Often this is a Drafting View, as shown in Figure 1–45, or Legend View with information about the project or the cover sheet for the project.

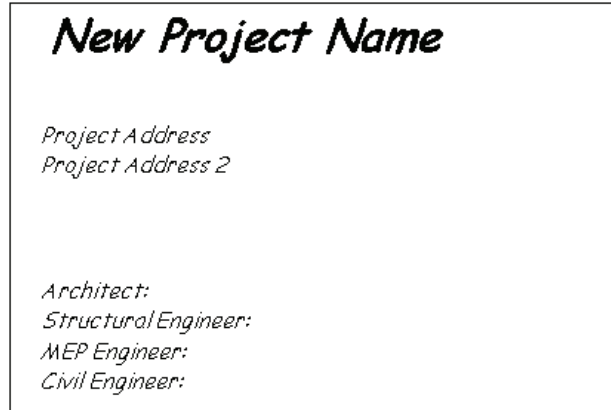



Figure 1–45

How to:

Set a Starting View

1. Set up the view or sheet you want to use as the starting view.
2. In the *Manage* tab > Manage Project panel, click  (Starting View).
3. In the Starting View dialog box, select the view you want to use as shown in Figure 1–46.

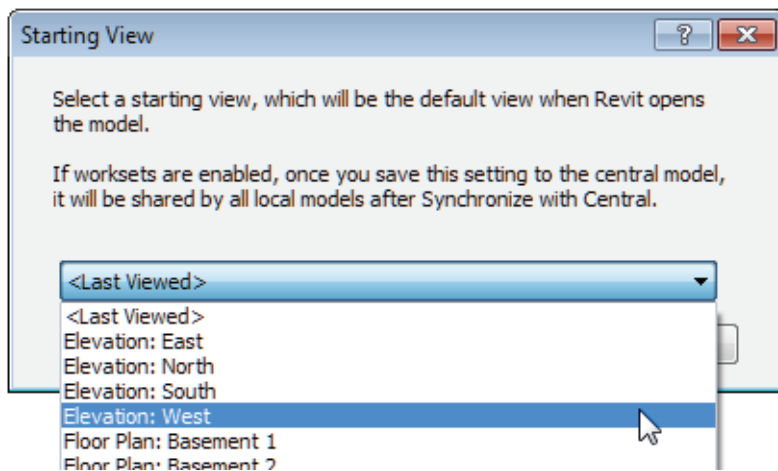



Figure 1–46

4. Click .
5. Save the project or project template. The next time the file opens to this view.

- In the *Home* tab > Detail panel, click  (Line) and create lines on the inside of the existing rectangle **1/4"** away from the top, bottom, and right sides. Draw a line **1"** away on the left margin. Trim the lines as needed.
- Draw lines in the lower right corner of the title block, as shown in Figure 1–48.

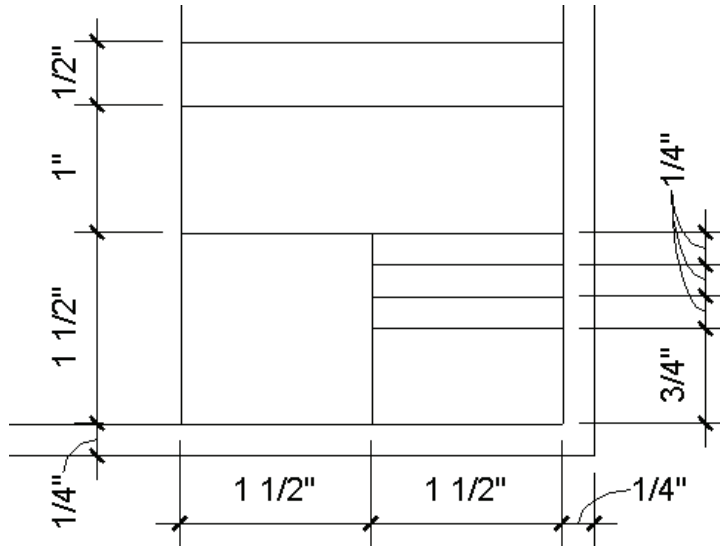






Figure 1–48

- In the *Home* tab > Text panel, click  (Text).
- In Properties, click  Edit Type and create the following Text types:

Type Name	Font	Size	Bold	Background
Arial 1/16"	Arial	1/16"	No	Transparent
Logo	Your choice	1/4"	Yes	Transparent

- In the *Home* tab > Text panel, click  (Label).
- In Properties, click  Edit Type and create the following Label types:

Type Name	Font	Size	Bold	Background
Arial 1/8"	Arial	1/8"	No	Transparent
Arial 1/4"	Arial	1/4"	No	Transparent

9. Create a graphic and company name of your own design in the lower left box, for example with Site, Inc. as shown in Figure 1–49. Using the steps given below, add text, labels, and graphics to the title block.

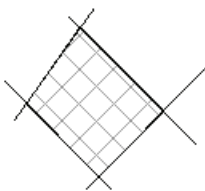






Sheet Name	
Project Name Project Address	
Site, Inc. 	Date: Project Issue Date
	Project Number: Project Number
	Drawn By: DRW
	Sheet Number: A101

Figure 1–49

- Use  (Text) with the *text type* **Arial 1/16"** to add text in the lower right spaces for the *Date*, *Project Number*, *Drawn By*, and *Sheet Number*.
 - Use  (Label) with the *label type* **Arial 1/4"** and  (Align Center) justification to add the *Sheet Name*, *Project Name*, and *Sheet Number*. Move and stretch the labels to fit in the title block.
 - Using the *label type* **Arial 1/8"** and  (Align Center) justification, add the *Project Address* below the *Project Name*.
 - Using the *label type* **Arial 1/8"** and  (Align Right) justification, add the *Project Issue Date*, *Project Number*, and *Drawn By*.
 - Add the **Logo** text in the box on the lower left side, shown as Site, Inc. in the title block. Draw lines and add a filled region for a graphic logo as needed.
10. Save the title block in your class directory with the name **TBLK-D.rfa**.

Task 2 - Add a Revision Schedule.

1. In the title block Family Editor, in the *View* tab > *Create* panel, click  (Revision Schedule).
2. In the Revision Properties dialog box, *Fields* tab, set up the fields as shown in Figure 1–50.

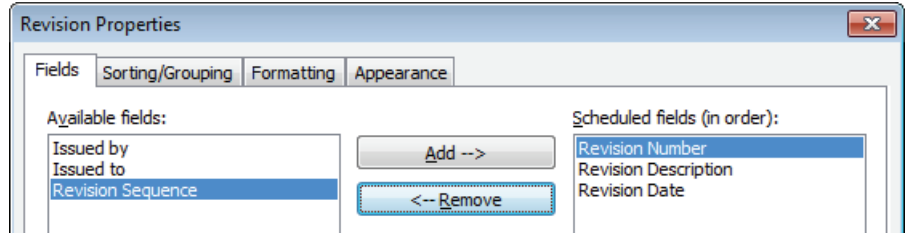
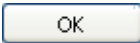


Figure 1–50

3. Accept the defaults for the *Sorting/Grouping* and *Formatting* tabs.
4. Select the *Appearance* tab and change the *Height* to **User defined**.
5. Click .
6. In the Project Browser, expand *Views (all)* to see the *Schedules* and *Sheets (all)* areas, as shown in Figure 1–51. In the *Sheets (all)* area, open the - view.

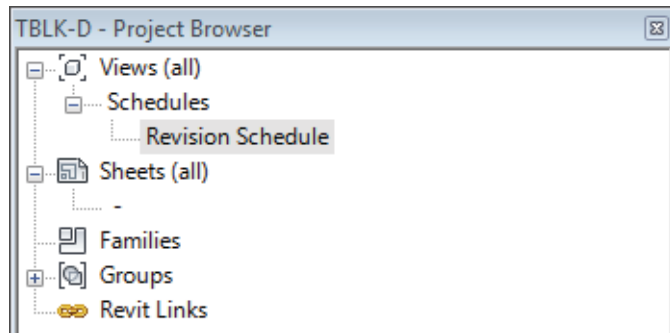



Figure 1–51

7. Drag and drop the Revision Schedule onto the sheet.

- Using the 1" Title text type, add placeholder text for the project name and address, as shown in Figure 1–53.



Figure 1–53

- In the *Manage* tab > Manage Project panel, click  (Starting View).
- In the Starting View dialog box, select **Sheet: CS000 - Cover Sheet** as shown in Figure 1–54.

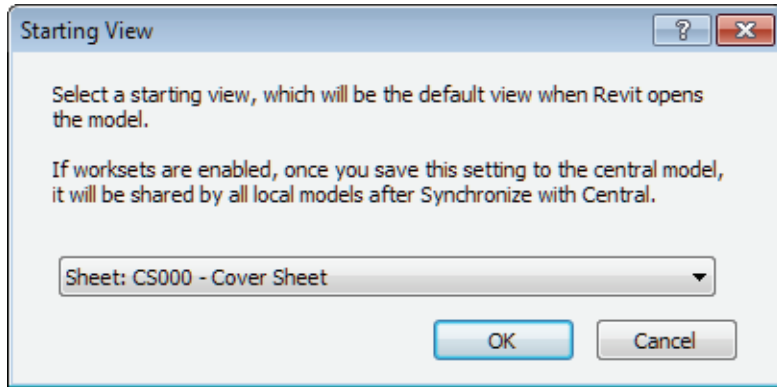


Figure 1–54

- Create another sheet with the new title block and name it according to your discipline:
 - A201 – First Floor Plan
 - M201 - First Floor Plan Mechanical
 - E201 - First Floor Plan Electrical
 - P201 - First Floor Plan Plumbing
 - S201 - First Floor Plan Structural

No elements are on the view, but it acts as a placeholder on the sheet. Elements are displayed as they are drawn.

11. Open this sheet view. Drag the associated **Level 1** floor plan view onto the sheet, as shown in Figure 1–55.

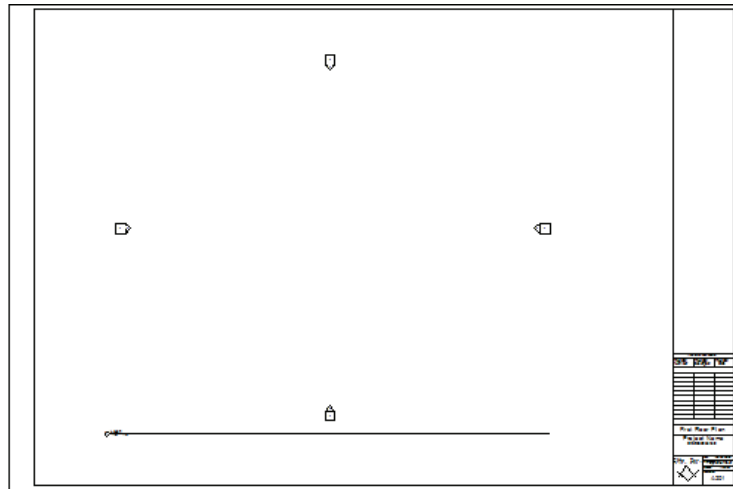




Figure 1–55

Task 4 - Create a Sheet List.

1. In the *View* tab > *Create* panel, expand  (Schedules) and click  (Sheet List).
2. In the Sheet List Properties dialog box, *Fields* tab, select the **Sheet Number** and **Sheet Name** and add them to the *Scheduled fields* list, as shown in Figure 1–56.

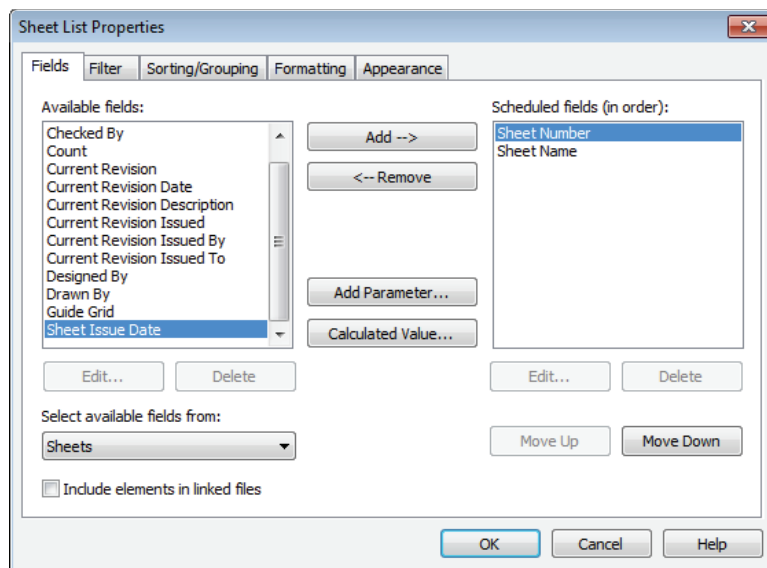



Figure 1–56

3. Click .

- The Sheet List schedule opens with the two existing sheets listed. Stretch out the columns, as shown for an architectural project in Figure 1–57.


Sheet List	
Sheet Number	Sheet Name
CS000	Cover Sheet
A201	First Floor Plan

Figure 1–57

- In the *Modify Sheet List* tab > Rows panel, click  (New).
- Add floor plans to match the levels, as shown for an architectural project in Figure 1–58.

Sheet List	
Sheet Number	Sheet Name
CS000	Cover Sheet
A201	First Floor Plan
A202	Second Floor Plan
A203	Third Floor Plan
A204	Fourth Floor Plan
A205	Fifth Floor Plan
A206	Sixth Floor Plan

Figure 1–58

- In the *Modify Sheet List* tab > Create panel, click  (New Sheet). The list displays the plans you added to the Sheet List display, but the sheets already in the project do not, as shown in Figure 1–59.

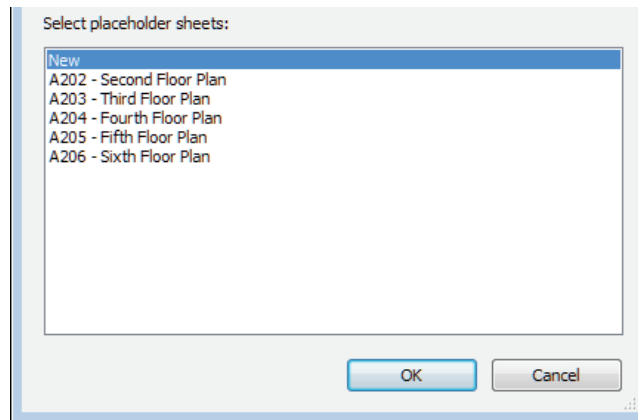


Figure 1–59

- Cancel out of the dialog box.
- If time permits, create additional placeholder sheets for various other views.
- Save the project template.

1.4 View Templates

View templates enable you to specify all of the view properties and visibility options for a view by selecting another view or a view template as a base. For example, you can create a furniture plan view template that sets the scale, detail level, and visibility of objects so that everything except the furniture displays in halftone, as shown in Figure 1–60.

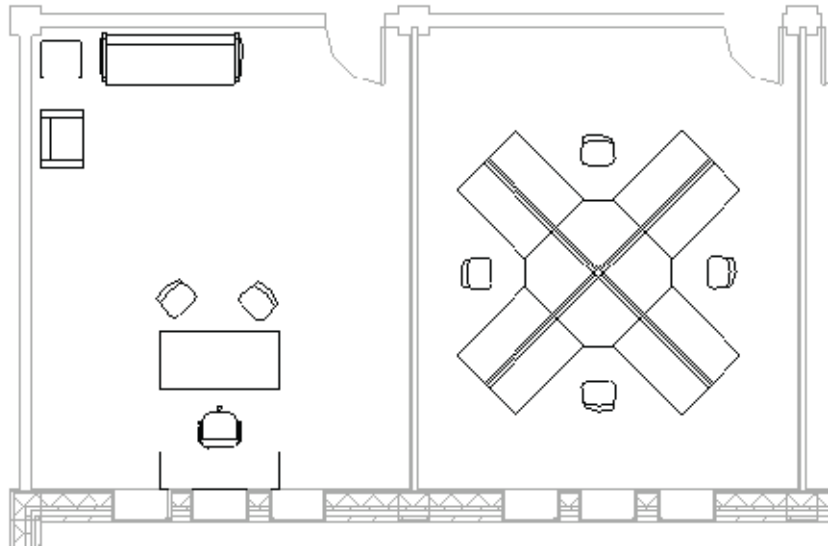





Figure 1–60

View templates can be applied to specific views when you create a project template file. You can also apply and create view templates to existing and new views.



Applying View Templates

Apply view templates to a view by setting them up in View Properties and then applying the default view template or a new view template.

- These tools are available on the *View* tab > Graphics panel under  (View Template), or when you right-click on a view in the Project Browser.
- If a view template is preset in View Properties, you can update the properties by reapplying the view template. In the Project Browser, right-click on the view and select **Apply Default View Template** or in the *View* tab > Graphics panel, expand  (View template) and click  (Apply default template to current view).

How to:

Apply a View Template

1. Select one or more views in the Project Browser. (Hold down <Ctrl> or <Shift> to select multiple views.)
2. Right-click in the Project Browser and select **Apply View Template...**, or on the *View* tab > Graphics panel, expand  (View Template) and click  (Apply new template to current view.)
3. Select the view template you want to use from the *Names* list in the Apply View Template dialog box, as shown in Figure 1–61. Several standard view templates are available when you create a project using one of the Autodesk Revit project templates.

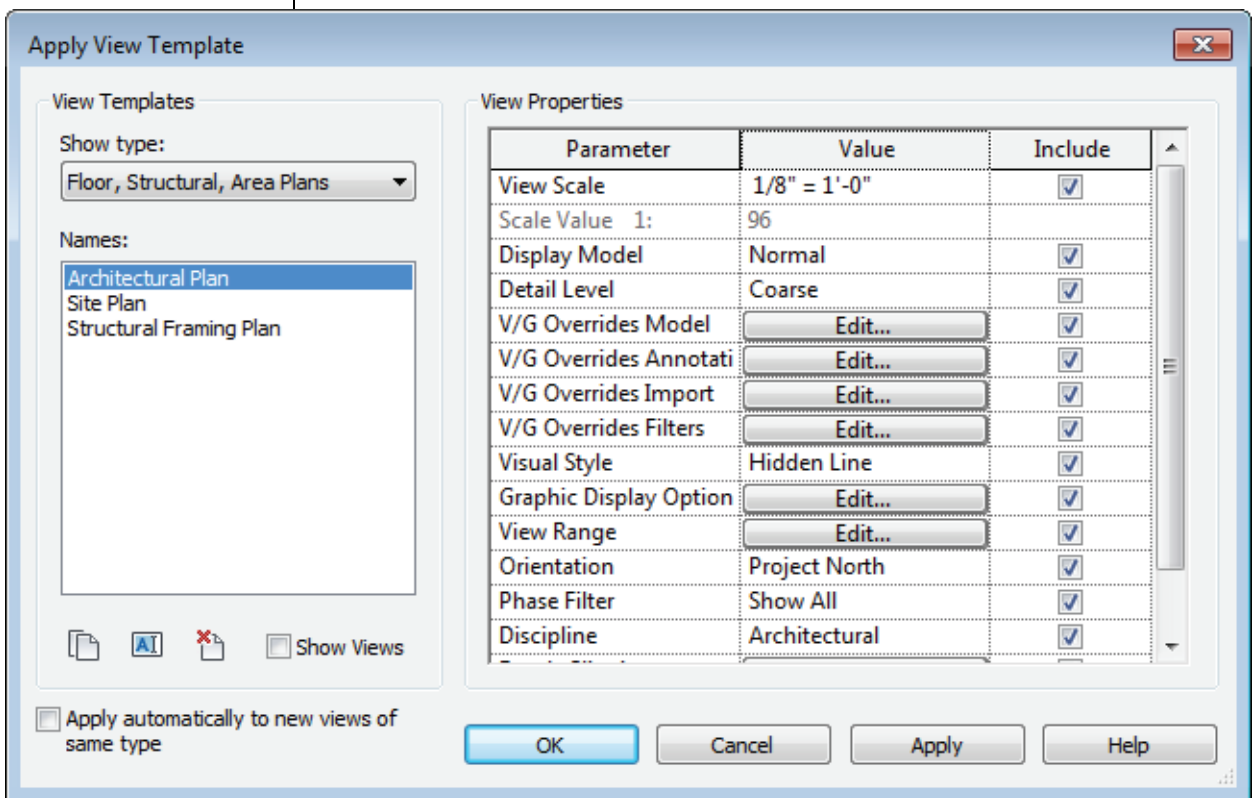
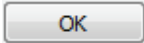


Figure 1–61

4. If you do not want the entire view template to be applied to the selected view, clear the check mark in the *Include* column for the parameters you do not want to include. You can also create overrides to the view template by changing parameter values.
5. Click  to finish.

Creating View Templates

How to:

- To limit the number of view templates that display, you can filter the list by selecting an option in the *Show type* drop-down list, as shown in Figure 1–62.

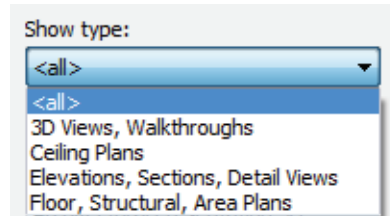


Figure 1–62

- If you select the **Apply automatically to new views of same type** option, it becomes the default view template for all new views of the same type. For example, if the view you are working with is a section, all new section views take on the settings of the view template that you specify.
- You can apply view templates to any views as many times as needed.

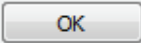
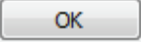
Many view templates come with Autodesk Revit, but you might need to create your own custom view types that are best applied by view template. You can create a view template from the view settings in an existing view or through the View Template dialog box.

Create a View Template from an Existing View



1. Set up a view the way you want it with *Scale*, *Detail Level*, *Visibility Graphic Overrides*, and other *View Settings*.
2. In the Project Browser, right-click on the view and select **Create View Template from View** or, on the *View* tab>

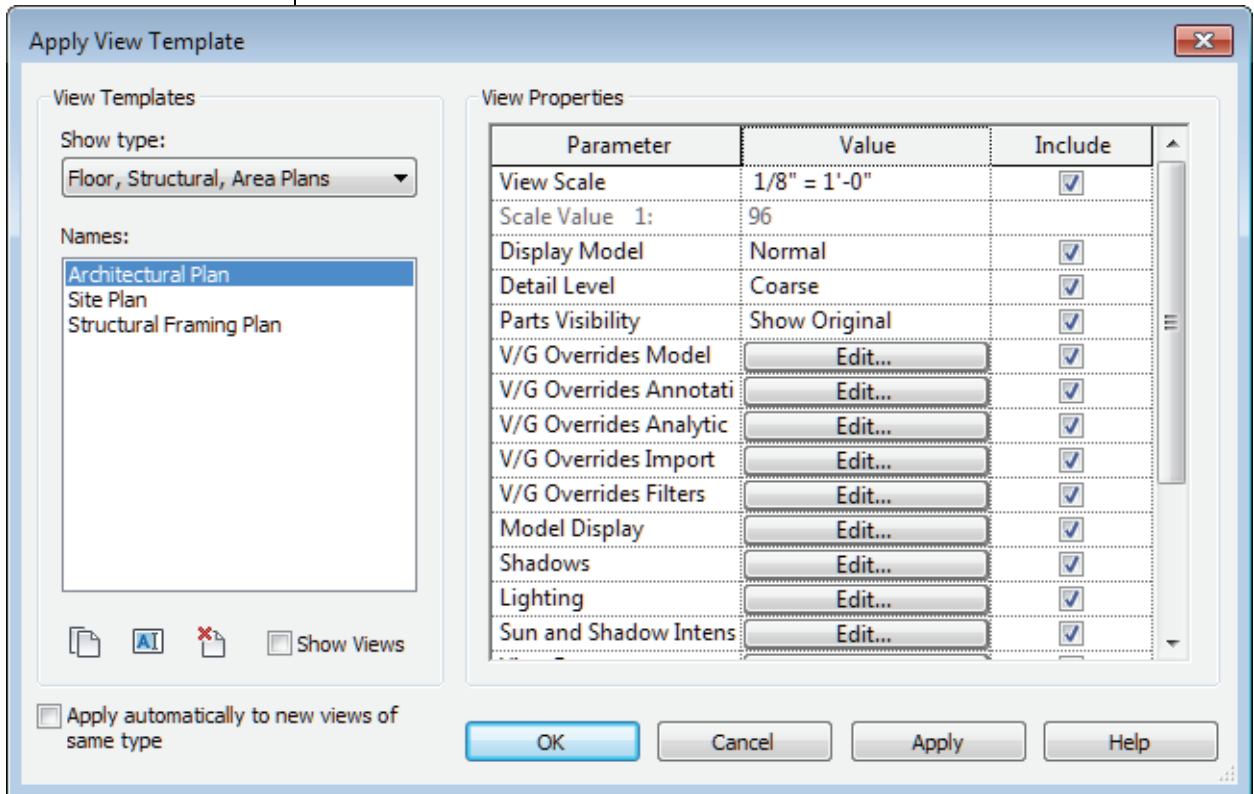
Graphics panel, expand  (View Template) and click


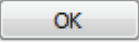
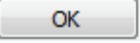
 (Create Template from Current View).


3. In the New View Template dialog box, type a name for the view template.
4. Click .
5. In the View Template dialog box, make other adjustments as needed and click .

How to:**Create a View Template**

1. On the *View* tab > Graphics panel, expand  (View Template) and click  (View Template Settings). The View Templates dialog box opens, as shown in Figure 1–63.

**Figure 1–63**

2. In the *Name* list, select a view similar to the one you want to create and click  (Duplicate).
3. In the New View Template dialog box, type a new name for the view template and click .
4. Modify the View Properties parameter values as needed and select which parameters you want to include in the view template.
5. Click  to finish.
 - Not all view types have the same view parameters. For example, 3D views have options for Rendering and Perspectives that plans do not have. When you apply a view template across view types, only the options that are mutual are updated.

- One of the parameters in views is the *Detail Level*. There are three options: **Coarse**, **Medium**, and **Fine**. You can modify the table of scales that are related to the levels. On the *Manage* tab > Project Settings panel, expand  (Additional Settings) and select **Detail Level**. The View scale-to-detail level correspondence dialog box opens, as shown in Figure 1–64.

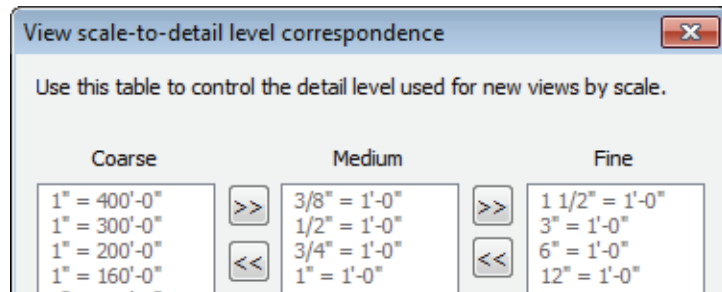


Figure 1–64

- The only parameter saved to a view template for schedule views is the appearance of the schedule.

Visibility/ Graphic Overrides Filters

Visibility/Graphic Overrides filters can speed up the process of specifying categories that are modified in View Templates. Any view has is a filter for modifying the visibility of graphics by element type. You might want to display certain elements in halftone, or with a different color or lineweight in specific views. For example, a fire evacuation plan might have walls with different fire ratings that display with thicker lineweights, as shown in Figure 1–65. By creating these filters and then applying them in a view template, you can reuse them without having to recreate them each time.

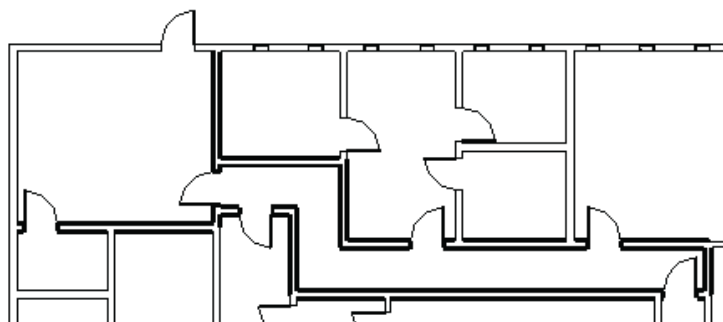



Figure 1–65

- Create the filters using the **Filters** command before applying them through the Visibility/Graphic Overrides dialog box. It is best to create filters in a project template.

How to: Create Filters

1. On the *View* tab > *Graphics* panel, click  (Filters). The Filters dialog box opens, as shown in Figure 1–66.

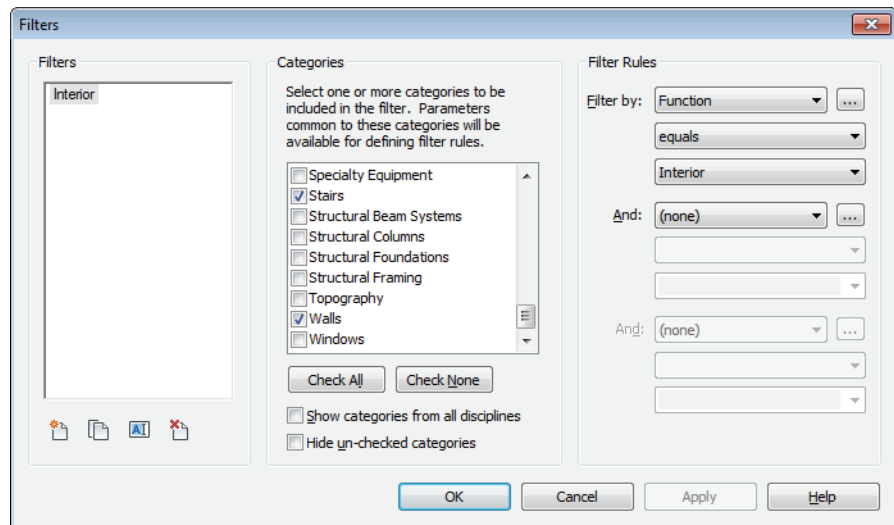


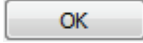
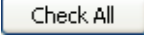
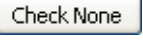


Figure 1–66

2. In the *Filters* area, click  (New) or  (Duplicate). Name the new filter and click .
3. In the *Categories* area, select the categories to include in the filter. Use  and  to help select the categories.
4. In the *Filter Rules* area, select what you want to *Filter by*, the filter operator(s), and the value for the filter. If more than one category is selected, the *Filter by* list is limited to parameters shared by the categories you selected. You can create more than one filter rule. They are applied in order. Set *Filter by* to **None** if you do not want to filter by parameters. Filter operators are shown in Figure 1–67.

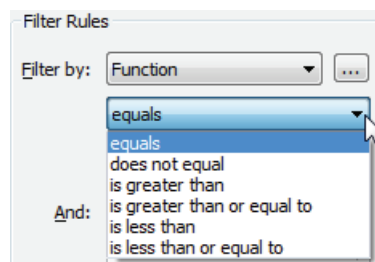

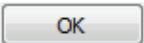



Figure 1–67

5. Click  to save the changes and remain in the dialog box, or click  to finish.

How to:

Apply Visibility/Graphic Overrides Filters

1. Type **VG** or **VV** or in the *View* tab > *Graphics* panel, click  (Visibility/ Graphics) to open the Visibility/Graphic Overrides dialog box. Select the *Filters* tab, as shown in Figure 1–68.

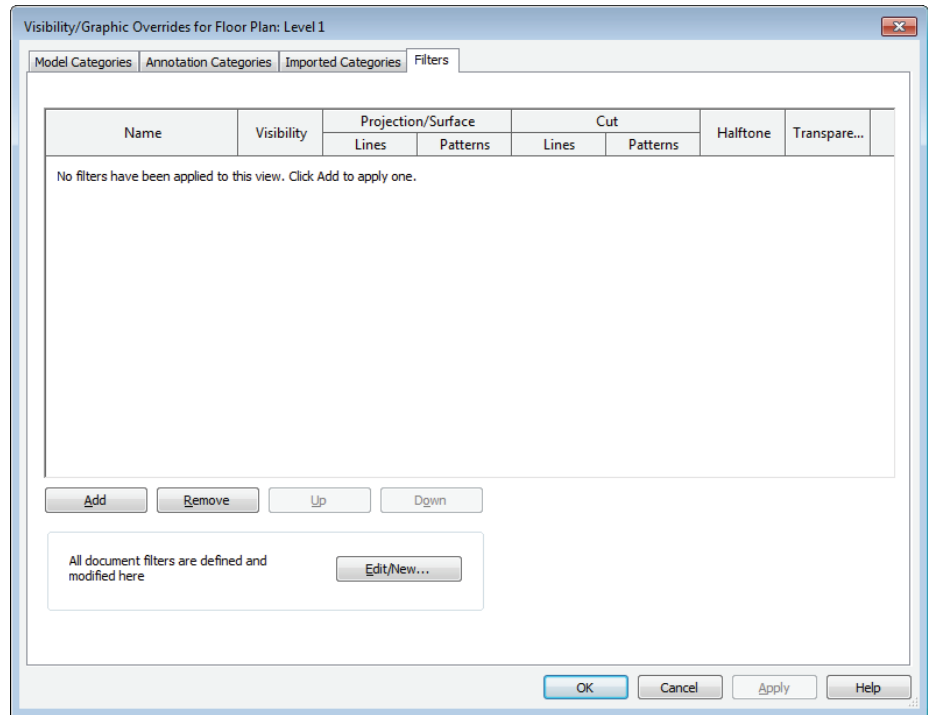
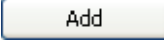
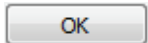



Figure 1–68

2. Click  to add a filter to the list.
3. In the Add Filters dialog box, select the filter(s) you want to add and click .
 - If the filter you want is not defined, click  to open the Filters dialog box, where you can define a new filter or edit an existing one.
4. In the Visibility/Graphic Overrides dialog box, assign the overrides you want for the filter. For example, you might want items to be **Halftone**, as shown in Figure 1–69.

Name	Visibility	Projection/Surface		Cut		Halftone	Transpare...
		Lines	Patterns	Lines	Patterns		
All but structural	<input checked="" type="checkbox"/>	Override...	Override...	Override...	Override...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Non-Structural Walls	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input type="checkbox"/>

Figure 1–69

5. Click .

Practice 1c



Autodesk Revit
Architecture and
Autodesk Revit Structure

Estimated time for
completion: 15 minutes.

View Templates for Architectural and Structural Projects

In this practice you will create filters that you will use in a structural view template, and apply the view template to several structural plan views, as shown in Figure 1–70. When the filter is working correctly you can add the same information to a project template file.

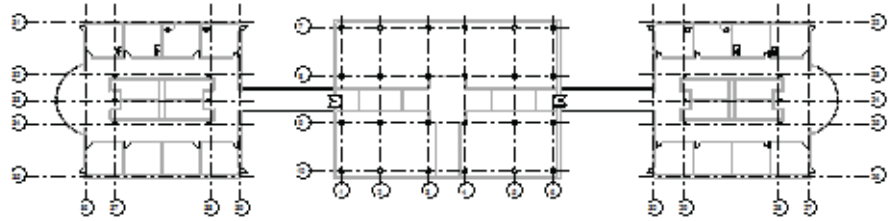


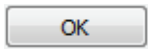



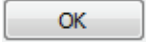



Figure 1–70

Task 1 - Create Filters

1. Open the project from your class folder:
 - /Architectural/Office-A.rvt
 - /Structural/Office-S.rvt
2. On the *View* tab > *Graphics* panel, click  (Filters).
3. In the Filters dialog box, click  (New). Name the new filter **All But Structural** and click .
4. In the *Categories* area, click , and then clear **Columns**, all categories starting with **Structural**, and **Walls**. Click .
5. Click  (New). Name the new filter **Non-Structural Walls** and click .
6. In the *Categories* area, click  as needed and select **Walls**.

- In the *Filter Rules* area, set *Filter by* to **Structural Usage**, **equals**, and **Non-bearing**, as shown in Figure 1–71.

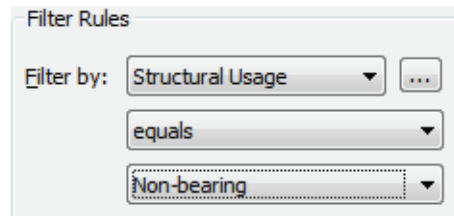
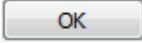
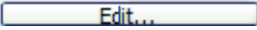

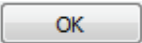

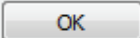


Figure 1–71

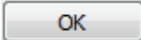
- Click .

Task 2 - Create a View Template

- In the Project Browser, in the *Floor Plans* area, right-click on the **Level 1** view and select **Create View Template From View**.
- Name the new view template **Structural Plan** and click .
- In the View Templates dialog box, set the *View Scale* to **1/16"=1'-0"** and the *Detail Level* to **Coarse**.
- Next to **V/G Override Filters**, click . The Visibility/Graphic Overrides dialog box opens with the *Filter* tab selected.
- Click .
- In the Add Filters dialog box, select the two filters you just created and click .
- Place a check mark in the *Half-tone* column for both filters. Continue working in the Visibility/Graphics Overrides dialog box.
- In the *Annotation Categories* tab, turn off everything except Grids and all Structural annotations and tags.
- In the *Model Categories* tab, turn off items such as **Casework**, **Furniture**, **Furniture Systems** and **Plumbing**, and **Mechanical equipment**.

10. Click  to close the Visibility/Graphic Overrides dialog box, and click  to complete the view template.

Task 3 - Apply a View Template to Several Views

1. In the *Floor Plans* area, use *Duplicate with Detailing* on the **Level 1**, **Level 2**, **Level 3**, and **Level 4** views. Rename them as **Structural – Level 1**, **Structural – Level 2**, **Structural – Level 3**, and **Structural – Level 4**.
2. Select the new Structural views.
3. Right-click and select **Apply View Template...**
4. In the Apply View Template dialog box, select the **Structural Plan** view template you just created and click  to apply it.
5. Look at the different views and compare them to the standard floor plan views. Finish with the **Level 1** view.
6. Save the project.

Practice 1d



Autodesk Revit MEP only

Estimated time for completion: 15 minutes.

View Templates for MEP Projects

In this practice you will create velocity based filters for ductwork that you will use in a mechanical view template, and apply the view template to a duplicated plan view, as shown in Figure 1–72. When the filter is working correctly, you can add the same information to a project template file.

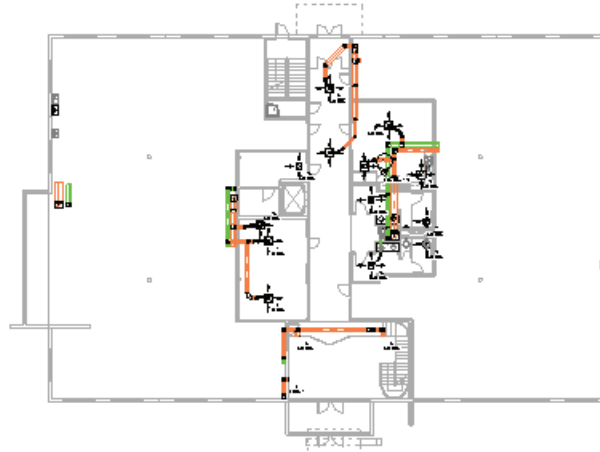


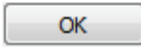



Figure 1–72

Task 1 - Create Filters

1. Open the project /MEP/**Office-MEP.rvt** from your class folder.
2. In the *View* tab > Graphics panel, click  (Filters).
3. In the Filters dialog box, click  (New). Name the new filter **Mechanical - Low Velocity** and click  .
4. In the *Categories* area, select **Ducts** and click  .
5. In the *Filter Rules* area, set *Filter by* to **Velocity, is less than or equal to**, and **1660 FPM**, as shown in Figure 1–73.

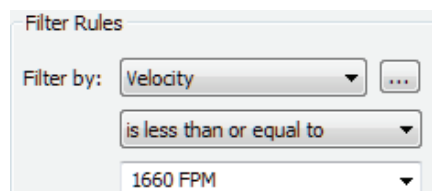

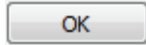


Figure 1–73

6. Remain in the Filters dialog box, select the new **Mechanical-Low Velocity** filter and click  (Duplicate). Name it **Mechanical-Medium/High Velocity** and click



7. In the *Filter Rules* area, set *Filter by* to **Velocity**, **is greater than**, and **1660 FPM**, as shown in Figure 1–74.

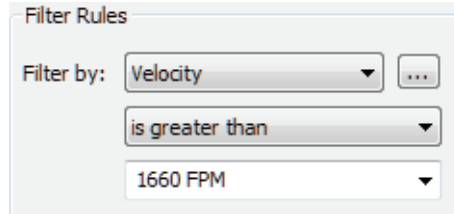
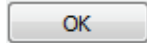
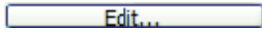
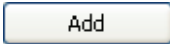
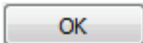


Figure 1–74

8. Click .

Task 2 - Create a View Template

1. In the Project Browser, in the *Mechanical > Floor Plans* area, right-click on the **1 - Mech** view and select **Create View Template From View**.
2. Name the new view template **Velocity Duct Plan** and click .
3. Next to **V/G Override Filters**, click . The Visibility/Graphic Overrides dialog box opens with the *Filter* tab selected.
4. Click .
5. In the Add Filters dialog box, select the two filters you just created and click .
6. For the **Mechanical-Low Velocity** filter, in the *Projection/Surface > Lines* column select **Override**.

- In the Line Graphics dialog box, change *Weight* to **6** and the *Color* to an orange, as shown in Figure 1–75. Click

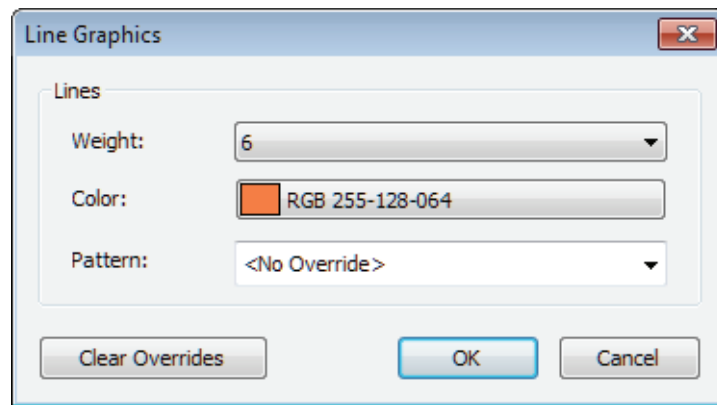
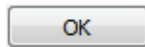


Figure 1–75

- Repeat for the **Mechanical-Medium/High Velocity** filter and set the *Weight* to **6** and the *Color* to a green. Click
- In the Visibility/Graphics Overrides dialog box, move the new filters to the top of the list. For **Mechanical-Exhaust**, in the *Visibility* column, clear the checkbox as shown in Figure 1–76.

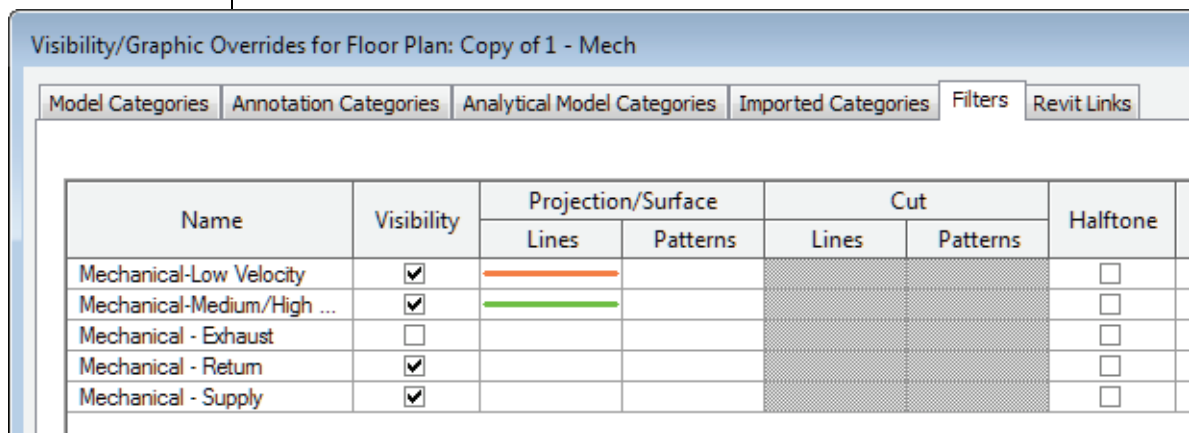
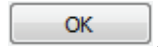
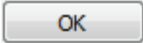


Figure 1–76

- Click to close the Visibility/Graphics Overrides dialog box, and click to complete the view template.

Task 3 - Apply a View Template the Views.

1. In the Project Browser, use *Duplicate with Detailing* to duplicate the **1 - Mech** view. Rename it **1 - Mech - Velocity**.
2. Right-click and select **Apply View Template**.
3. In the Apply View Template dialog box, select the **Velocity Duct Plan** view template you just created and click  to apply it.
4. Compare the new floor plan view with the existing 1 - Mech view.
5. Duplicate the 2 - Mech view, rename it to **2 - Mech - Velocity**, and apply the same view template to it.
6. Finish with the **1 - Mech** view.
7. Save the project.

1.5 Settings for Mechanical and Electrical Projects



Autodesk Revit MEP only

Mechanical Settings

In addition to the standard settings common to all Revit projects, Autodesk Revit MEP software also has specific Mechanical and Electrical settings that can be setup in a template or a project.

- In Autodesk Revit MEP, the settings are found in the *Manage* tab > Project Settings panel. Expand (MEP Settings) and click (Mechanical Settings) or (Electrical Settings).
- Additional types of settings include Load Classifications, Demand Factors, and Building/Space Type Settings.

Mechanical settings enable you to preset many items relating to duct and pipe sizes, conversion settings, and other key defaults, as shown in Figure 1–77.

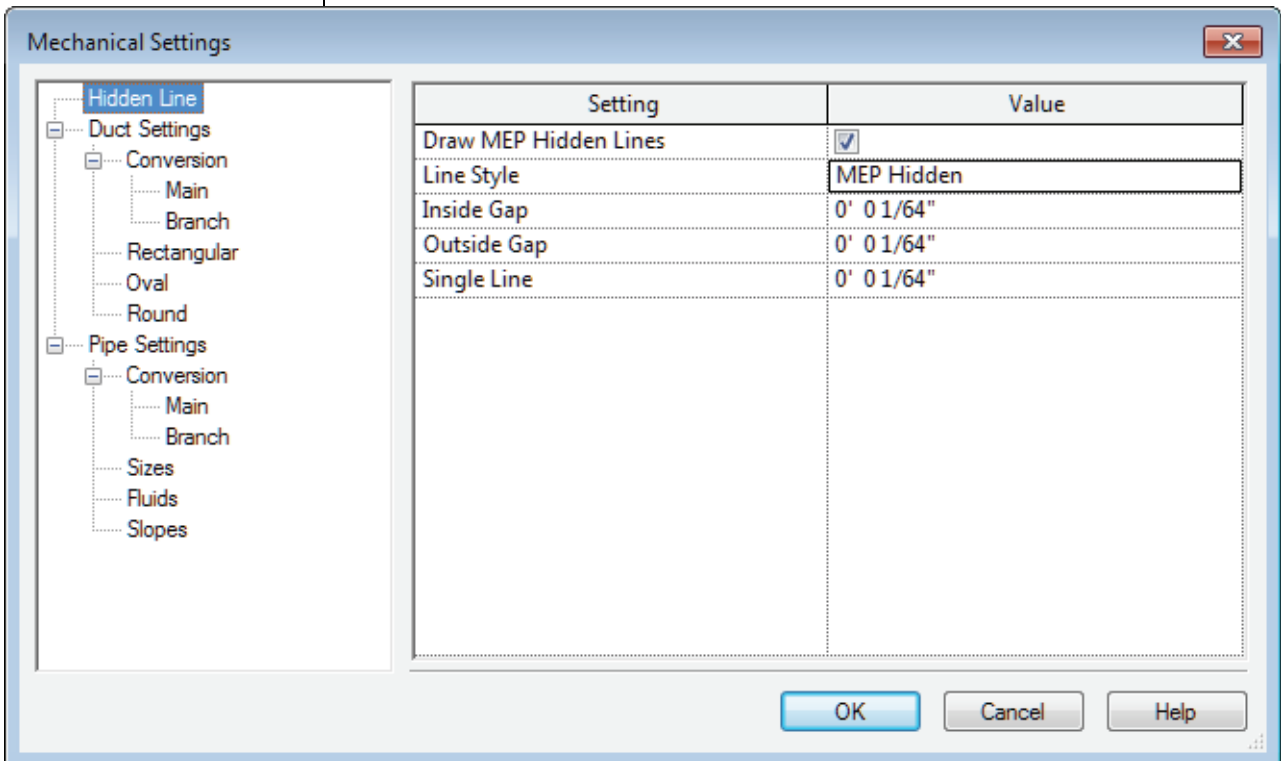


Figure 1–77

Hidden Line

If the **Draw MEP Hidden Lines** option is selected, hidden lines are displayed to indicate pipes and ducts that are below other pipes and ducts, as shown in Figure 1–78.

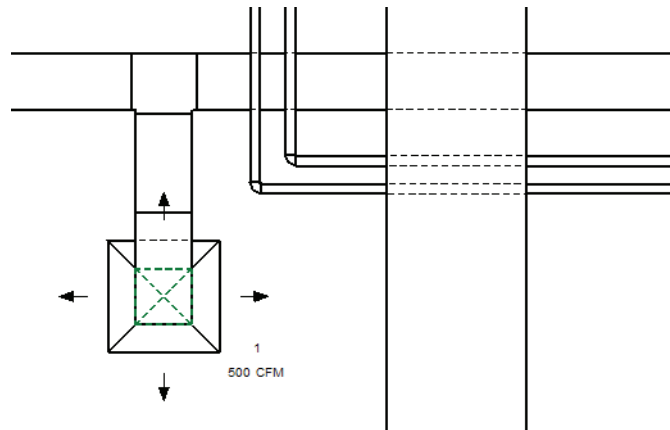


Figure 1–78

The **Line Style**, **Inside Gap**, and **Outside Gap** options enable you to specify how the hidden lines are displayed.

Duct Settings

For the **Single Line Fittings** option, the first two settings relate to how fittings are displayed in a single line view, as shown in Figure 1–79. If the **Use Annot. Scale for Single Line Fittings** option is selected, the single line fittings are displayed at the same size on every sheet, regardless of the view scale. The **Duct Fitting Annotation Size** option enables you to specify the size at which the fittings should be displayed.

Setting	Value
Use Annot. Scale for Single Line Fittings	<input checked="" type="checkbox"/>
Duct Fitting Annotation Size	0' 0 1/8"
Air Density	0.0751 lb/ft ³
Air Viscosity	0.02 cP
Rectangular Duct Size Separator	x
Rectangular Duct Size Suffix	
Round Duct Size Suffix	∅
Duct Connector Separator	-
Oval Duct Size Separator	/
Oval Duct Size Suffix	
Duct Rise / Drop Annotation Size	0"

Figure 1–79

The **Air Density** and **Air Viscosity** options are used when sizing the ducts. The remaining options set the separators and suffixes that are used for duct objects.

Conversion

The *Conversion* area is used to set the routing solutions for ductwork. The **Elbow Angle Increment** option sets the angle that is used for elbows. The settings for the **Main** and **Branch** options can be set separately for each system type. You can specify the **Duct Type**, **Offset** from level, and **Flex Duct Type** settings (this is only applicable to branches), as shown in Figure 1–80.

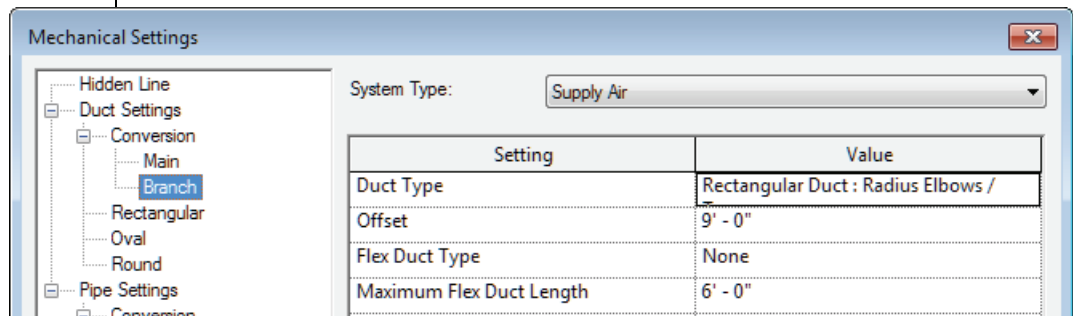


Figure 1–80

Rectangular, Oval, and Round

The **Rectangular**, **Oval**, and **Round** options enable you to adjust the sizing tables. The *Size* column lists all of the sizes.

You can click to add a size to the list and to remove sizes from the list.

In addition, you can specify whether a size is displayed in the size lists (to be available when you place a new duct or select existing ducts) or if the size is used by the sizing routine (automatic sizing of duct branches and systems).

For example, if you do not want the sizing routine to use any odd numbered sizes, clear the **Used in Sizing** option for all odd-numbered sizes, as shown in Figure 1–81.

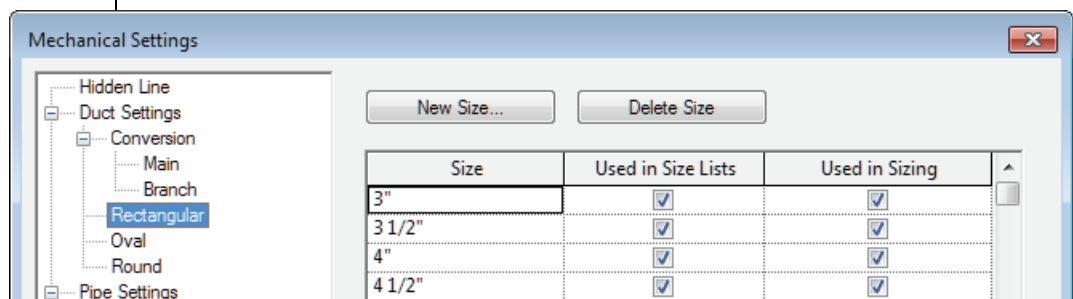


Figure 1–81

Pipe Settings

Most of the options in the *Pipe Settings* area are identical to or similar to those in the *Duct Settings* area.

Pipe Sizes

Pipe size settings are more complex due to the many different materials and connections available. Each material has its own roughness, connection types, schedule/types, and sizes that correspond to each combination, as shown in Figure 1–82. For example, Schedule 40 Carbon Steel with a Flanged Connection can have different sizes than Schedule 80 Carbon Steel with a Flanged Connection.

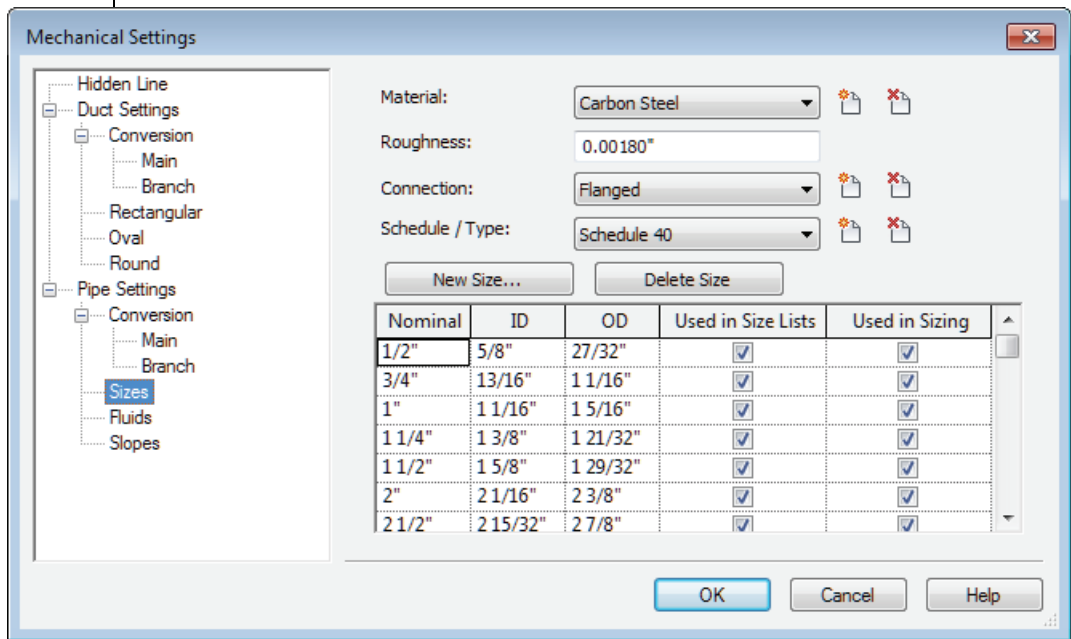




Figure 1–82

The actual size lists are identical in function to those for ducts, except for the inclusion of the ID (inside diameter) and OD (outside diameter) parameters.

- To add a new material, connection, or schedule/type, click  (Add Material/Add Connection/Add Schedule).
- To delete a material, connection or schedule, click  (Delete Material/Delete Connection/Delete Schedule).

Fluids

The *Fluids* area enables you to specify the viscosity and density of fluids at different temperatures, as shown in Figure 1–83. You can add or delete fluid types, and for each type, add or delete temperatures.

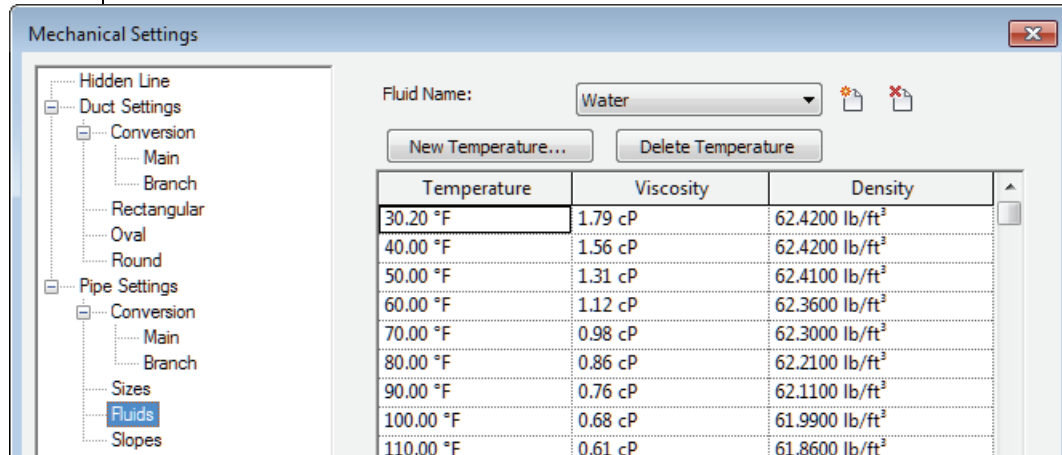


Figure 1–83

Slopes

In the *Slopes* area, you can add or delete typical slopes used in a project, as shown in Figure 1–84.

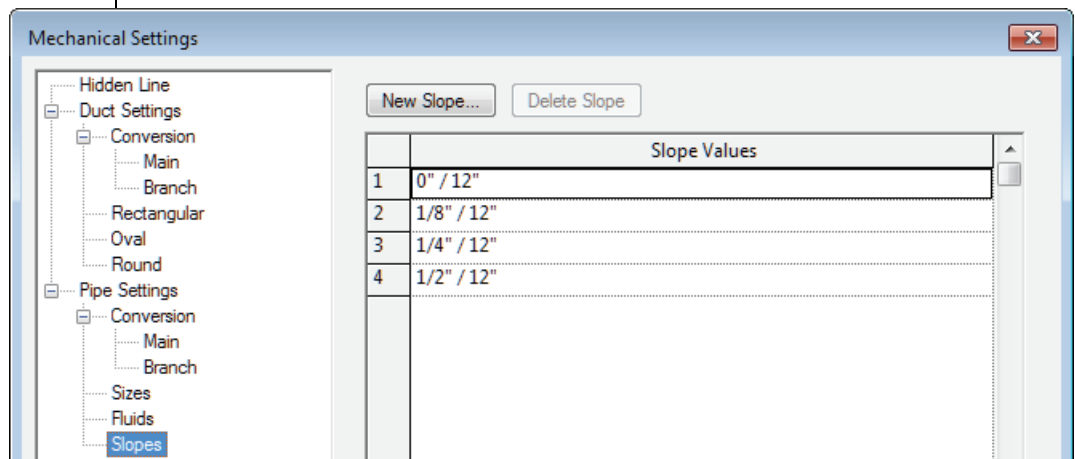


Figure 1–84

Electrical Settings

In the Electrical Settings dialog box, you can preset many options relating to wiring, voltage, cable trays and conduits as well as Load Calculations and Panel Schedules, as shown in Figure 1–85. Setting these up in the template for all of the commonly used electrical settings, saves time for individual projects and increases consistency.

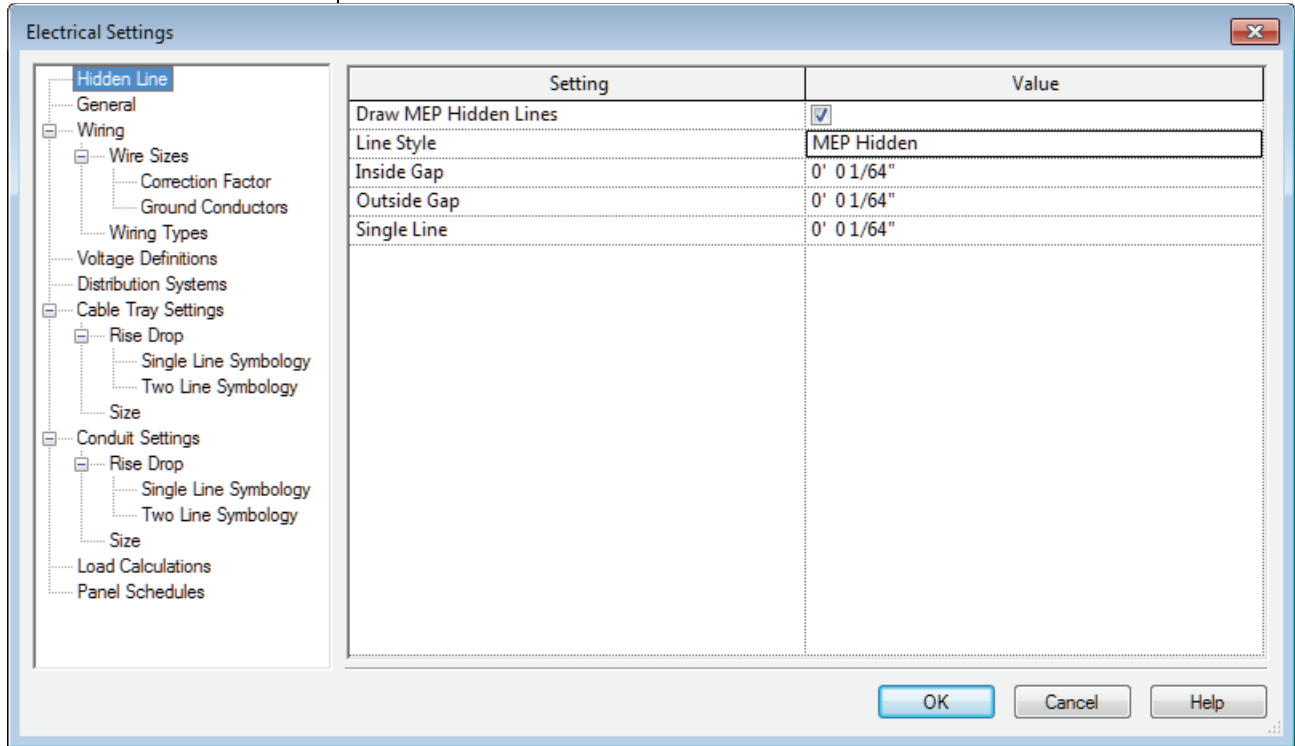


Figure 1–85

General

The parameters in the *General* area affect the display of electrical information. The **Electrical Data Style** option sets how the power information is displayed in the Electrical Data parameter in the Instance Properties of the electrical component. The **Circuit Description** option sets the formatting of the circuit description.

Wiring

The *Wiring* area enables you to specify the ambient temperature for wiring and some annotation settings related to wiring. The **Tick Mark** families need to be preloaded into the template so that they can be selected in this area, as shown in Figure 1–86.

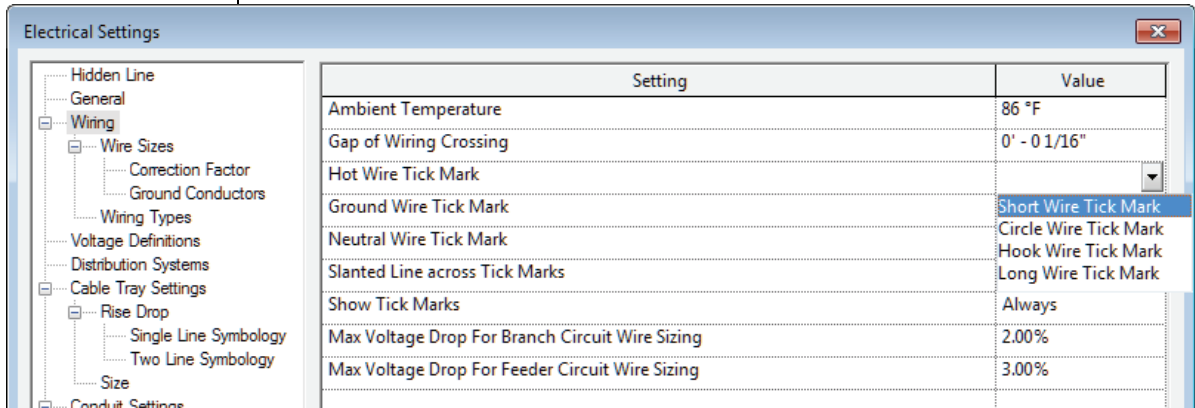


Figure 1–86

Wire Sizes

The Wire Size settings enable you to create new wire materials, temperature ratings, and insulation types. You can then specify the ampacity, size, diameter, and if the size is used by the wire sizing tools.

- The functionality in the *Wire Sizes* area is similar to that in the *Pipe Sizes* and *Fluids* areas.

Correction Factor

The *Correction Factor* area enables you to specify the correction factors for different temperatures and for each wire type, as shown in Figure 1–87.

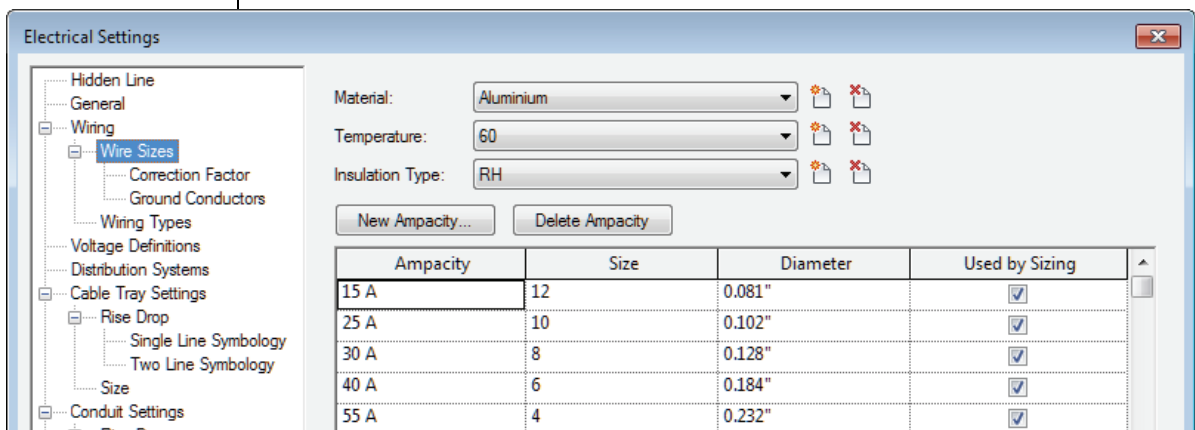


Figure 1–87

Ground Conductors

Autodesk Revit sizes ground conductors according to their circuit rating. The *Ground Conductors* area enables you to customize the sizes it uses for each wire material and ampacity, as shown in Figure 1–88.

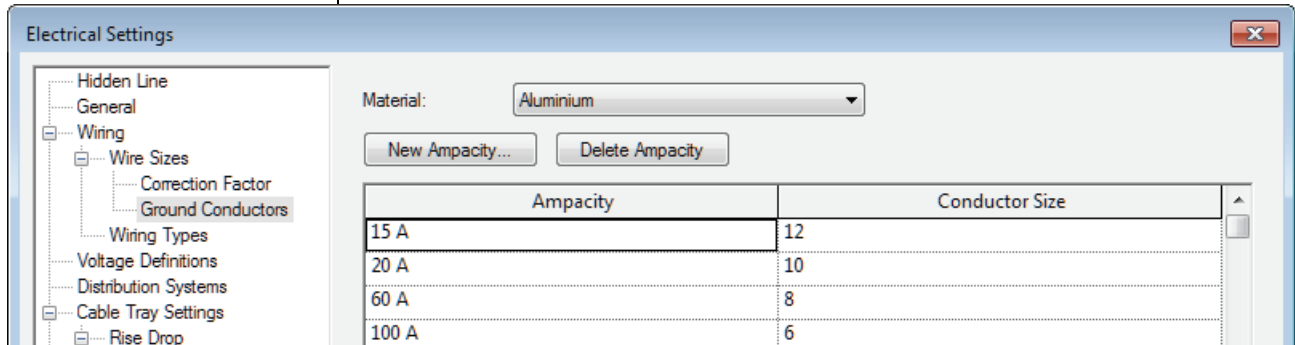


Figure 1–88

Wiring Types

The *Wiring Types* area enables you to create wiring types by clicking **Add** and to delete them by clicking **Delete**. You can also specify their properties.

Voltage Definitions

In the *Voltage Definitions* area, you can specify the minimum and maximum voltages of devices that can be added to the distribution systems of a specified voltage. For example, Autodesk Revit permits devices ranging from 110V to 130V on a 120V distribution system, as shown in Figure 1–89. You can also add or delete definitions.

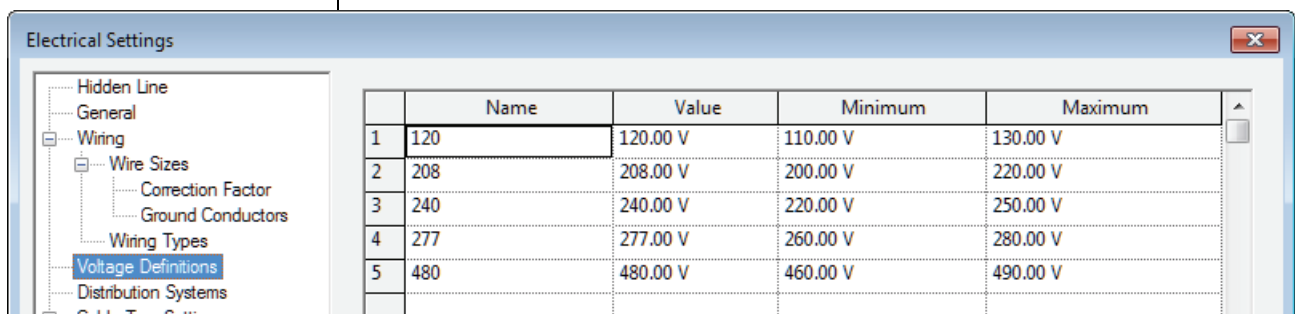


Figure 1–89

Distribution Systems

The *Distribution Systems* area sets the distribution systems that are available in your project, as shown in Figure 1–90. You can edit the names by selecting them. The options for *Phase* are preset and affect the options that are available in the *Configuration* and *Wires* columns and whether L-L Voltage is available. You can add more systems and delete existing systems if they are not assigned to devices in the current project.

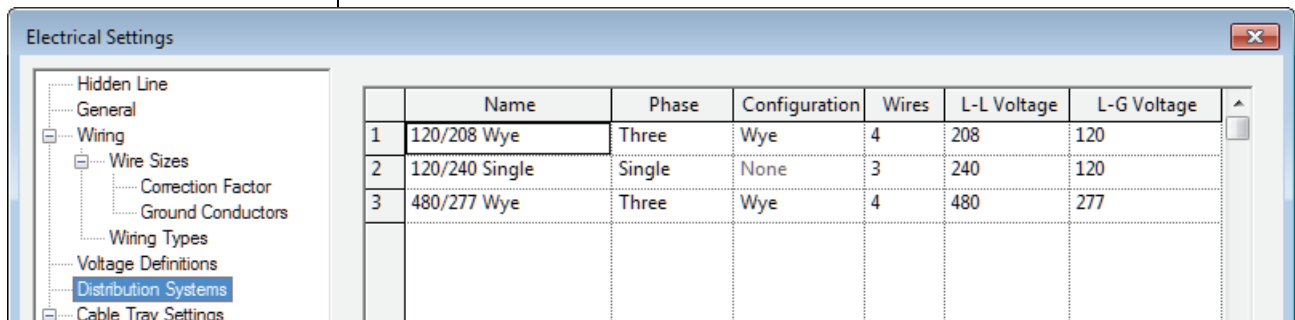


Figure 1–90

Cable Tray and Conduit Settings

Cable Trays and Conduits settings include annotation, Rise Drop Symbology, and sizing, as shown in Figure 1–91.

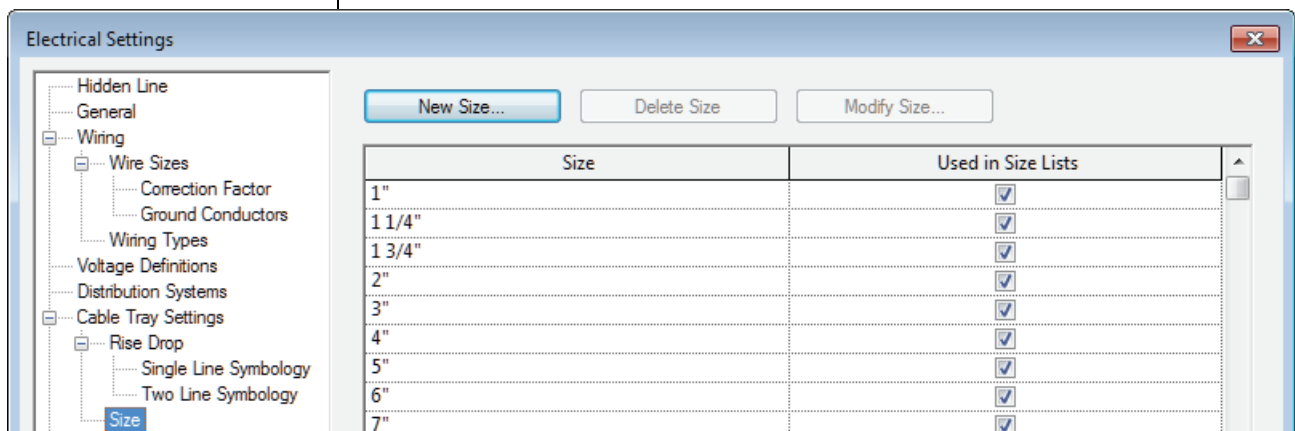


Figure 1–91

Load Calculations and Panel Schedules


The *Load Calculations* area gives you access to additional dialog boxes where you can setup Load Classifications and Demand Factors.

The *Panel Schedules* area enables you set up labels and other options for the default panel schedule.

1.6 Settings for Structural Projects



Autodesk Revit Structure Only

In addition to the standard settings common to all Revit products, Autodesk Revit Structure has structural settings that need to be customized. To access them, click  (Structural Settings) in the *Manage* tab > Project Settings panel.

Symbolic Representation

There are several tabs at the top of the Structural Settings dialog box as shown in Figure 1–92. The first tab, *Symbolic Representation Settings*, contains options that are mainly used for the graphical model and the common defaults.

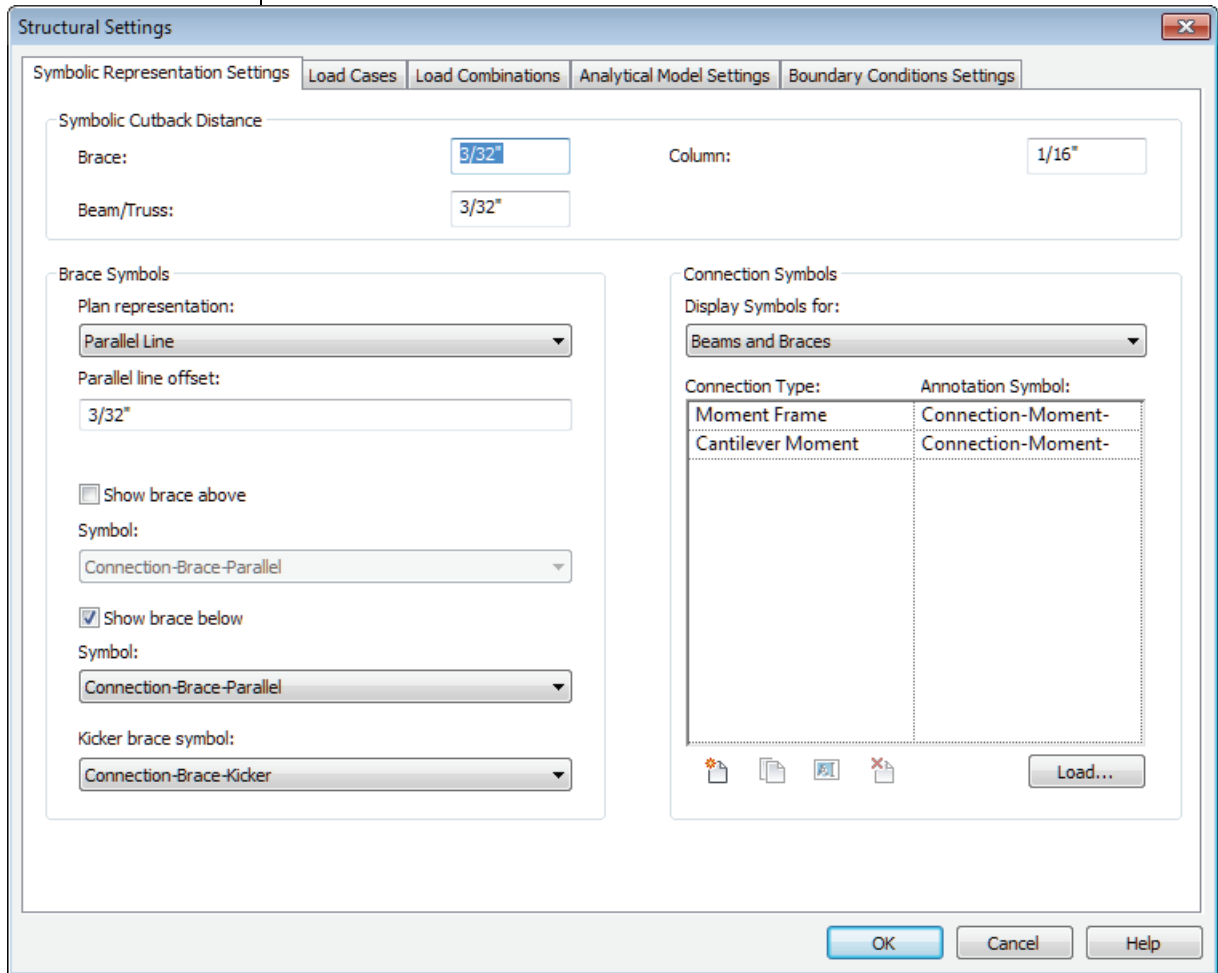


Figure 1–92

The **Symbolic Cutback Distance** setting represents the distance that cuts a framing member back from a column or into another framing member. This cutback distance is symbolic and does not affect the 3D view. For example, in plan, beams do not extend into the column and there is a gap between them, as shown in Figure 1–93. The same connection in 3D displays the beams 1" back from the column, which is more consistent with a real-world situation.

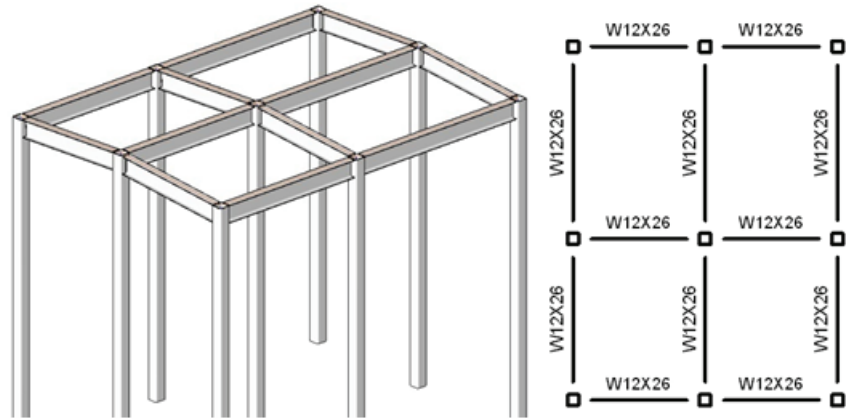


Figure 1–93

The *Brace Symbols* and *Connection Symbols* areas enable you to specify the kinds of symbols that are shown for the braces in plan, and for frame and shear connections. For many of these items, only one symbol is loaded into the default template.

Load Cases and Load Combinations

Two tabs are related to setting up Load Cases and Load Combinations. These vary by project and by region and typically requires the input of a company's engineer.

Analytical Model Settings

The process of modeling a building simultaneously creates a digital model and its corresponding analytical model. As this is done, the software can check for consistency between these two models. The *Analytical Model Settings* tab contains settings for automatic checks, tolerances, and checks, as shown in Figure 1–94.

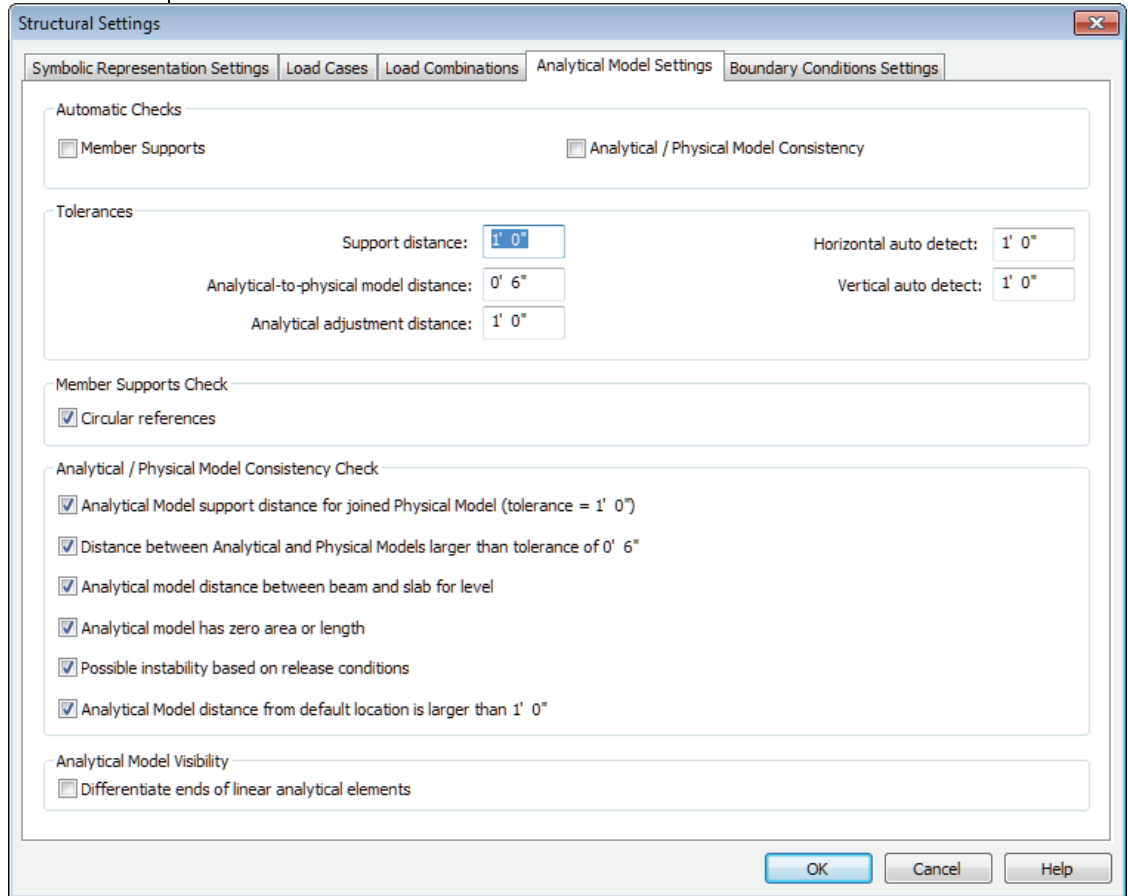


Figure 1–94

It is a best practice not to enable **Automatic Checks** in the template, as in the early stages of design there might be many elements that are not supported, causing many warning boxes to open. Automatic Checks are very useful when most of the structure has been modeled and should be enabled at that time.

The values in the *Tolerances* area informs the kind of tolerance that is permitted for supports, differences between the analytical and physical distance, adjusting, and auto-detects. For example, when the **Analytical Model** parameters for a wall are set to auto-detect, the software adjusts the analytical lines, provided it can do so within the specified tolerances.

The *Analytical/Physical Model Consistency Check* area enables you to specify the kinds of consistencies to be checked for.

Boundary Condition Settings

In the last tab, you can select the family symbols used for boundary conditions, as shown in Figure 1–95 (from left to right: **Fixed**, **Pinned**, **Roller**, and **User**).

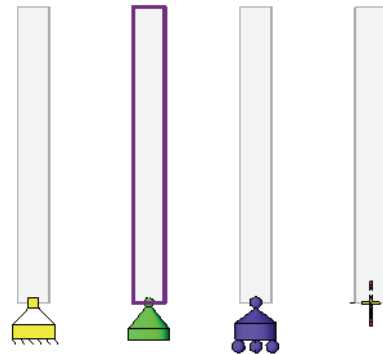


Figure 1–95

The structural templates typically include four boundary condition families: **Fixed**, **Pinned**, **Roller**, and **Variable**. They are assigned to the corresponding boundary conditions, as shown in Figure 1–96.

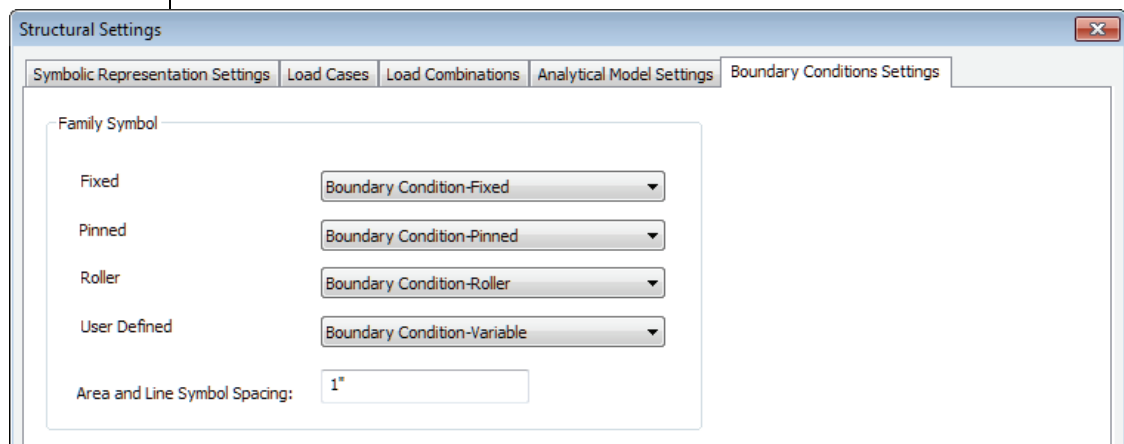














Figure 1–96











- You can create new boundary condition families, load them into the template, and select them from the drop-down lists as needed.

Chapter Review Questions

1. What are the various types of units you can set up in a project template?
2. Where do you set up a new text type? A new dimension type?
3. What is a label?
4. Give several examples of what might be included in a View Template.

Command Summary

Button	Command	Location
	Apply Default template to Current View	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel> expand View Templates ■ Project Browser: (<i>right-click on a view</i>)
	Apply template to current View	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel> expand View Templates ■ Project Browser: (<i>right-click on a view</i>)
	Arrowheads	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel> expand Additional Settings
	Callout Tags	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel> expand Additional Settings
	Create View Template From View	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel> expand View Templates ■ Project Browser: (<i>right-click on a view</i>)
	Dimension Types <ul style="list-style-type: none"> ■ Linear ■ Angular ■ Radial ■ Spot Elevation ■ Spot Coordinate ■ Spot Slope 	<ul style="list-style-type: none"> ■ Ribbon: <i>Annotate</i> tab>Dimensions panel>expand the panel title
	Elevation Tags	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel>expand Additional Settings
	Floor Plan	<ul style="list-style-type: none"> ■ Ribbon: <i>View</i> tab>Create panel> expand Plan Views
	Keyboard Shortcuts	<ul style="list-style-type: none"> ■ Ribbon: <i>View</i> tab>Windows panel> expand User Interface ■ Application Menu
	Label	Family Editor <ul style="list-style-type: none"> ■ Ribbon: <i>Create</i> tab>Text panel
	Loaded Tags	<ul style="list-style-type: none"> ■ Ribbon: <i>Annotate</i> tab>Tag panel> expand the panel title
	New Title Block	<ul style="list-style-type: none"> ■ Application Menu: expand New> Title block

	Options	<ul style="list-style-type: none"> ■ Application Menu
	Project Units	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel ■ Shortcut: UN
	Revision Schedule	<ul style="list-style-type: none"> ■ Family Editor ■ Ribbon: <i>View</i> tab>Create panel
	Section Tags	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel>expand Additional Settings
	Temporary Dimensions	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel>expand Additional Settings
	Text	<ul style="list-style-type: none"> ■ Family Editor ■ Ribbon: <i>Create</i> tab>Text panel
	View Template Settings	<ul style="list-style-type: none"> ■ Ribbon: <i>Manage</i> tab>Settings panel>expand View Templates
	Structural Settings	<ul style="list-style-type: none"> ■ Autodesk Revit Structure ■ Ribbon: <i>Manage</i> tab>Settings panel
	Mechanical Settings	<ul style="list-style-type: none"> ■ Autodesk Revit MEP ■ Ribbon: <i>Manage</i> tab>Settings panel expand MEP Settings
	Electrical Settings	<ul style="list-style-type: none"> ■ Autodesk Revit MEP ■ Ribbon: <i>Manage</i> tab>Settings panel expand MEP Settings