

DeltaCad *See Through Objects* and *Animation*

Tutorial

In DeltaCad whenever we draw an object that requires an opening through that object we simply place an opening within that object. This works very well until that object is placed in front of other objects. When looking through the opening in the front object we are unable to see the objects behind the front object.

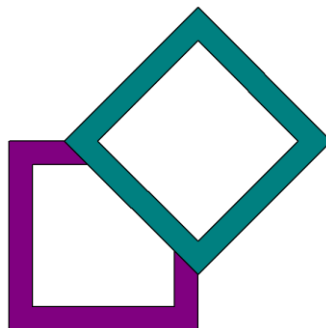
In order to avoid this situation we must create what we call a 'see through' object. Creating a see through object is relatively easy. However, the more complex the object the more tedious and difficult it is to create a see through object.

Squares

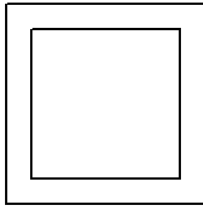
The object we'll work with is a simple square with a square opening through its center. Two such objects of different colors have been created to illustrate the problem.



Once we place one object in front of the other object we can no longer see that portion of the back object behind the front object through the opening in the front object.



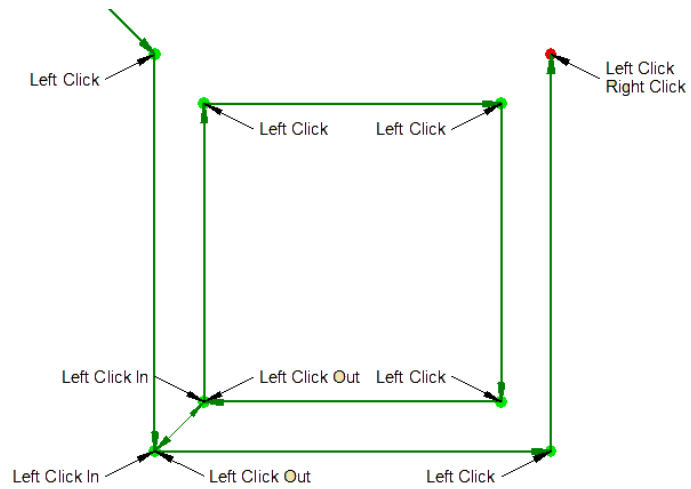
To draw your see through object start by drawing your basic shape.



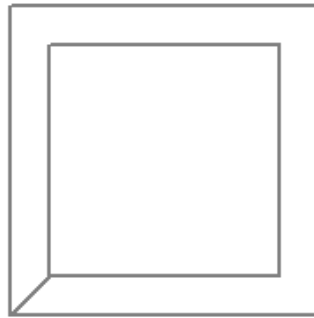
Now with the "Draw a polygon" tool draw the see through object outline. Start at any corner and left click. Go to any second corner and left click. At this corner move to the nearest inside corner and left click. Move from corner to corner, left clicking as you go, until you reach the corner you first entered. Move back to the outside where you entered. Continue corner to corner left clicking until you reach the last corner, left click and then immediately right click.

Step by Step:

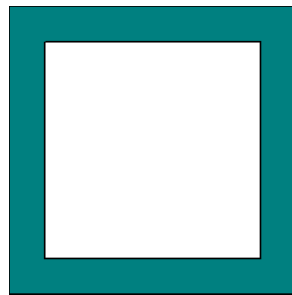
- set pointer to snap to grid
- click to grid point
- select shapes tab
- click on draw rectangle with two corners tool
- draw 4x4 square
- set pointer to snap to nearest point
- click on shape parallel shape tool
- select 4x4 square - move in .5"
- click on shape draw polygon tool
- left click upper left outside corner
- left click lower left outside corner
- left click lower left inside corner
- left click upper left inside corner
- left click right upper inside corner
- left click lower right inside corner
- left click lower left inside corner
- left click lower left outside corner
- left click lower right outside corner
- left click upper right outside corner
- right click upper right outside corner
- select polygon outline
- choose color
- set line type to filled
- move polygon outline 5",0" right
- select outside and inside squares
- move outside and inside squares 5",0" right
- select outside and inside squares and polygon outline and group



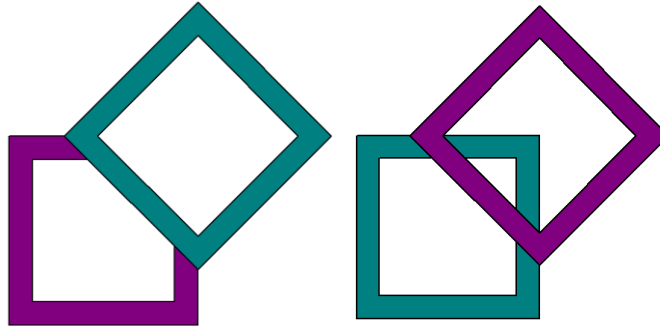
The polygon outline is now complete.



Select the polygon outline and fill with the desired color. If desired you can place the original basic shape over the filled polygon and group together. Placing the basic shape over the polygon outlines and enhances the entire object.



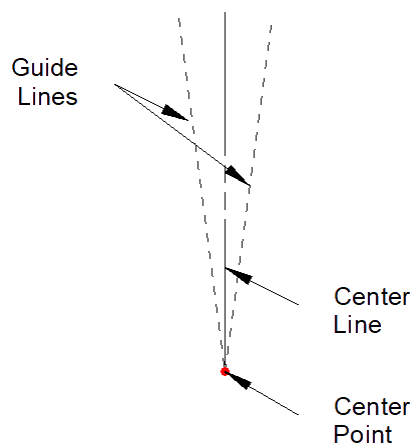
Create a second see through object of a different color and place on top of the other. And compare the difference between regular objects displayed one over the other and see through objects placed one over the other.



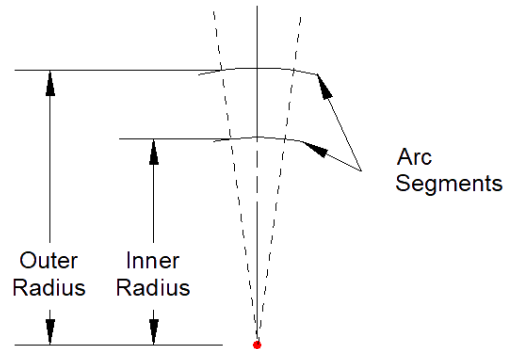
Circles

Circles are a bit different than squares when it comes to see through objects. In doing squares we just went from corner point to corner point. But in circles there are no corners. We could just add points all around both inner and outer circles but connecting those points with the draw polygon tool would be tedious at best. The easiest way is to do circle segments.

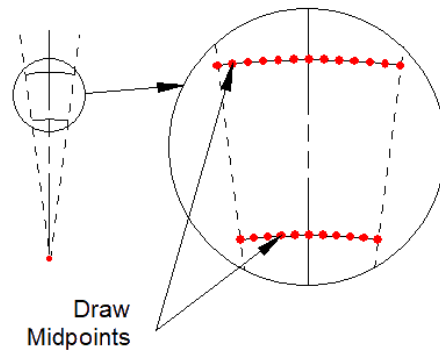
First set a center point, a center line and two guide lines as illustrated below. The guide lines establish circle segment size. For this tutorial the circle segment will be fifteen degrees of arch, seven point five degrees both sides of the center line.



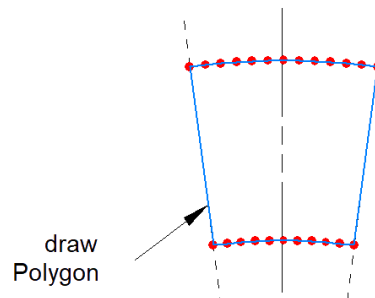
Now draw arc segments from center point to desired radius for both inner and outer circles extending slightly beyond both guide lines.



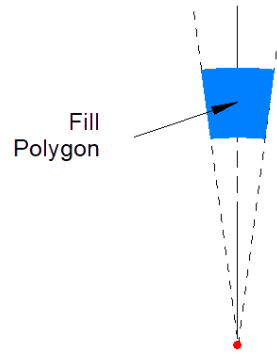
Draw mid points.



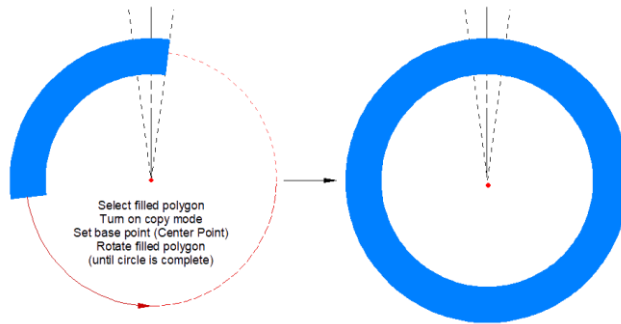
Draw polygon using all corner and mid points.



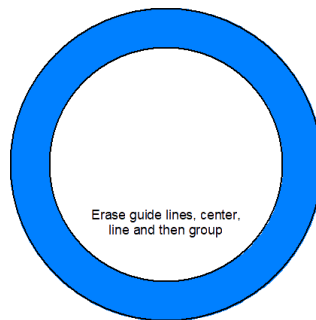
Select polygon, choose color and set line type to filled.



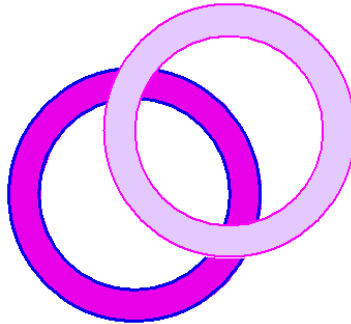
Select filled polygon, click “Turn on Copy Mode”, click “set Base Point” (place base point at center point), click “Rotate Selected Object” (enter number of degrees to rotate around center point), hit enter as many times as required to complete the full circle. *In this tutorial the circle segment is fifteen degrees of arc so the number of degrees to rotate is fifteen.*



If desired add circles for enhancement.



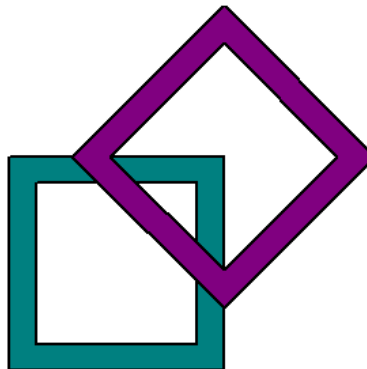
Erase guide lines, center line and then group together.



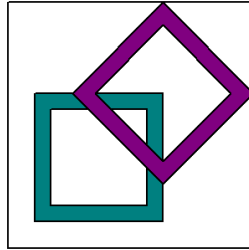
Object Animation

We've finished making our objects in DeltaCad® and they look great. But for great attention grabbing abilities let's make them animated! The difficulty of making objects animated is dependent on the complexity of the objects themselves. A simple object is pretty easy to animate where as a complex object is definitely more involved and time consuming. In the "See Through Object" tutorial we used a couple of very basic objects, two simple squares with a square openings through their centers. We'll use the very same objects here. What's needed to accomplish an animated object is your cad program (DeltaCad®), an imaging program and an animation program. There are a multitude of imaging and animation programs available for free on the internet.

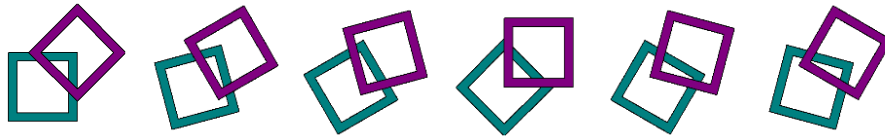
The first thing to do in DeltaCad® is to place the individual objects into the desired positions.



Center a rectangle around the positioned objects that is large enough to contain all movements of the objects.



Copy and move the object group (objects and rectangle together (do not 'group' objects)) to the right with room between rectangles. Moving from left right maintains proper sequential order, which is very important. In the second (moved) object group I rotated the lower (rear) object 15 degrees and the upper (forward) object -15 degrees. The order in which you move objects is important. Maintaining a rear first, forward second keeps the objects from moving back and forth in the animation. Continue until all desired movement is complete. For this tutorial I only needed six stills/frames.



I removed the black line rectangles prior to image conversion. I suggest you maintain the rectangles until you are thoroughly familiar with the process,

Now it's time to convert all object groups into images. There are a lot of free imaging programs on the internet, just be sure that the one you choose is able to make the background transparent. I use paint.net, it's a free download. In paint.net not only can I make the background transparent but any part of the image as well.

In DeltaCad® select the first object group, copy it and paste it into your imaging program. Make all background sections and the rectangle transparent. Save and name the image using names that help maintain sequence (image 1, image 2 etc.). Maintaining sequence, select the next object group and repeat. Do this with all remaining object groups.

To animate the now images, copy and paste them (in sequence) into your animation program. I use the CoffeeCup Animation Suite. It's a paid for program but I believe CoffeeCup has a free version (Google is your friend). Select your frames per second, save and you are good to go.