Designer's Choice
Tutorials

Introduction

Designer's Choice is a simplified Computer Aided Design (CAD) program which integrates with the Standard and Multi-Opening features of the F-6100 software. It offers much greater design flexibility than the basic software, and therefore will take a bit more effort and practice to become proficient with.
The primary functions of The Designer's Choice program are:

- ***Modifying*** **Existing Patterns**
- **Modifying *Multi-Opening* designs**
- **Designing and Cutting *Text***
- ***Symbols*** **("Clip Art" designs)**
- ***Importing .DXF*** **drawings (CAD)**
- ***Merging*** **any or all of the above components together to form a complex design**

In addition, Designer's Choice offers some of the basic drawing tools that are found on most CAD and Drawing programs, allowing you to create your own unique designs.

Using Designer's Choice; Modifying Standard Patterns

Let's begin with one of the more useful features of Designer's Choice, the ability to make changes to any of the existing 50 Standard patterns.

From the Standard design screen, select pattern 19, Kobe Corner with Offsets. Click File, and Save As Designer's Choice (or *F9*), to convert the pattern to a .ffm or Designer's Choice file format. You may do this before or after saving the design with its own file name; for this example we will keep it as an "Untitled", or temporary-type file.

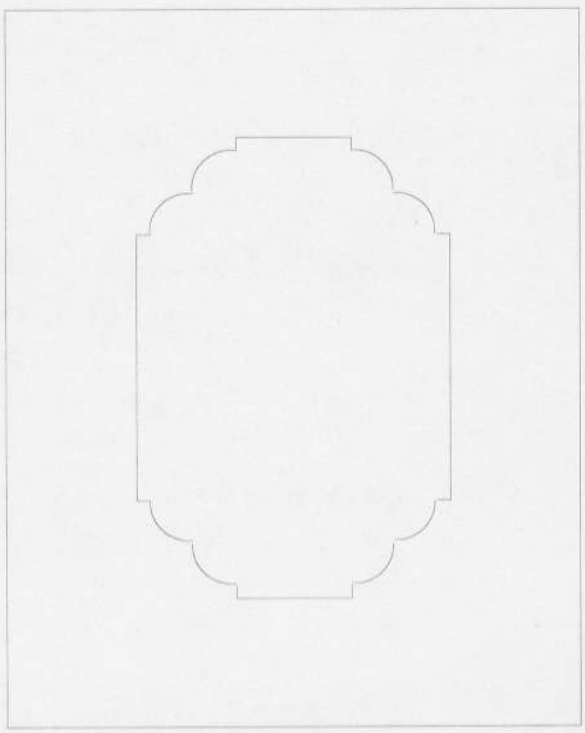
Click on the Designer's Choice button to enter the program. Then click, File, Open, and select the "Untitled" file from the F-6100 directory. The Kobe with Offsets pattern will then appear on screen, shown as a line and arc drawing.

Each line and arc in a Designer's Choice drawing is referred to as an "Entity". You will notice that one entity (line or arc), is shown with its end and midpoints highlighted with small yellow and purple squares. These squares show the endpoints and midpoint of the "Selected" or active entity at any given moment when creating a design. To select a different entity, simply click on it with the mouse, and the highlighted points will then move to those of the newly selected entity.

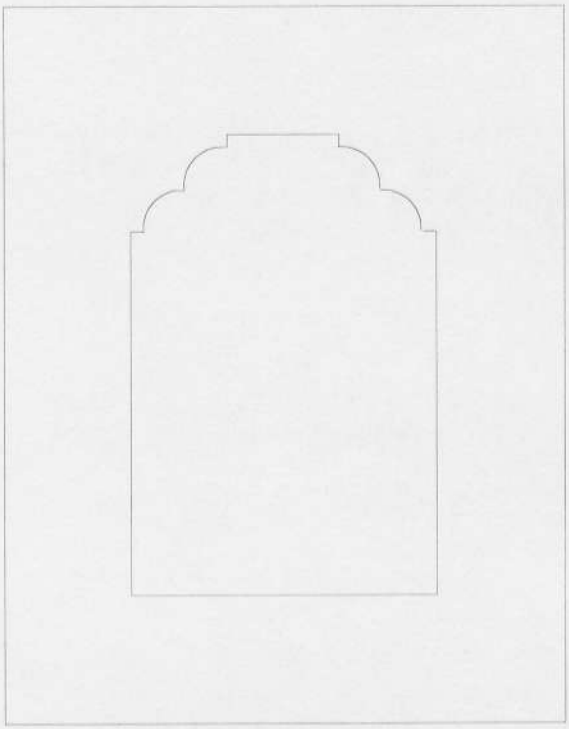
We will now remove the "Kobes" and "Offsets" from the bottom two corners of the design, and then join the corners to form right angles. This will result in a Kobe-arch design, which does not exist as a Standard pattern.
First we'll zoom in on the lower portion of the design in order to get a better view of the area we wish to work with. Then click on an arc in one of the lower corners to select it, and click the Delete button on screen or press the Delete key on the keyboard. Repeat this for each of the remaining arcs and Offsets at the bottom two corners. ***<u>Do not delete the bottom, horizontal line of the design, or the vertical sides of the opening!</u>

Next, click on the "Fillet" tool button on the left side of the screen. When the Fillet/ Radius/ Chamfer dialog box appears, enter 0 as a value in the entry box, and click OK. Then click on one of the vertical side lines, then the bottom horizontal line. (Notice that the white Command bar will

prompt you as to what to do for any given tool as you are working. Always keep your eye on the Command bar for cues as to what you should be doing next, (or what the program is doing on its own!).
Repeat the Fillet operation for the other corner as well. Before and After versions of your design are shown below:



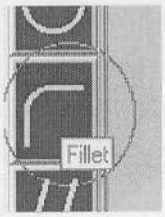
BEFORE

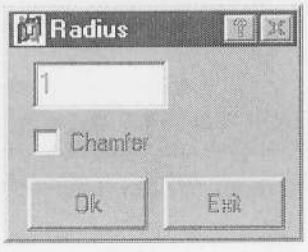


AFTER

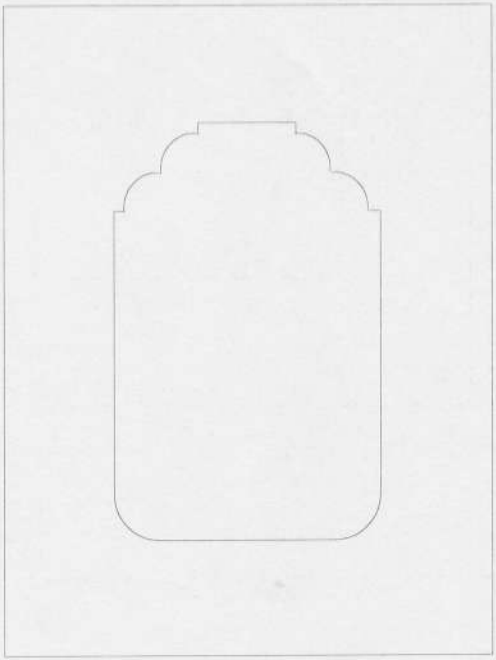
Let's say that you want to want to create rounded corners at the bottom corners of your design instead of boring 90 degree angle corners. Click again on the Fillet tool, and this time enter a value of 1, for a 1" *radius* to be created. Click on the adjacent lines of each lower corner to form rounded corners, as shown here:

Fillet Tool Button





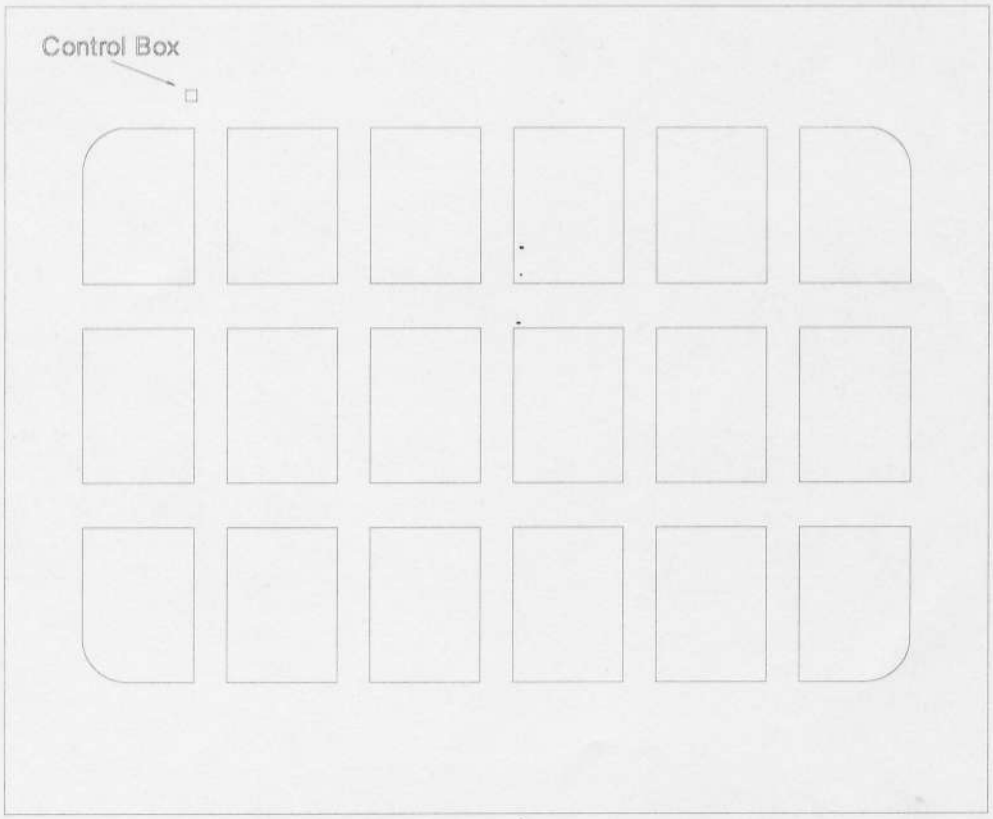
Fillet – Radius – Chamfer Entry box



Modifying Multi-opening Designs, Inserting Text

Beginning in the Multi-Opening program, create the following layout:
Rectangular opening, 2.5" wide X 3.5" height. Borders: Top: 2.75", Sides: 1.75", Bottom 3". Use the Array by Spacing feature to create a layout of 3 rows vertically by 6 columns horizontally, with spacing of 1" vertically and .75" horizontally. This will result in a mat size of 22.25" wide by 18.25 high.
Save the current design as "Array 1". Then save the layout as a Designer's Choice file (.ffm) by pressing the F9 key. Exit the Multi-opening screen, and then open the Designer's Choice program.
Open the saved .ffm version of "Array 1" in DC. The 18 rectangle design will then be on screen.
Then click Draw, "Fence All" (Ctrl + A). This will "fence", or *select* all of the entities in the design in white. Click Properties, Mat Layer 2 – Red. Then click Draw, Fence Off (Ctrl + F), to turn off the fence and show the entities in red.
Since rectangles which are imported from the Standard or Multi-opening screens are drawn as Rectangle entities, they must be "Exploded" before they can be modified in any way. Click on one of the corner rectangles to select it, then click Tools, Explode Rectangle (Ctrl + E). The selected rectangle will then be broken into 4 line segment entities. Repeat the Explode procedure for the 3 remaining corner rectangles.

Next click on the Fillet tool, and enter a value of 1" (radius). Create a rounded corner on each of the outer corners of the 4 corner rectangles which we have just exploded. The design should then appear as below:



We now need to move the small green square on screen, or "Control Box", to the approximate location where text will be inserted. To move the Control Box with the mouse, simply right click it, then left click and drag it to the desired location. Move it to the location shown in the above diagram. The Control box may also be moved numerically by double right-clicking the Control Box itself, and entering the desired coordinates in the Control Box dialog box.

Click Tools, and Text to go to the Text Input dialog box. Type in "CLASS OF" in the top entry box. The "Horiz." And "Vert." values indicate the current X,Y location of the Control Box; leave these as is. Change the Height value to 1.75", and the Kerning, or spacing between characters, to .35". Select "Round" as the desired font. Click OK, and the "CLASS OF" text will appear in the top border area of the mat, highlighted in white ("Fenced").

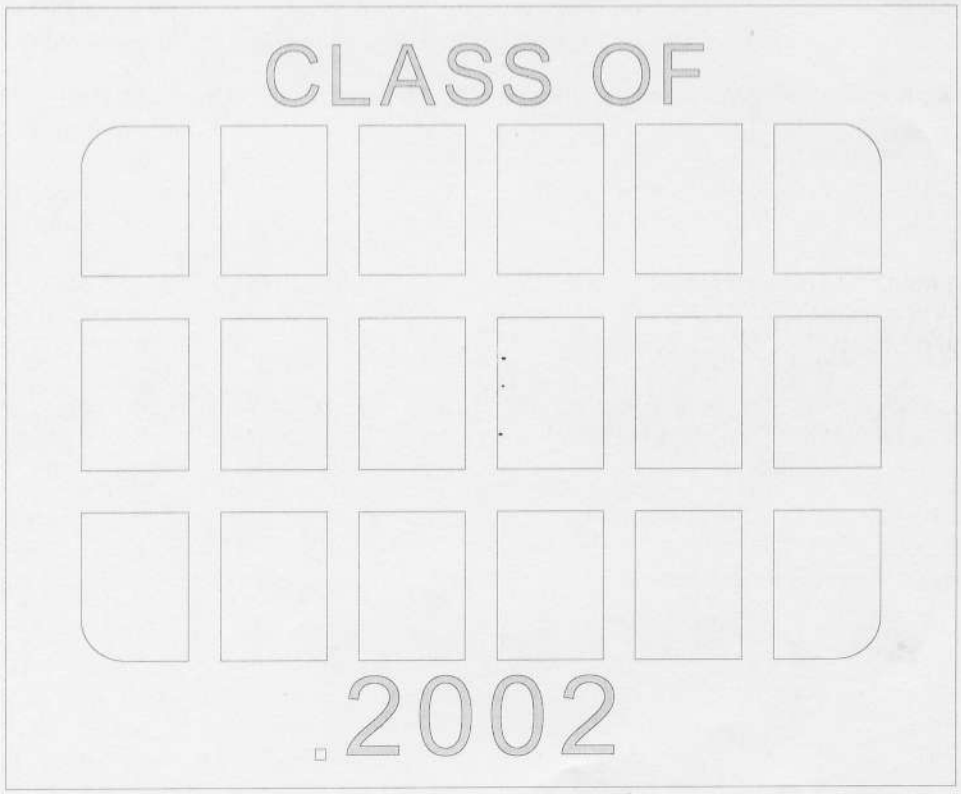
Click the Move/ Copy Tool at the left of the screen. Enter in the distance(s) horizontally and vertically you need to move the text in order to center it above the mat openings. You may use the visible grid line to aid you in aligning the text more accurately. (Moving right and up are positive [+] values, left and down are negative [-] values.)

Tip: Using small numerical increments (.25" or less), when Moving will make it easier to "fine tune" your design.

When the text is positioned to the desired location, click Properties on the toolbar, and select "Mat layer 3, Yellow". Then click Draw, Fence Off, or Ctrl + F to turn off the "Fence" feature. The text will then appear in yellow.
Now move the Control Box to the lower border of the mat, to the approximate insertion point for the next piece of text. Go back to the Text Input box, and type in "2002" in the top entry line, 2" for the letter Height, .45" for Kerning, and once again select the "Round" font. Click OK to finish.

Click the Move/ Copy button to fine tune the location of the "2002" text, as above. When it is located in its final position, press Ctrl + F to turn off the fence highlight. This will show the text in black, or Mat layer 1. Finish by re-saving the design to preserve your work.

Your design should appear as below:

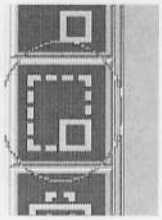


Adding Symbols; Scale, Rotate, and Mirror Tools

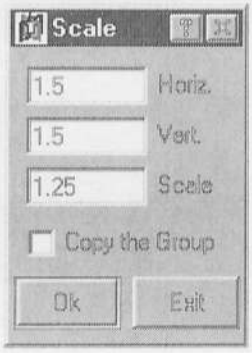
Next we will add a star "symbol" to each corner of the mat margin. Begin by placing the green control box to the lower-left corner of the mat. This is where the first star will be created. Click Symbols > Accents, and the Star. After the star appears in the lower left area of the mat, you may fine tune its location by using the Move tool. (see above)

Once the star is positioned in a desirable location, move the control box again so that it is centered inside of the star itself. We now want to enlarge the star slightly, so that it is bigger than the 1 x 1" default size. Click the Scale button, and enter 1.25 for the Scale factor. (Do not change the Horizontal or Vertical numbers). The star should then be 25% larger.

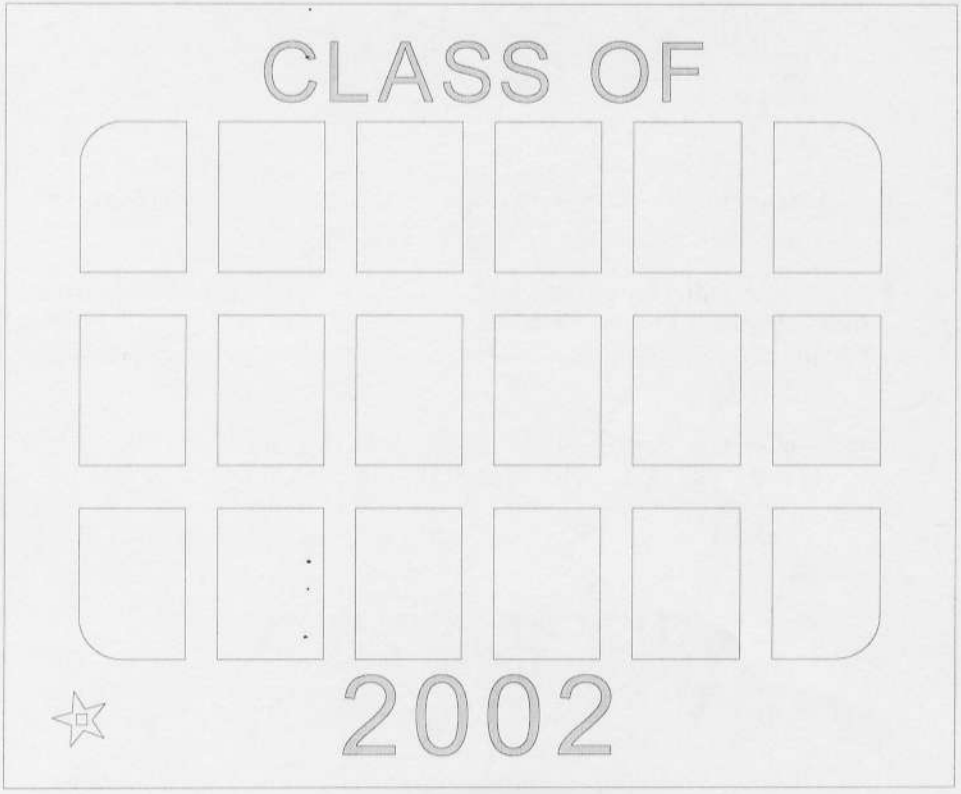
Now we will rotate the star slightly to give it a less "military" look. Click the Rotate button, keep the Horizontal and Vertical numbers the same, and enter 15 as the angle of rotation. Click Exit to close the Rotate box. The design will now look like this:

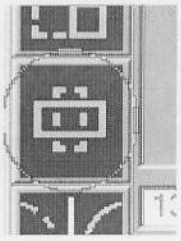


"Scale" button

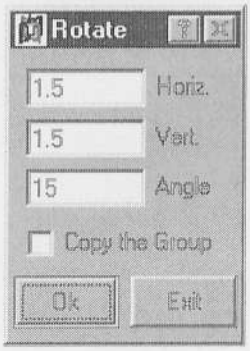


"Scale" entry box





"Rotate" button

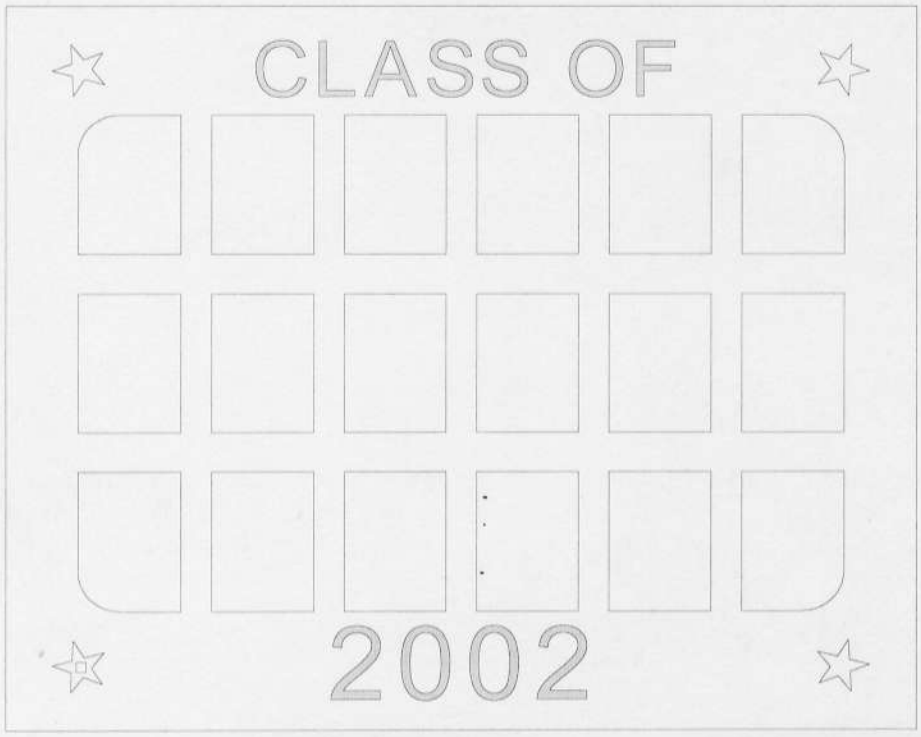


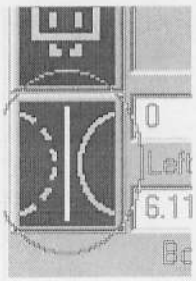
"Rotate" entry box

Note: Positive degree values will rotate *counter*-clockwise; Negative values rotate clockwise.

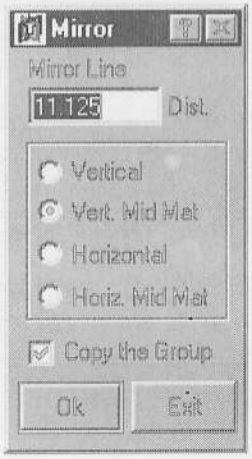
Now we will create a mirror copy of the star in the lower-right corner of the mat. To do this, click on the "Mirror" tool button. Select the "Vertical Mid-Mat" button, click the "Copy the Group" checkbox on, and click OK once. (Do NOT Exit yet!)
This will place a new star in the lower-right corner of the mat. Click now on "Horizontal Mid Mat", and click OK once again. This will place two new stars in the design, one in each upper corner.

Click again on Properties, and select "Mat layer 5 – Cyan". Then click Draw, Fence Off (Crtl + F), the view the stars in the proper color, cyan.
The design should appear as below:





Mirror tool button

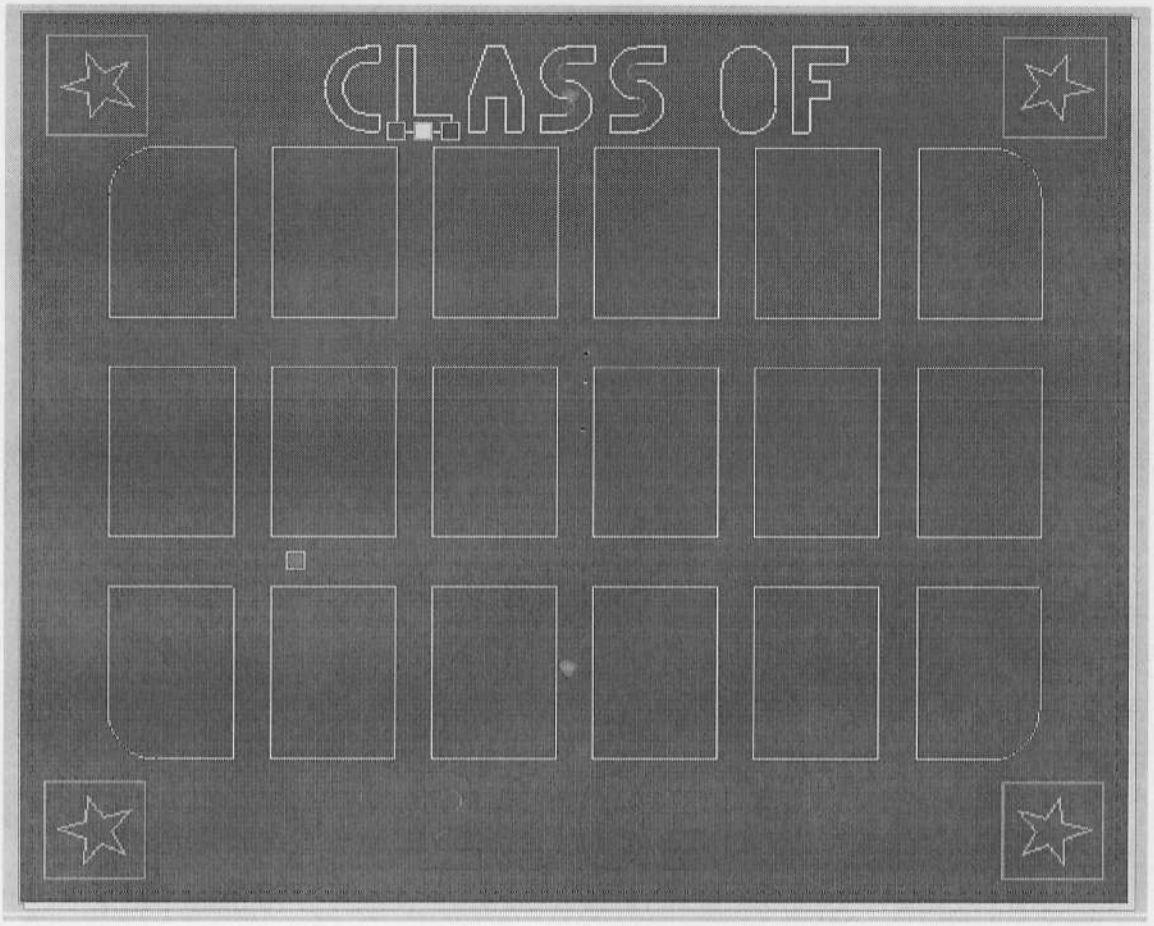


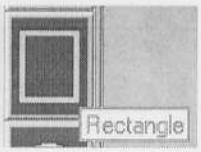
First mirror

Second mirror

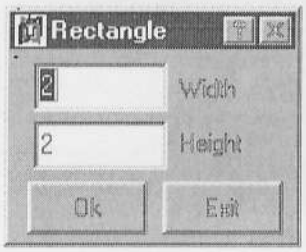
Mirror dialog box Mat Properties Box and Cut Screen

Let's say that you wanted to cut this mat, but decided to have a different color showing behind the star openings in the corners than behind the lettering. All you need to do is create a small cut out around each star, which will cut out of the back mat.





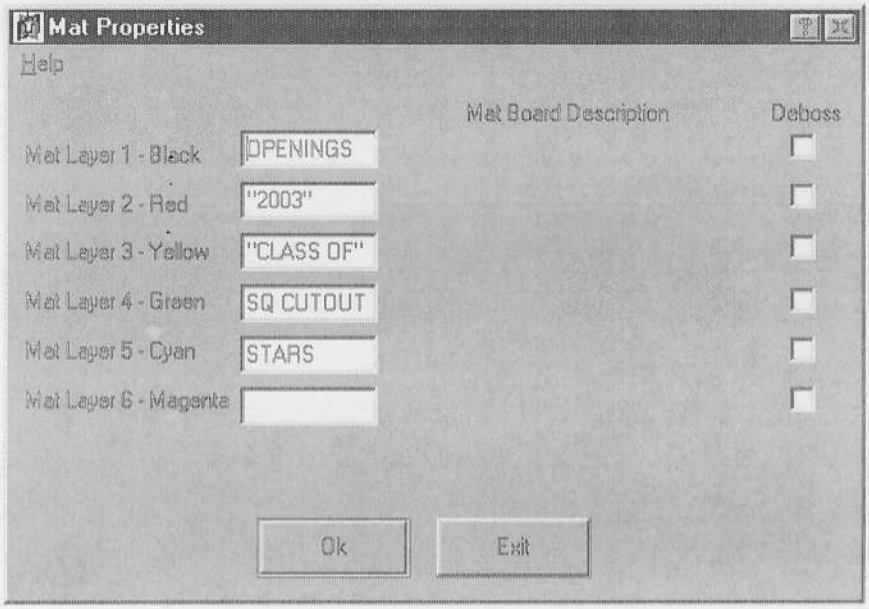
To create the four corner cut outs, just click the Rectangle tool button. The Rectangle data entry box will pop up. For this example, we can keep the size as a 2" x 2" square, and click OK.



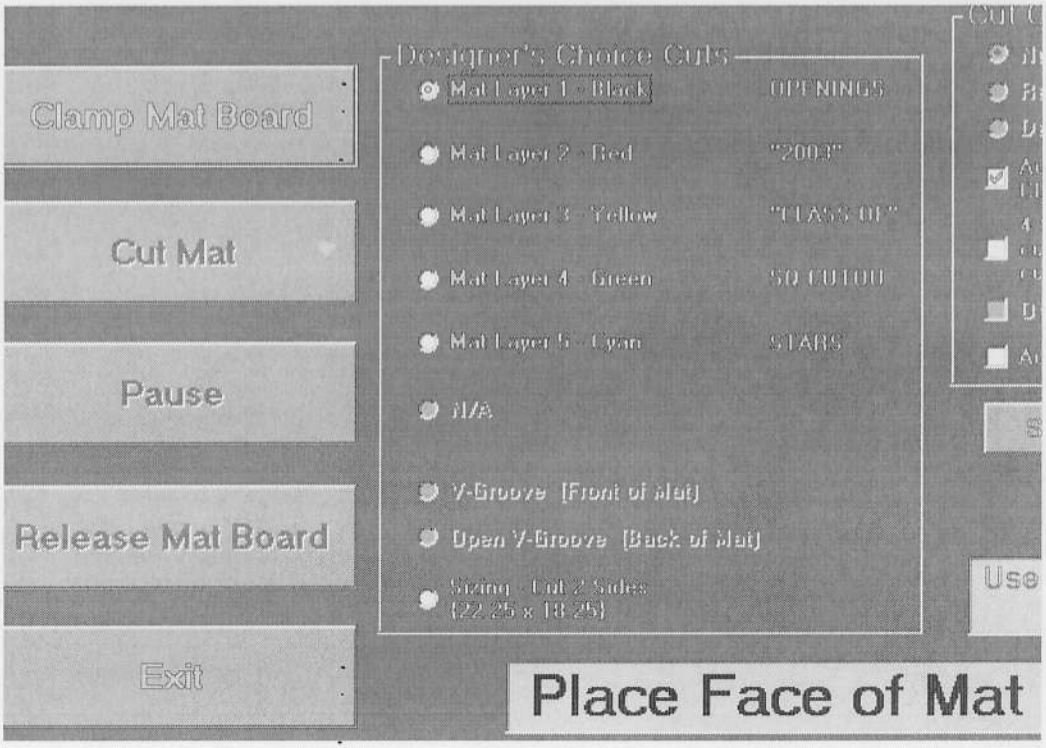
Click as close to the center of each star as possible to draw a square around each one. To finish, click the Entity Features for each square, and select Layer 4 to change it to the color green. This will allow you to choose when to cut the square corner openings once you are operating in the Cut Screen.

Now that your design has become so "colorful", it may be difficult to recall which color you have designated for which portion of the mat. To make it easier, you can type a short reminder note in the

Mat Properties box which will display in the cut screen later. To access this screen, click *Properties* on the toolbar, then "Mat Properties" from the drop-down menu.
As you can see, there is a text entry box for each of the six available mat layers ("Mat Board" will usually fill in the blank boxes), along with a "Deboss" checkbox in the right column.
Simply type a brief word or phrase in the appropriate box(es) to help remind you as to what each layer/color represents in your design, as shown here.



When you click "Cut" to enter into the Cut screen, you will then be able to see the reminders that you created for each of the layers of the design. This can help assure that you cut the correct piece of mat board for the corresponding layer/color in the design itself, and in the correct sequence.



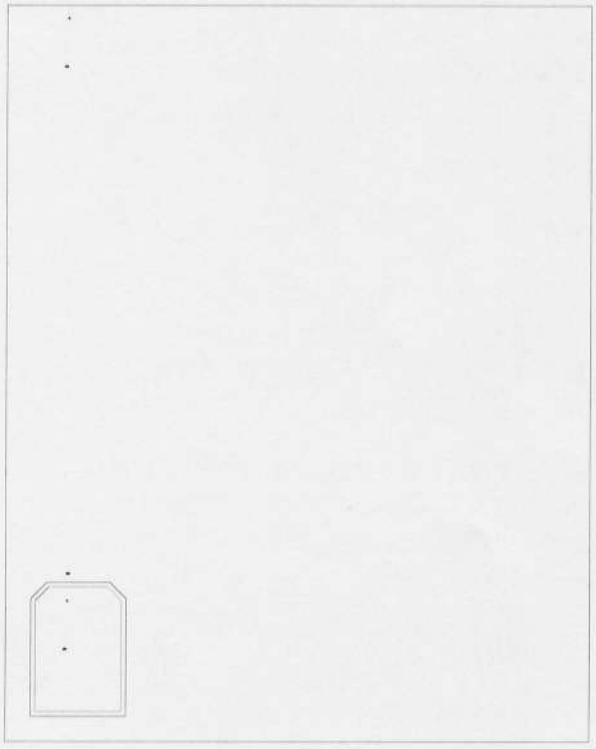
Cut Screen View

Creating Single and Multi-Opening Arrays

Since the Designer's Choice program will allow you to make copies of anything you have drawn or imported, you can create "arrays" of any design that you have created in either the Standard or Multi-opening screens. Below is an example of each.

Single-Opening Arrays

For this example, we will create an array of 8 x 10" mats, which will be cut from a full 32" X 40" sheet manually after the openings have been completed.
Begin in the Standard screen, and select pattern # 7, Slant Corner, Top Only. The Opening size will be 4.75" X 6.75", with borders of 1.625", and a "Slant Point" of .75". The mat size should be 8 X 10, and make it a double mat with a .25" bottom mat reveal. Save the pattern as "Array ex-1", then press F9 to convert the file to Designer's Choice format.
Click on the Designer's Choice button to open the program, then open the saved "Array ex-1.ffm" file. Click the Borders button and reduce the mat borders to .25" on all 4 sides. Since we will be cutting from a full sheet of mat, we will now enter an outer mat size of 32" wide X 40" high. The design should look like this so far:

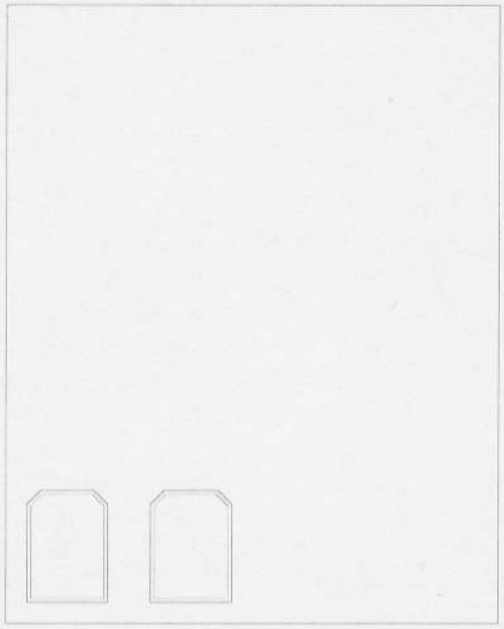


"Array ex-1"

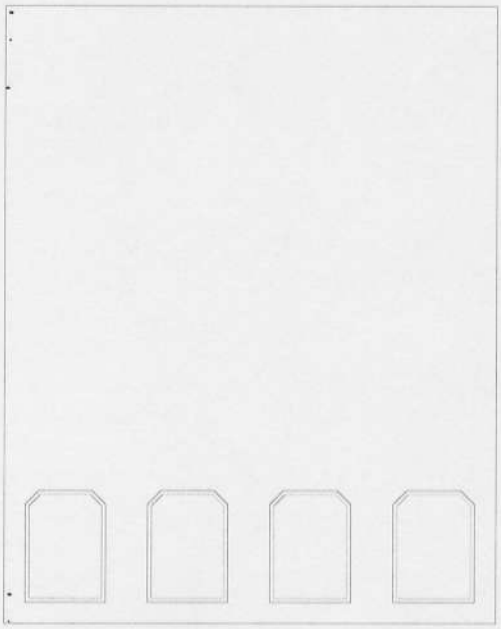
First we will need to Fence, or select, the opening entirely. The easiest way is to press Ctrl + A, for "Fence All". Now click the Move/ Copy tool, and enter a value of 8 for Horizontal, and 0 for Vertical. Click the "Copy the Group" checkbox, and click OK once (do NOT click Exit yet). This will create a copy of the initial opening 8" to the right. Now enter a Horizontal value of 16" to create a copy of both of the existing openings. Keep the Vertical # at 0, and click OK once again. This will give us a row of 4 openings along the bottom of the mat. (See below)

To create the 4 vertical columns of openings we'll need, first enter a Horizontal value of 0, and Vertical 10". Click OK again.
To complete the array, keep the Horizontal value at 0, and enter a Vertical value of 20". Click OK one last time, and exit the Move/ Copy dialog box. Turn off the Fence highlight (Ctrl + F), and save the final design.

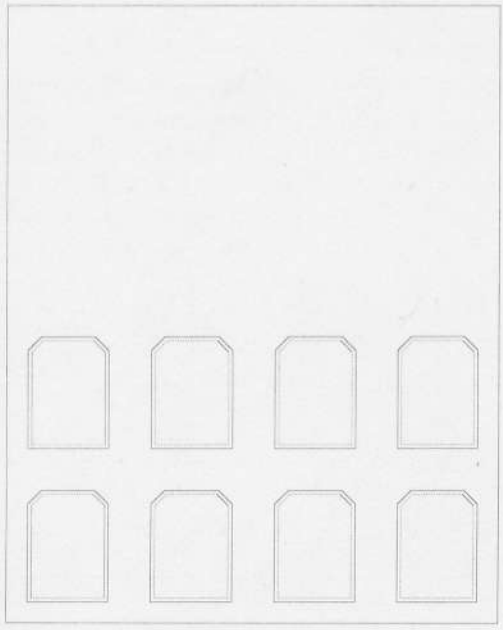
The array may then be cut in the same manner as a Multi-opening mat, then sized down to 8 x 10's manually. The diagrams below illustrate the appearance of the design after each Move/ Copy command:



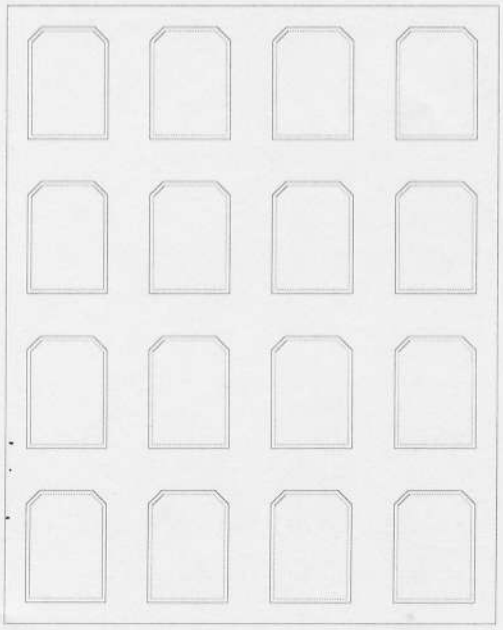
1st Copy (8, 0)



2nd Copy (16,0)



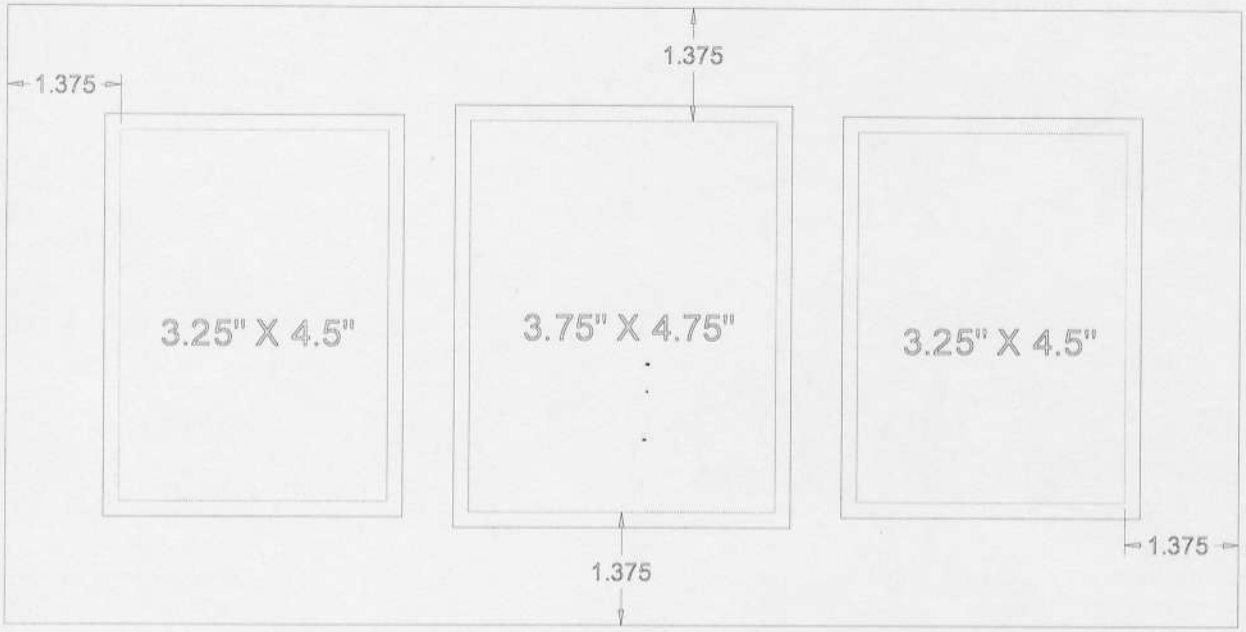
3rd Copy (0, 10)



4th Copy (0, 20)

Multiple Opening Arrays

It is also possible to create an array of Multi-opening patterns in much the same manner. Begin this time in the Multi-opening screen, and create the 3-opening layout below: (The mat size is 15" wide X 7.5" height.)



Save the design as "MO array 1", then save it again as a Designer's Choice file. (F9)

Go to the Designer's Choice program, and open the saved ".ffm" version of the file. As above, increase the mat size on screen to the full 32" X 40" sheet size. The three openings will be shown in the lower left region of the mat.

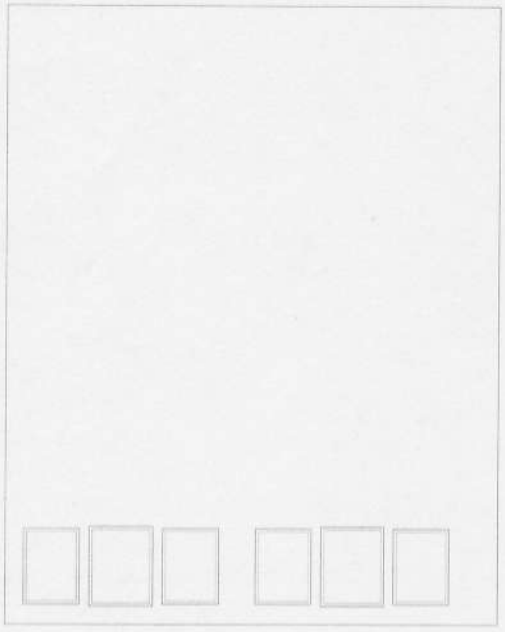
Fence all three openings by pressing Ctrl + A, for Fence All. Then click the Move/ Copy button again, and enter a Horizontal value of 15" (width of mat), and a Vertical of 0. Click the "Copy the Group" checkbox on, and click OK. This will produce two of the 3-opening patterns along the bottom edge of the mat.

Next enter 0 for the Horizontal move distance, and 7.5 (Ht. Of mat), for the Vertical. Click OK again to create another row of openings. Then change the Vertical distance to 15" (2 X 7.5" mat height), and click OK .

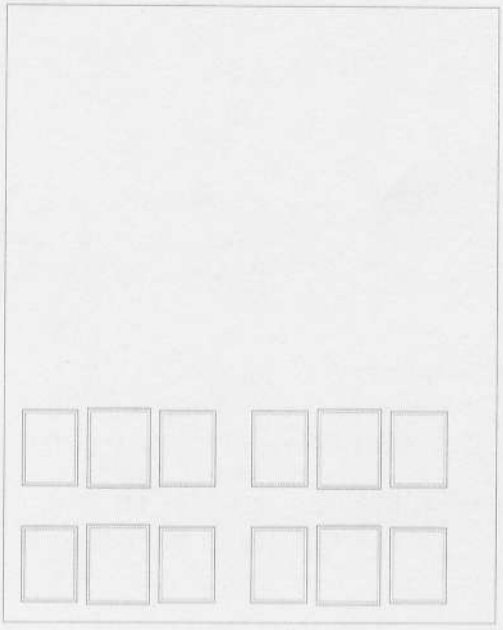
Since there is room at the top of your 32 X 40 sheet for just one more row of openings, you now need to fence only the top most row of existing openings. Do this by clicking Fence, and clicking with the mouse around the top row of openings.

To finish, click Move/ Copy once more, and enter a 0 for Horizontal, and 7.5" for Vertical, click the Copy checkbox on, and click OK. You may now manually size the mats on a F-3000 or other cutting machine. See diagrams below.

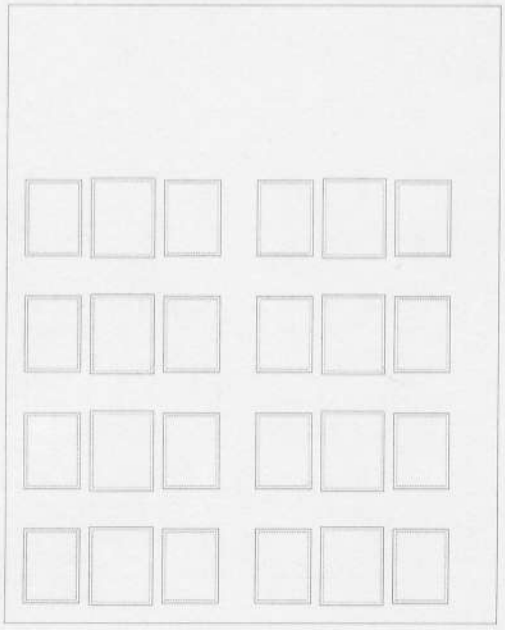
"MO Array 1" copying sequence



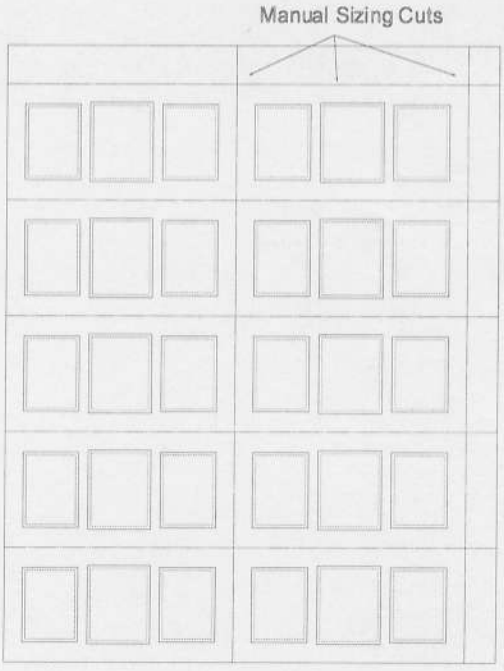
1st Copy (15,0)



2nd Copy (0,7.5)



3rd Copy (0,15)

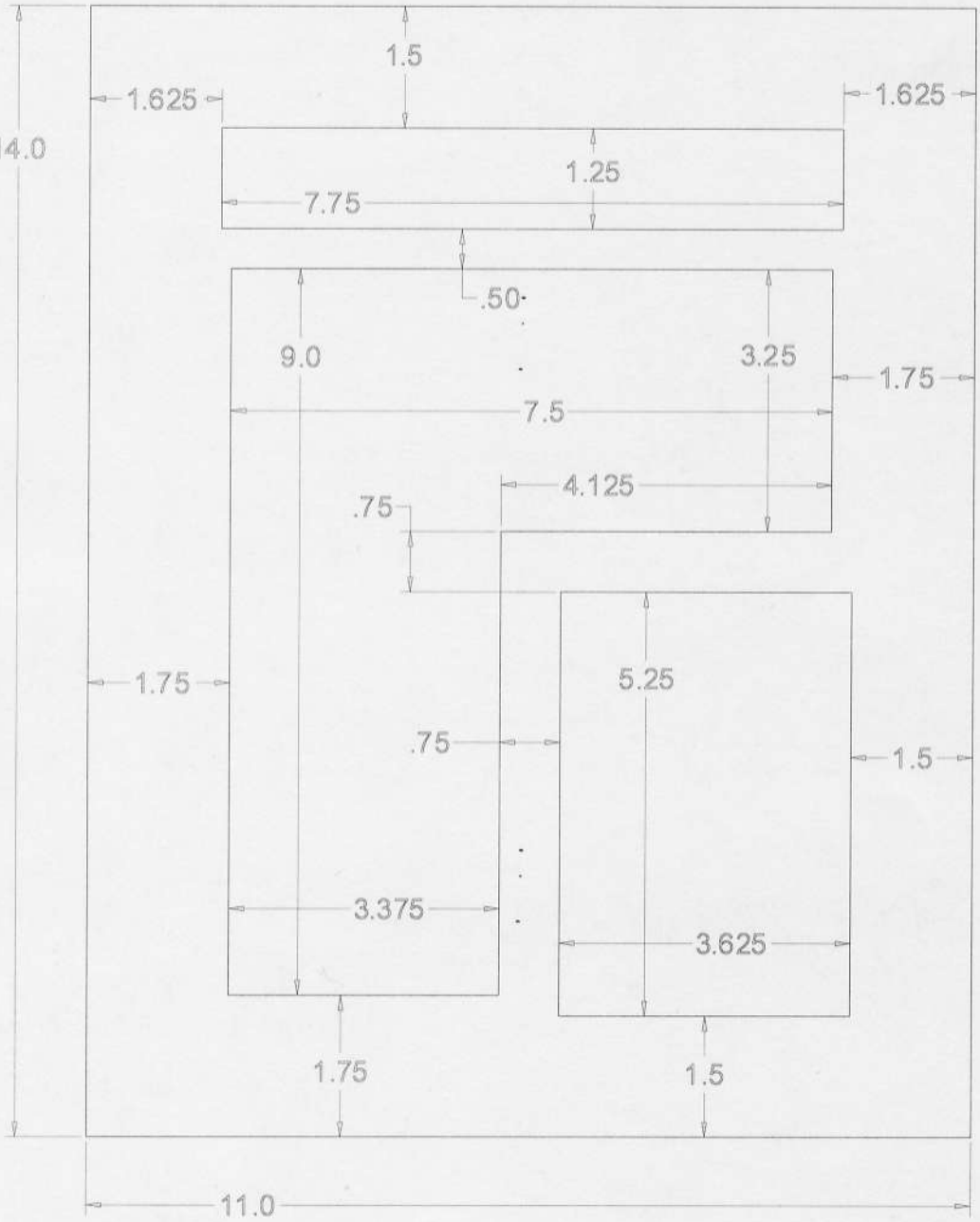


4th Copy (0,7.5)

Line Drawing and Merging

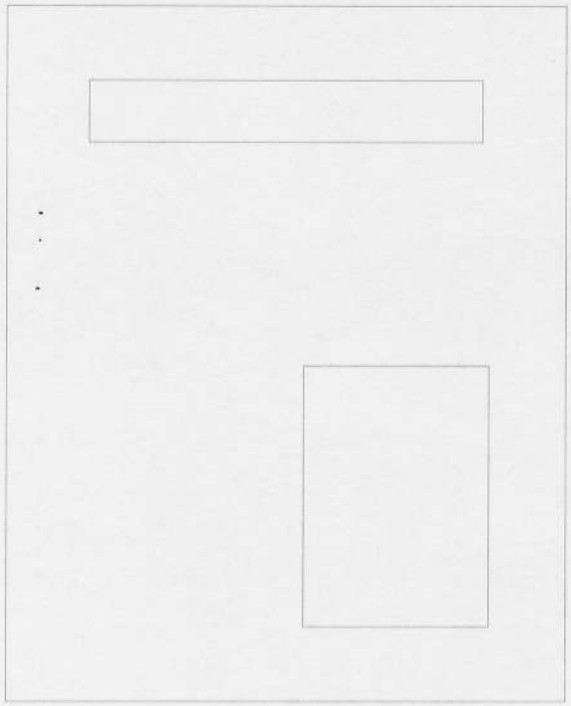
Occasionally you may need to cut a mat which has an irregular, "L" or "T"- shaped opening, for a newspaper article, etc., often combined with rectangular openings for headlines and photos. This example will cover one method of handling such a design.

Begin by sketching the layout of your mat openings and their respective dimensions. The diagram below is what we want the final design to look like:



The next step is to design the two rectangular openings in the Multi-opening program. Place the openings in the proper locations according to the layout diagram. Save the design as "News ex 1-MO", then save it again as a Designer's Choice file. (F9) This portion of the design will appear as below:

"News ex 1- MO"

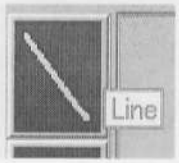


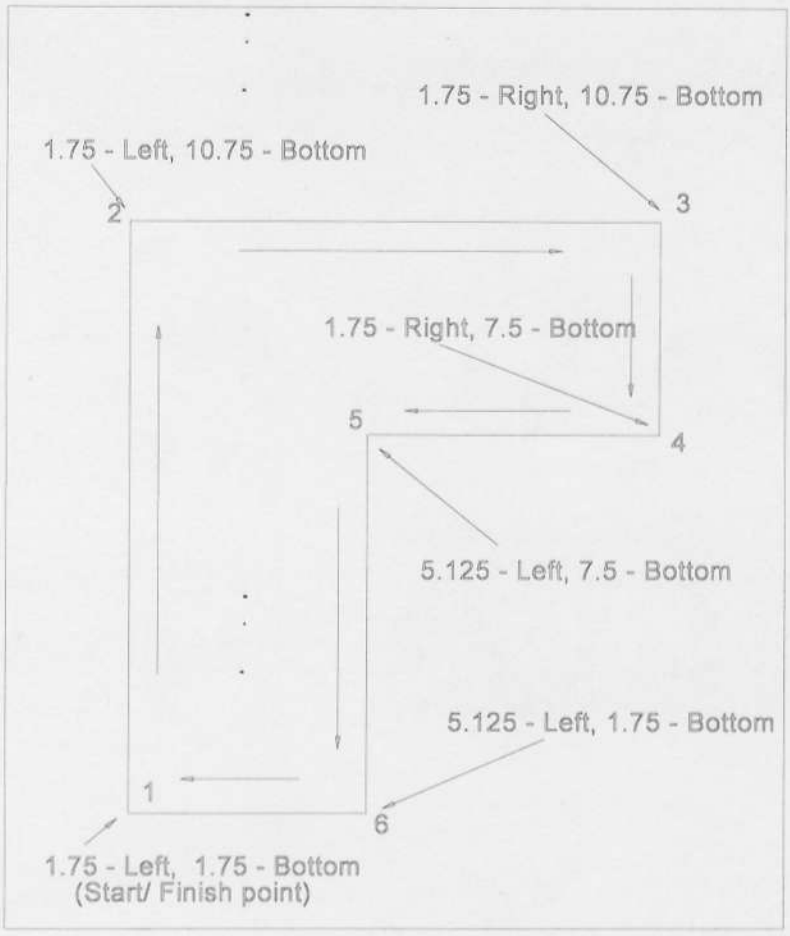
Now we can design the inverted L-shaped opening which contains the newspaper copy itself.
Go to the Designer's Choice screen, and create an outer mat size of 11" X 14". Click on Setup on the toolbar, and select Designer's Choice Setup. Change the "Increment" value to .125, and click Save Settings, and Exit. This will allow us to draw lines with the mouse more precisely, keeping the increment of movement to steps of 1/8".

Click the "Line" tool at the top left of the screen to begin drawing. Move the cursor to the lower left area of the mat, and click once when the cursor location (4 boxes at lower-left of screen area), is shown as 1.75 – Left side, and 1.75 – bottom. This will be the starting point of the first line. Now press the F7 key to lock the line into a horizontal or vertical orientation. Move the mouse upward, and click again when you have located the cursor at 10.75 – bottom (or 3.25 – top). The first vertical line will then appear. You don't have to be concerned with the right or left side numbers.

The command bar is now prompting you to "Pick Second Endpoint of Line". Move the mouse to the right 7.5", until the cursor location numbers read at 1.75 – Right Side, and click again. Continue downward 3.25" to the point 7.5 – bottom. Complete the opening by following each point as shown below, until you have reached the origin point of 1.75, 1.75. Click "Recalc" to terminate the line drawing.

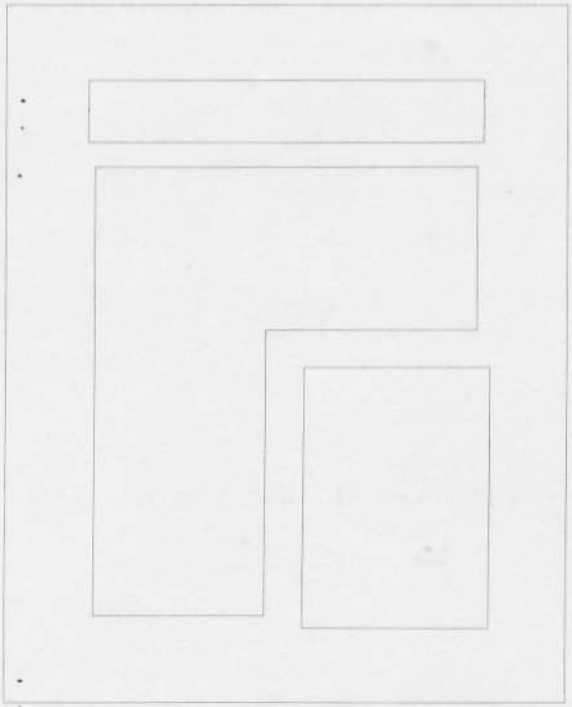
Tip: Always use the Horizontal / Vertical (F7) command whenever you need to draw perfectly horizontal or vertical lines.





"News ex 1- L"

Save the design as "News ex 1- L". Then click File, *Merge*, and find the Multi-opening portion of the design (News ex 1- MO). Select the file and click Open. The two rectangular openings will then appear on screen, highlighted in white (Fenced). Press Ctrl + F to turn off the Fence highlight, then save your final design, preferably with a new file name. The merged design is now ready to cut!



"News ex 1- merged"

Designing an Oversized Arch

On occasion you may need to cut an arch-shaped pattern (pattern #'s 21-25), which is taller than 40" overall. Since the maximum vertical mat dimension allowed is 40 inches, you will need to cut the design horizontally instead. Here's how to use Designer's Choice to do this.

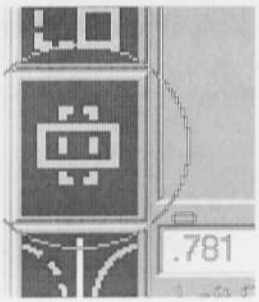
1. Begin by designing your mat in the Single-opening screen. For this example, we will select pattern # 21, Arch / Cathedral. The desired mat dimensions are:
   Mat opening: 10" width X 39" height; Borders: 3" all sides, Mat size: 16 wide X 45 height.

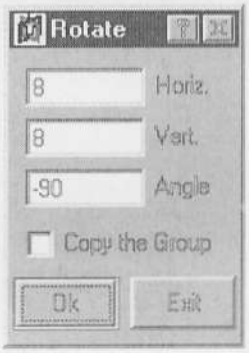
2. Since the maximum mat height allowed is 40", we will use that dimension for now. The mat opening height will be 34". Save the design as "Big arch 1", then save it again as a Designer's Choice file.

3. Open the Designer's Choice screen, and open the file we just saved. Now change the mat width dimension to the desired 45".

4. Click Draw, and "Fence All". This will fence the arch opening entirely. Click the Rotate tool button, and enter 8 – Horizontal, 8 – Vertical, and –90 for angle. Click OK once, and the opening should rotate 90 degrees clockwise. (Make sure you enter a minus – sign in front of the 90. Negative degrees rotate clockwise, positive degrees rotate counter-clockwise.)

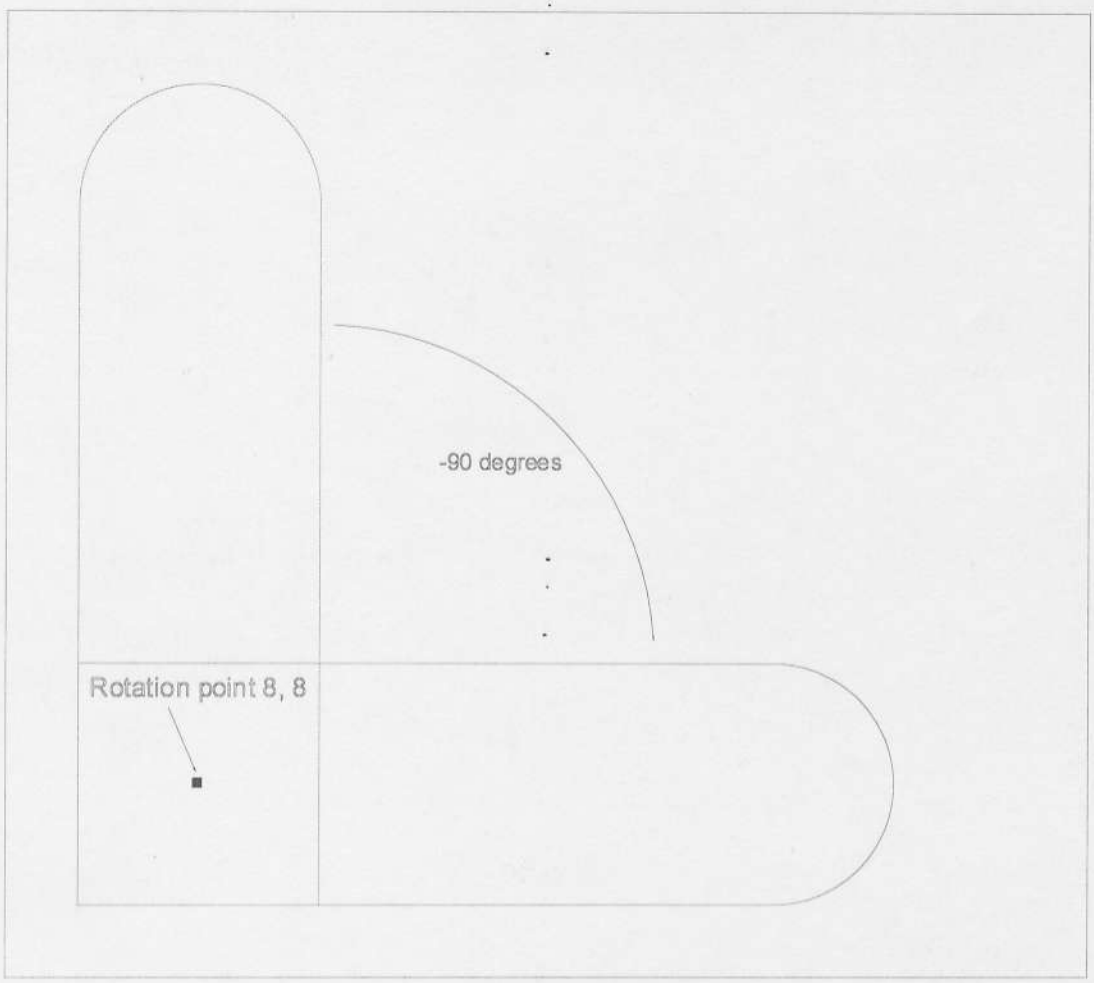
Rotate tool button and dialog box:

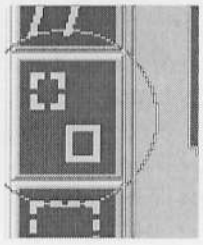




5. Exit the Rotate dialog box. Change the mat height to 16" to show the final desired mat dimensions. Save the design again (F6), to preserve the changes we've made so far.

Rotate, before and after:





Move Tool Button and dialog box

6. Click the Move tool button, and enter 5 for Horizontal, 0 for Vertical. Click OK once to move the entire opening to the right by 5". Exit the Move dialog box and turn off the Fence selection by clicking Draw, "Fence Off" (or Ctrl + F).

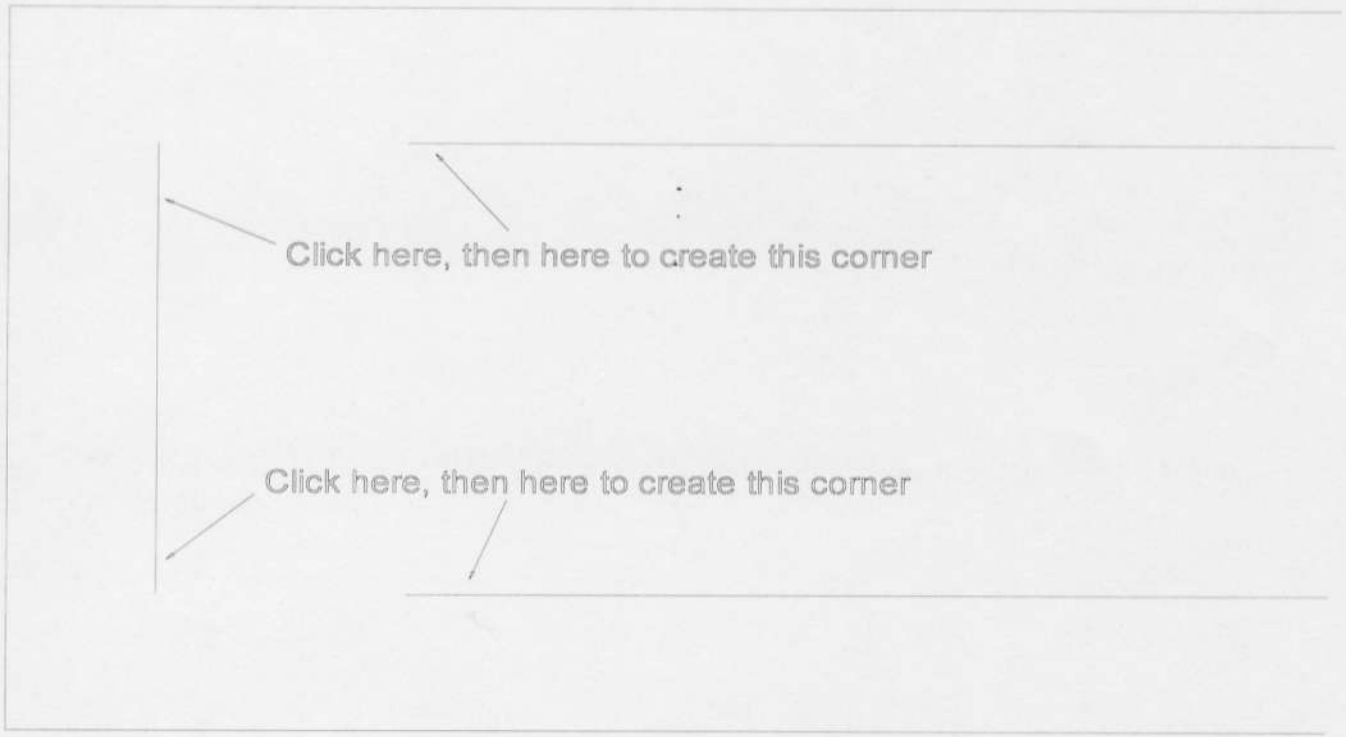
7. Click on vertical line which will be the base of the arch opening to select it. Click the Move button again, and move the line –5 horizontal, 0 vertical. This will move the line 5" left, back

to its previous location. If the design is a double (or more), layer mat, repeat this for both layers.

8. Zoom in on the left side of the mat design to get a better view. (Draw, "Zoom Window") Then click the "Fillet" tool button. Enter 0 in the box and click OK.

Fillet tool button and data entry box

9. Click on the horizontal and vertical lines as prompted to re-join them in a corner intersection. Repeat for all layers if it is a multiple layer mat. See diagram below.



10. Save the design again to preserve all changes. It is now ready to cut!

Importing .DXF Files

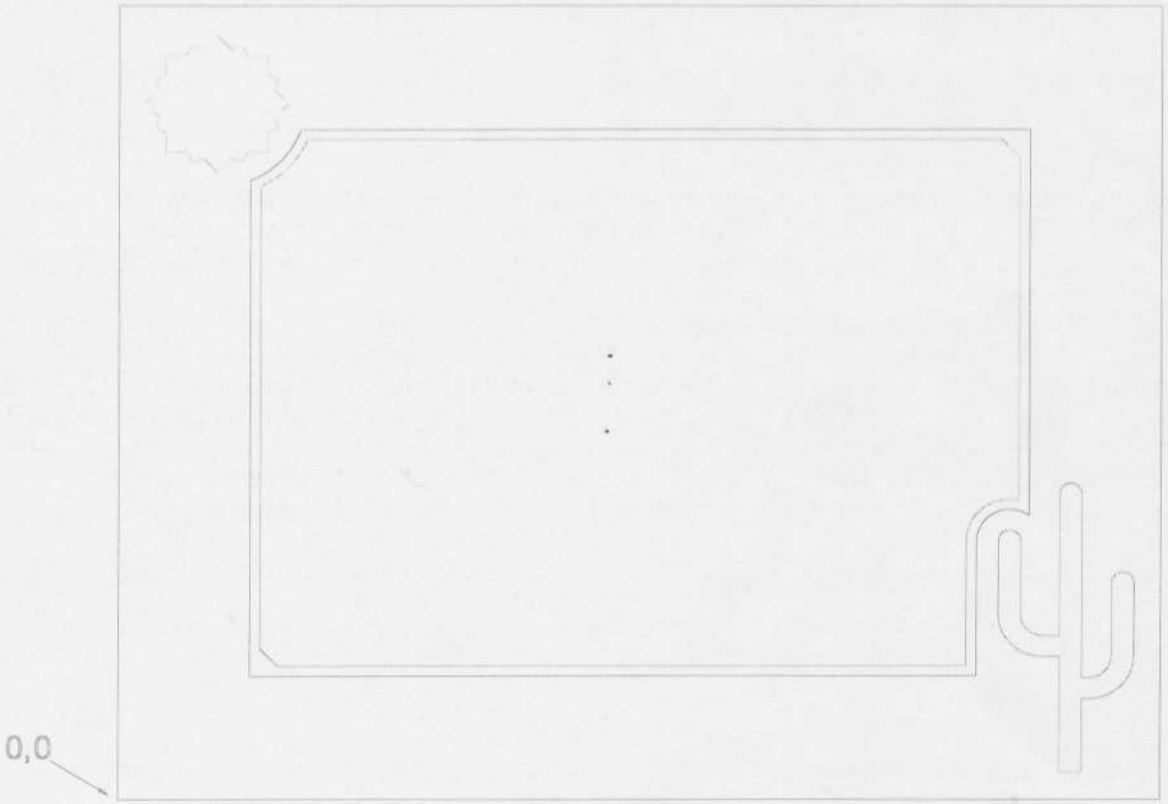
One of the most useful features of the Designer's Choice program is the ability to import .dxf, (Drawing Interchange), files. Nearly all CAD (Computer Aided Design), programs will allow both importing and exporting of the .dxf files format. The .DXF format was developed by the company which produces AutoCad, the industry-standard CAD program, in order to permit the exchange and sharing of drawings between other CAD programs.

If you are already familiar with AutoCad or another CAD software program, you may export virtually any drawing directly into Designer's Choice by using the "DXF Import" option in the File menu.
After you have completed and named your CAD drawing, you will need to save the design as a .DXF file within the CAD program itself. Save it to a 3.5" disk, and load the disk into the F-6100 PC's floppy drive.

In the Designer's Choice screen, it's usually best to enter the correct mat size dimensions *prior* to performing the import procedure. Then click File, DXF Import, select the appropriate drive and .dxf file name, and click Open.

The CAD-drawn file will appear on screen, completely highlighted in white, or *fenced*. If the design needs to be moved or modified *as a whole* in any way, now is the time to do it.
If not, turn off the Fence highlight (Ctrl + F), and then save the file to the hard drive as an .ffm file before proceeding further.

The design may then be cut as any other Designer's Choice file. Below is an example of a design created entirely in a CAD program and imported as a .dxf file.



Tips on CAD Drawing and Importing, etc.

- Always begin your drawing with a rectangle which represents the outside dimensions of the mat. Make sure that the lower-left corner of the rectangle is drawn at the origin X,Y coordinates of 0,0. (see above) This will ensure that when you import the drawing it will be located in the correct location on your mat area, and that the border and sizing dimensions will cut as intended.

- You may break up your design into discrete "layers" by drawing in different colors right in your CAD program. Try to draw in the color sequence in which you want the design elements to be cut on the mat itself. Keep in mind that the sequence of drawing colors in your CAD program may *not* be identical to the color/ mat layer sequence in Designer's Choice, i.e.: Mat 1 – black, Mat 2 – red, Mat 3 – yellow, and so on.

- Not every type of drawing entity which can be created in a CAD program can be converted to a usable mat design by the .DXF file format. Ellipses and elliptical arcs will be converted to a series of smaller circular arcs, and may result in either a jerky cut movement or a file which is not readable at all. Spline curve and Bezier type entities will usually be converted to Polylines, or very short line segments, resulting in very jerky cut movements and a ragged-looking cut.

- Polygon entities (pentagon, hexagon, etc.), may need to be "exploded" in the CAD program prior to the .dxf conversion. If you import a .dxf file and portions of the drawing are missing when they are imported to Designer's Choice, check to make sure that polygonal entities have been exploded prior to saving the file as a .dxf format.

- **Make sure that your drawing is "clean"!** Join all line-to-line, line-to-arc, and arc-to-arc intersections with the CAD "fillet" or corner-creating tool. Also verify that there are no duplicate entities (lines or arcs), inadvertently superimposed on top of each other. Gaps in intersections or duplicate entities will often result in a "Cut Routine Aborted" error message when attempting to cut. If the machine produces an unexpected reverse-bevel cut on just a portion of an opening, this may also be the cause.

- To produce smooth arc-line and arc-arc cut transitions, you may splice smaller arcs between them with the radius corner tool in the CAD program. It's also a good idea to increase the Angular Tolerance value in Designer's Choice Setup to the maximum of 10 degrees. This will help forgive minor drawing errors and minimize the lifting up of the cutting head during cutting, resulting in a cleaner looking cut.

- **IMPORTANT!!!** Whenever you click the Cut command in Designers Choice, a "Cut" file is created by the program. The Cut file is a set of instructions to the F-6100 machine on how to actually cut the design you have drawn. If you watch the prompt window in the lower right of the during cut file creation, you'll see the program counting entities and openings of your design.
  If you are cutting a design that you have cut previously with the same file name, the software will pop up a box asking "Do you want to use the existing Cut file?" If you have not made any changes to your design, and want to save the time (often several minutes), it may take to re-create a new cut file, click "Yes". If you have made any modifications to your design at all, and you want those designs to be produced in the mat, click "No". Otherwise, the machine will use the same set of instructions from the last time you cut that design, giving you unwanted results.
  The safest method is to save your modified design with a slightly different file name each time you make a change. The program will then automatically create a new Cut file for the design.

Designer's Choice Setup Glossary

Pickbox: The Pickbox is the size of the "footprint" of the mouse crosshair cursor. A large pickbox will make it easy to click on an entity (>.05"), but will make it difficult to click on and select a desired entity when it is in close proximity to another entity. The default pickbox size is .05, but a more usable pickbox value for most applications is somewhat smaller, .02 -.03".

Positional Tolerance: Positional Tolerance is the amount of error allowed by the program when drawing. The default Positional Tolerance is .005". If for instance a gap between entities of greater than this value is left in the drawing, the program will not allow the Cut File to be created, or will result in an undesired, partial reverse-bevel effect. Increasing the Positional Tolerance value will allow minor drawing errors to be ignored by the program during Cut File creation.

Smallest Radius: The Smallest Radius (default 0.5") is the minimum ***suggested*** radius (round corner or curve), recommended for optimum cut quality of a drawing. The *actual* minimum value allowed by the Designer's Choice program is much smaller, ~.125", and the minimum Smallest Radius value that may be entered in Setup is .25" (recommended). Any radius in your drawing which is smaller than the Smallest Radius value will appear in gold on screen. This is simply a visual warning that ideal cut quality may not be attainable with a radius of that size. Cut quality of radial cuts will be determined by a number of factors, including mat type/ thickness, and the portion of a full circle which is being attempted. In general, the smaller the number of degrees of turn, the smaller the radius that can still be cut with acceptable results.

Workfile Size: The maximum number of entities allowed in a given drawing file. The current maximum workfile size is 1000 entities, which is also the default Workfile Size value.

Increment: The Increment value is the same as a "snap to grid" increment, in that movements of the mouse cursor are limited to steps of this distance. (Default 0.1") Increasing the Increment value will permit you to draw lines and arcs to a desired dimension with much less manual dexterity required. Decreasing the Increment value will allow less constrained drawing of entities. Note that the cursor location numbers in the lower-left corner of the Designer's Choice screen (Left, Right, Top and Bottom sides), will change in steps of this Increment value.

Angular Tolerance: The Angular Tolerance value designates the degree of angular change between entities which is permitted in a drawing. If an intersection between two entities is less than the Angular Tolerance value, the cutting head will keep the blade plunged into the mat and continue cutting the next entity. If you find the cutting head lifting out of the mat and re-plunging at certain points, particularly arc-arc transitions, you may increase the Angular Tolerance value to help produce a smoother cut. (maximum value is 10 degrees)

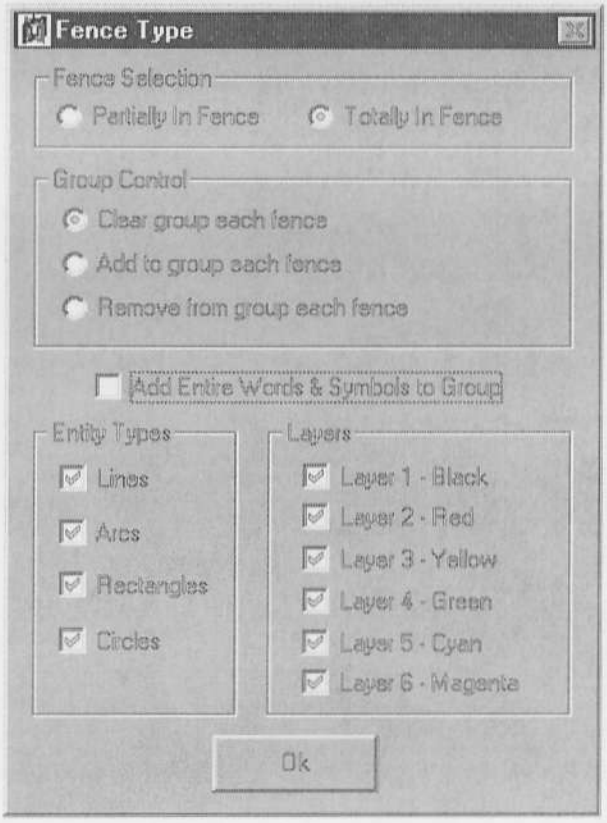
Grid Spacing: Sets the size of the visible grid on the drawing screen. For example, Grid Spacing of 1" (default) will show a white dotted-line grid of squares 1" X 1" in size. (Tip: pressing Ctrl + G will toggle between "Grid On" and "Grid Off" states.)

Smallest Entity: The smallest size entity permitted in a drawing. (default 0.01") Any entities smaller than this size which are left in the drawing when the Cut File is created will be automatically deleted, and will not be cut.

Delete Duplicate Entities: (Checkbox) Leaving this option checked on will automatically delete any entities which may have been inadvertently drawn superimposed on top of other, identical entities when the Cut file is created. In certain circumstances, leaving this checkbox off will allow you to cut twice over the same entity in order to achieve a specific desired cut effect.

Fence Options and Definitions

** Fence Type dialog box is accessed by right-clicking the Fence button. Default Fence options are shown selected at right.*



Fence Selection

Partially in Fence: Entities will be selected ("Fenced"), when the rectangular area described by two diagonally opposed clicks encloses *any portion* of the desired entity or entities.

Totally in Fence: Entities will be selected only when the rectangular area described by two diagonally opposed clicks entirely encloses the desired entity or group of entities. (default)

Group Control

Clear group each fence: Previously fenced entities will be cleared, and a new fenced group created each time that Fence is clicked and two diagonally opposed clicks are executed. (default setting)

Add to group each fence: Previously selected entities will remain fenced, and subsequently selected entities will be added to the selected group.

Remove from group each fence: Previously selected entities will be de-selected ("unfenced"), with each Fence command.

Add Entire Words & Symbols to Group (check box) : Entire lines of text or clip art Symbols will be selected when *any* portion of that entity group is fenced.

Entity Types; Lines, Arcs, Rectangles, Circles: Types of entities may be included or excluded from fence selection by clicking checkbox on or off.

Layers; 1 – 6, (by color): Layer(s) [colors], in the drawing may be included or excluded from fence selection by clicking the corresponding checkbox(es) on or off.