

When I started at my company, the process for fire alarm design was something like this:

- Place the devices
- Draw a line from item to item at 90 degree angles
- Fillet the corners
- Trim the line at the devices.
- Repeat

This was very time consuming with many repetitive actions so I started thinking about ways to streamline the process.

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## PART 1: FILLET

While I could use the 'multiple' option and move from corner to corner after all of the lines were drawn, I found a faster way.

I draw one continuous polyline from device to device, sometimes backtracking, and then use the **Fillet-Polyline-Last** sequence to fillet all of the corners along the entire polyline at once.

## PART 2: REPLACING TRIM

Not only was it time-consuming to trim out all of those devices, but if the floor plan changed and I moved a device, it was even more time-intensive to reconnect the lines at the old location and then trim out the ones at the new location.

So, I added a mask to my symbols that would block the line from appearing through my objects. Since the blocks went in first and then the plines, I also had to employ the **DRAWORDER** command to move the plines behind the blocks.

## REPLACING TRIM STEP-BY-STEP:

You need to understand the **WIPEOUT** (mask) command a little bit.

**Note:** The mask needs to sit behind the line work of the block.

**WIPEOUT** only works on polyline boundaries, so a circle shape needs to be duplicated with a polyline outline; I use 16 or more sides.

The **FRAME** command will hide the wipeout from view.

Here is how that command sequence looks:

Command: **POL**

POLYGON Enter number of sides: **16**

Specify center of polygon or [Edge]: **C (click on center point of circle)**

Enter an option [Inscribed in circle/Circumscribed about circle]: **I (use Inscribed)**

Specify radius of circle: **(click on any quadrant point of the circle)**

Now that the circle-shaped polyline is created, we need to turn it into a Wipeout.

Command: **WIPEOUT**

Specify first point or [Frames/Polyline]: **P (indicate the Polyline option)**

Select a closed polyline: **(pick the polyline you just created or type L for Last if it was the last thing you drew)**

Erase polyline? [Yes/No]: **Y**

Now you have your Wipeout but since it was the last thing you created, you need to move it behind the line work in your block.

Command: **DR DRAWORDER**

Select objects: **L (for last)**

**1 found**

Select objects: **(Enter will end selection)**

Enter object ordering option [Above objects/Under objects/Front/Back]: **B (select B for Back if it isn't the default)**

Now the WIPEOUT object is at the back (or behind) all of the symbol objects. But maybe you don't like to see the outline of the wipeout even if you deleted the polyline during your wipeout creation.

To hide the WIPEOUT outline, use the FRAME command.

Command: **FRAME**

Enter new value for FRAME: **0**

**Regenerating model**

**Note:** The FRAME setting will need to be set in your drawing in order to hide the wipeout frame after you insert your block. If you don't use the FRAME setting at 0, you will see the mask outline but it will not affect plotting. I just prefer not to see them in my display.

**Hint:** This appears to be very intense, but you will find it easy to do once you try it a few times. It can also be included in a LISP routine or macro to automate it since so many of the features and choices are the same each time.

The beauty of this process is that I can slide my blocks along the polyline and never have to trim out a line again!

The draw order in your drawing must be maintained however to ensure that the mask is effective: (from back to front)

BACKGROUND (Xref)

PLINES

DEVICES (block)

If moving items around messes up the draw order of the blocks in relation to the polylines and your background plan or Xref, I just select each type of polyline, right click, and choose Select Similar.

Then go into the DRAWORDER (DR shortcut) command and move those to the back. Next, select your Xref item and move it to the back. Now everything is nice and neat and in the right order.

### PART 3: TOOL PALETTES AND LISP ROUTINES

The final step is to load all of your custom blocks onto a Tool Palette in AutoCAD so that they are easily accessible from your drawing work space.

Then, if you need to count each type of block you use, I was able to download a free LISP routine that counts each block in my selection set and lists it in a table with the quantity and preview. (*Editor's note: You can also use AutoCAD's native Data Extraction tool [command shortcut: DX] for this, but first and foremost you should use the tools that work best for you!*) I increase the usability of this LISP routine by naming each block with an accurate description. You can use the **RENAME** command if the blocks have project-specific naming requirements such as letters or numbering. However, as a Table, you can also just click into the cell and type a new description.

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### SUMMARY AND A FEW MORE HELPFUL HINTS

By using the **FILLET-Polyline** option, I am able to turn many fillet selections into a single selection. And by having my radius already set and performing it right after I draw the polyline using shortcuts, it becomes a simple **F-ENTER-P-ENTER-L-ENTER** sequence of commands.

When I added a **WIPEOUT** mask to my blocks, I avoided lots of trimming during creation and editing.

Once again using my shortcuts, it is easy to send all polylines to the back of your drawing using **right click-Select Similar** and going directly into the **DRAWORDER** command, the keystrokes are **DR-ENTER-B-ENTER**. (You can skip the B if the default is already showing the Back option.)

Becoming familiar with these commands, their shortcuts, and the importance of draw order, will help block creation and drawing creation in many ways. In addition, knowing when an object is 'Last' or 'Previous' can help with streamlining object selection in any command.