ALLEN DATAGRAPH

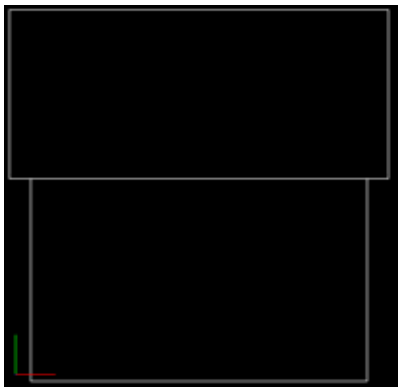
Technical Support Bulletin: AllenCAD Tutorial

Last Updated November 12, 2005

Abstract: This tutorial demonstrates most of the features of AllenCAD necessary to design or modify a countertop using the program. It starts with two cabinets and builds a template for a granite top. Commands demonstrated in order demonstrated: New page, draw rectangle, zoom extents, move relative distance, offset distance, fillet, arc, mirror, trim, layer manager, zoom window, dimensions, pan, text, modify object properties.

We will be designing a countertop to fit over two cabinets to be placed in the center of a kitchen. The cabinets are 54" x 24" and 48" x 29". We start with a blank AllenCAD drawing. Click on the standard tool bar (or file -> new menu command) and the startup assistance will be displayed. Click on the new page in the startup assistant. Choose Imperial (feet and inches) and OK. To start we draw two rectangles representing the cabinet outlines. Click on the rectangle tool on the draw toolbar (or draw -> rectangle). Enter 0, 0 for first corner and 54, 24 for opposite corner. Click on zoom to drawing extents on the Allen Tile tool bar (or view -> zoom fit). The outline of the 54 x 24 cabinet should appear. Again click on the rectangle tool entering 0,0 and 48,29 for its corners.

Now we move the 2nd cabinet into position by clicking on the move selected objects on the Allen Tile toolbar (or Modify -> move). We click on the 2nd cabinet to select it. It turns magenta (purple). Since we are finished selecting object we can either hit the enter key on the keyboard or right click the mouse. The command window displays base point. We will click on the Rel.Point tool on the options toolbar. This will allow us to move the 2nd cabinet exactly into position. We want to move the cabinet centered on the 54 inch bottom so we do a little math (54 – 48) / 2 = 3. So the x move is 3 inches to the right and the y move is 29 inches down. We enter 3, -29 for the move distance. Click to display both cabinets. You screen should now appear as follows: (File saved as tut1.flx)

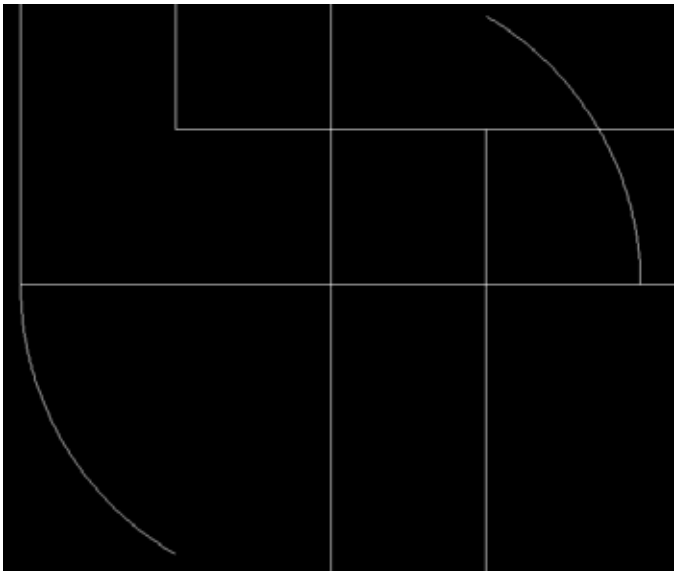
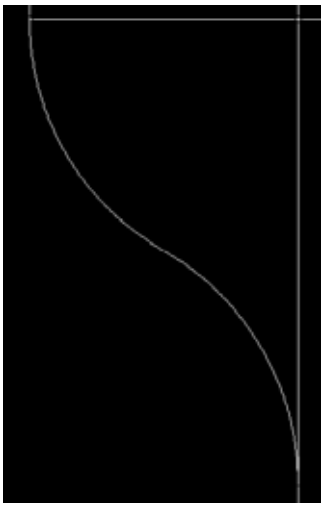


We decide we want an inch and a half overhang so we use the offset distance command to create the offset lines. Click on the  Offset Distance button on the modify toolbar (or Modify -> offset distance). Enter 1.5 for the offset. Click on the upper cabinet. It turns magenta to indicate selected. At the prompt side to offset we want a line to the outside of the cabinet so we click outside the boundary of the rectangle. We repeat the command on the lower cabinet. Now your drawing is as follows: (file saved as tut2.flx)

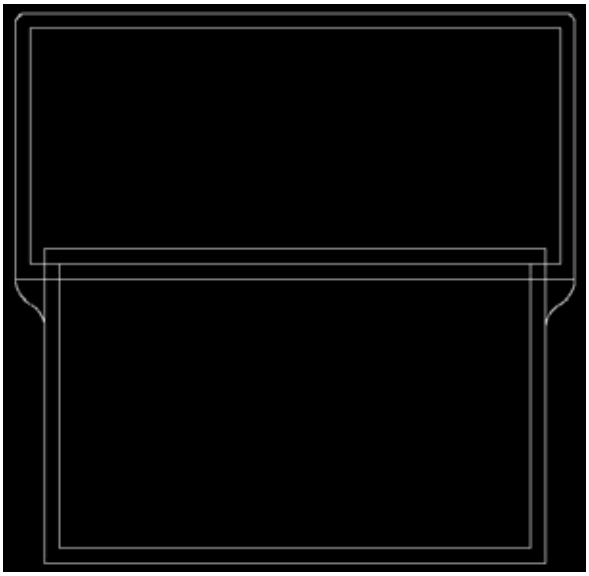
We need to round off some corners so we use the fillet command on the top two corners. Click on the  fillet button on the modify toolbar (or Modify -> fillet). Click  on the options toolbar. Enter 1 for the Fillet radius. Select the left side of the offset cabinet and then the top and a fillet will appear in the upper left corner. Repeat modify fillet for top and right sides. The top of the drawing now has rounded corners. (file saved as tut3.flx)

To join the two vertical lines with a smooth curve, we will create two arcs of 60°.[1] We want a 3 inch radius so the center of the first arc will be at +3,0 from the lower left corner or (1.5,-1.5). To draw the arc, click on the arc on the draw toolbar  tool (or Draw -> Arc). Click on the  on the options toolbar. For the center enter 1.5,-1.5. Enter 3 for the radius. 180 for start angle and 240 for end angle. We will draw the corresponding arc with center 1.5,-1.5, radius 3, start angle 0, end angle 60 and then move it below to the correct position. File saved as (tut4.flx)

[1] Geometry: cos(60°) = 0.5. We choose this angle so the two arcs meet in the center. We use sin(60) in equation below because we need to know vertical distance.

Use the move to position the 2nd arc in the correct position. We will want to move it 3 inches in –x and 2 * 3 * sin(60) or –5.196. So click on the move button on the Allen Tile toolbar (or Modify -> move), select the 2nd arc, right click, click on Rel.Point then enter –3, -5.196. This moves the 2nd arc to join the first arc. (File saved as tut5.flx). For the arcs on the other side we will mirror the two arcs about the left most vertical line. Click on the mirror button on the modify toolbar (or Modify -> mirror). Select the two arcs, right click to end selection, enter coordinates of mirror line as -1.5, 0 and –1.5, 1. (File saved as tut6.flx) Move the two, mirrored arcs relative to right 57 inches (54 + 1.5 + 1.5). Click on , select the two mirrored arcs, right click, click on Rel.Point then enter 57, 0. (File saved as tut7.flx)



Now we add the last arc across the bottom of the cabinet. The center of the arc will be at 54/2, -30.5 with radius (48 + 1.5 +1.5) / 2 = 25.5, start angle 180 end angle 0. (arcs are drawing counter clockwise)

ARC (on draw toolbar)

Start point: CRadius (on options toolbar)

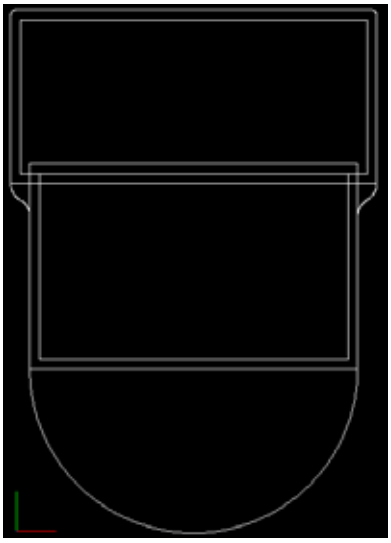
Center point: 27, -30.5

Radius: 25.5

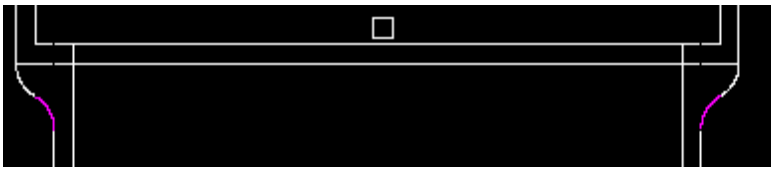
Start angle: 180

End angle: 0

(File saved as tut8.flx)

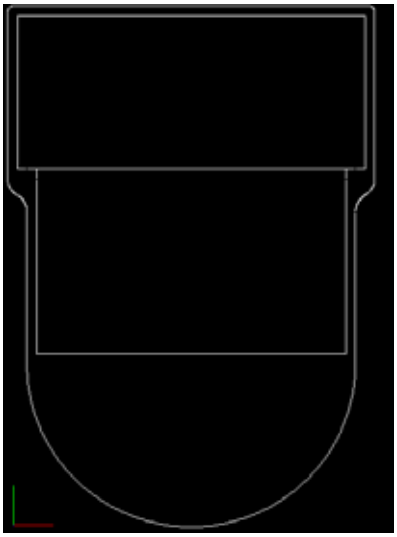


We now use the trim command to eliminate extra lines. Click the trim button on the modify menu (or Modify -> trim), for cutting edge, select the two lower arcs that join the two vertical lines. Right click, then click on the top line of the offset from the lower cabinet for entity to trim. (file saved as tut9.flx)



Now select again. Select upper arcs that join the two vertical lines as cutting edge, right click, and then click on bottom offset line of top cabinet. (file saved as tut10.flx)

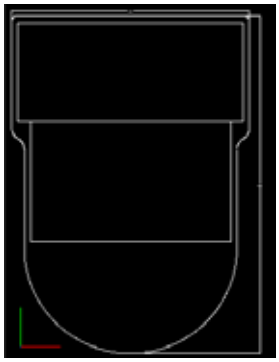
For last trim, select , click on big semicircle at bottom as cutting edge, right click, and click on bottom edge of bottom offset line as entity to trim. (file saved as tut11.flx)



The counter top is done. Lets add some dimension lines on another layer. Click on the layer manager tool on the property toolbar. This brings up the layer manager. Type in layer name "dimension" and click on new, and ok. In the drop down box select the dimension layer for new objects. We put the dimensions on a different layer so it's easy to turn off the layer for cutting.

Click on Dim -> vertical (or the button on the dim toolbar). Use zoom window, on the Allen Tile toolbar (or view -> zoom window), to zoom to a small area around the bottom of the big semi circle. Click on the very bottom of the arc at 2'-3 21/64, -4'8". Then zoom extents and zoom window at top right corner of countertop. Click on top corner (4' 6 5/8", 2' 1 ½). Move mouse left to position dimension line and left click. Right click to accept dimension

Using Zoom extents, and zoom window, zoom to top left corner. Click Dim -> horizontal. Click top left corner after curve (-1 ½, 2' 0 5/8). Click on pan on the Allen Tile toolbar (or View -> Dynamic Pan). Position the cursor to right side of screen. Click hold mouse and drag screen to left repeatedly until the top right corner appears. Press esc to cancel pan. Click on top right corner after curve (4' 7 ½, 2' 0 ½). Move mouse up to position dimension line and left click. Right click to accept dimension. (File saved as tut12.flx)

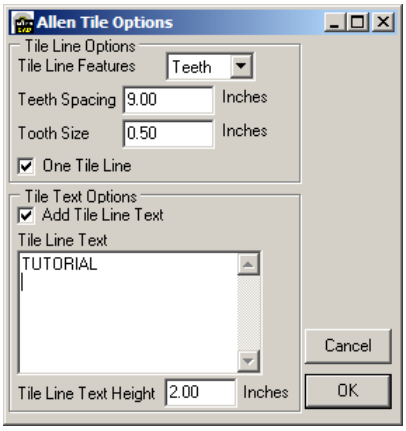


To add text, click on the tool on the draw tool bar (or detail -> text) to start the text manager. Enter 2 for text size and enter "TUTORIAL" in text box. Place inside drawing. (saved as tut13.flx)

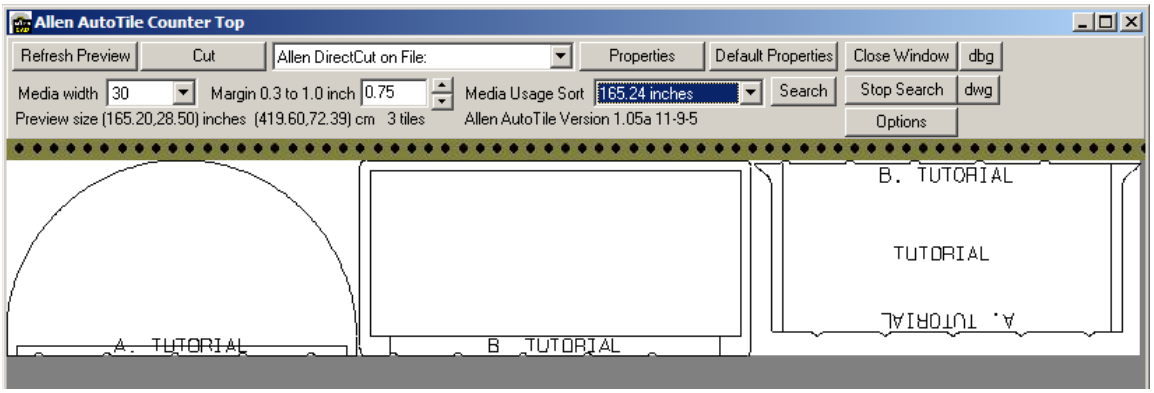
To turn off dimension layer click on the layer manager tool on the property toolbar. Select the dimension layer from the list and click Off, Click OK. Dimensions are turned off.

We note that the part number disappeared so we need to change its layer back to the default layer '0'. So we go back to the layer manager and turn the dimension layer back on. We click on Edit -> modify object properties. Select the word TUTORIAL, right click to enter, Click layer button and select layer "0" for text, click on OK. We go back to the layer manager to turn the DIMENSION layer back off. Select layer "0" as current layer so current layer is not off. (File saved as tut14.flx)

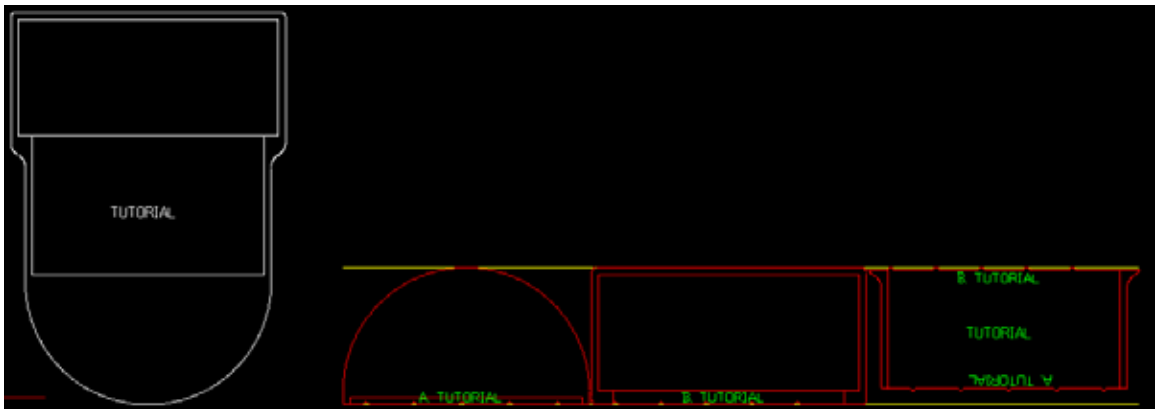
Click on the  button on the Allen Tile toolbar (or file -> Allen DirectCut tiling) and click on the  button on the option tool bar, right click to indicate we are through selecting objects. The Allen Tile Options menu is displayed.



Note the tile program picks up the part number and we select one tile line to have tiles continue through cutouts.



The tile program breaks our countertop into 3 pieces. At this point we have a choice of loading the template maker with 30" media and clicking on the CUT button to cut the 165.2 x 28.5 or we close the window and tile pieces are exported back in to AllenCAD.



File saved as tut15.flx.

All saved files can be downloaded separately at the place where you got this file.