Glitches and fixes for my Revit Plumbing Template:

PVC:

- * Reducing pipes works a whole lot better if Transition is set to None in Routing Preferences.
- * On 4” x 3” and smaller bushings, the sizes on the bushings have to be reversed in some cases for some reason. This can be avoided if you draw the pipe full size at first, and then change the pipe size.
- The one-piece combination only works on 4” pipe and smaller. The 2-piece combination works on all pipe sizes.
- * I think it is generally best to have Junction (in Routing Preferences) set to 2-piece Combination (non-reducing). It works with all main and branch sizes of pipe, and automatically reduces the branch if Transition is set to None. It’s easy to switch it out to another fitting (1-piece combination, reducing combination, or tee) after it’s drawn. It is quicker than constantly having to change the Routing Preference. The only exception to this is when you need to use a reducing combination that also reduces out of the end. In those cases, either change the Junction Preference to Reducing Combination OR just use a reducing coupling on the end.
- 4” is the smallest branch that you can draw off of a 12” pipe using the 2-piece combination.
- 12” x 4” reducing wyes look funny. A 12” x 6” wye with a 6” x 4” bushing in it looks better. All other reducing wye sizes look fine.
- Reducing wyes don’t look right when you try to use them in a non-reducing situation. It is easy to change reducing wyes out to regular wyes after they are drawn though. That won’t work on 8” though - the standard wye must be inserted.
- Wyes, reducing wyes can only be changed out to “double” when they are the top line in the Routing Preferences for Cross.
- 4” x 1 ½” and 3” x 1 ½” double wyes look funny. It’s better to draw them with 2” branches and reduce them.
- To draw double ¼ bends - draw the tee or 90 (then change it to a tee) first, then draw pipes out of ALL sides of the tee, then change the tee to a double ¼ bend (End Primary). OR, add it manually with the (PF) command on bald pipe. OR, set the End Primary one as your Junction in Routing Preferences. Adding slope to both ends so that they both drain towards the branch is difficult to do - Draw the pipes coming out of the ends without any slope first. Then use the slope editor to add slope to each side. This works sometimes, and sometimes it doesn’t. The worst case will be that one side will have slope and the other side will be level.
- The PVC commode flanges will install, but they take a lot of finagling. The NHCI commode flange will install flawlessly and effortlessly on PVC pipe.
- P-traps can be added in 3 ways: (1) Set them as the Elbow in Routing Preferences. (2) Add them manually onto bald pipe. (3) Draw them as ¼ bends first, and then change them to p-traps – you MUST draw the vertical pipe first before the horizontal pipe though.
- The cleanout tee can’t be added by drawing a branch off the main. It has to be manually installed on bald pipe.
- The bushings that are automatically inserted when installing Mini Air Admittance Valves have to have their sizes adjusted after placing.

NHCI:

- I don't have a ¼ bend, double wye, or double combination with no hub bands on them. But no hub bands can be added to the fittings. It works best to add them to the fitting before connecting a pipe or another fitting. After adding them and connecting a pipe, change the System Type for the band to Other so that it turns black (for some reason, this doesn't work with 2" bands in some situations. Revit wants to change the whole system to Other). No hub bands don't add very well onto commode carriers either.
- Double Wyes and Double Combinations have to be added in with the Pipe Fitting command and can't be added with Draw Pipe or changing the regular wye/combination.
- I removed the Tapped Tee and Tapped P-trap families – just use the regular no hub tee and no hub p-trap, then reduce the pipe size and change it to copper. The band will still be there.
- Adding p-traps – 3 options:
  1) Draw them as 90's first, and then change them to p-traps - you MUST draw the vertical pipe first before drawing the horizontal pipe. And you have to use the Horizontal Primary p-trap (which is opposite of what you'd think).
  2) You can select them in Routing Preferences and automatically draw them in.
  3) Adding them to bald pipe using the (PF) command: The Horizontal Primary p-trap works fine. The Vertical Primary p-trap works too. But you have to do the following: Add the p-trap to the vertical pipe in a section view, then go to plan view to draw pipe out of the horizontal end. It won't do right in section view.

DWV Copper:

- I can't get the wye to do anything at all. It won't install properly in the line any way that I try it. And I can't even change the sizes on it when I place it in a remote location.
- The twin ell only seems to work if you place it with the Pipe Fitting (PF) command.

Copper:

- Everything seems to work pretty good.

CPVC:

- Nibco's tee won't work as a ½" tee. The Spears tee does work though.
- I can't get the reducing coupling to work at all. It's currently set to draw bushings where reducing couplings should be.

Corzan:

- Adding reducing tees or bushings coming out of the ends of tees on mains that are 4" and above only seems to work when using a pipe size that is only one size below the main pipe size (i.e. 6" off of an 8" main, 4" off of a 6" main, 3" off of a 4" main). The fix: draw the branch one pipe size smaller first, and then draw/extend from that pipe the size that is desired. It will add a reducing coupling. The one exception to this is for 2 ½" pipe – Revit won't let me use any fix other than to draw a larger branch size (such as 3") and then select it and change the size to 2 ½". Revit will issue a warning and the tee connection won't look right, but the pipe will be there.
- On main sizes smaller than 4", there seems to be more flexibility with the branch size choices, although there still are some instances where Revit won't let you use a certain size. In those cases, the same fix that I said above will work.

Steel:

- 4” reducing tees will only go down to 2” branch sizes. And 3” and 2 ½” reducing tees will only go down to ¾”. To draw smaller branch sizes, branch off with the minimum size and then use a reducing coupling.
- Bullhead tees will work on most 2” pipe sizes and smaller. The smaller the pipe sizes, the more likely it will work.
- On 1 ¼” and larger pipe, reducing tees or reducing couplings won’t automatically be added when you try to come out of the end of a tee with a smaller pipe. You have to come out full size, and then reduce down. On 1” and smaller tees, it does automatically change to a reducing tee on the end.

Commode carriers:

- The Watts carriers have legs that adjust to remain in contact with the floor as the body is raised to accommodate the slope of the drainage pipe.
- To change the single carriers to right/left hand, check/uncheck the “Right Hand Drain” box in the properties tab.
- To connect the drainage pipe on multiple carriers:
  1) Set the 1st/lowest carrier to the desired height (ex. 4”). Revit will set the outlet of the carrier at the height that is entered. Remember to check the “Slope 1/8” box. **Do not** check the box for “Battery of Fixtures”. Connect the outlet drainage pipe as needed.
  2) Set the additional upstream carriers, being sure that they are all perfectly aligned in the plan view. Check the ”Slope 1/8” box on each of them. Check the box for “Battery of Fixtures” on each of them. Set the elevation for the “First Down Stream Carrier Elevation” (ex. 4”) for each of them. Then set the “Distance From First Fixture” to whatever it measures from the center of the additional carrier to the **outlet end** of the first down stream carrier. Note that the Watts carriers measure 10 9/32” from the center of the carrier to the end of the outlet. So if the carriers are 3’ - 0” apart (center to center), then you only need to add 10 9/32” to that measurement for a total of 3’ - 10 9/32”.
  3) When connecting the drainage pipe between the carriers, it works best to do it in plan view. Revit usually lets you simply draw the pipe in from the outlet of one carrier to the inlet of the next carrier. But sometimes that doesn’t work. In those cases, draw a partial pipe extension from one carrier, and then draw from the other carrier to connect the 2 pipes in the middle. It works best to select “Inherit Elevation” when connecting these pipes. Google’s Gemini also suggests using the “Connect Into” command. I’ve had mixed results when doing that though.

Hose bibbs, Washing machine boxes, Ice maker boxes, Downspout nozzles, etc:

- When placing these items, be sure that “Place on (Vertical) Face” is selected in the ribbon. Otherwise, it will only let you place them vertically on the floor.

AAV vent box:

- It installs upside down. Flipping the box doesn’t work. You can Rotate the box to make it the right side up.

Downspout nozzles:

- For some reason, they place upside down. Use the Rotate command to turn them the right way.

Mixing valves (1/2" & 1/3"):

- Connecting the pipes is tricky. Disregard the Revit warnings.

Hanger Assembly:

- Be sure that the "Conduit Fittings" box is checked in Visibilty/Graphics Overrides (VV), especially in Plan View and 3D View. Some of the components for the hanger assembly are still associated with Conduit Fittings. The hangers won't be visible if that box isn't checked.
- Note that there is no ¾" hanger assembly. I'd use 1" instead, until I find a fix.

Angle Iron:

- Be sure that "Discipline" is set to "Coordination" in the Properties Tab so that angle iron will appear with the proper boldness. Angle iron is located in the Structural Framing family category. Angle iron attaches to the floor when it is drawn. To change the elevation after you draw it: Go to an elevation view, click on the angle iron, select "Z Offset" in the panel above, click on the angle iron again, then click the desired elevation. To make angle iron stand up vertically: Go to an elevation view, click on the angle iron, change the "End Level Offset" under Constraints in the Properties Tab to any number (10 for example), then you can drag the "Structural Framing Component End" grip to any angle that you want. To flip the angle iron upside down: change "Cross-Section Rotation" in the Constraints area of the Properties Tab to 180 degrees.

Material List - Fittings:

- I couldn't get Revit to distinguish between 45's and 90's in the fitting families that incorporate both 45's and 90's in their design. The best fix that I could come up with is to do the following: Draw all of the piping in the project. For each fitting category (copper 45/90, CPVC 45/90, CPVC street 45/90, etc.) select Every Instance in the entire project, type "90" into "Comments" in the Properties tab. Then for each category, manually select every instance (using the Control key) of a 45 and type "45" into "Comments" in the Properties tab. Revit will list them all out correctly. This advice is based on the assumption that 90's are typically more common on most projects. Note that any additional piping that is drawn after these steps are performed will need both 45's and 90's identified in the Comments in the Properties tab. If not, Revit will show them separately with a blank space in the Ell ° column.
- I couldn't get Revit to distinguish the sizes of most of the NHCI couplings. They have to be manually counted.
- Reducers (fitting and coupling) are somewhat out of whack on their listed sizes for copper, CPVC, and Corzan.

Material List - Accessories:

- Threaded rod quantities are somewhat inaccurate. Rod for hangers does get counted and included. But all hanger rod (3/8" and ½") gets counted as 3/8". If you have a lot of hangers that need ½" rod, then adjustments should be made to the list.

- Angle iron doesn’t appear on the list since it is a Structural Framing component. I don’t think it would be worthwhile to create a separate Material List just for angle iron. It would be simpler and faster to just calculate it manually.