

Phasing and Design Options

Of all the projects with which I have been involved over the years, I can remember only a handful that didn't involve some kind of existing condition. It would be nice if we could find a giant, flat field on which to construct our buildings, but those projects are few and far between.

- ▶ **Managing project phasing**
- ▶ **Examining graphic overrides**
- ▶ **Creating design options**

Managing Project Phasing

The term *phasing* in the Autodesk® Revit® Architecture platform is often taken literally, and it can be confused with construction sequencing. When we talk about phasing in a Revit context, we're talking about adding new construction to an existing building and demolishing the existing structure. Although you can use Revit to track all aspects of construction, the base use and purpose of phasing is dealing with existing conditions.

The first section of this chapter will focus on the setup of your phasing scheme. By default, Revit Architecture provides two phases: Existing and New Construction. As it stands, everything you've placed into your model up to this point has been exclusively related to the New Construction phase. You'll now alter that.

I've seen this scenario played out more times than I would have liked. People get Revit, build a model, and then start clicking the Demolish button on the Phasing panel on the Manage tab. Yes, doing so forces hidden lines, and now you're demolishing walls that were constructed in the same phase in which they're being removed. You can't do that!

With some practice, and by following the procedures in this chapter, you'll be able to swing that hammer all you want. But for now, to get started, go to the book's web page at www.sybex.com/go/revit2017ner. From there, you

can browse to the Chapter BC7 folder and find the BC7.rvt file. (If you prefer, you can follow along with your own model as well.)



NOTE Metric users should not type in *mm* or other metric abbreviations when entering amounts suggested in the exercises. Revit will not accept such abbreviations. Simply enter the number provided within the parentheses.

The objective of the following procedure is to create a Demolition phase and insert it between the Existing phase and the New Construction phase. Follow these steps:

1. On the Manage tab, click the Phases button on the Phasing panel, as shown in Figure BC7.1.

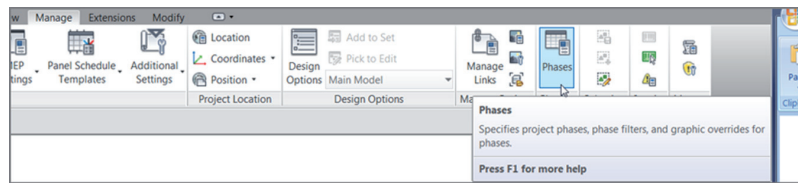


FIGURE BC7.1: Clicking the Phases button

2. In the Phasing dialog, click the number 1. This is the control for the Existing phase row.
3. In the Insert section, click the After button, as shown in Figure BC7.2.

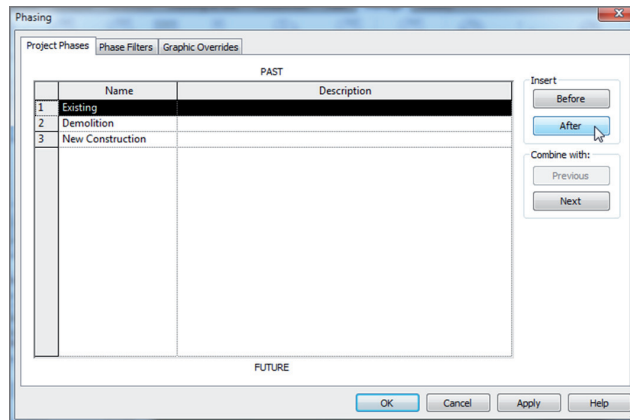


FIGURE BC7.2: Starting to add the Demolition phase

4. Rename the phase that is now in the middle to Demolition.
5. Click OK.
6. Make sure you're in Level 1. On the View tab, click Duplicate View > Duplicate View, as shown in Figure BC7.3.

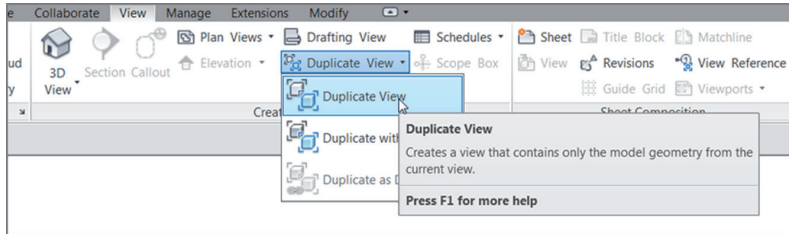


FIGURE BC 7. 3 : Duplicating the view

7. Right-click the new view, and rename it Level 1 Demolition.
8. Open the Level 1 Demolition plan.
9. Select every exterior wall in the east building, and change Phase Created to Existing at the bottom of the Properties dialog.
10. Press Esc.
11. Select the entire south ramp, floor slab, railings, and framing. Make sure you select the structural framing system that is spacing the beams for the canopy roof and not the beams themselves.
12. In the Properties dialog, set Phase Created to Existing and Phase Demolished to Demolition.
13. Go to the Level 1 floor plan (not the demolition). There is no longer a ramp. No sense living in the past. The demolition plan shows the items on a demo line type. Who needs layers, right?
14. Go back to the Level 1 Demolition floor plan.
15. In the Properties dialog for the Level 1 Demolition plan, scroll down to Phasing, and change Phase to Demolition, as shown in Figure BC7.4. Change Phase Filter to Show All.

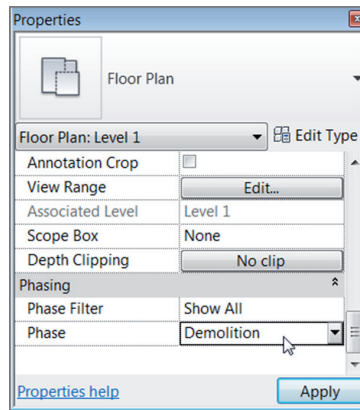


FIGURE BC 7. 4 : Changing Phase to Demolition

16. Zoom in on the east entry, specifically where the ramp enters the building to the south, as shown in Figure BC7.5. Revit automatically changes the line weight to Heavy and the line type to Demolished.

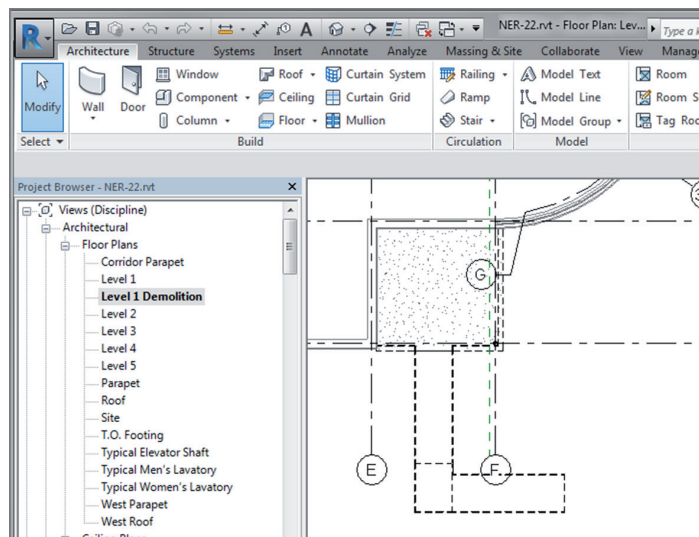


FIGURE BC 7. 5 : Seeing the results of demolishing an item

17. Go back to the Level 1 plan, and select the two doors shown in Figure BC7.6.

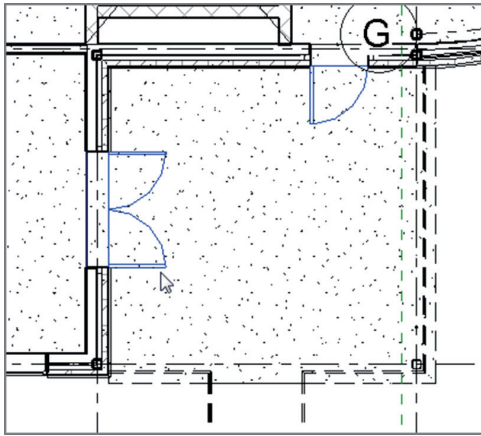


FIGURE BC 7.6: You no longer need these doors.

18. Set Phase Created to Existing.
19. In the properties, set Phase Demolished to Demolition. Revit removes the doors and infills the openings, as shown in Figure BC7.7. (It's understood that the entire building should be existing. This is an example of how Revit behaves during the phasing process.)

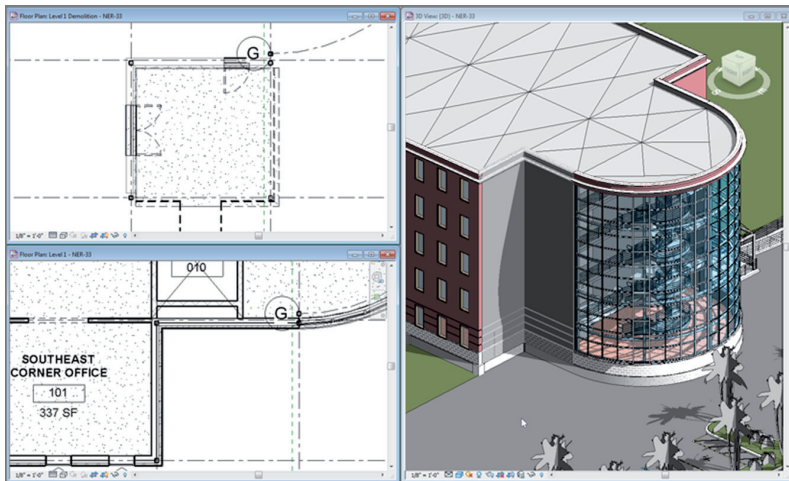


FIGURE BC 7.7: The completed phasing

Examining Graphic Overrides

After you've changed the phasing of an object's creation and demolition, Revit magically puts everything on the correct display. Well, as magical as it seems, there are some features driving this display. Let's take a look at them:

1. Click the Phases button on the Phasing panel of the Manage tab.
2. Click the Graphic Overrides tab.
3. In the Existing row, for the Lines column under the Cut heading, click the button that displays a shaded line, as shown in Figure BC7.8.

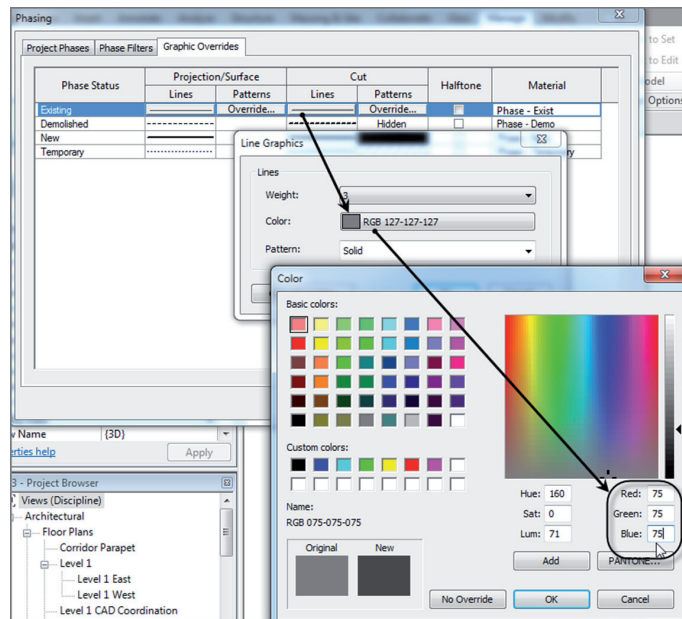


FIGURE BC 7. 8 : Making the existing shading darker

4. Click the Color button.
5. Change the shading of the line to **75, 75, 75** (see Figure BC7.8). Click OK to exit all dialogs. The existing walls update in the views.

Another function of Revit that we need to delve into is similar to phasing, but it has an entirely different meaning when it comes to tracking aspects of a project. This functionality is called *design options*.

Creating Design Options

Revit is equipped with the functionality to allow you to model different options in one model, better known in the design world as *bid alternates*. The great thing about how Revit handles this functionality is that any alternate design is never—or, at least, is seldom—a completely new structure. Some items are in more than one option. Revit lets you keep like items intact while creating new or different items that belong to different options. This creates a situation in which you only need to model the common items once so you can focus on the alternates.

That being said, there is a lot to be added to this functionality in future versions of Revit. To begin adding and implementing design options, follow these steps:

1. On the Manage tab, click the Design Options button, as shown in Figure BC7.9.

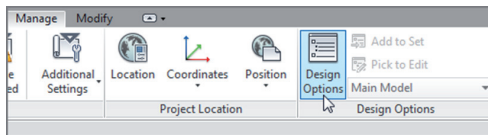


FIGURE BC7.9: Clicking the Design Options button

2. In the Design Options dialog, click the New button under Option Set.



NOTE You can have as many option sets as you choose. There will be cases in which you have other, unrelated options in other places in your model.

3. Select Option Set 1.
4. In the Option Set category, click the Rename button.
5. Call the option set **Ramp Options**.
6. Select Option 1 (Primary).
7. In the Option category, click Rename.
8. Rename the option set **L-Shaped Ramp**.
9. In the Option category, click the New button.
10. Rename the new option **Curved Ramp** (see Figure BC7.10).

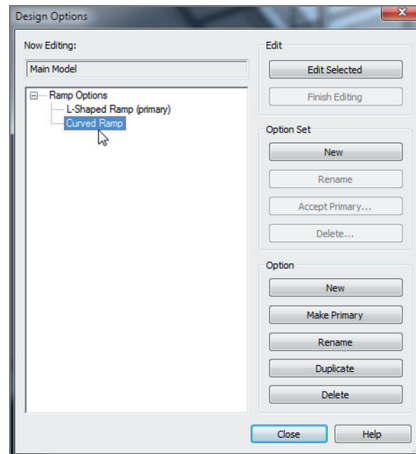


FIGURE BC 7.10: Adding options

11. Click Close.
12. In the Project Browser, go to the Level 1 floor plan.
13. Select both the ramp and the railing, as shown in Figure BC7.11.
14. Click the Add To Set button at the bottom of the Revit window (see Figure BC7.11).

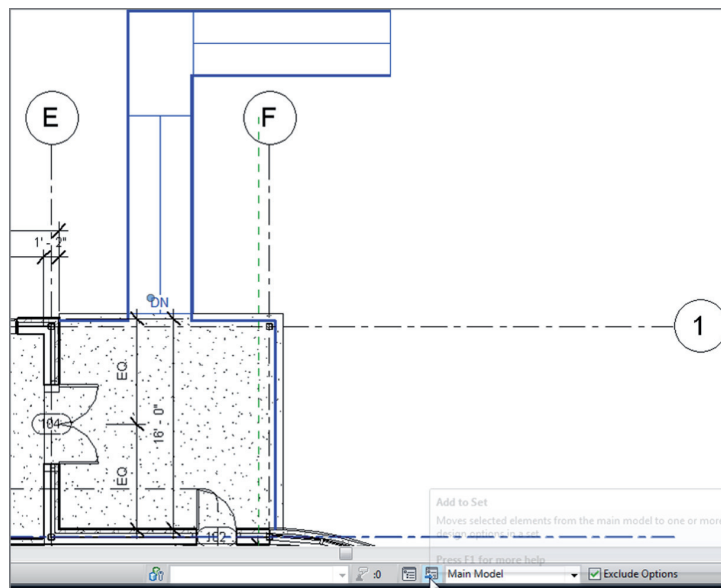


FIGURE BC 7.11: Adding to a set

15. Deselect the Curved Ramp, and click OK.

IT'S HARD TO SELECT STUFF NOW

At the bottom of the screen, next to the Main Model text, is an Exclude Options check box. Revit forces you to be in an option to make edits to the model unless this check box is deselected.

It's time to create a new ramp. To do so, follow these steps:

1. Switch to the Curved Ramp option, as shown in Figure BC7.12.

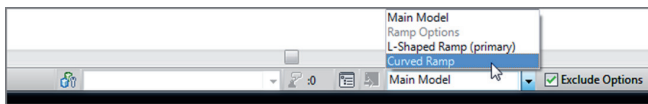


FIGURE BC7.12: Jumping into an option

2. The L-shaped items disappear. Draw a ramp and a railing similar to those shown in Figure BC7.13. Remember, the ramp is from Level 1 to Level 1, with a -2'-6" (-750mm) bottom offset.

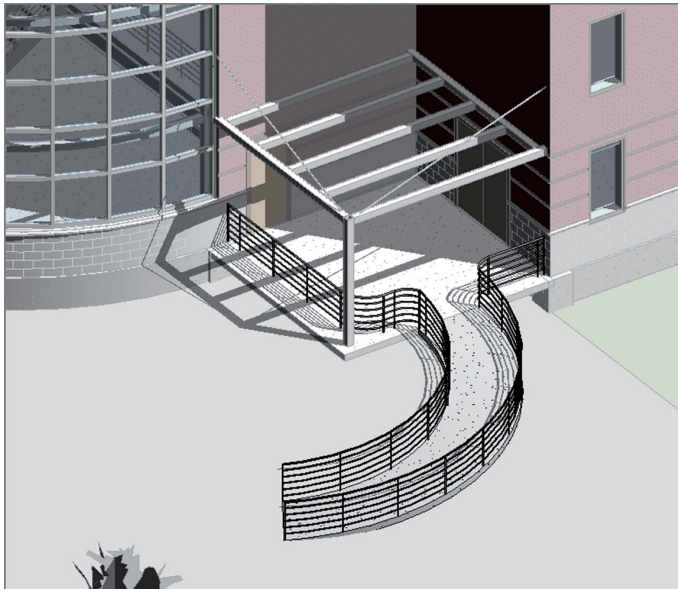


FIGURE BC7.13: The curved option

3. Change the option back to Main Model, as shown in Figure BC7.14.

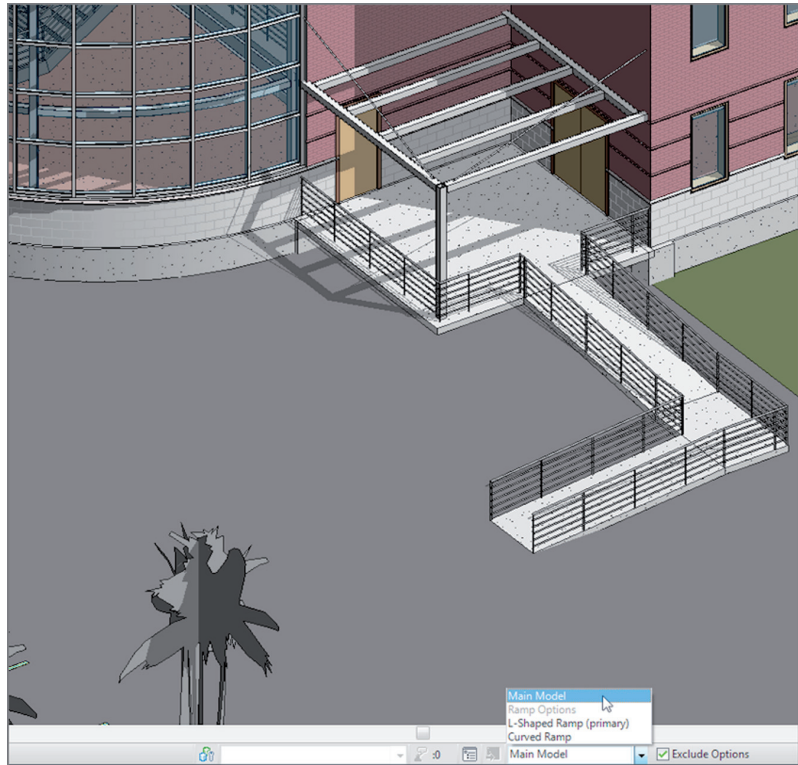


FIGURE BC 7.14: Switching back to Main Model

4. Find the {3D} view in the Project Browser.
5. Right-click it, and choose Duplicate With Detailing.
6. Rename the new view L-Shape Option.
7. Create another view, and rename it Curved Ramp.
8. Open the Curved Ramp view.
9. Type VG for Visibility Graphics.
10. Click the new Design Options tab.
11. Change Design Option to Curved Ramp, and click OK (see Figure BC7.15).

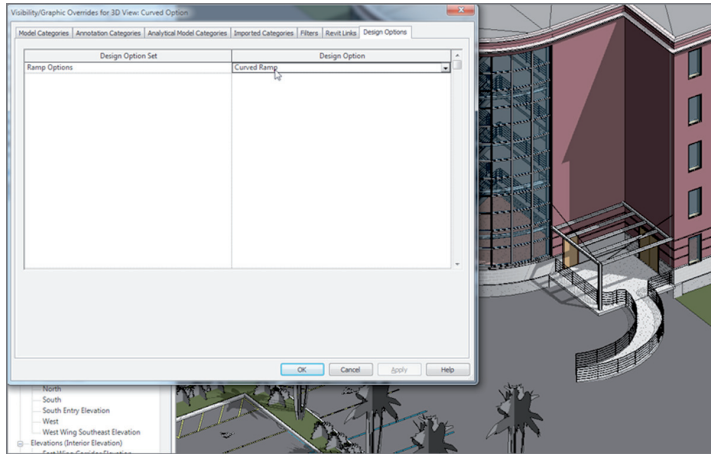
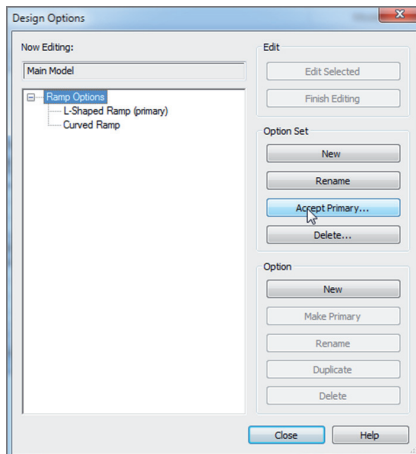


FIGURE BC7.15: Setting the view's default option

ACCEPTING THE PRIMARY OPTION

You'll notice that when you're working in design options, you can edit items belonging only to the current option, unless you deselect the Exclude Options check box on the status bar Design Options panel (it defaults to being selected in all views). If your options set is set to None, then you're actually in the Main Model option. When you've finished with the options and an alternative has been accepted, you can make the accepted option the primary option and click **Accept Primary**. Doing so deletes all other options, leaving just the one option. (Make sure you have a backup before you do this.)



As you can see, this is a powerful tool. Gone are the days of copying around several Autodesk® AutoCAD® files to accomplish the task of designing alternates. The great thing about the design options in Revit is that if you need to make a modification to the building and it needs to be shown in all your options, you can simply make the Main Model option current and work away.

Are You Experienced?

Now you can...

- ✓ **configure project phasing settings by adding new phases**
- ✓ **change and add phase filters, and create phasing graphical overrides**
- ✓ **create demo plans**
- ✓ **organize the Project Browser to reflect your phasing**
- ✓ **create design options**