Revit Conduit Running Tips and Tricks 3/6/2013

When I first start using Revit and the conduit tools I found myself wishing for AutoCAD MEP-like conduit tools. I still think some more grips would be useful, but having now spent many months using and learning the tools more, I'm not quite so hard-headed about this. The one thing I do really want and might even be able to figure out is being able to limit the bend angle selections like AutoCAD MEP conduit did. There must be a way to do this, because the piping tools and fittings are setup to limit their angles, because piping actually uses specific fittings, unlike field bent conduit. Even so field bent conduit will rely on mainly 5 different angles, 10, 22.5, 30, 45, 90. These are the angles Electricians learn to use.

Tips and Tricks:

In my Revit training, it was never really made clear what Modify tools would do for conduit runs. I have learned that they are very useful and use keyboard shortcuts all the time, as opposed to drawing and dragging conduit which gets slow.

The common tools I use to modify a conduit are:

Align (AL)
Split Element (SP)
Trim/Extend Single (TS)
Trim/Extend Multiple (TM)
Trim/Extend to Corner (TR)

Keyboard Shortcuts are your friends, use them, if you don't like the defaults create your own, some of these I created, because they didn't have a keyboard shortcut.
Parallel conduits (PO)
Conduit (CN)
Conduit fitting (NF)
Cable tray (CT)
Cable tray fitting (TF)

You can also use detail lines to create boundaries to which you can Trim/Extend to.
If you find you have aligned conduits and the automated solution will still not connect and you get an error message, try splitting the conduits, and then you can delete the fitting after you connect the two conduits together.

Multiple Views Open

When I first started working with Revit conduit I would constantly switch between plan and sections I created to work in. I was always wishing for better multiple monitor support in order to stretch the Revit Main window across two monitors and be able to see my multiple views without window switching, but Revit doesn't play nice with the main windows stretched across multiple displays and it was more time consuming to try to keep the windows in the right places. So I normally work with Revit on one monitor and window switch with CTRL-TAB. Over time I probably switch windows less than I did because I started using the editing pop-ups that show activate when you select a piece of conduit. For vertical offsets in elevation my old work flow was to switch to a section view and draw the offset angle I wanted.
Currently my work flow is as follows:

draw a conduit
split it where I need to create an offset in two places
grab and drag the ends of the split piece to disconnect from the run and be able to delete the fittings created by the split
Select the part of the run that need to change elevation and change the height offset
select the piece that will be the angled part of the offset
click one of the height offset editing dimensions that appear on the conduit when selected, change to the new elevation, which will angle the conduit
click the angle editing dimension and type in the appropriate field angle (10,22.5,30,45)
use the Trim/Extend to Corner tool (TR) to reconnect the two of the run to the angled piece you just created with bends

Rolling Offsets
It's not often that I model rolled offsets, I try to avoid it, but there are some occasions where I find it necessary. It still doesn't exactly produce the angles, but it's pretty close. This was from some advice I found online. First to define, in case someone doesn't know. A rolled offset is a change in elevation and a change in distance across in plan view. The start and end of the offset do not align. Revit doesn't deal with this well. The automated solutions seem to only want to work on the plane they are drawing in, and a rolled offset is not in the plan plane or a right angle section plane. Get the ends of the conduits where you want them, use a detail line to find the angle you want and to be able to align the ends of the conduits to. Then draw a section view along that detail line. In the section view you can draw conduit between the two ends and it will draw the appropriate bends to fit. Again when you draw that detail line between to two conduits to be connected in plan view to establish the angle, that is the angle in plan view only, this is a compound angle we're dealing with in rolled offsets. Good ol' trigonometry could get it exact for us, but it's really close, we're talking 1 or fractions of 1 degree. You actually don't even need to create the section view. If you use a detail line to get your angle and align the ends of the conduit to, if you start to draw conduit from one conduit and use the Ignore Slope button, it should create the rolled offset without having to create the section view at the weird angle.

I use the Service Type instance parameter to name my conduit runs, Unfortunately on an established run you've already drawn this name does not stick, it used whatever you last typed in when you started a new conduit run. I've already put this on the Autodesk Revit wishlist. The way I've found to get around this, without having to constantly try to remember to change when continuing an established run is to use Split Element. Instead of right-clicking on the conduit end and Drawing Conduit, which will basically create a new run with whatever name was last typed into Service Type parameter (which is un-edittable when you continue conduit in this way) I split what is already drawn and drag the ends of the split piece in order to get my next bends and maintain the name I've already given that run. This helps with having to keep track of whether to entire conduit network I've drawn all has the same name in which to be tagged from.

Common Editting Tools

If I need to change bend angles of offsets, or change elevations of certain sections, I will go around and delete the various bends that surround the section, in order to maintain the elevations of those other parts. I'll highlight and change the elevation of the part I want, then use the Trim/Extend to Corner to re-connect the bends I deleted.

Trim/Extend to Corner also makes quick work of 90s at the same elevation, it will also usually work for 90s at different elevations, though usually Revit will create an Offset-90, but in the field a Kick-90 is preferable as it eliminates one bend, and it easier to pull through.

To create a Kick-90 I use a similar technique to creating offsets using the Split Element tool and using the editing dimensions on a selected piece of conduit. First I'll create the 90 bend all at the same elevation. I'll split and disconnect the run and change the elevation of the appropriate section, then I'll select and edit the conduit elevation dimension of one end of conduit connected to the 90 to angle the 90 up or down, I'll edit the angle to one of our 5 common angles and use the Trim/Extend to Corner to finish and reconnect the bends and run together.

The Parallel Conduit tools is very nice and very useful I use it a lot. Even so, I find that I still end up drawing a whole rack at once, rather drawing the path of one conduit and paralleling it with the Parallel Conduit tool, because it may all start in one location but it doesn't all go to the same end point, so I might get a large rack started to a certain point, but I still end up needing to extend multiple conduits to the same place, this is where the Trim/Extend Multiple is really great, pan where you want the conduits to stop next, use (TM), select a boundary line of something, a wall, edge of light, structure, or draw a detail line to use as a boundary, and then pan over to your conduits and click each one you want extended to that boundary, much faster than drawing/dragging each out one by one.