

# Design-To-Cut® Guide

Chapter 1: Software Installation	2
Chapter 2: Accessing Design-To-Cut® from OMAX® Layout.	8
Chapter 3: Applications using Design-To-Cut®	17
Chapter 4: Corner Options	18
Chapter 5: Samples, Discussion	21
Chapter 6: Import and Export File Facts	27
Chapter 7: System Requirements	28
Appendix A: Design-To-Cut version 1.04, update notes	29
[More Options] button on progress bar; Square corners;	
Applications / Illustrations;	

## Chapter 1: Software Installation

Double-click file “Setup\_D2C\_B.exe” to begin installation of Design-To-Cut® software on your computer.

A small prompt will appear,



Click “OK” if you want to proceed with the installation.

Next, the WinZip® Self-Extractor will appear. Click “Setup” to continue with installation or “Cancel” to stop the installation and exit.



Please read the next prompt and press “OK” if you are ready to continue.



Continued next page..

Click the installation icon on this form to begin installing required system and program files to your computer.



At the end of a successful installation, this prompt will appear.



If this prompt is not displayed, and instead an error is indicated, please try the installation from the start and make sure you are not running other software that poses a conflict during the installation of Design-To-Cut (i.e. make sure you have exited other applications). If problems persist, please contact your distributor's support department for help in trouble-shooting your situation.

Continued next page..

If the installation has been successful to this stage, the Design-To-Cut registration form will appear.

**Registration**

**Design-To-Cut**  
by LC Strategies

### Software License Agreement

Please read this entire agreement before continuing.

If you do not accept the terms stated in this agreement, do not install this software and press [Cancel].

If you accept the terms of this agreement, check the option, 'I agree to the terms stated in this Software License Agreement' and press [Next].

This is a legal agreement between you, the SOFTWARE end user, and LC Strategies, LLC. By installing this software you are agreeing to be bound by the terms of this agreement.

I ACCEPT the terms stated in this Software License Agreement

Select type of registration

- Permanent Registration: Design-To-Cut [Plug-in]
- Permanent Registration: Design-To-Cut [Plus]
- 30-day Trial Registration
- Temporary Registration

Cancel      Next

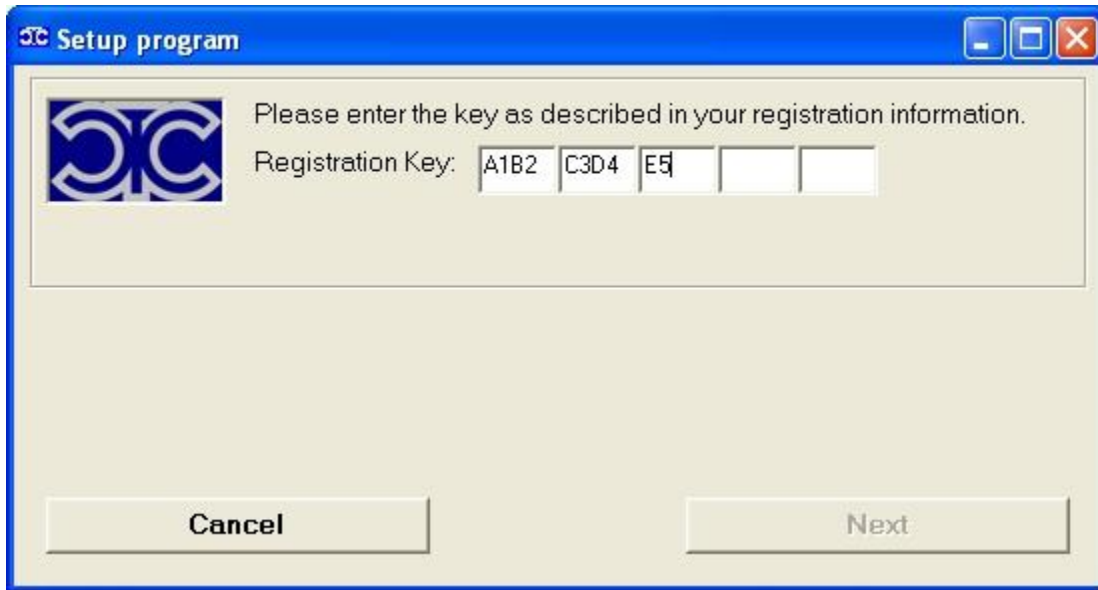
Please read the entire Software License Agreement that is displayed. Scroll down to view the entire agreement. A copy of the Software License Agreement is included at the end of this chapter.

If you agree with the terms stated within, check/click the checkbox to acknowledge this, and click “Next” to continue with registration, or click “Cancel” to stop the installation and exit.

If you wish to proceed, select the type of registration you want. The form above shows that the option for “30-day Trial Registration” is selected.

Continued next page..

The form for entering a '30-day Trial Registration' key for Design-To-Cut (plug-in):



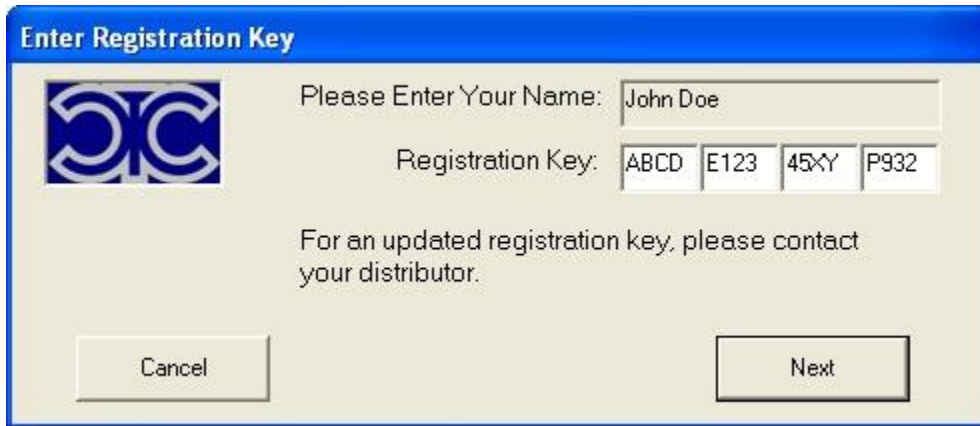
Setup program

Please enter the key as described in your registration information.

Registration Key: A1B2 C3D4 E5

Cancel Next

The form for entering "Permanent Registration: Design-To-Cut (plug-in):



Enter Registration Key

Please Enter Your Name: John Doe

Registration Key: ABCD E123 45XY P932

For an updated registration key, please contact your distributor.

Cancel Next

With this form, enter your name (i.e. name of the registered owner of the software license), and the 16-digit activation key.

Continued next page..

NOTE: when installing updates at a later time, if your registration is valid, you won't have to enter your registration again, and this form will appear:



See the next chapter for how to access Design-To-Cut.

## The Design-To-Cut® Software License Agreement:

Please read this entire agreement before continuing.

If you do not accept the terms stated in this agreement, do not install this software and press [Exit].

If you accept the terms of this agreement, check the option, 'I agree to the terms stated in this Software License Agreement' and press [Continue].

This is a legal agreement between you, the SOFTWARE end user and LC Strategies, LLC. By installing this software you are agreeing to be bound by the terms of this agreement.

1. GRANT OF LICENSE. LC Strategies, L.L.C. grants to you the right to use one copy of the enclosed SOFTWARE program.

2. COPYRIGHT. This SOFTWARE Copyright is owned by LC Strategies, L.L.C. and is protected by United States copyright laws and international treaty provisions.

3. OTHER RESTRICTIONS. You may not reverse engineer, decompile, or disassemble the SOFTWARE.

LIMITED WARRANTY. LC Strategies, L.L.C. warrants that this SOFTWARE will perform substantially in accordance with the accompanying documentation.

CUSTOMER REMEDIES. LC Strategies, L.L.C. entire liability and your exclusive remedy is repair or replacement of the SOFTWARE that does not meet LC Strategies, L.L.C. Limited Warranty. This Limited Warranty is void if failure of the SOFTWARE has resulted from accident or abuse.

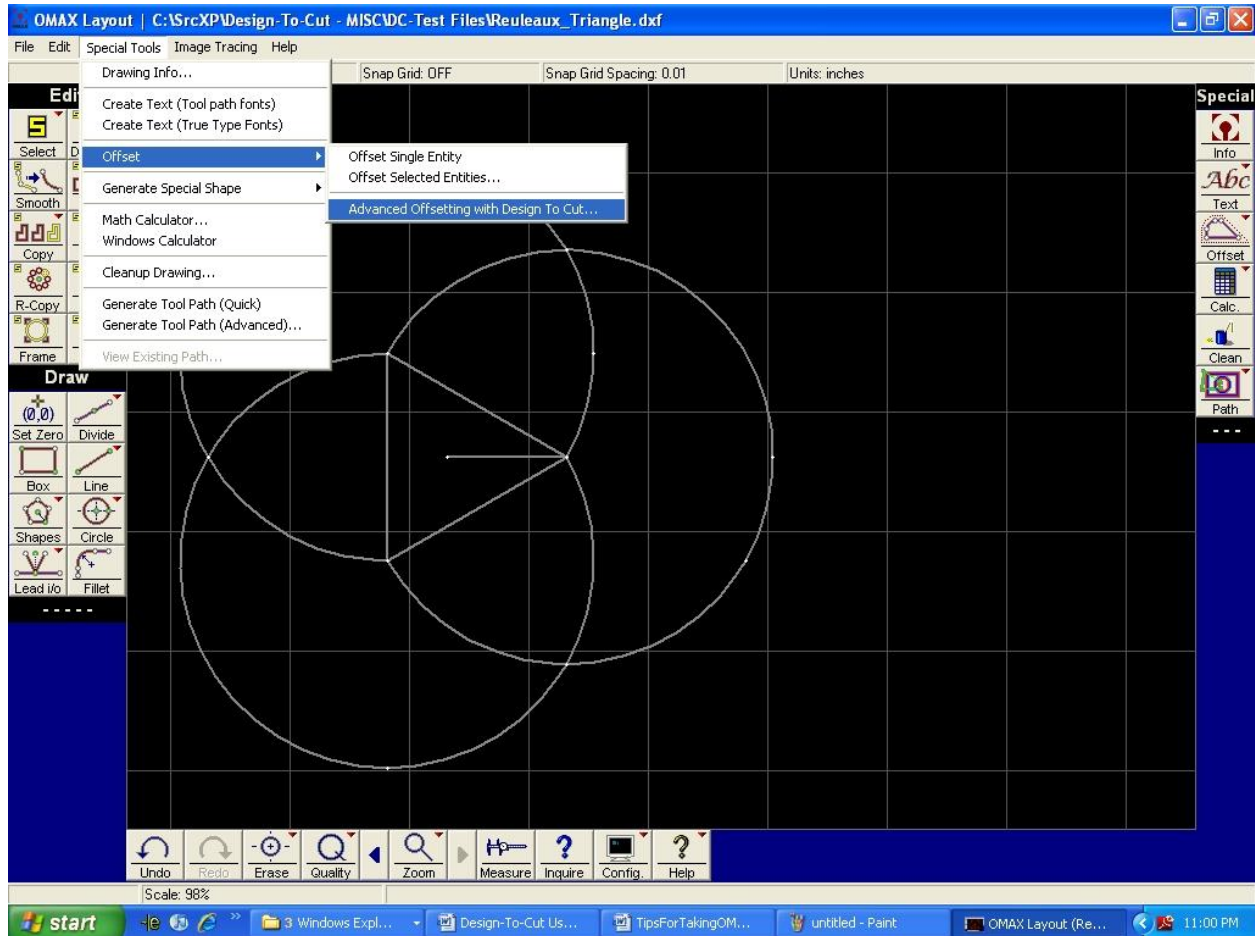
Any replacement SOFTWARE will be furnished at the discretion of LC Strategies, L.L.C.

NO OTHER WARRANTIES. LC Strategies, L.L.C. disclaims all other warranties, either express or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the SOFTWARE and the included written materials.

NO LIABILITY FOR CONSEQUENTIAL DAMAGES. In no event shall LC Strategies, L.L.C. or its suppliers or its dealers be liable for any damages whatsoever (including without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or inability to use this LC Strategies, L.L.C. product, even if LC Strategies, L.L.C. has been advised of the possibility of such damages.

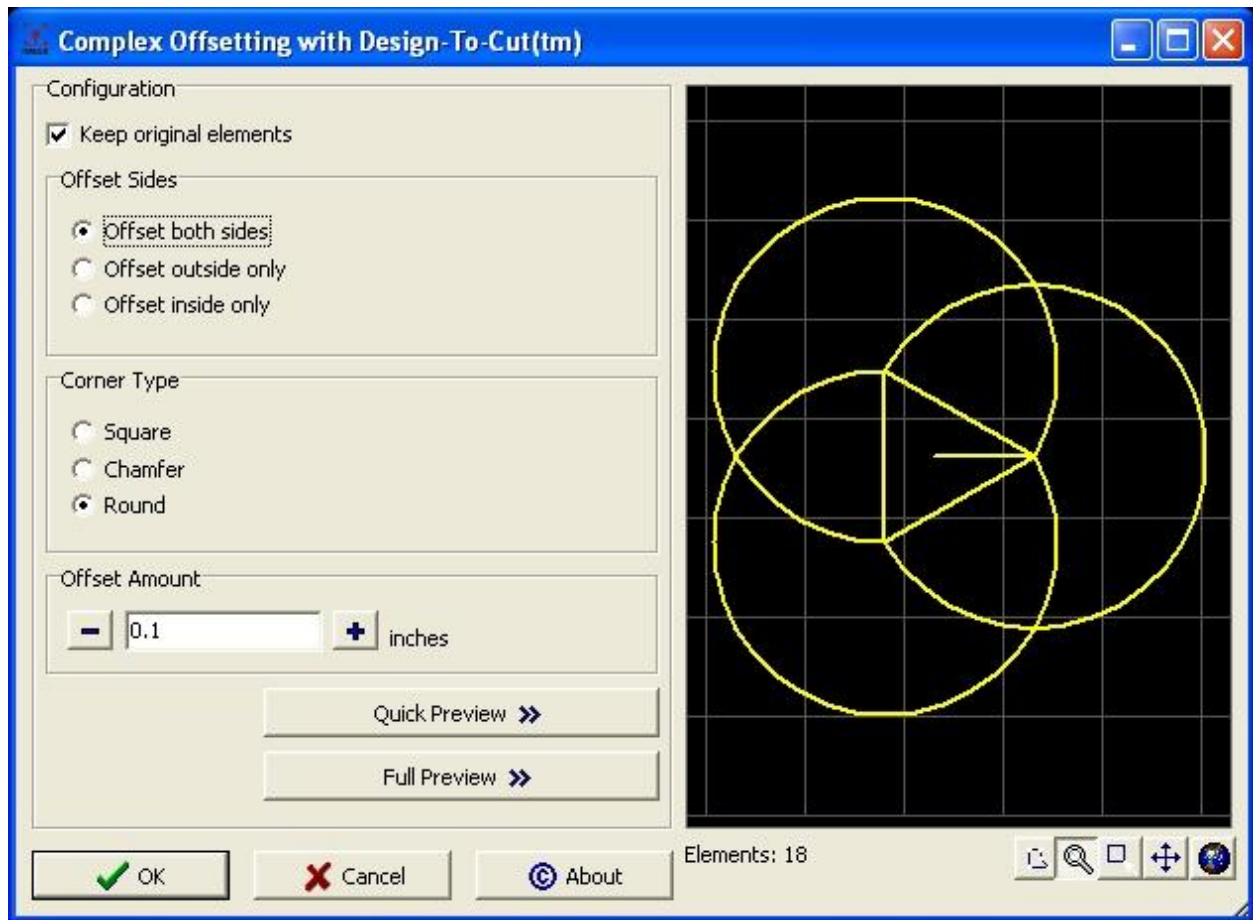
## Chapter 2: Accessing Design-To-Cut from OMAX Layout™.

With your image displayed in OMAX Layout, select the “Special Tools” pulldown menu. From that menu, select “Offset” > “Advanced Offsetting with Design To Cut”.



Continued next page..

Layout's form for accessing Design-To-Cut:

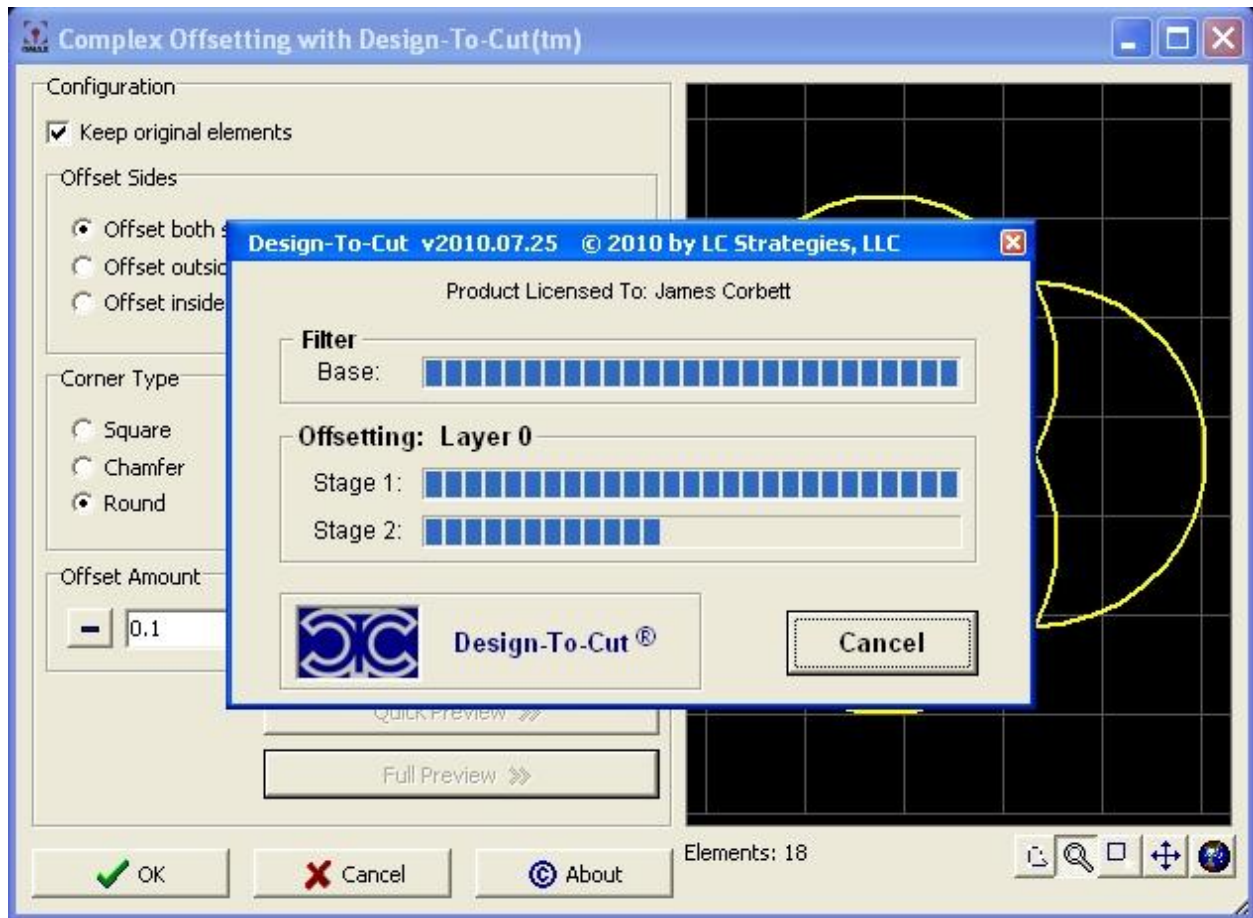


Here, we've selected to offset to both sides of this outline, 0.1 inches (total width of columns will be 0.2"), with Rounded corners.

When satisfied with the offsetting setup, click "Quick Preview" to generate offsets without exiting this form, or press "OK" to generate the offsets and exit the form.

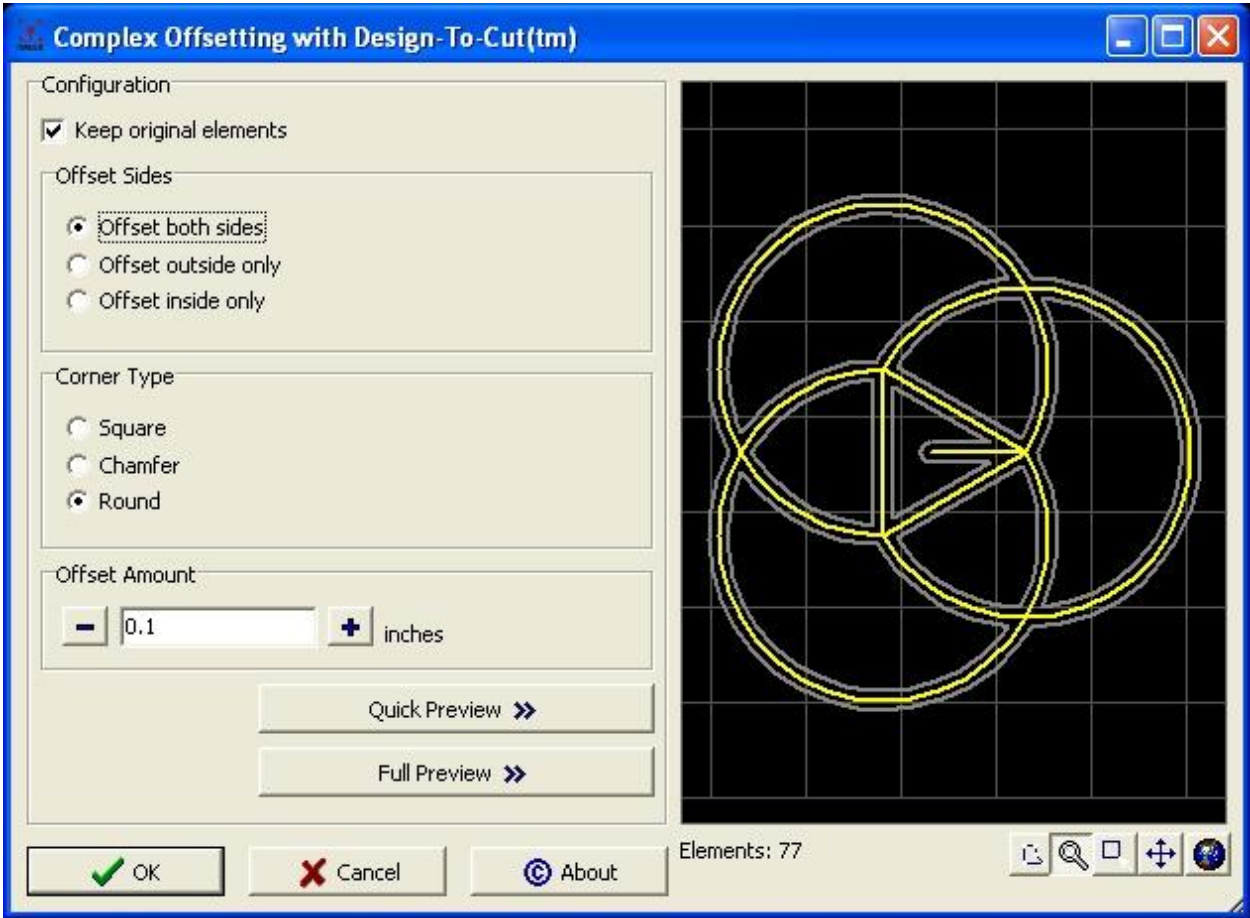
Continued next page..

Design-To-Cut will generate the offsets as specified. Press "Cancel" if you wish to interrupt the process.



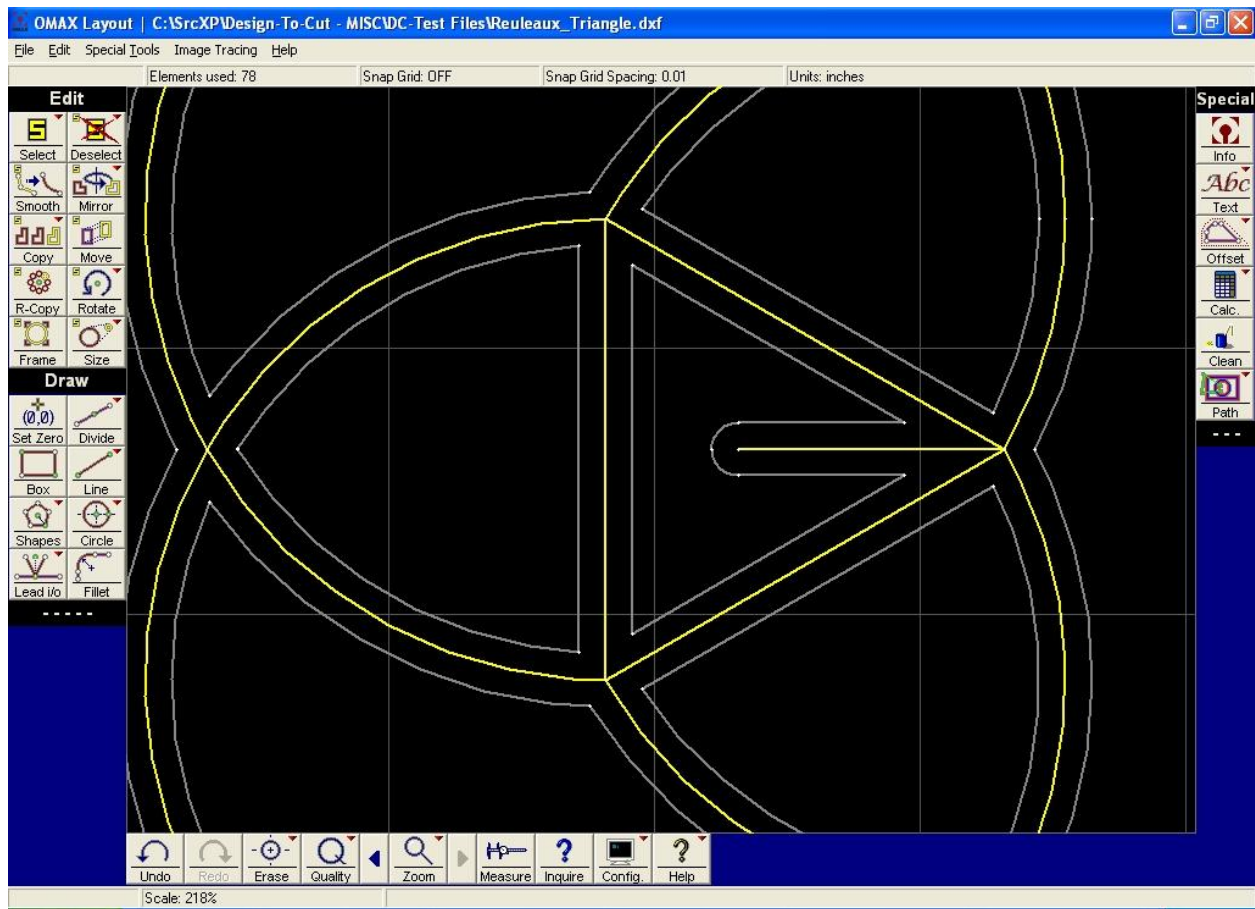
Continued next page..

Results will then be shown in the Preview window.



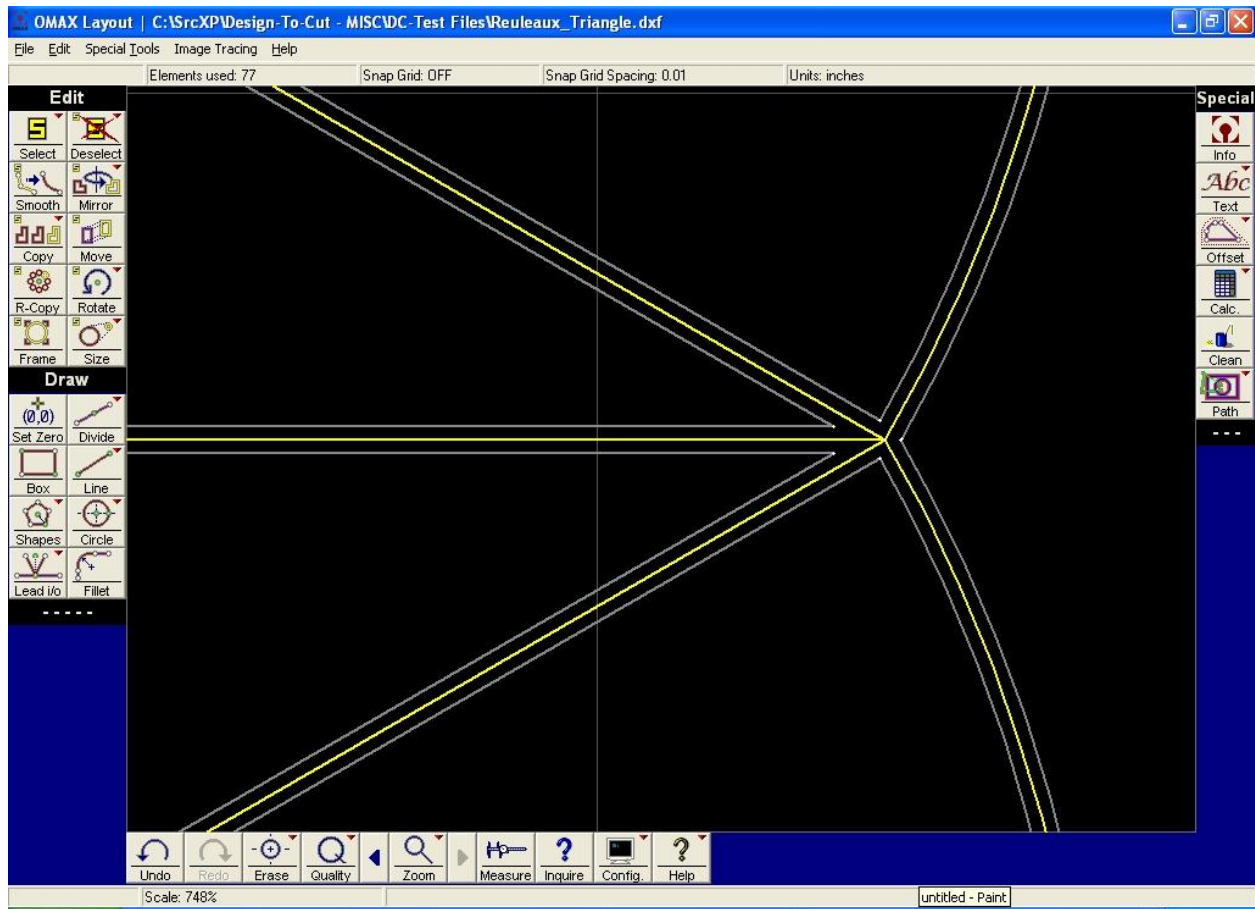
Continued next page..

A closer look at the offsetting (original image highlighted in yellow):



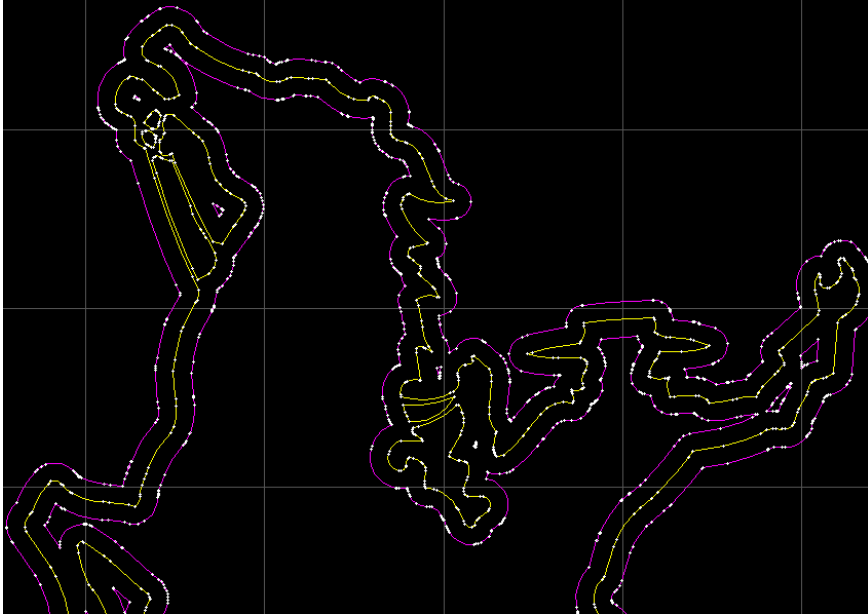
Continued next page..

Here, we have used Design-To-Cut to generate offsetting that is 0.015" (close-up of image):



See next page for other application examples..

Horse and rider image offset to both sides 0.1 inches:

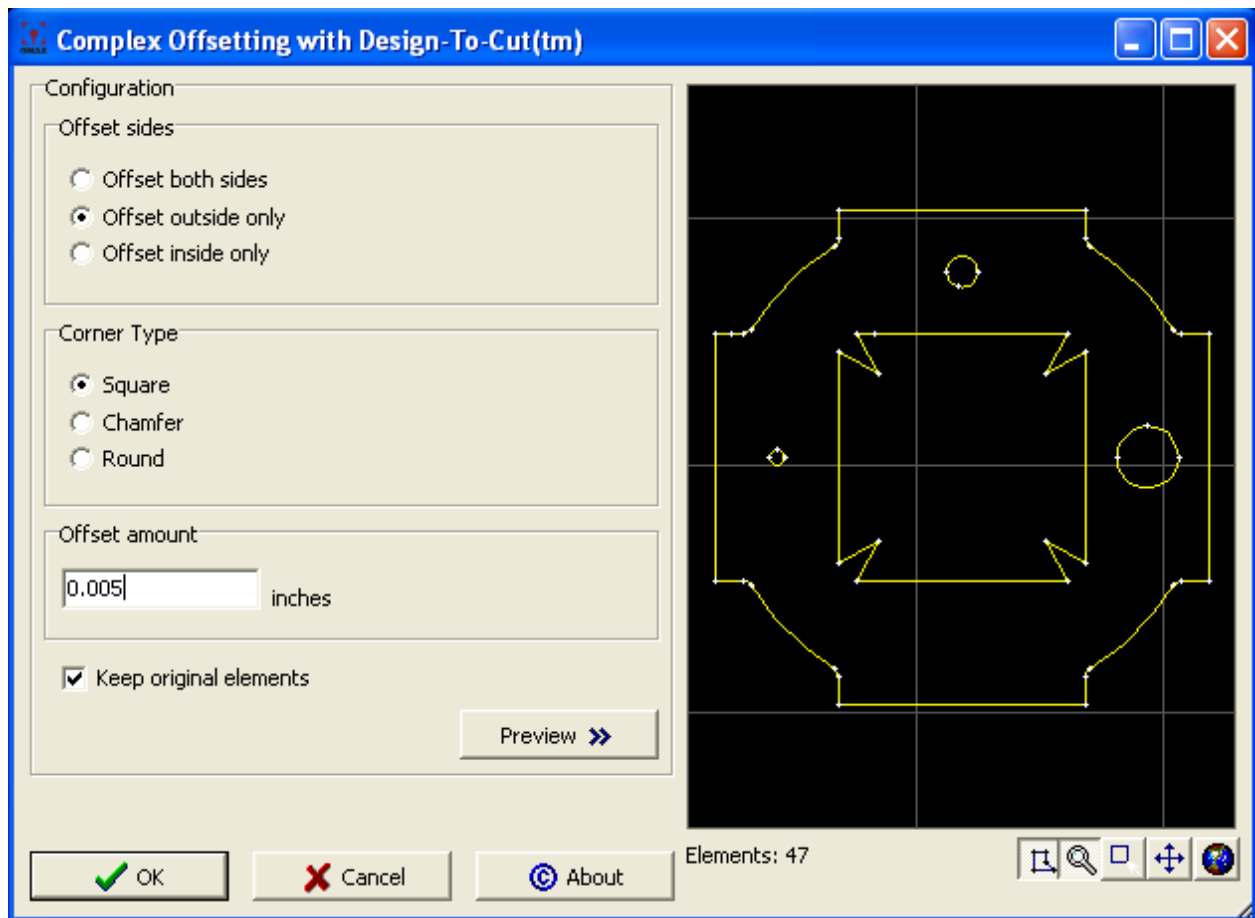


Same image offset 0.02 inches:

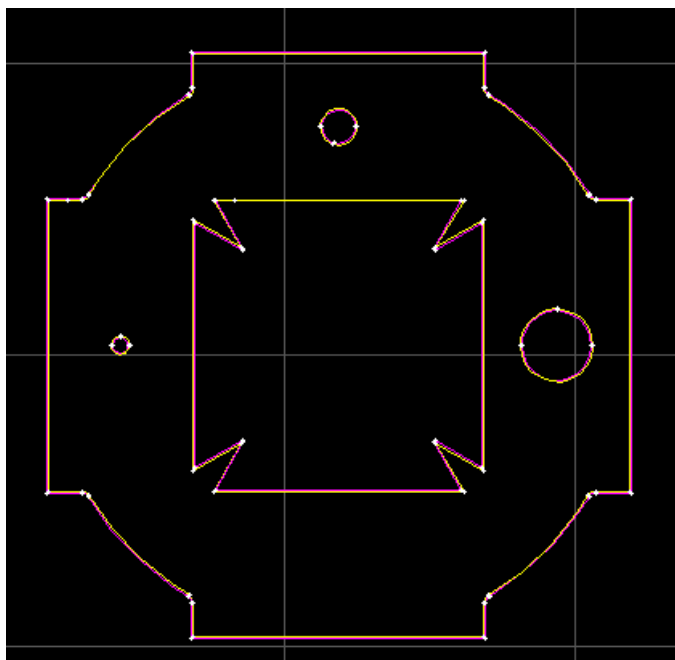


More examples follow on next page...

Here, the image will be offset 0.005 inches to 'outside only', with 'Square' corners.



The result:



Continued from previous page. Close up of image which offset 0.005 inches to Outside only, with Square corners.



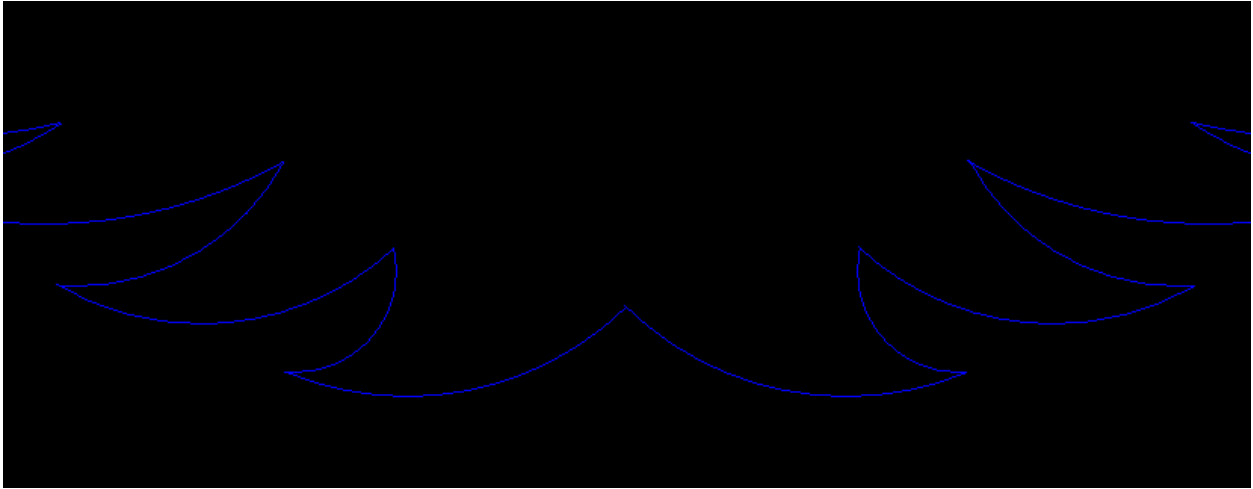
## Chapter 3:

### Applications using Design-To-Cut™ from OMAX Layout™

- Stained glass "I" beams to replace lead between glass
- Grout lines for other inlay type work
- Offsetting pieces to resize for precision inlays
- Making "bubble letters" as a way of joining text together
- Outlining text (for example the "OMAX" portion of the interlock part)
- A very fast way to make grills, fences, gates, etc.
- A general way to make non-pathable designs into designs that can be cut
- "Rotate Copy Art"
- Pre-offsetting select areas of a part to leave extra material for secondary operations
- Creating offsets to use when bevel head cutting
- Many more..

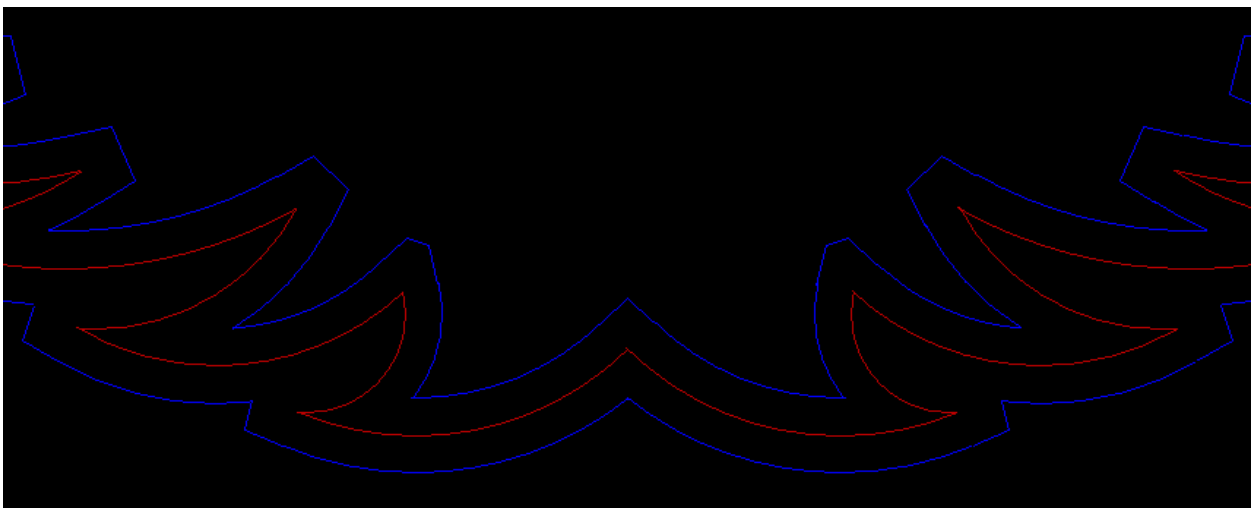
## Chapter 4: Corner Options

Example imported outline elements (also referred to as given *base elements*):



### Square Corners

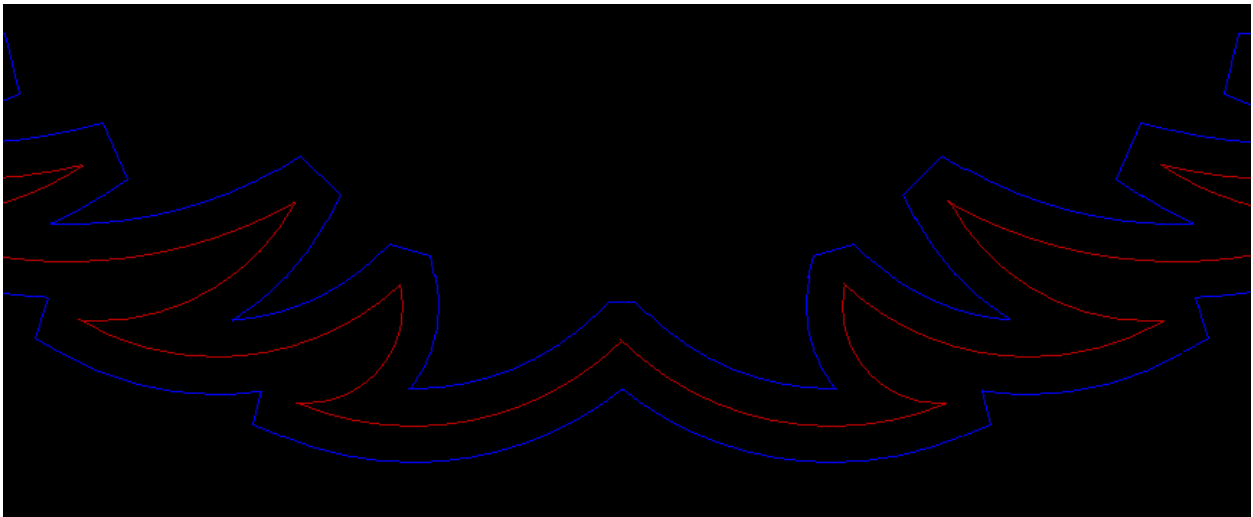
Here we have produced offsets to both outside and inside (the imported *base elements* from above are shown below in red, generated offset in blue). **Offset distance:** 0.1 inches. **Corner option:** Square.



Note that the corner in the middle of this image is unclipped (full /unclipped corner). With Square corners, full corners will be retained unless the apex is further than the selected offset distance from than the base vertex. In the case above, the middle corner is not clipped because the natural full corner (apex) does not exceed  $1.1 * \text{offset distance}$  from it's *base vertex*.

## Chamfer Corners

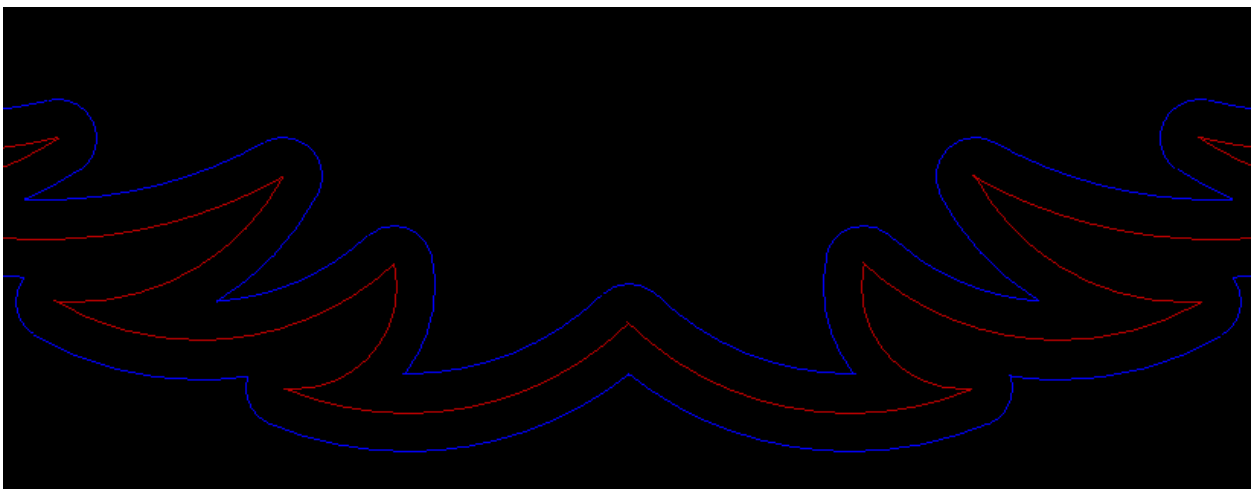
Our example from previous page, but with Chamfer corners:



Note that the middle corner has been clipped in here, whereas with Square corners (example on previous page) the same middle corner is not clipped. The middle corner is clipped here because with Chamfer corners, any corner which exceeds  $1.0 * \text{offset distance}$  will be clipped (with Full corners, the corner is allowed to reach  $1.1 * \text{offset distance}$ ).

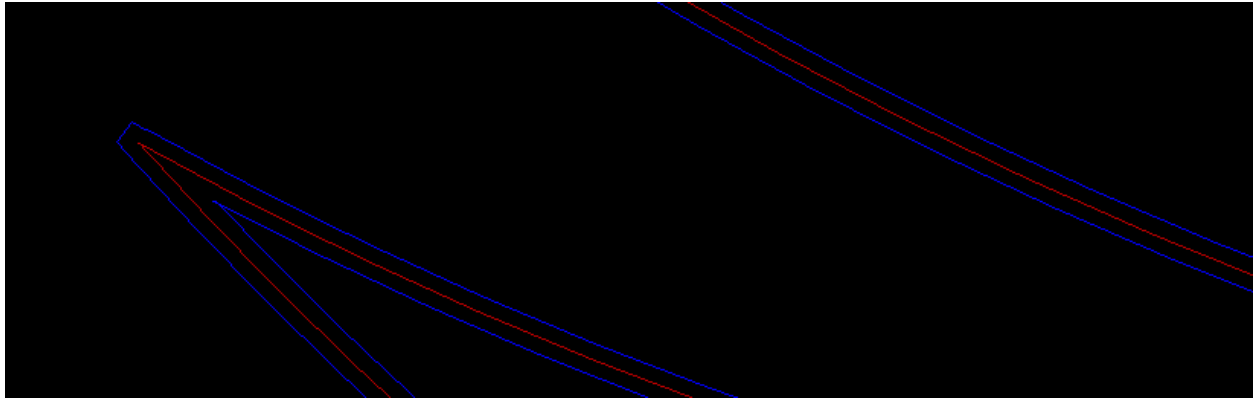
## Round Corners

Our same example, but with Round corners:

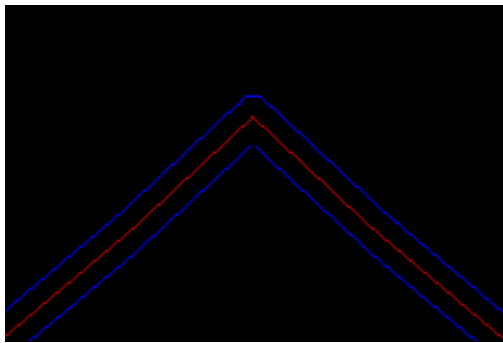


With Round corners, each offset point is precisely the ordered **offset distance** from it's nearest base element (base vertex is arc center).

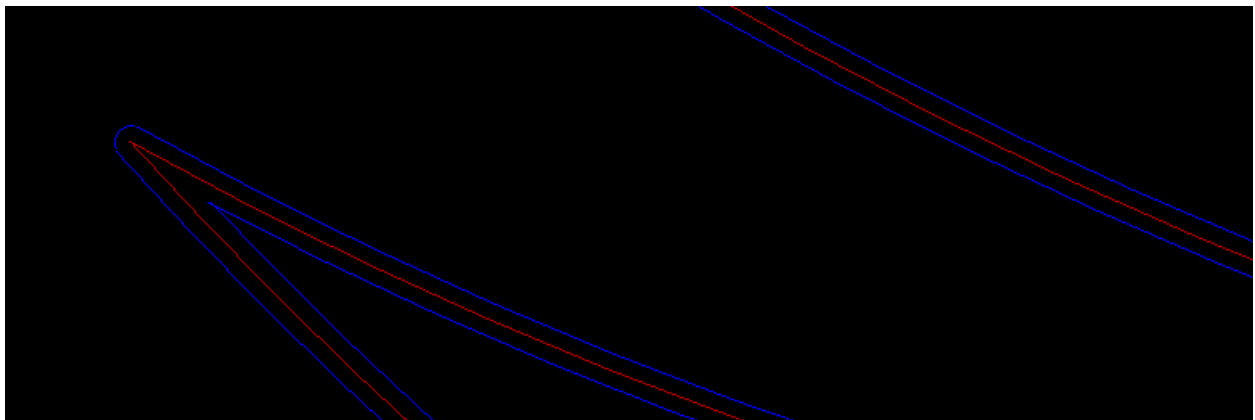
Our example, offset to both inside and outside, but at a much smaller offset distance:



**Offset option:** Both sides; **Offset distance:** 0.005 inches; **Corner option:** Square;



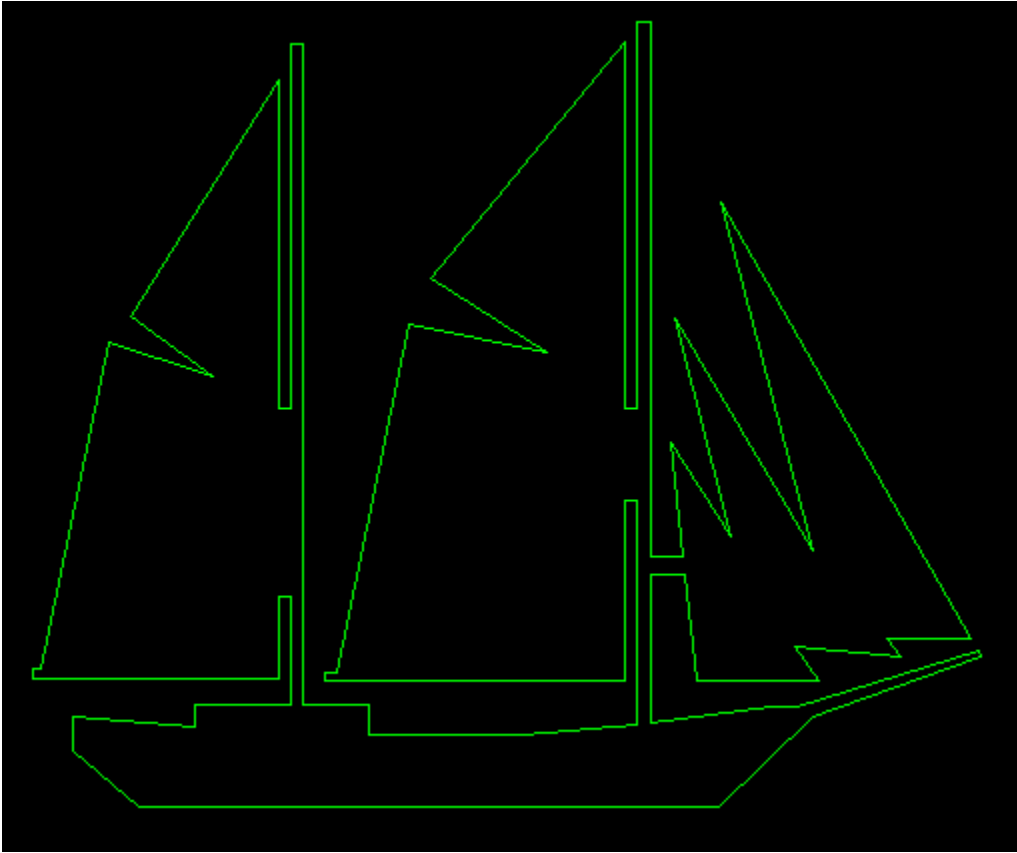
**Offset distance:** 0.005 inches; **Corner option:** Chamfer;



**Offset distance:** 0.005 inches; **Corner option:** Round;

**Note:** with any column, the *short side corner* is not clipped or rounded. This is because all offset vertices are precisely the ordered offset from their base vertexes.

Chapter 5: Samples, Discussion



Imported base elements (above).

Continued next page..

Base elements are now displayed in red, and newly generated offset elements are displayed in light green.



**Offset option:** Offset both sides;

**Corner option:** Square;

**Offset distance:** 0.05 inches;



**Offset option:** Offset both sides;

**Corner option:** Chamfer;

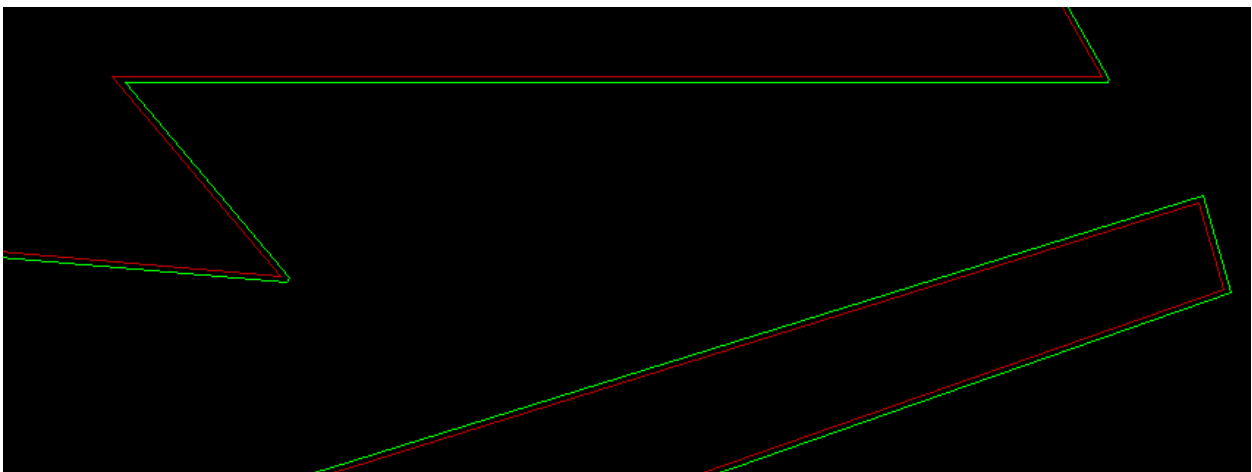
**Offset distance:** 0.05 inches;

Continued from previous page..



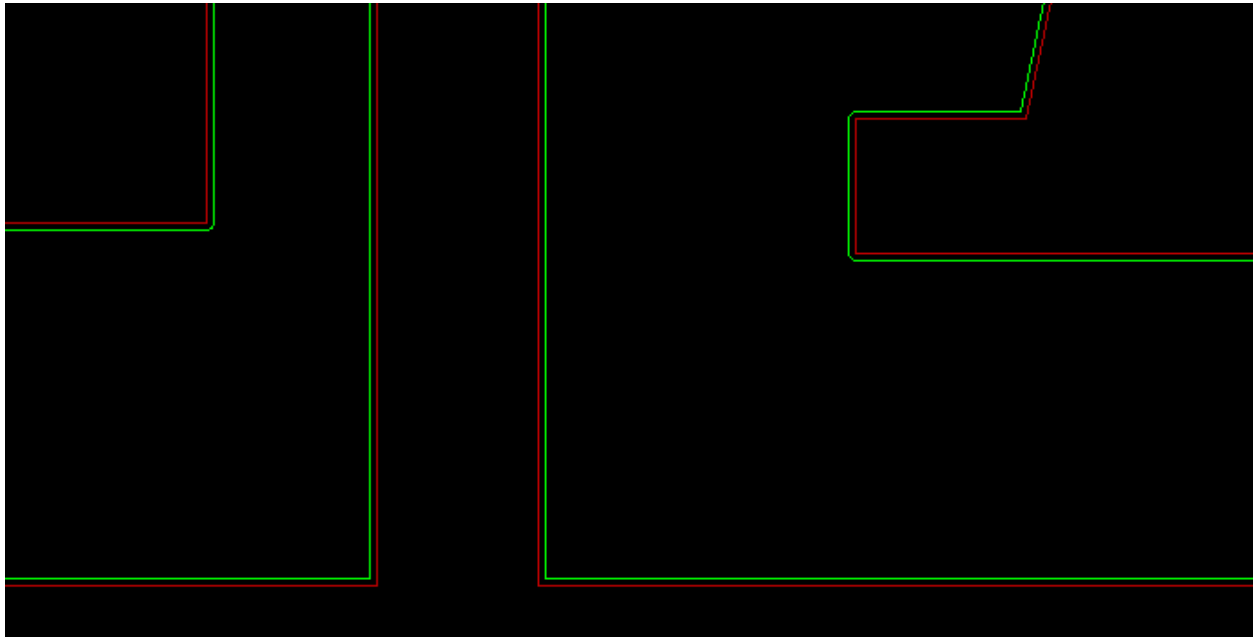
**Offset option:** Offset both sides; **Corner option:** Round; **Offset distance:** 0.05 inches;

Examples showing very subtle offset to one side only (offset elements shown in light green):



**Offset option:** Offset Outside only; **Corner option:** Square; **Offset distance:** 0.002 inches;

Continued from previous page..



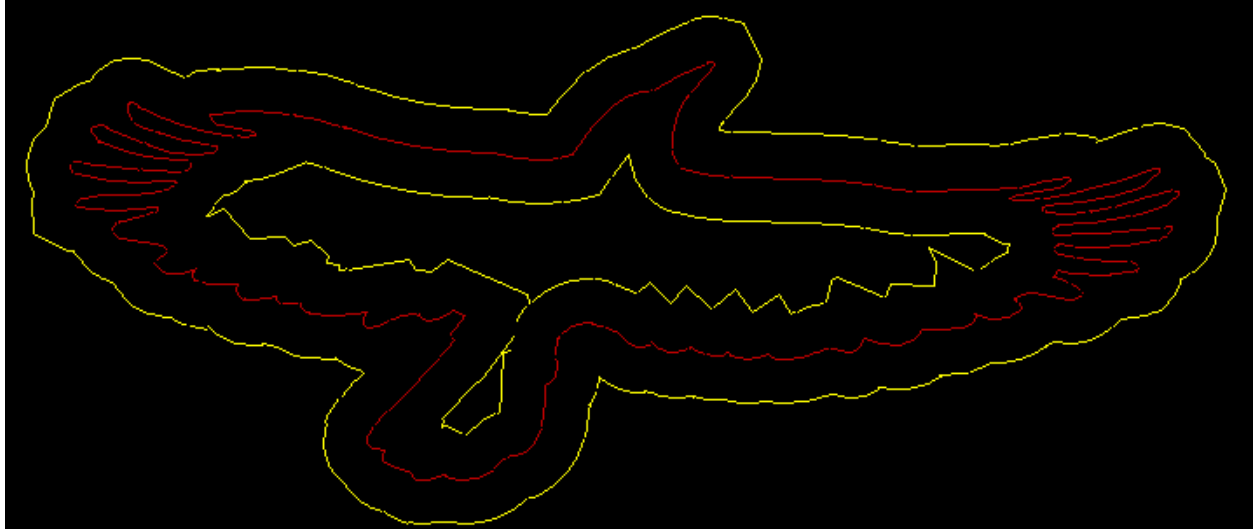
**Offset option:** Offset Outside only; **Corner option:** Round; **Offset distance:** 0.002 inches;

Note: more acute corner is not rounded in order to maintain precise offset ordered from base vertex.

## Important comment concerning Square and Chamfer corners:

Offsetting *regular* shapes using square or chamfer corners, at any distance, is very reliable. And offsetting *irregular* shapes using square or chamfer corners, at small distances, is also very reliable. However, offsetting *irregular* shapes using square and chamfer corners, at relatively large distances, can render mixed results.

For example,



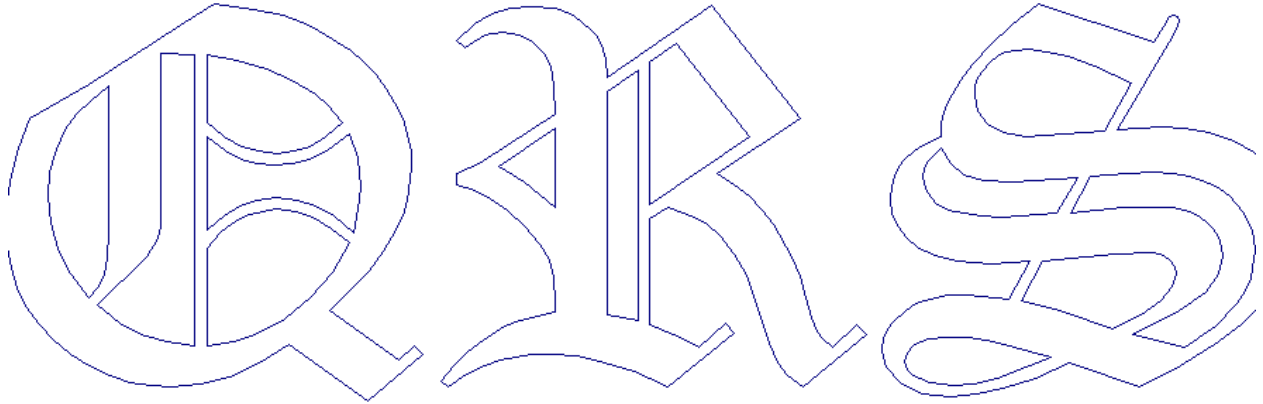
**Square corners** are not appropriate for the application above (imported base elements shown in red).

Whereas **Round corners** render a much more appropriate result:

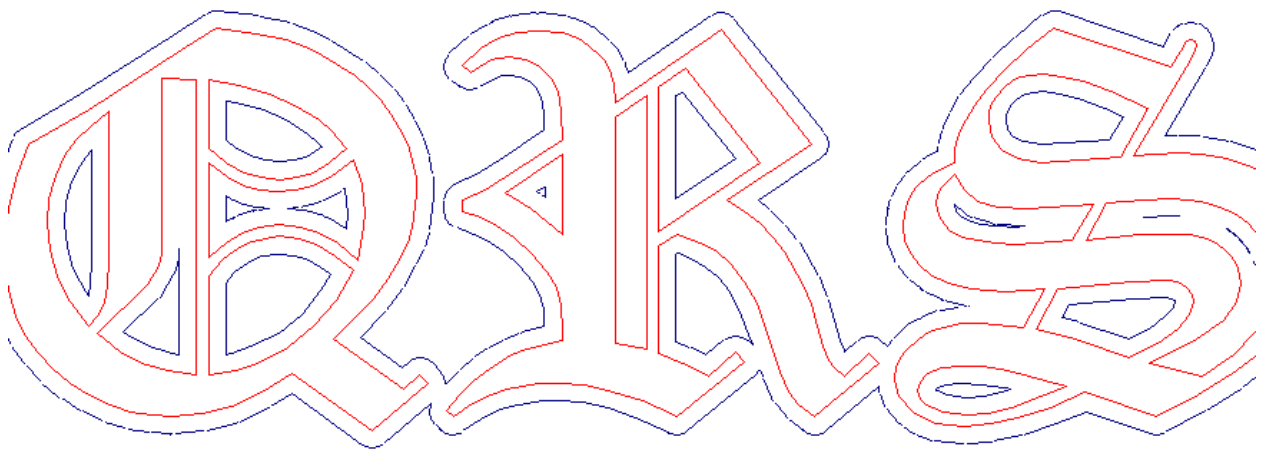


## Other applications

Convert font layout (imported graphic):



Apply offset to outside only in order to join characters and internal elements:



**Offset option:** Offset outside only; **Corner option:** Square; **Offset value:** 0.048 inches;

## Chapter 6: Import and Export File Facts

### **Adjustments to data during import:**

**Segment minimum:** 0.002 inches. All segment elements which are shorter than this length will be combined with either the previous or next segment element.

**Elimination of Overlapping Segments.** Design-To-Cut tries to eliminate any segment portions which overlap other segment(s).

**Segment Splicing:** A single segment which crosses (intersects) another segment will be broken into two segments. The other segment involved in the intersection will also be broken into two segments.

**Normalize Endpoints:** Consecutive segment endpoints which are within 0.0015 inches will be made the same (for purposes of smoothing).

**Extend Segments to close polygons:** if a sequence of segments nearly forms a closed polygon, the open ended segments will be extended in order to reach an intended intersection.

### **Import file types: .dxf, .plt**

DXF supported ENTITIES:

ARC, LINE, VERTEX, POLYLINE(w/Bulge), CIRCLE, SPLINE, LWPOLYLINE

PLT supported entities:

Penup (PU), Pendown (PD)

### **Export file type: .dxf only.**

## Chapter 7:

### **Minimum System Requirements**

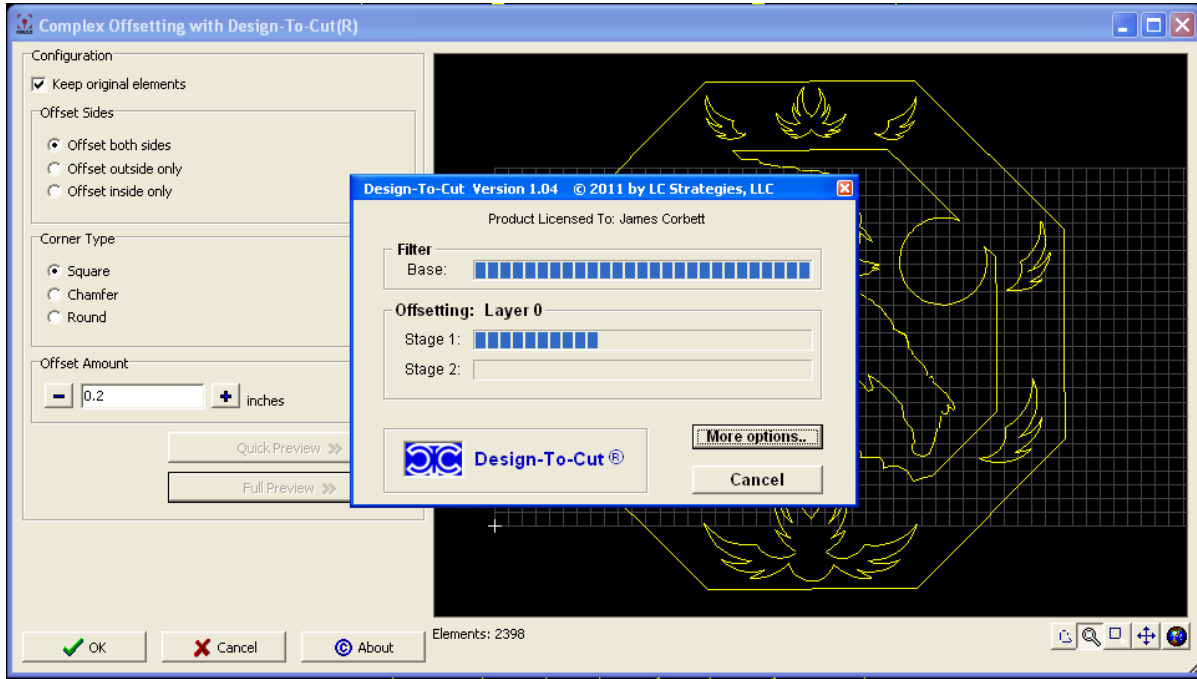
- Windows 2000 (SP3 or higher), Windows XP, Windows Vista, or Windows 7
- 512 Mb or more RAM
- 4x CD-ROM drive capable of reading a CD-R (most can).
- Color display (Set to anything more than 256 colors, and running at a resolution of 1024x768 or higher)
- At least 1 Gb of free disk space.
- A valid C: drive must be present.

### **Recommendations:**

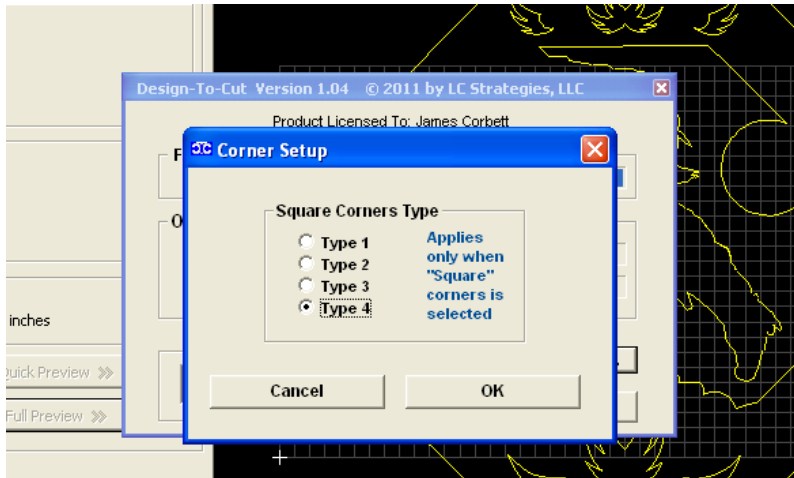
- **Windows XP**
- **Fast processor**
- **Lots of memory** (1 Gb RAM or more)

## APPENDIX A: Design-To-Cut version 1.04 update notes:

New button added to Progress bar: “More options..”



Click button “More options..” or press key “O” or “o” for more options form.



With version 1.04, you have the option to select the “Square Corners Type” (more options will be added in later versions).

**Type 1** enables the natural corner to extend a maximum of 1.5 times the offset amount (covers truly ‘square’ corners).

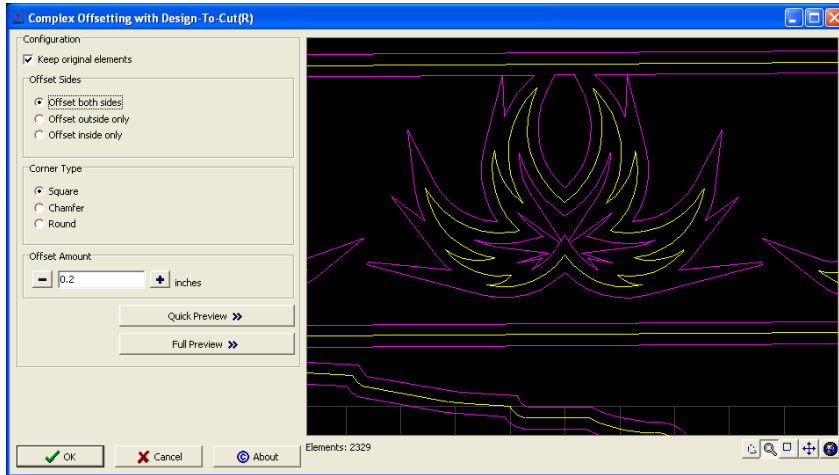
**Type 2** enables the natural corner to extend a maximum of 3 times the offset amount.

**Type 3** enables the natural corner to extend a maximum of 6 times the offset amount.

**Type 4** enables the natural corner to extend a maximum of 10 times the offset amount. Note: this is the default selection (used exclusively in previous versions).

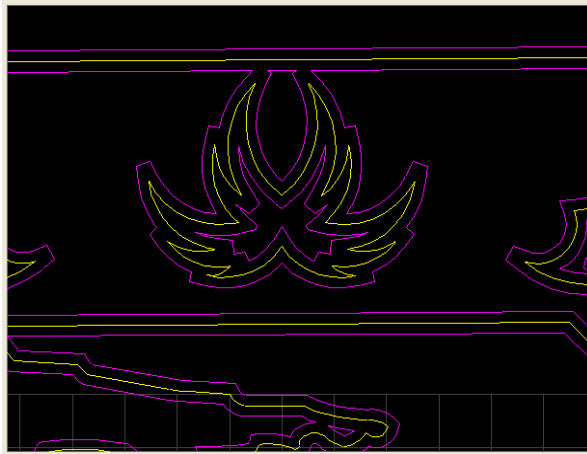
Continued..

**Square corner Type 4** is appropriate when you wish to maintain natural full corners, but it is not always desirable to maintain full corners, especially at relatively large offset distances e.g. below the Offset Amount is 0.2 inches; offset to Both sides (total offset is 0.4 inches), so **Type 4** corners are excessive.

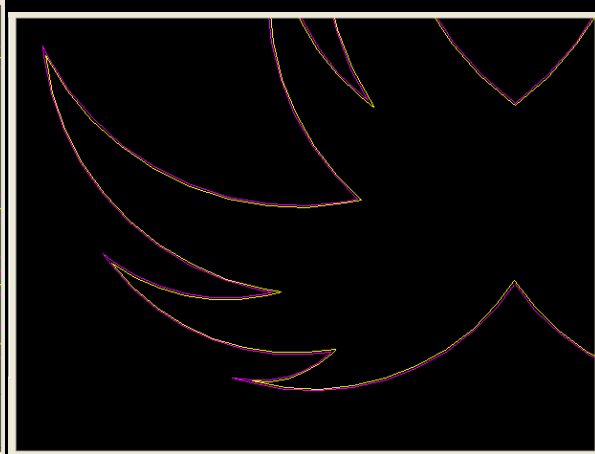


More appropriate settings:

**Square corner Type 1;** offset Both sides 0.2".



**Square corner Type 4 (full);** offset Inside only 0.01".



**Chamfer corner type;** offset Both sides 0.2".



**Round corner type;** offset Both sides 0.2".

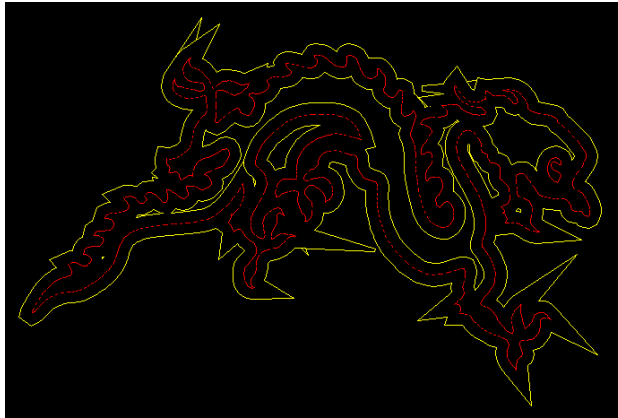


Continued..

**Comment:** graphic images in this PDF document have been degraded during conversion to PDF (i.e. resolution has been degraded). Also, portions of graphic images may or may not be displayed depending on the size of the window used for viewing this PDF document (i.e. increase viewing window to improve display).

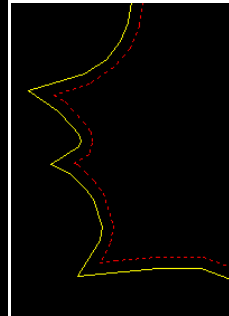
#### More discussion concerning Square corner type

**Square corner Type 4** renders a bad result here because offset amount is relatively large and corners are very sharp.

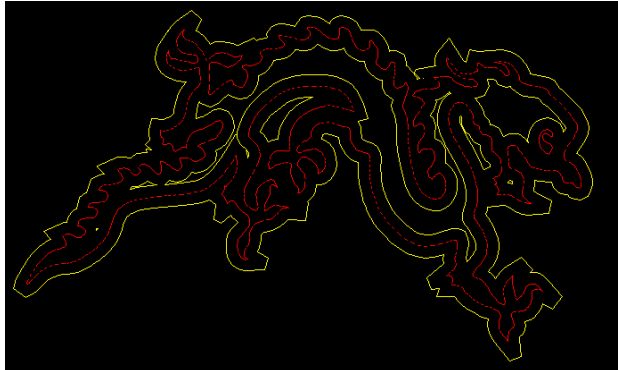


For small offset to Outside or Inside only, **Type 4** is appropriate (here, offset amount is 0.010");

closer view:



**Square corner Type 1** (shown here) renders better result.



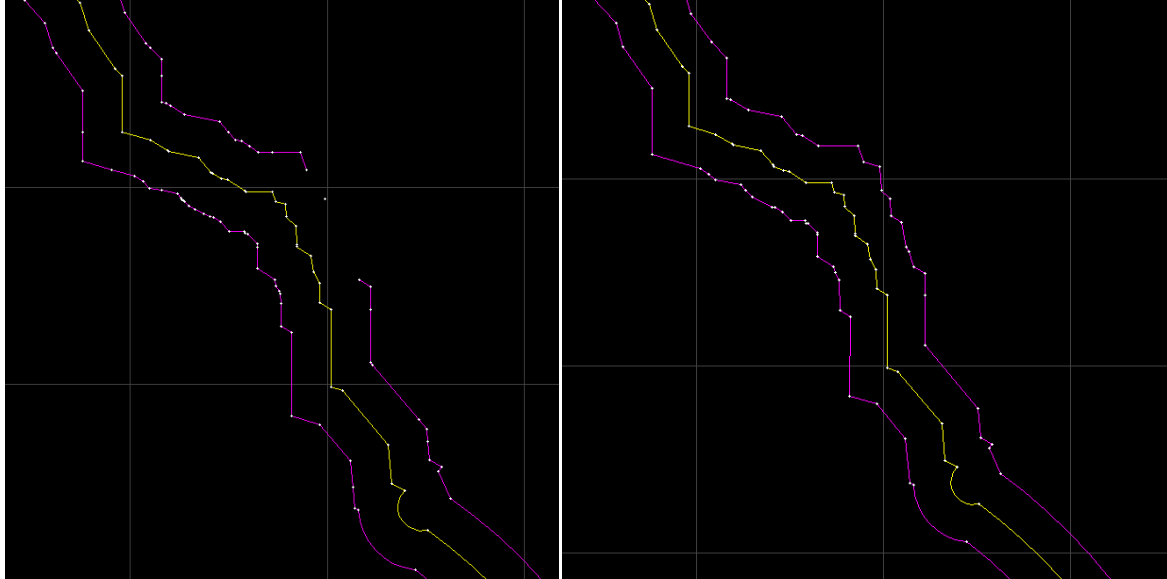
**Round corner type** also renders a better result.



**Note:** when adding an edge (for extra material around all perimeters), it may be most appropriate to use **Square corner Type 4** in order to maintain full corners throughout. However, as offset amount increases and complexity of edge increases (i.e. irregular edge), excessive overlapping of corners can occur. Design-To-Cut will usually do a very good job of grooming areas with excessive overlapping, however, depending on complexity, results may or may not be acceptable. If a result is not acceptable, try **Square corner Type 1, Type 2** or corner type **Chamfer** or **Round**.

### Concerning missing segments:

With earlier versions of Design-To-Cut, offsetting irregular edges using **Square** or **Chamfer** corner types, at relatively large offset amounts, would sometimes result in missing segments (e.g. image at left). This has been improved in version 1.04 (image on right).



### Recommendations:

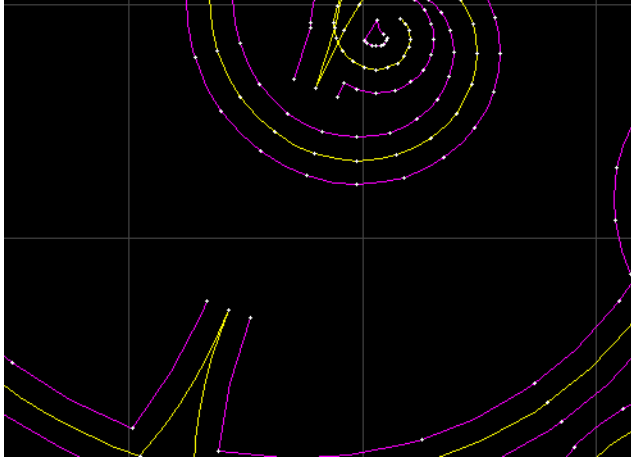
- If offsetting is missing any corners and/or there are gaps, try using Layout's **"Clean"** function before producing offsets with Design-To-Cut. Sometimes very tiny segments (less than .001) slip through Design-To-Cut's filter and cause less than optimal results.
- Design-To-Cut will offset the most prominent layer only. If you have multiple layers displayed in Layout, and Design-To-Cut does not render the offsetting you expect, try displaying only the single layer you want to offset, then use Design-To-Cut to offset that single layer. Sometimes what appears to be a single layer, will actually be multiple layers (i.e. more than one color). Make sure all entities that you want to include in the offsetting process are the same color.

### Misc. notes:

- Design-To-Cut v1.04 can handle much larger entities than previous versions (approx 600"x 600").
- Please send any files that do not process to your standards and we will try to support as soon as possible [support@lcstrategies.com](mailto:support@lcstrategies.com)

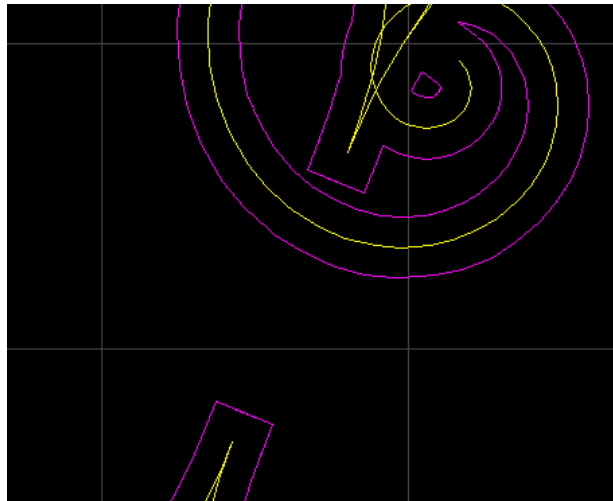
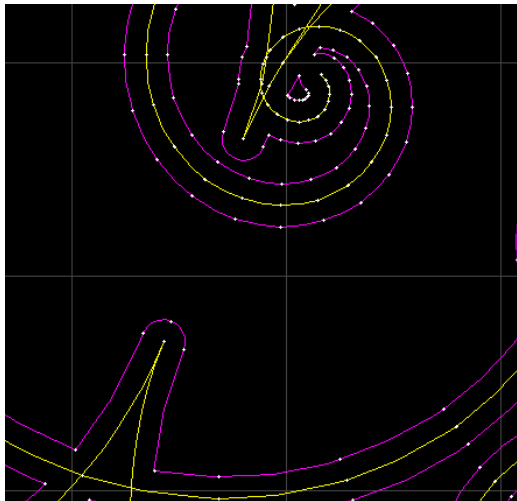
### Another aspect of cornering: **Capping Ends**

Previous versions did not cap the end of two adjacent/connected arcs if the arcs were tangent at very end (where connected). This has been addressed in version 1.04.

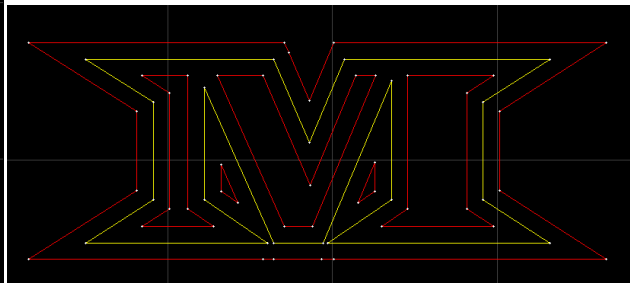
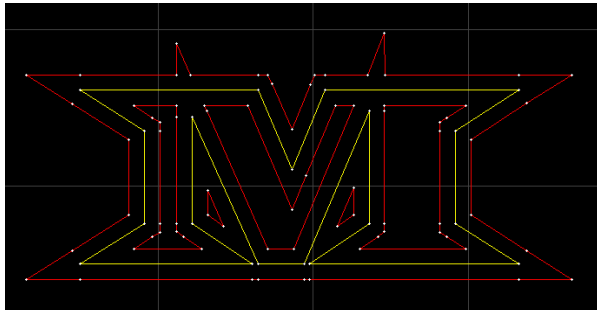


Connection (cap) when **Round** corner type is used.

Connection (cap) when **Chamfer** corner type is used.



**Protruding corners.** In previous versions, relatively large offset amounts with full (sharp) corners sometimes resulted in corners which protruded through to the other side of an offset entity (result at left). This has been addressed in version 1.04 (at right).



#### Misc. improvements in versions 1.01 through 1.04

- Better clipping/grooming where extended corners overlap other offsetting.
- Progress bar is more responsive when **Esc** is pressed or **Cancel** is selected.
- More reliable determination of **Outside only** versus **Inside only** offsetting.
- Files with origin at coordinate (0,0) no longer risk partial processing.