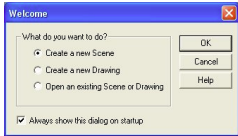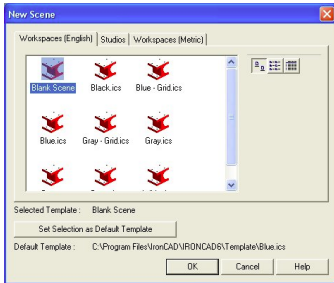This is a tutorial to create a teardrop similar to a Benroy using IronCAD.
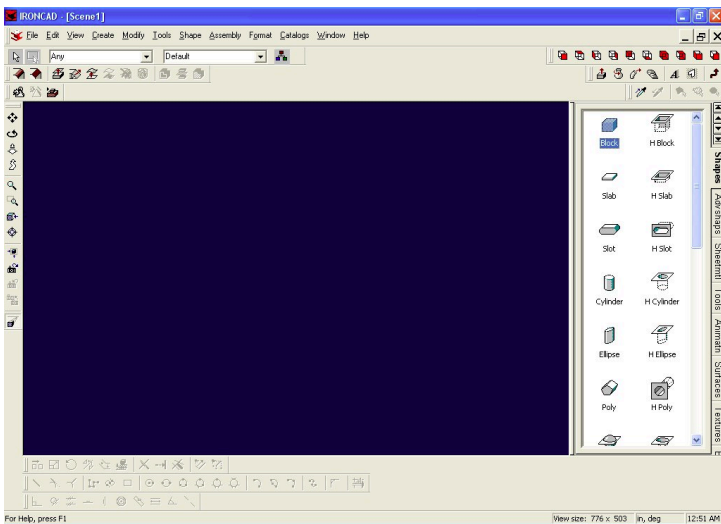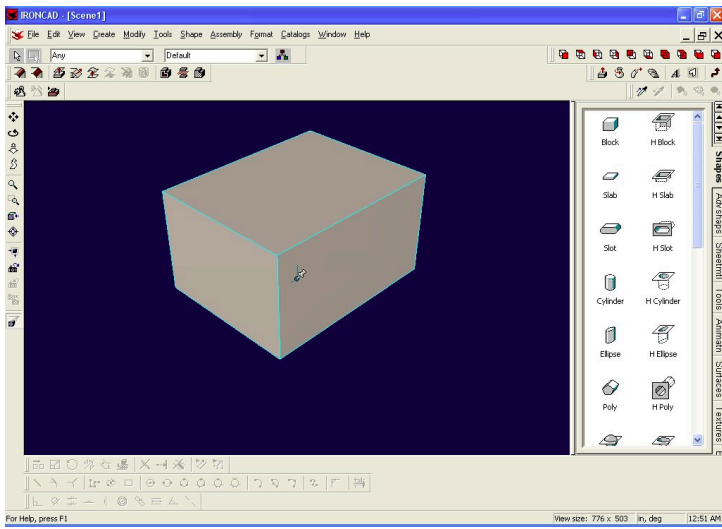
Start up IronCAD and Create a new Scene

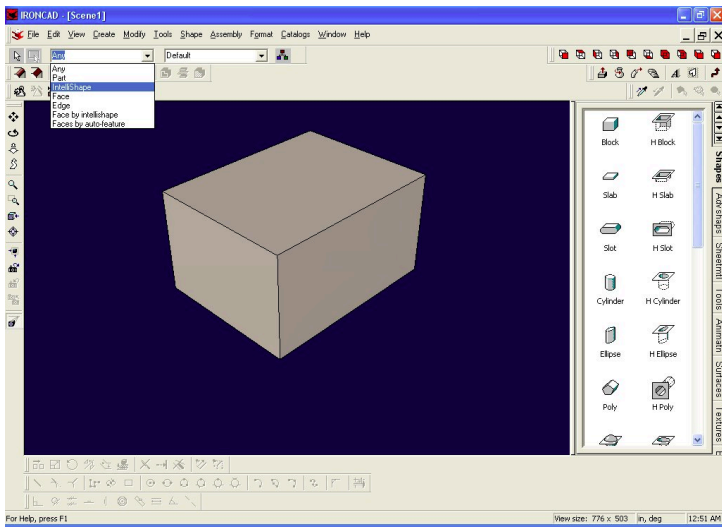A blank scene will work fine for our purposes...

Take a block from the Shapes Catalog and drag it into the scene... (If you can't see your catalog, toggle "Catalog->Autohide" from the menu.)
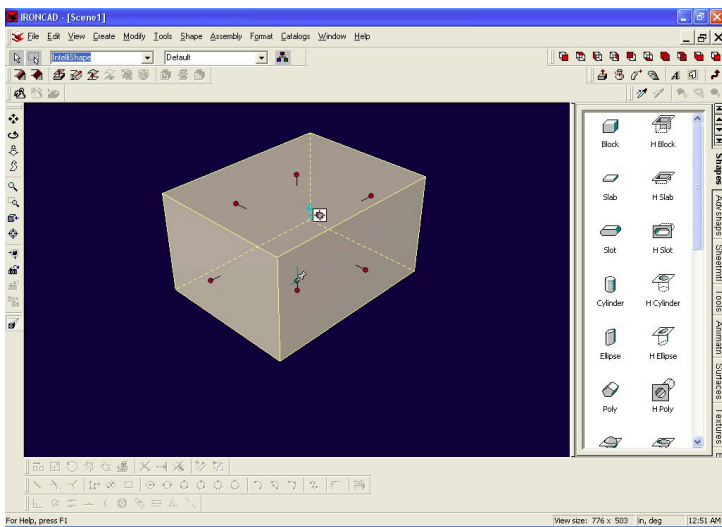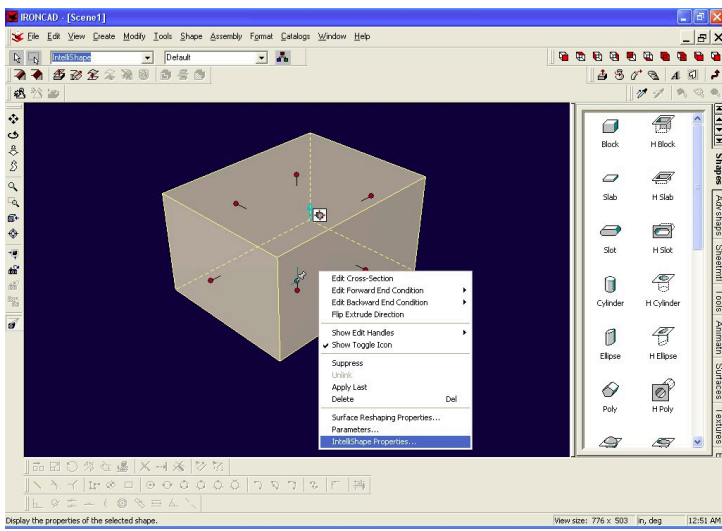
A block appears on your screen
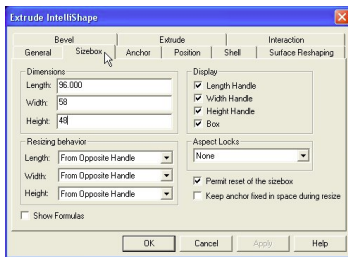
Drop down the type box and select IntelliShape

Then click on the box that you dragged into the scene. You should see red handles appear...
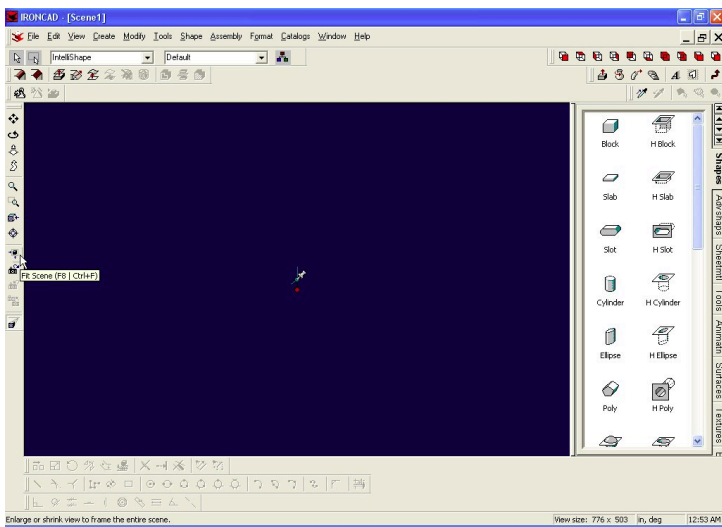

Right click on the block and select IntelliShape Properities
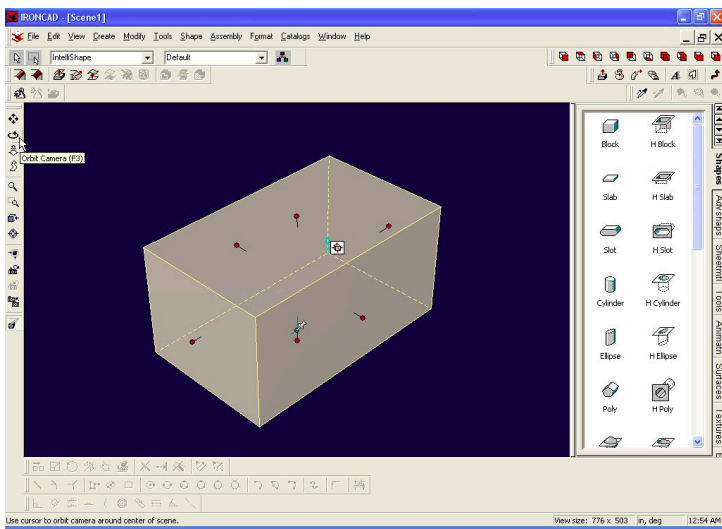
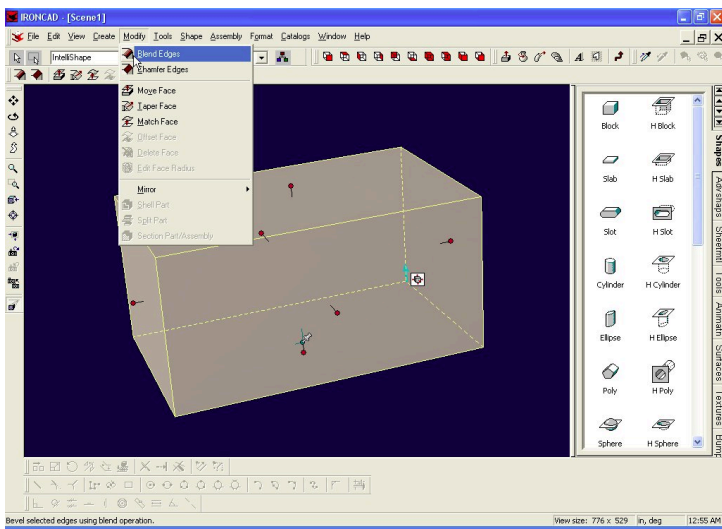Type in the correct Length, Width and Height as shown here...
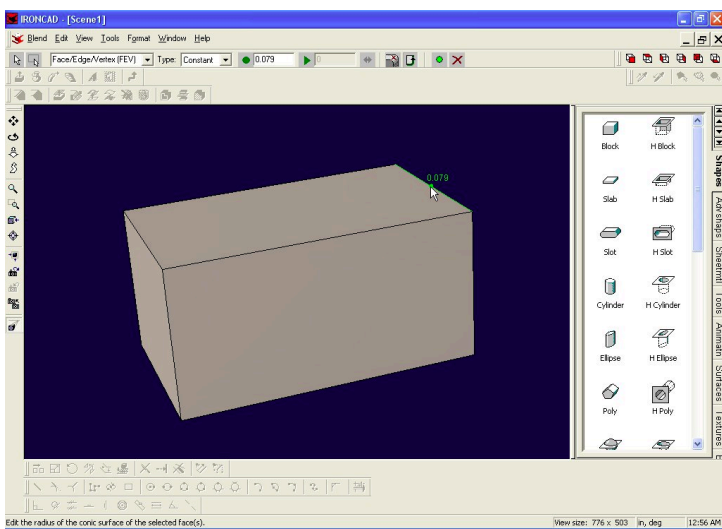

Then do a Fit Scene or press F8

Select Orbit Camera or F3 and spin your block around. :-)
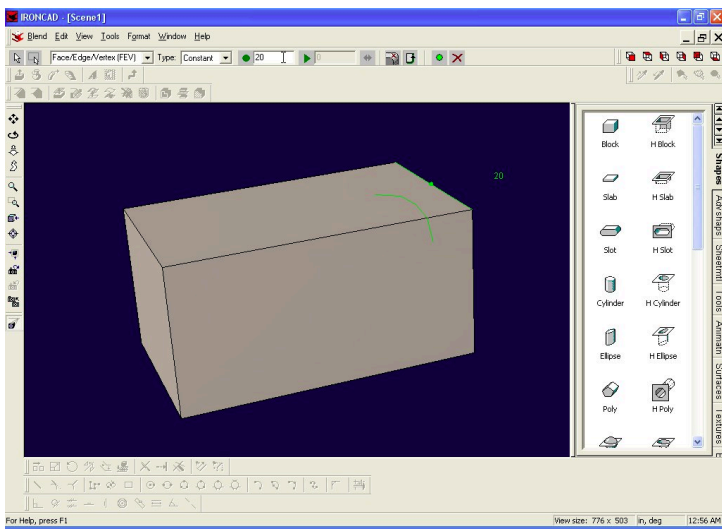
Let's add the front radius to the teardrop... Select Modify->Blend Edges from the menu...
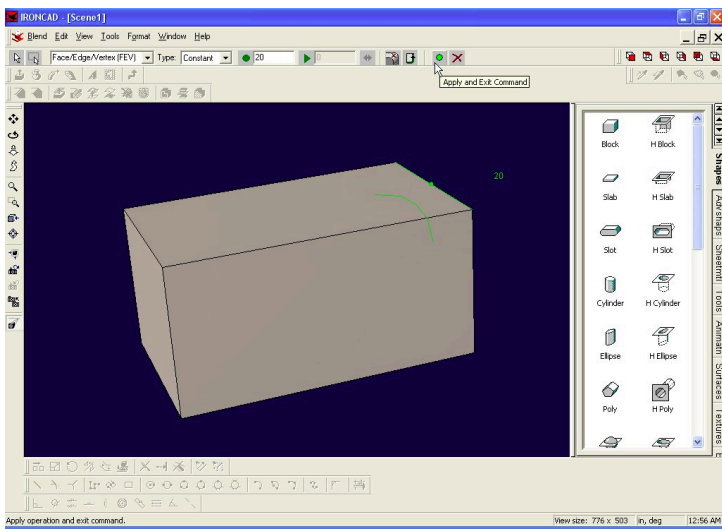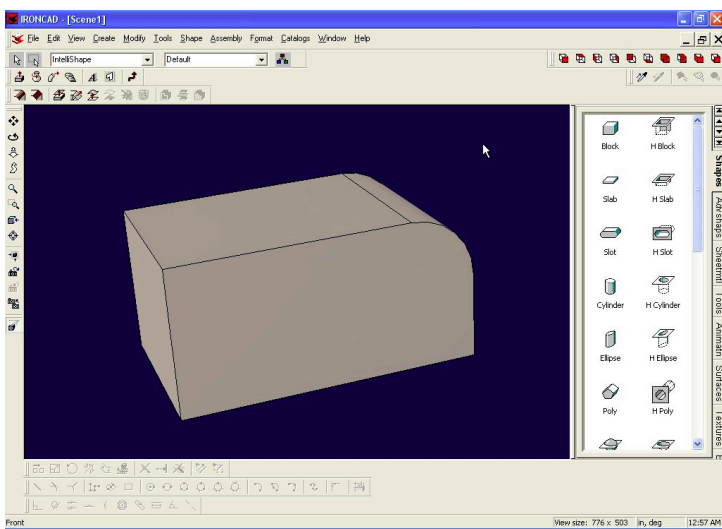

Pick the front edge of the block...

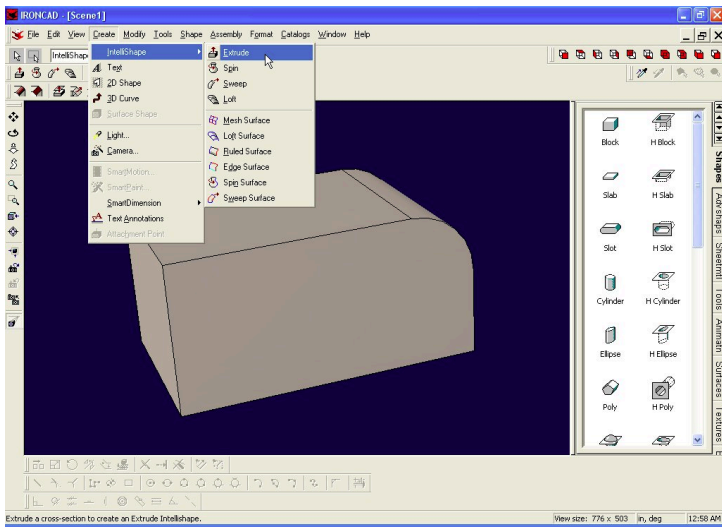In the blend dialog, change the size of the radius to 20
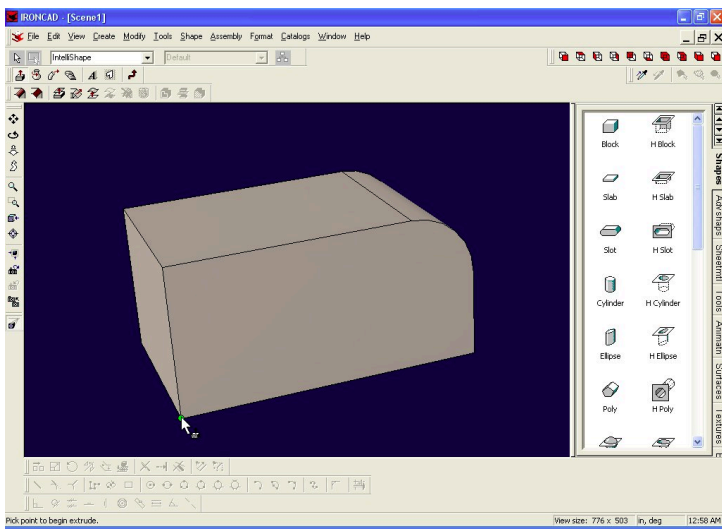
And hit the apply button.

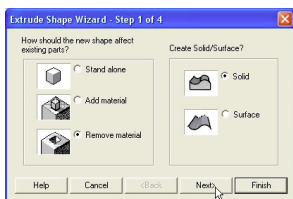Well, thar she is, a beautiful front radius... :-)

Let's work on the back radius. This one takes a little more work... Pick Create->Intellishape->Extrude from the menu...
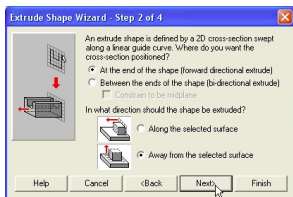
Pick a point to begin the extrude. I always select the lower left corner of the block...
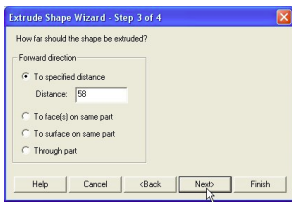

And then go thru the Extrude Wizard.... Click on remove material...

Away from the select surface should be selected...

Give it a distance... this will be a 5 footer, minus 1 inch for each wall...

Extrude Shape Wizard - Step 3 of 4

How far should the shape be extruded?

Forward direction
- ● To specified distance
  - Distance: 58
- ○ To face(s) on same part
- ○ To surface on same part
- ○ Through part

Help   Cancel   <Back   Next>   Finish

Let turn on the drawing grid, and set the spacing to 1 and 1

Extrude Shape Wizard - Step 4 of 4

Do you want to display the drawing grid?
- ● Yes
- ○ No

How far apart should the grid lines be spaced?

Horizontal : 1

Vertical : 1

☐ Make these the default grid settings for new shapes

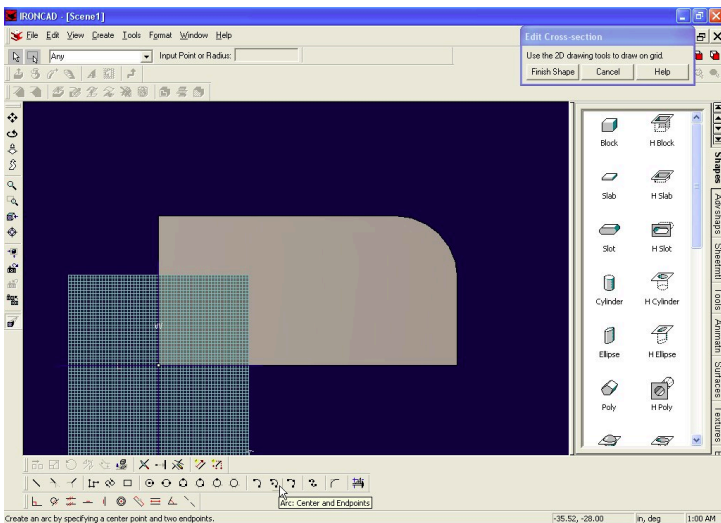Help   Cancel   <Back   Next>   Finish

Okay we are ready to start drawing. Lets look right at the side of the teardrop... Click "Look At" or F7, and click the side of the teardrop...
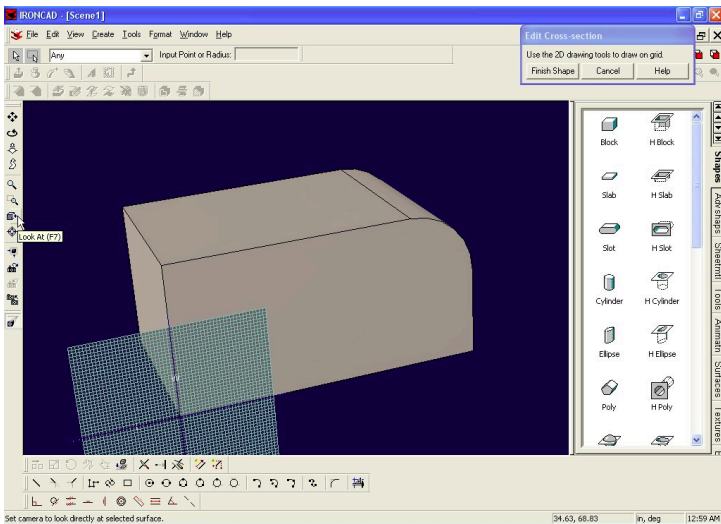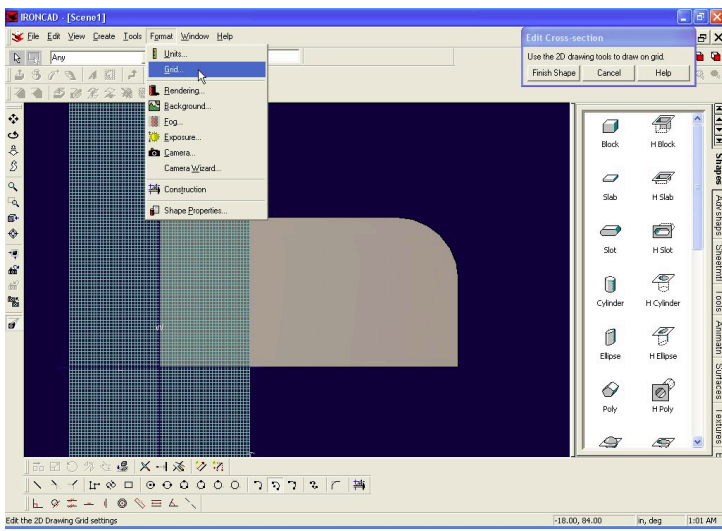

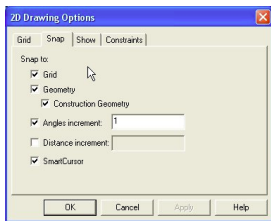Ah yes, that's a little better...

Now lets work on our back radius... Click on the arc, center, endpoints button...
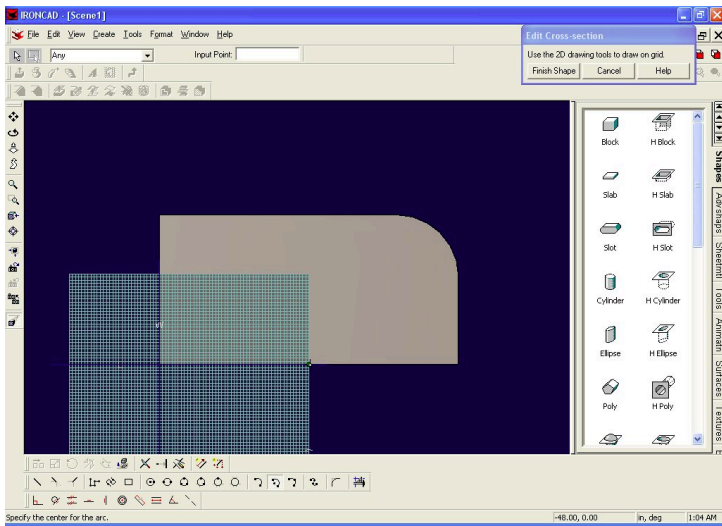

Lets make sure our grid snap is turned on.... select Format->Grid from the menu...
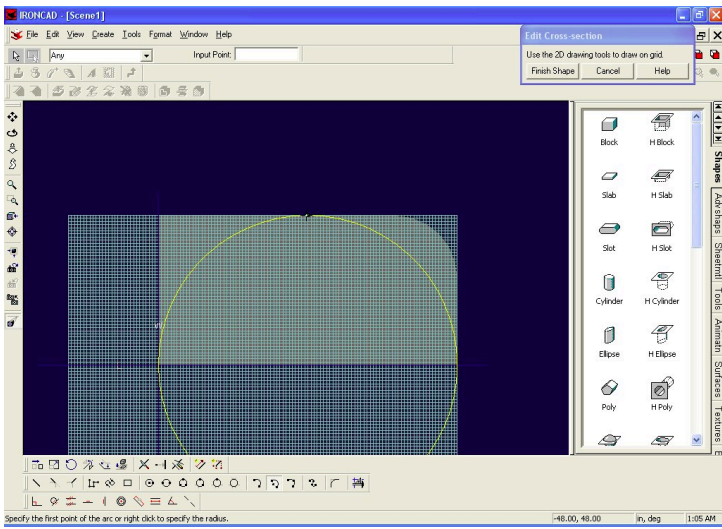
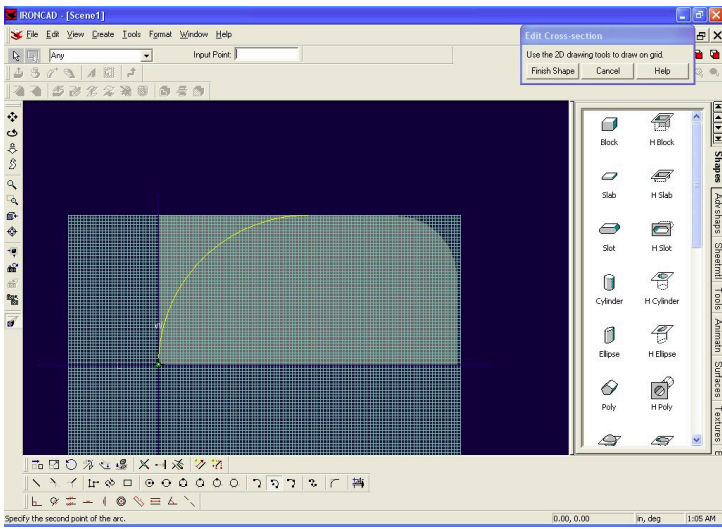Snap to Grid should be checked...

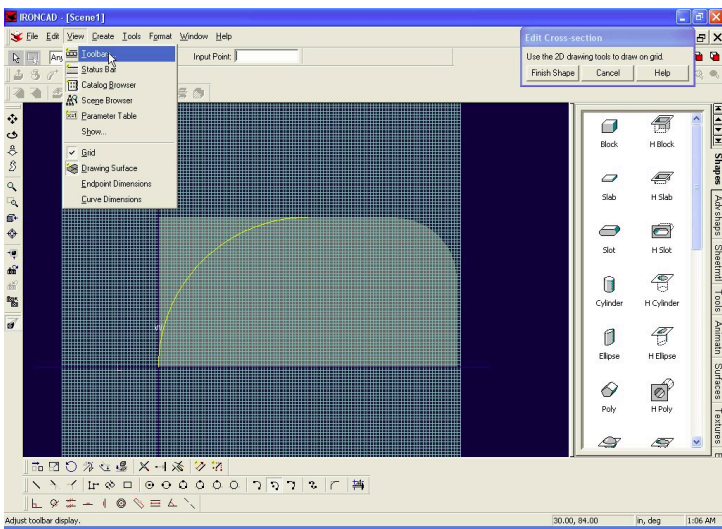
Put your center point at 40,0
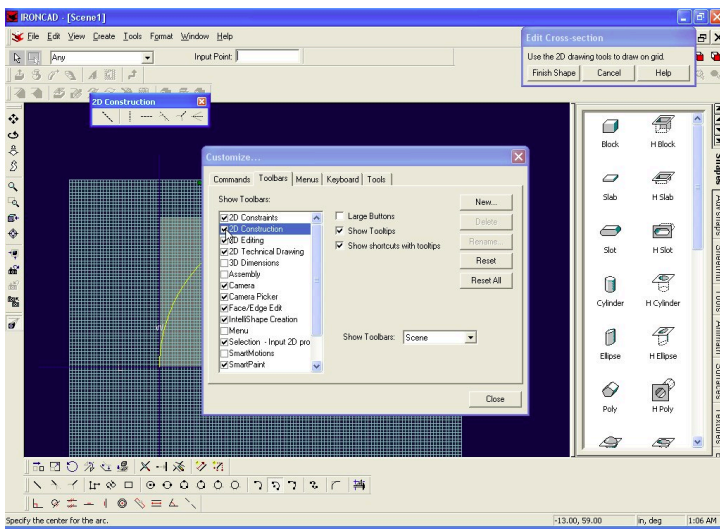

Then put your first point at -48, 48 as shown
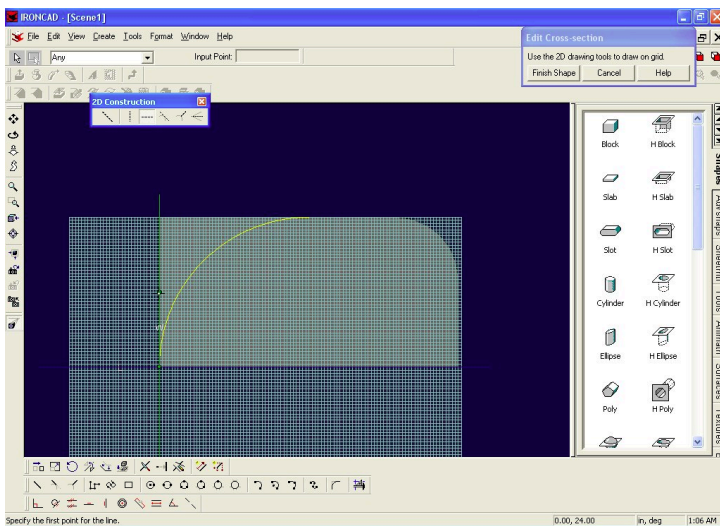
And put your second point at 0,0 as shown...

Where did my construction line toolbar go? Okay, let turn it on... Click on View Toolbars...
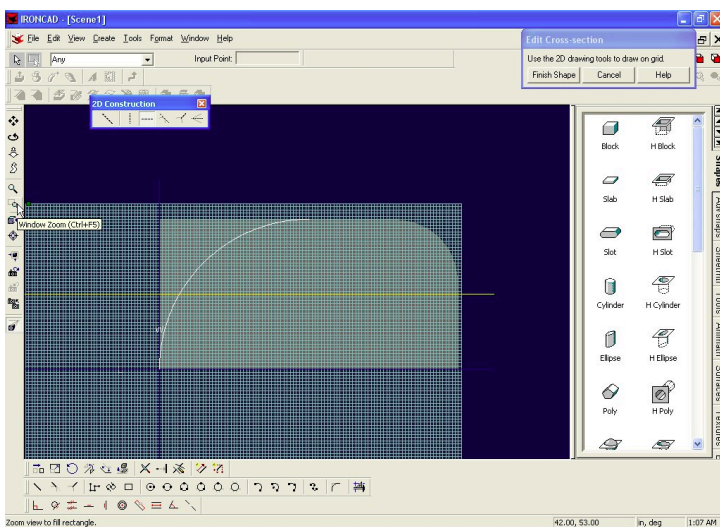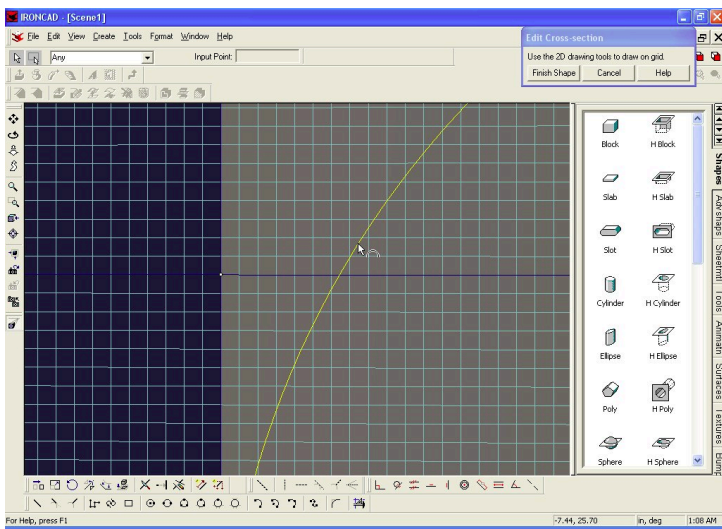

And place a check in front of 2D Construction...

Now we can add our construction line... Click on horizontal construction line... and click on the grid at 0,24
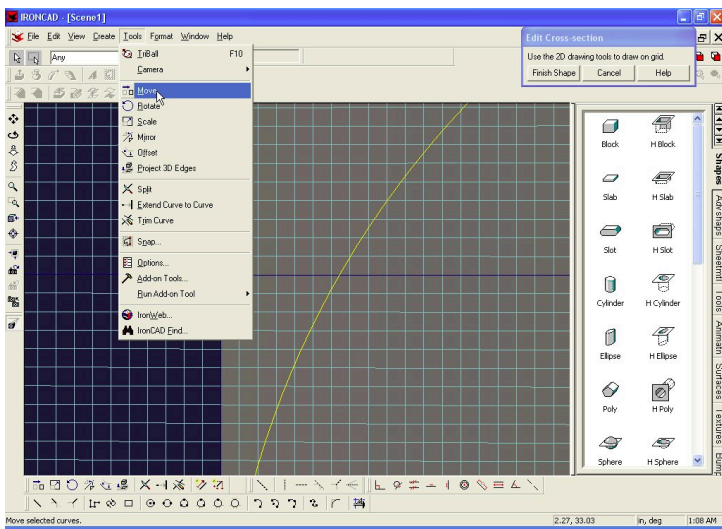

There's our line... now lets zoom in on the back end a little bit...Select Window Zoom or Ctrl+F5
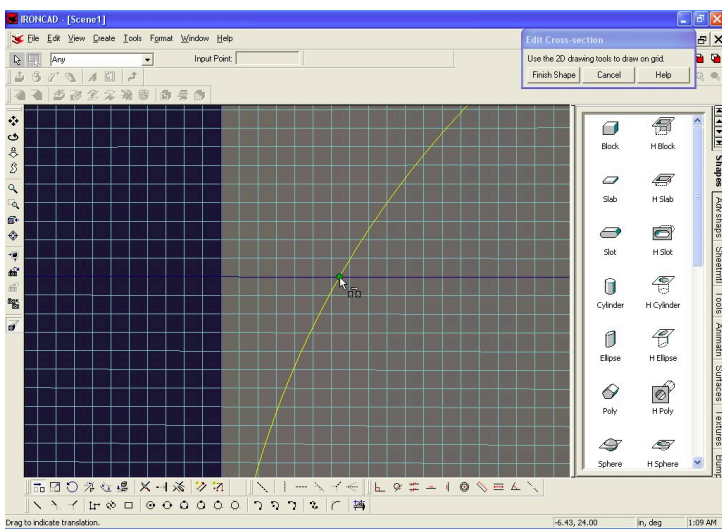

Now we are going to move the arc rearward a little bit... Select the arc...
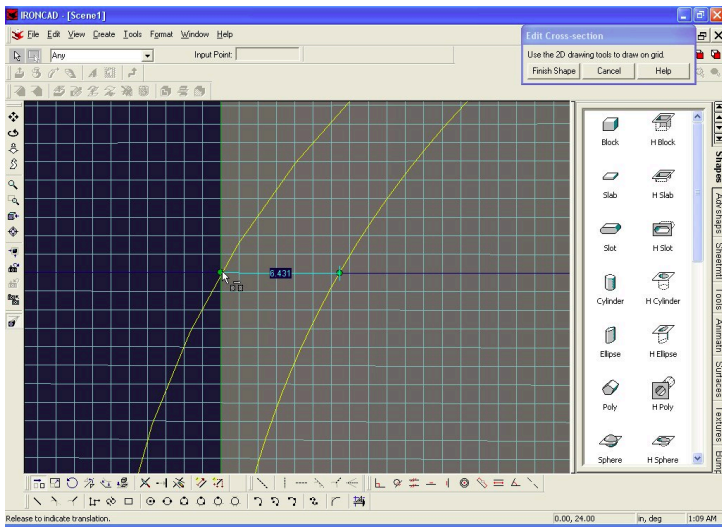
Select "Tools->Move"

Grab the intersection of the arc and the construction line...
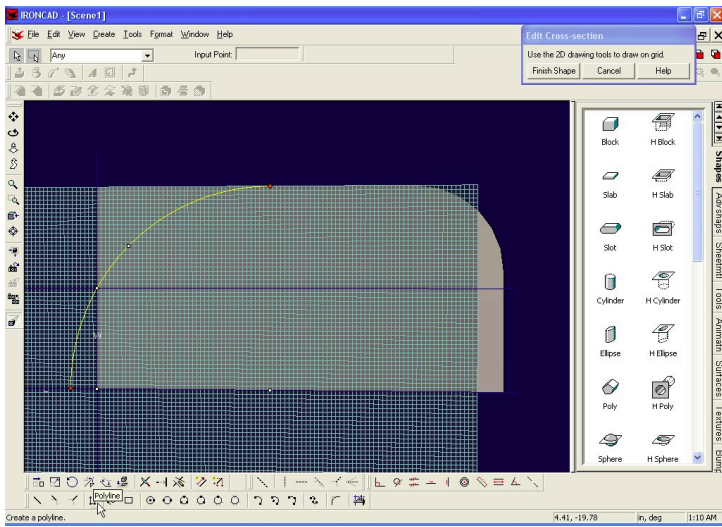

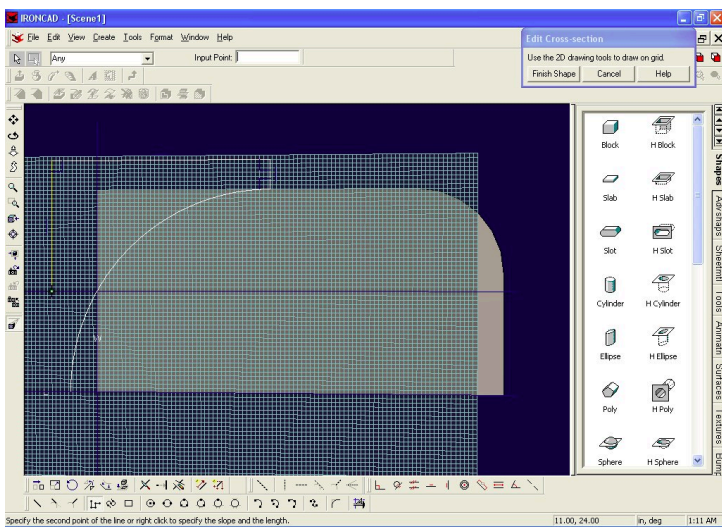And drag that point to the edge of the body, as shown... and then let go...

Very good you've moved your arc. Now lets Fit Screen again F8
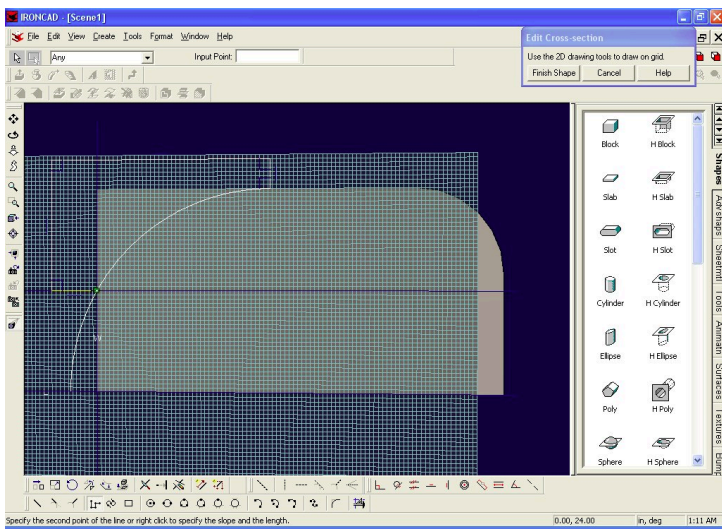
Now we are going to create a polyline. Click on the polyline button...
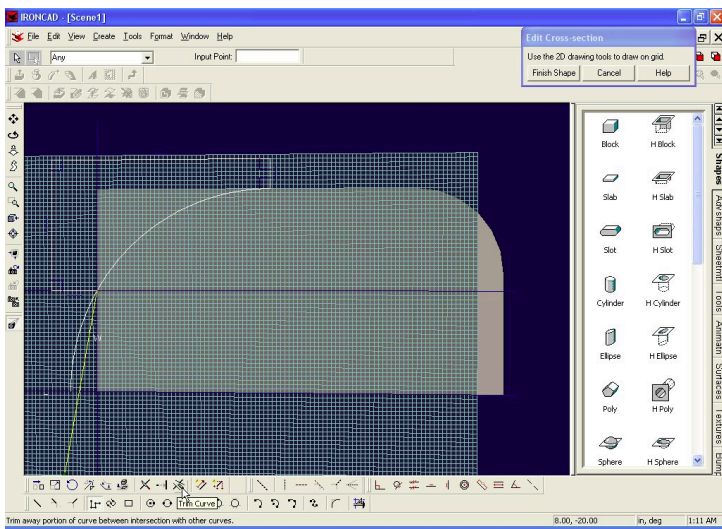

And draw the following profile, as shown... no need to be too precise... Just be sure you start at the top of the arc...
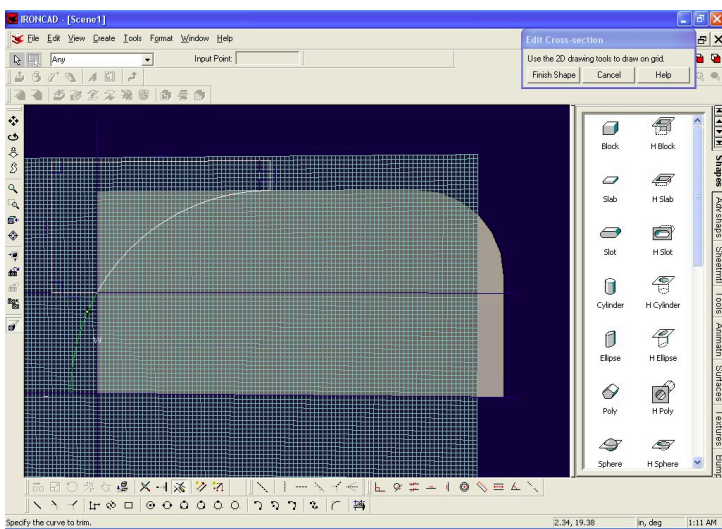

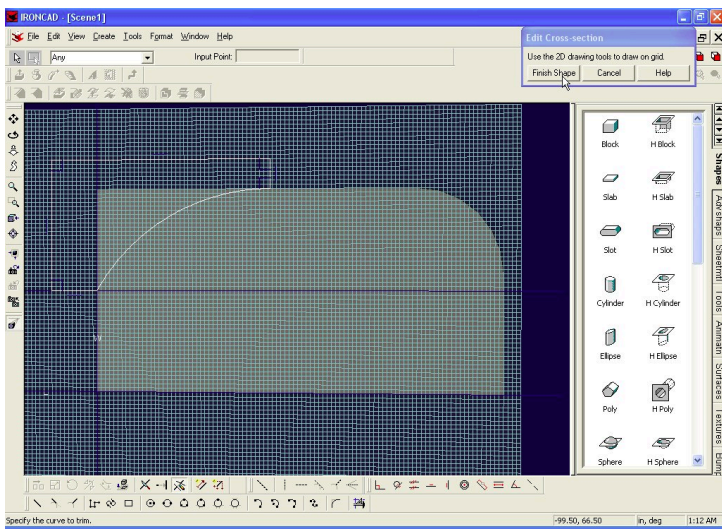And be sure you end at 0,24

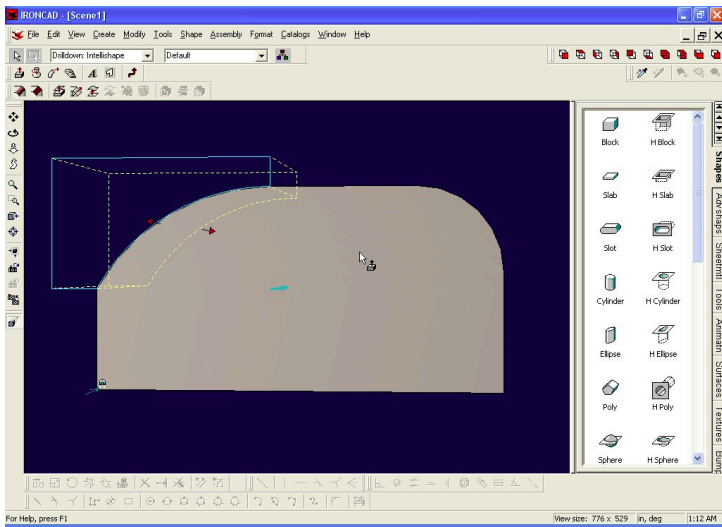Now lets trim the arc. Click on the trim curve button...
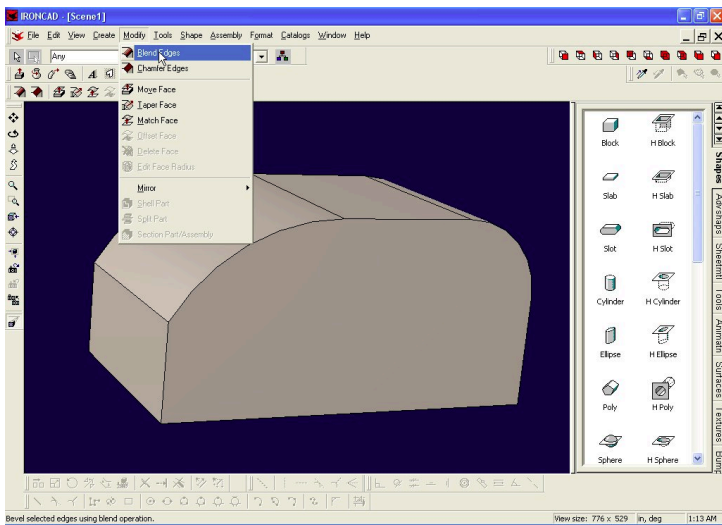

And select the lower part of the arc

Voila, your arc has been trimmed, and your profile is a complete closed shape! So hit the "Finish Shape" Button...
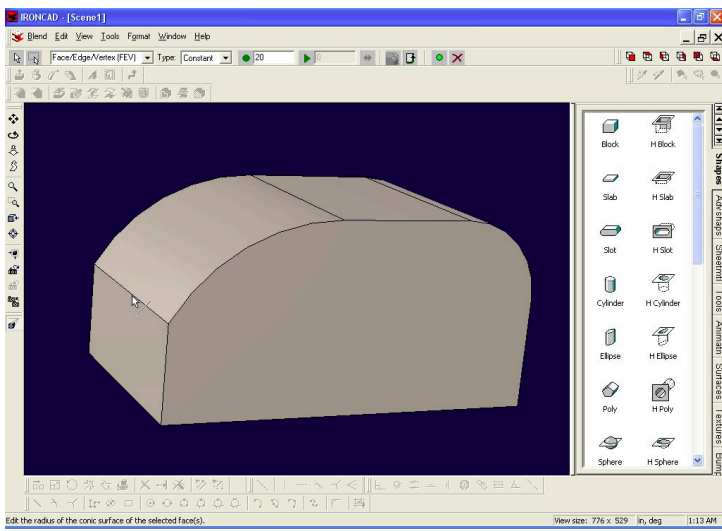
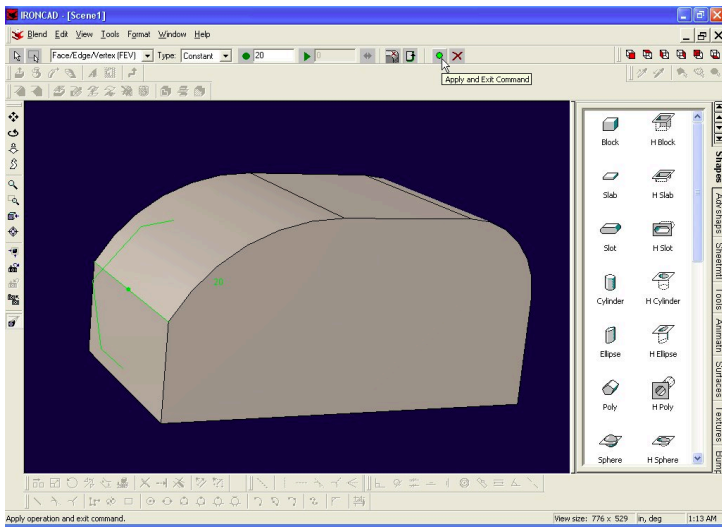And click on your block to complete the operation...

Hey, now that's starting to look like something... what about that sharp edge in the back? Let's take care of that right now... Select Modify->Blend Edges...
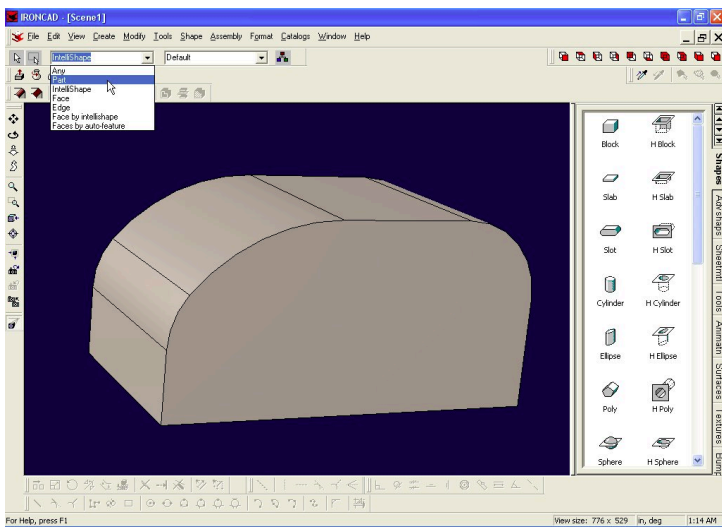

Pick that sharp edge... the Radius in the dialog box should still be at 20...

Click on Apply and Exit...

Then stand back and admire your part... It's really starting to look like a teardrop now...
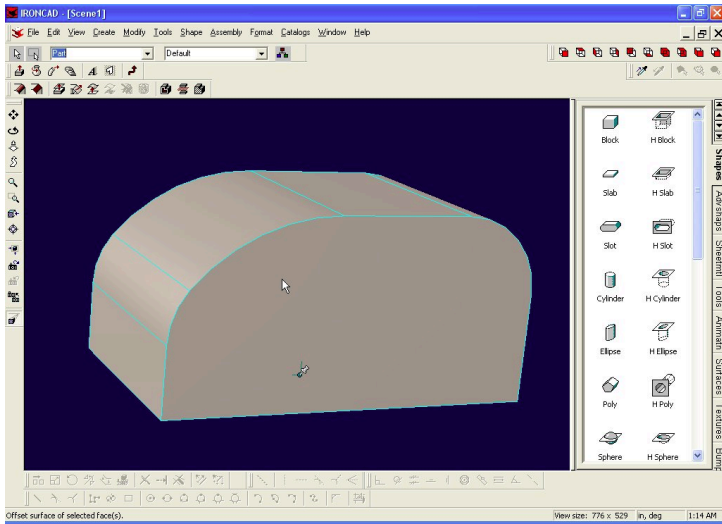

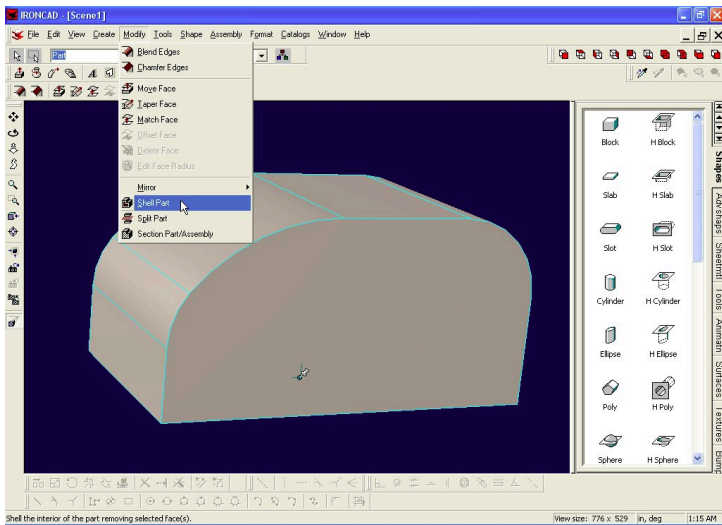Go to page 2 of the tutorial...

Page 2 of the Tutorial to create a teardrop model with Ironcad 6

Now it's time to hollow out the inside of the teardrop... In the type dropdown box, select "Part", then click on the teardrop... it should hilight in cyan...
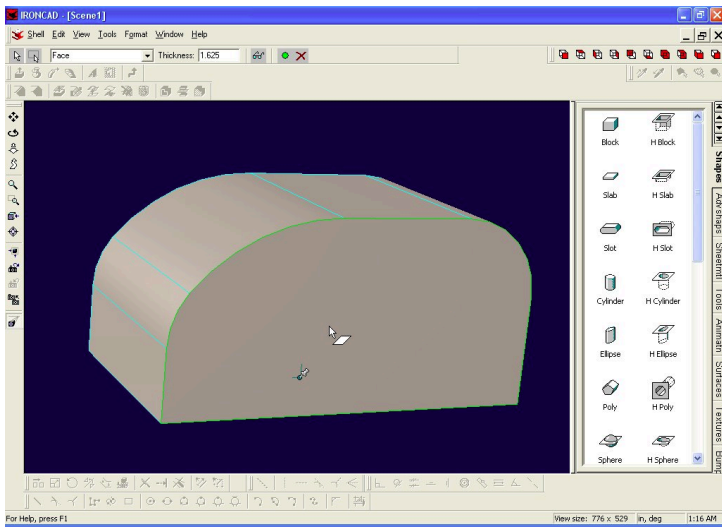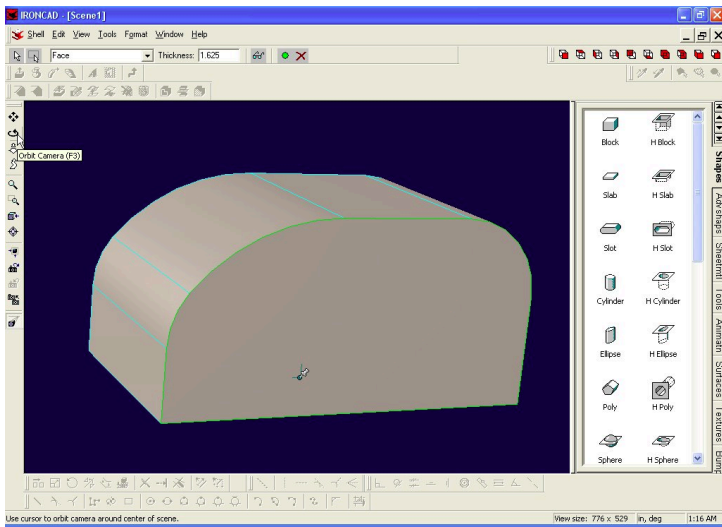

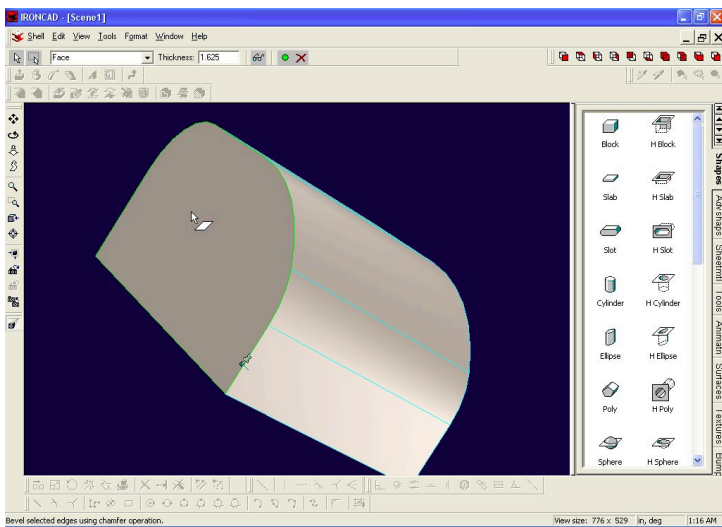Select Modify->Shell Part...

Type in a thickness of 1.625

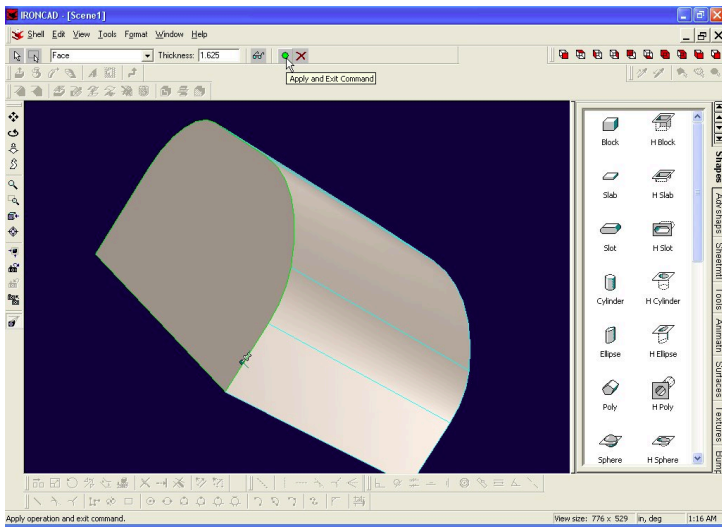then select a face to pierce... Select the side profile... it turns green...

Gotta spin the body around to get the other side... click on Orbit Camera or F3
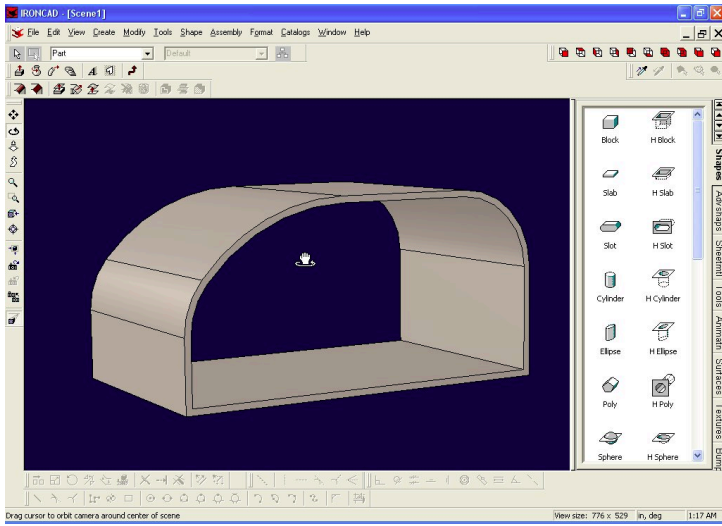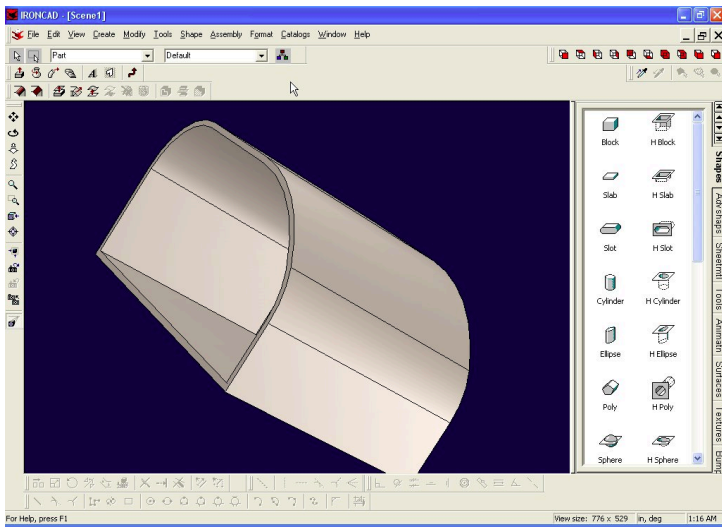

Now that you can see the other side, hold down the shift key and click on the other side... (shifting lets you select more than 1 item)

Hit Apply and Exit...

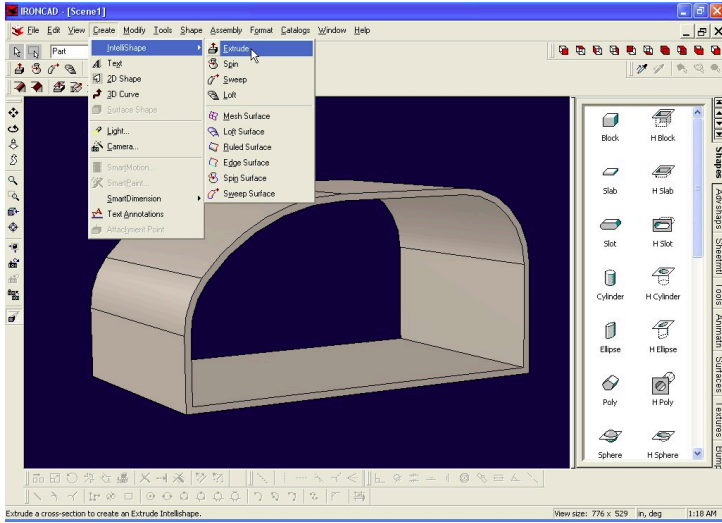Voila... now it's really looking good!!! Select Orbit Camera or F3 and spin it around some more...

[Go to page 3 to create a side wall](#)
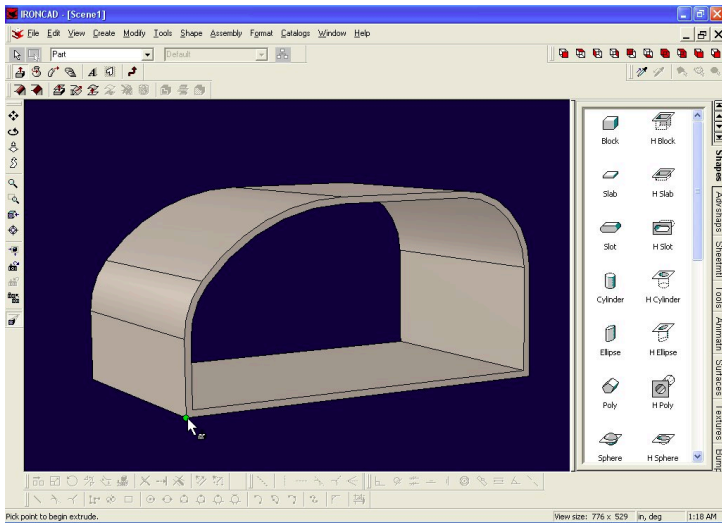
[Back to page 1](#)

It's time to create a wall... We'll only do 1 wall. You can use the same procedure on the other side...
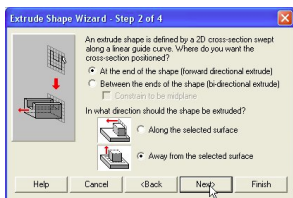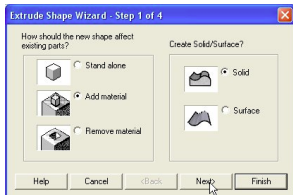
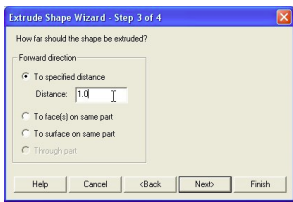Create->IntelliShape->Extrude...

Pick your starting point. I chose the lower left corner again!!!
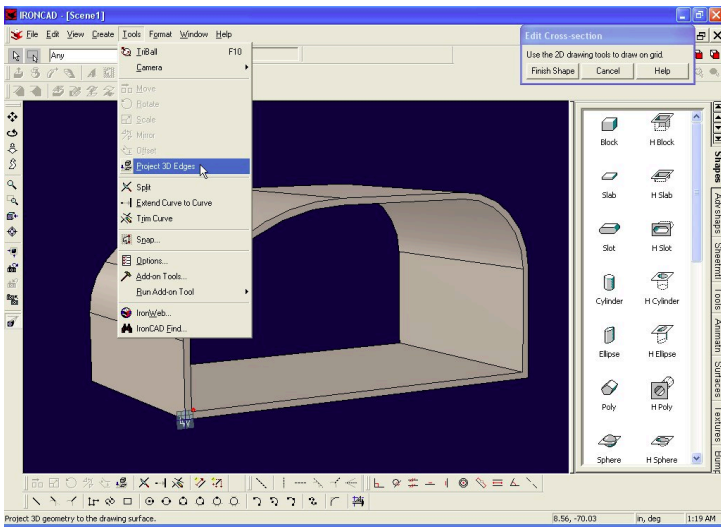
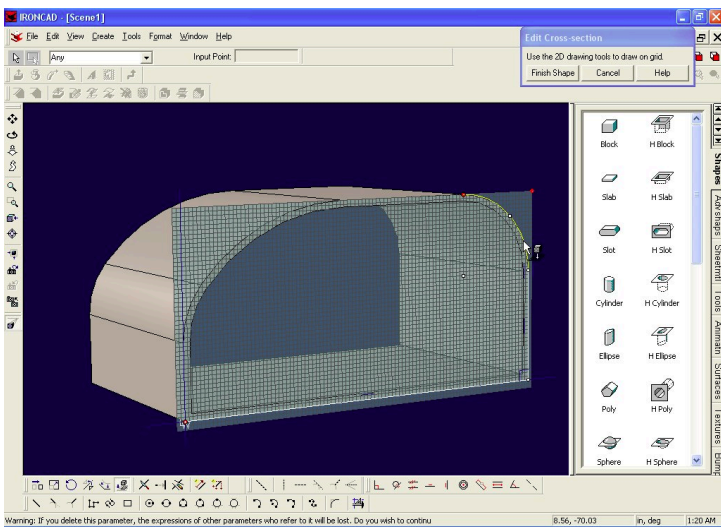This time I click on "Add Material" in the wizard...

The wall will be 1" thick

You're going to like this... do you think you have to create lines and arcs again? No, not this time... this time we will just extract the edges for our profile!!! :-)
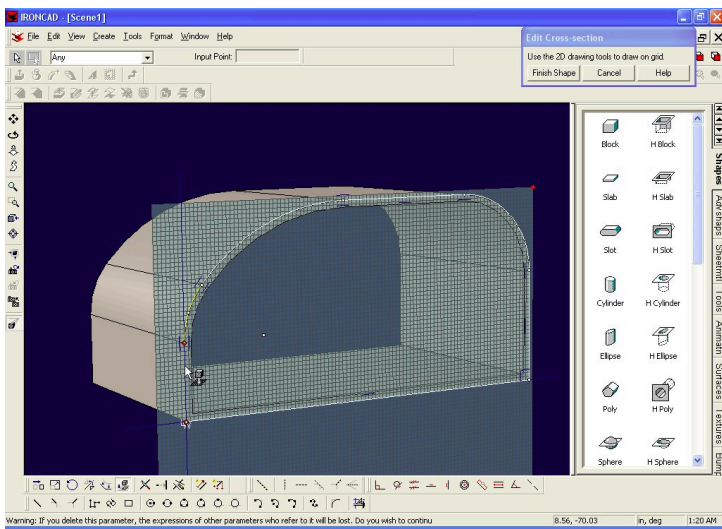
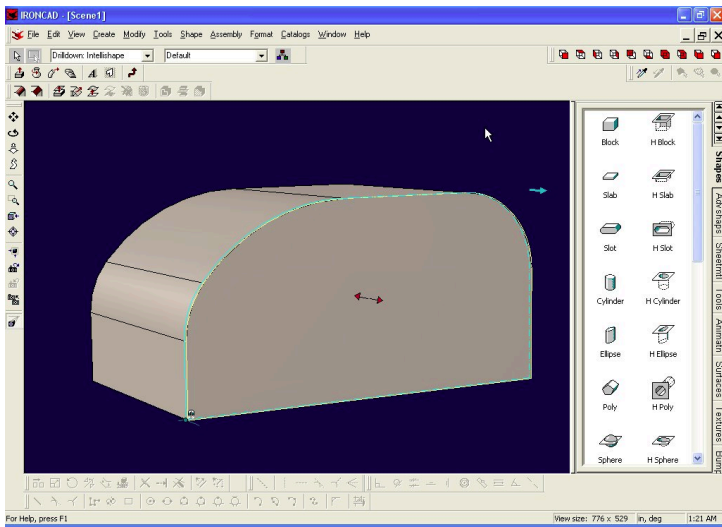Select Tools->Project 3D edges

Go all the way around the part, clicking the edges of the profile...
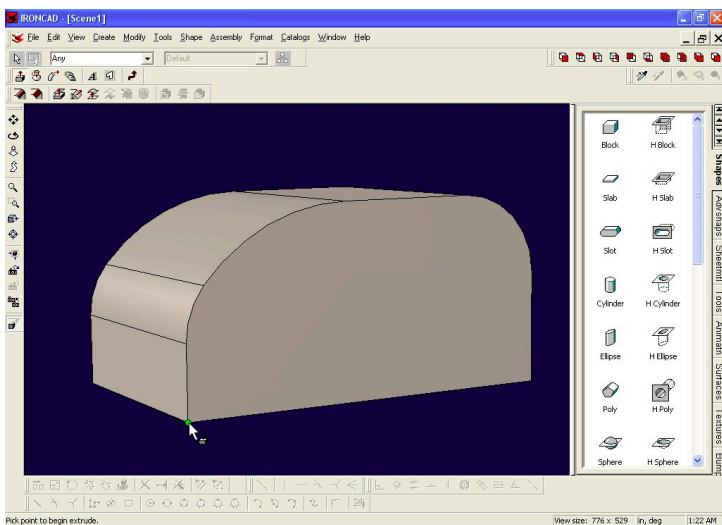

I'm clicking all the edges in order...

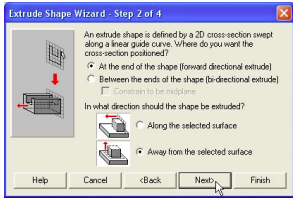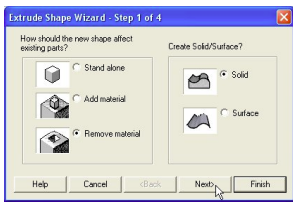When you're done selecting edges, select "Finish Shape"

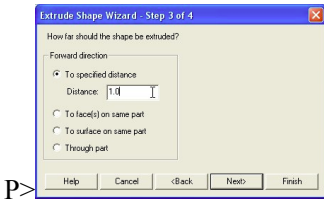And you now have a sidewall, sans door.... okay, lets add that.

Click on Create IntelliShape, and pick the lower left corner as your starting point...

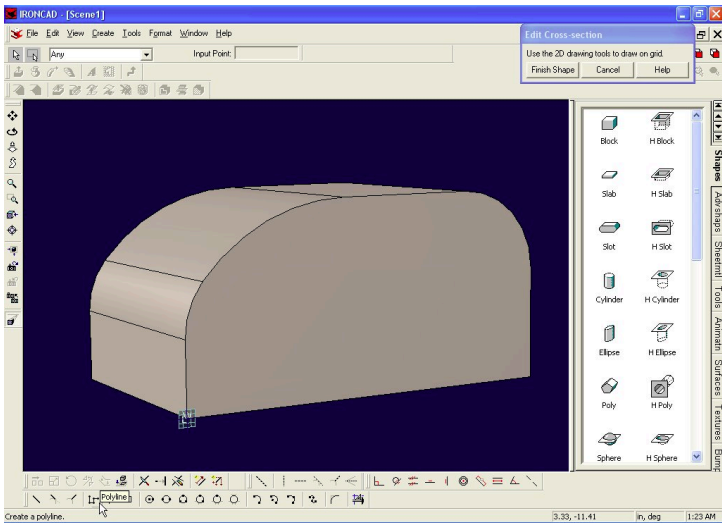In the wizard, select "Remove Material" ...
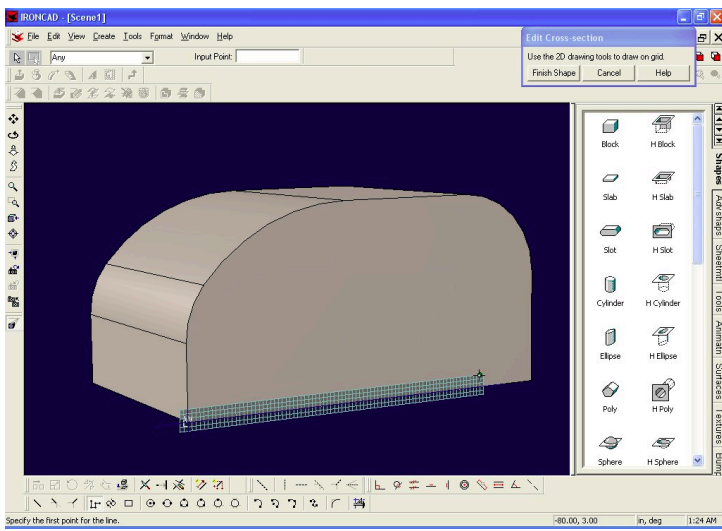
Distance is 1.0 again
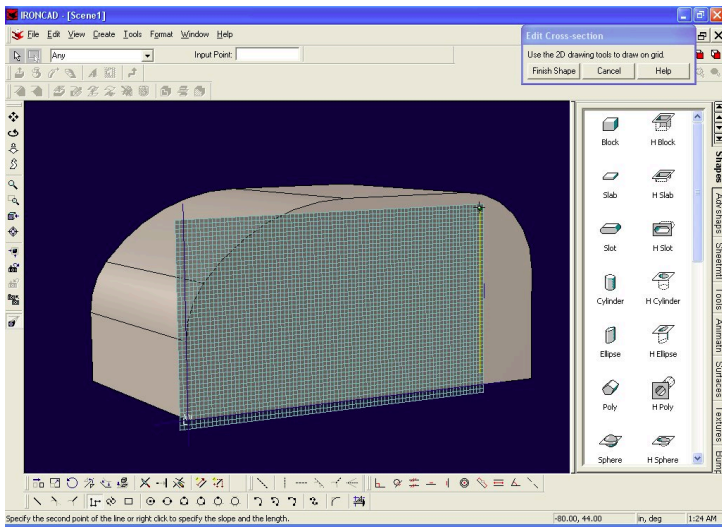

P>

Grid is 1 and 1 again...
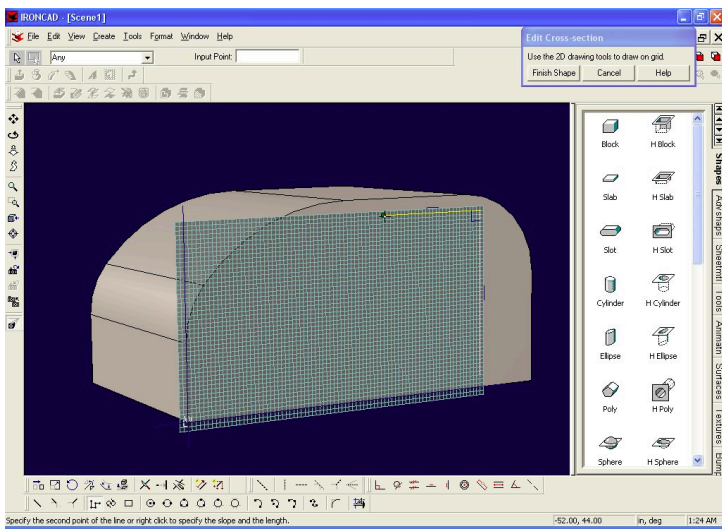

Click on "Create Polyline"
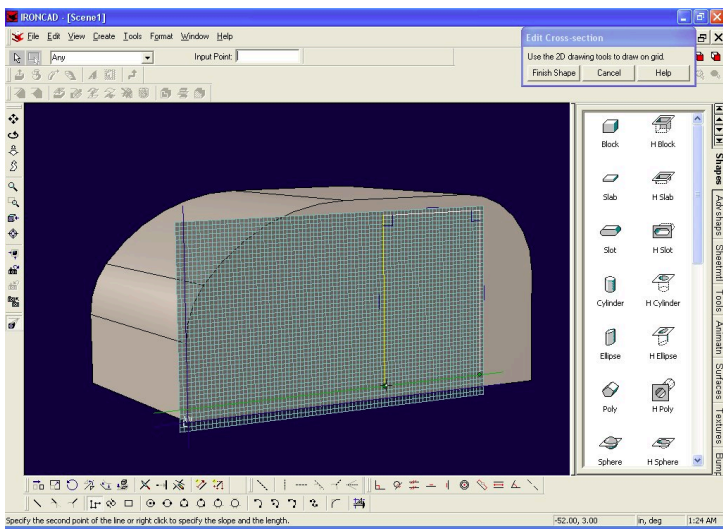

Put your first point at -80, 3
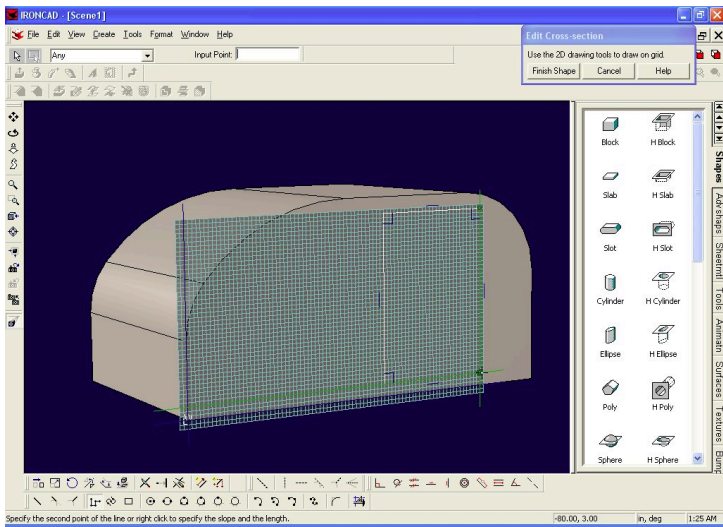
Your second point should be at -80, 44

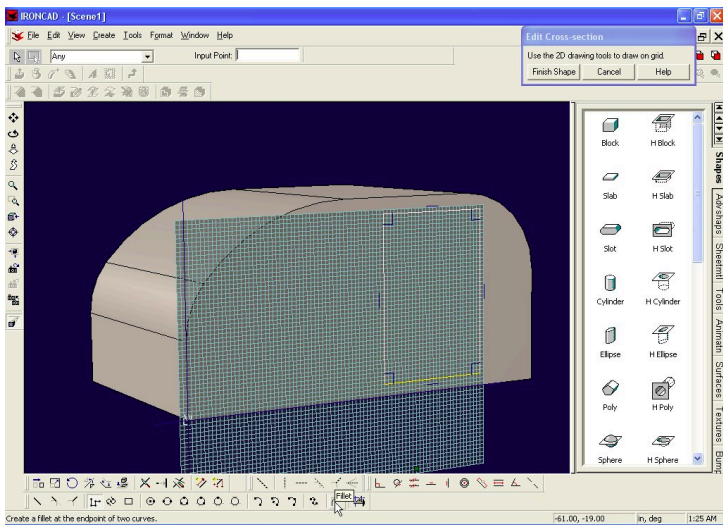The third point should be at -52,44
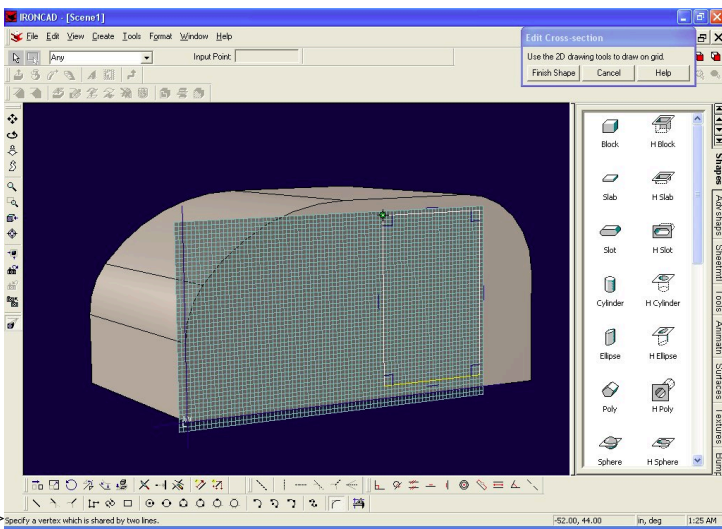

The 4th point should be at -52, 3

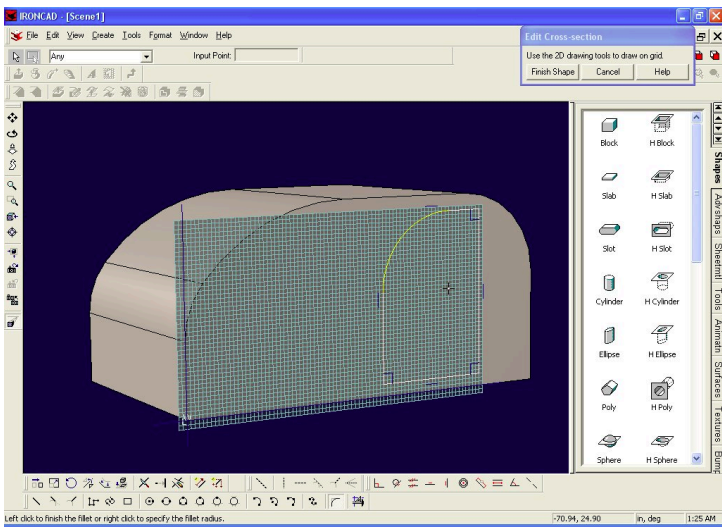And finally, close up your shape, ending back where you started...

If I recall, didn't the Benroy have a curve on one corner of the door? Let's add a similar curve to our Teardrop... Click on the fillet button...
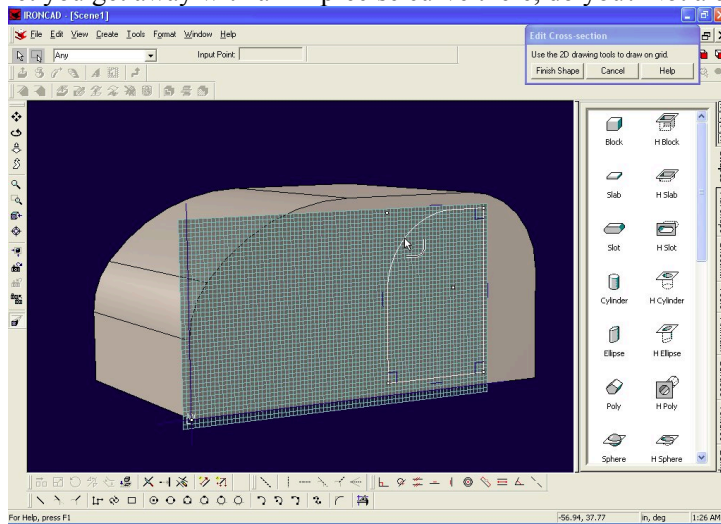

Then grab the upper left vertex of the door...

and drag it down, till it appears to be about the same size as the front body curve...
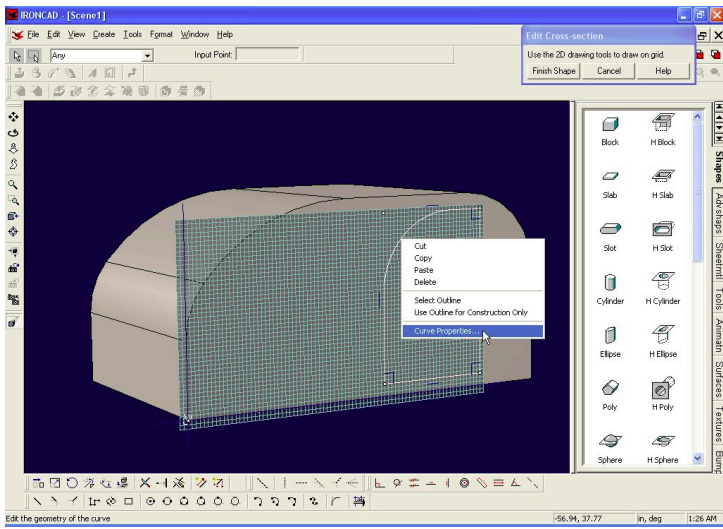

Now you don't think I'm going to let you get away with an imprecise curve there, do you? Not a chance. Click on the "Select Tool"
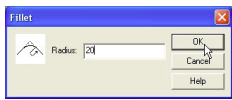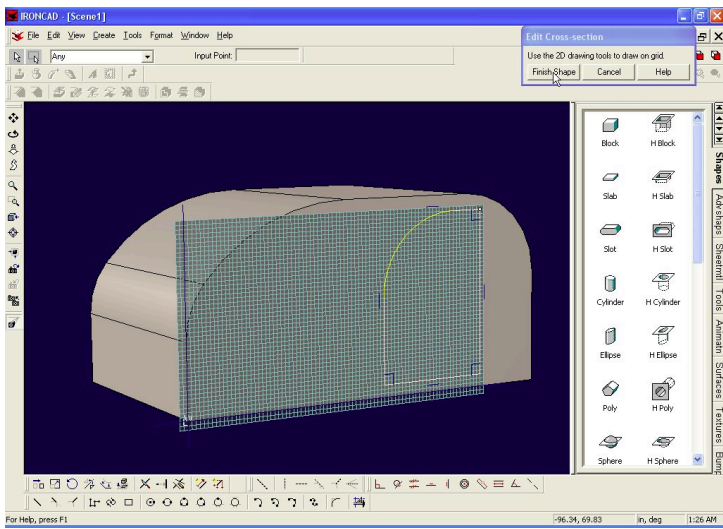

(the one that looks like a mouse),

Select the curve, and then right click it... and select Curve Properties...
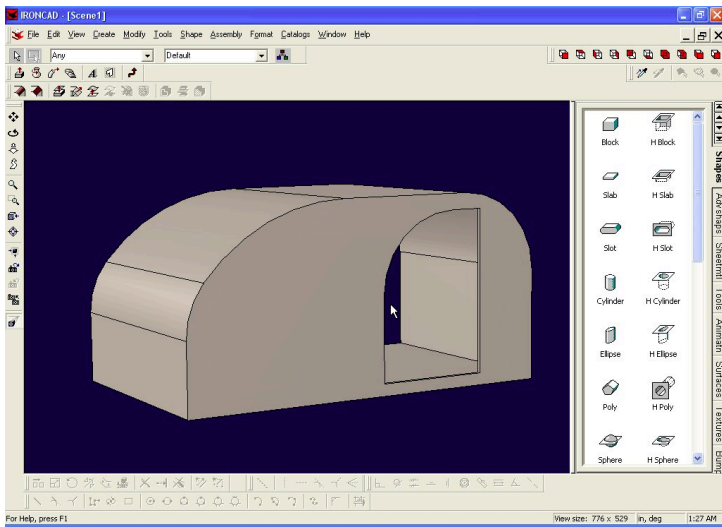
In the fillet box, type in 20

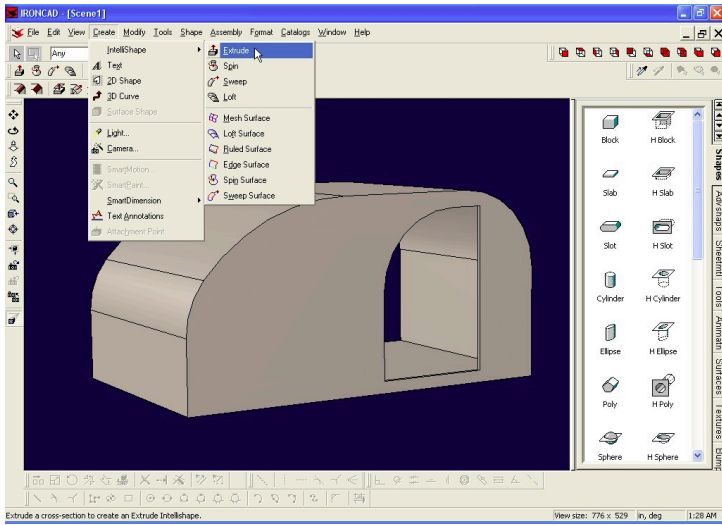
And then hit "Finish Shape"

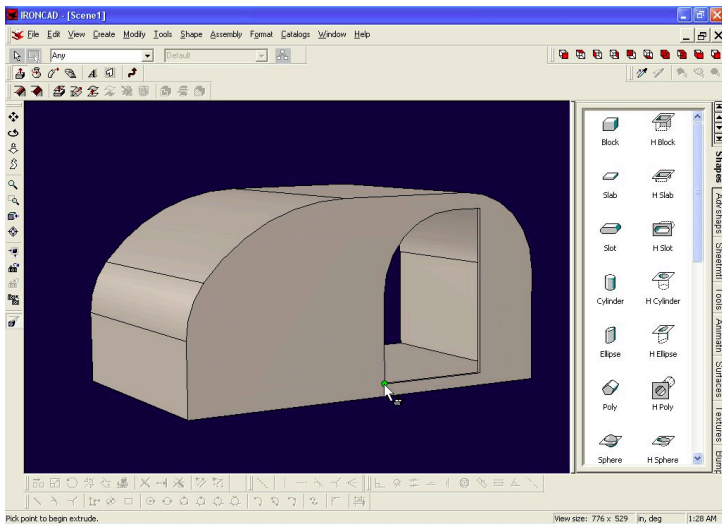Ah, would you look at that... your wall now has a door opening!!!

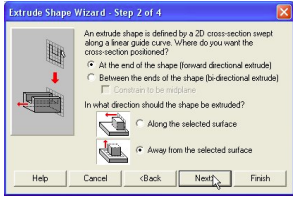Well, we can't stop there... We need a door too...
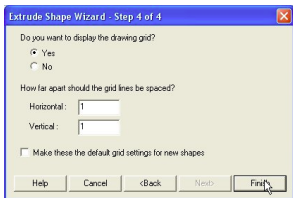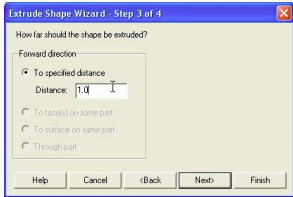
Create->IntelliShape->Extrude

This time the start point can be anywhere, since we are not going to snap to the grid... so pick the lower left hand corner of the doorway...
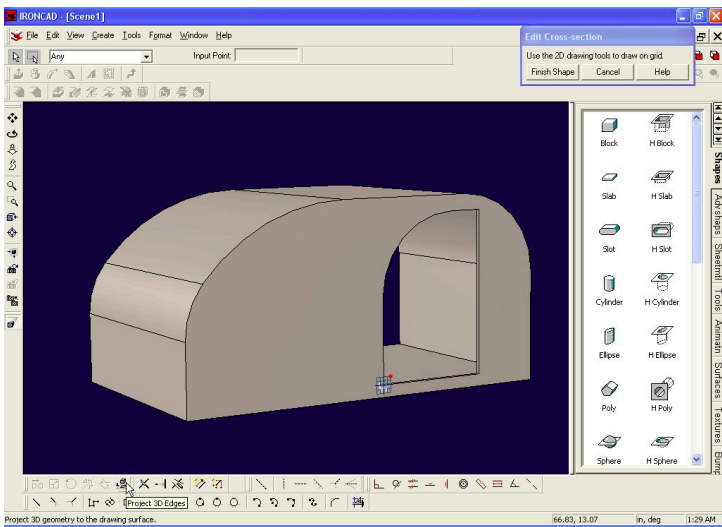

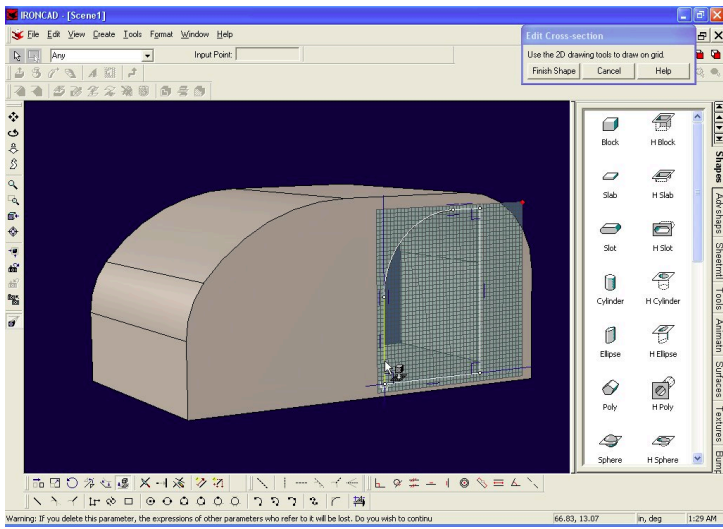This time, select "Stand Alone" in the wizard...
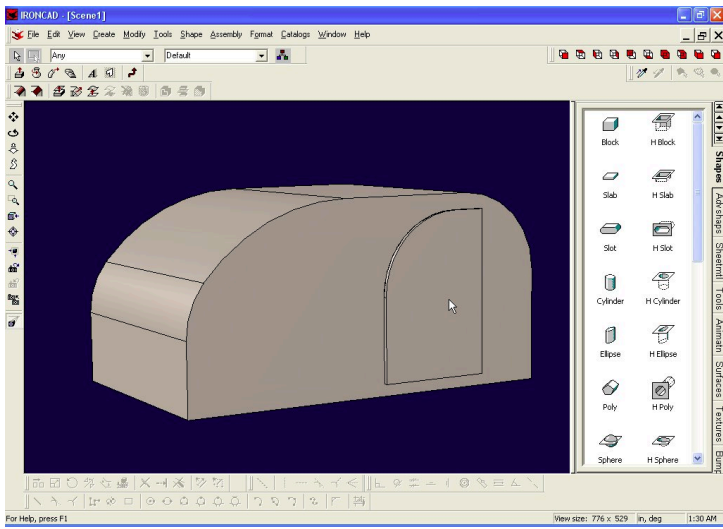
We'll make the door 1" thick

Click on "Project 3D Edges"

Go all the way around the door, selecting all the edges...
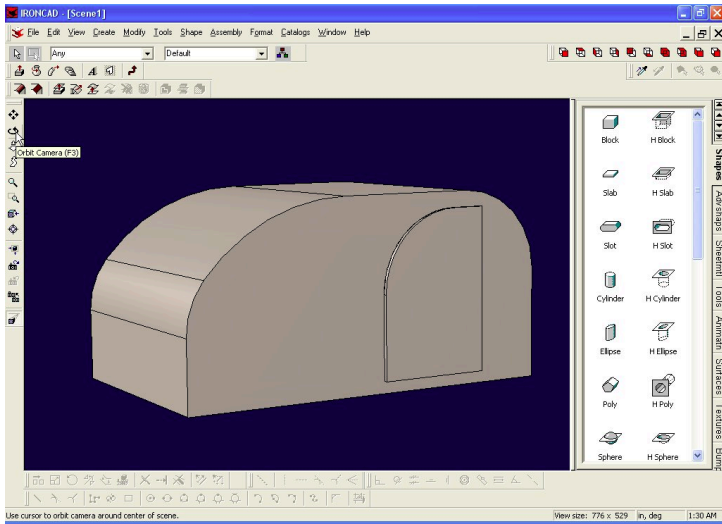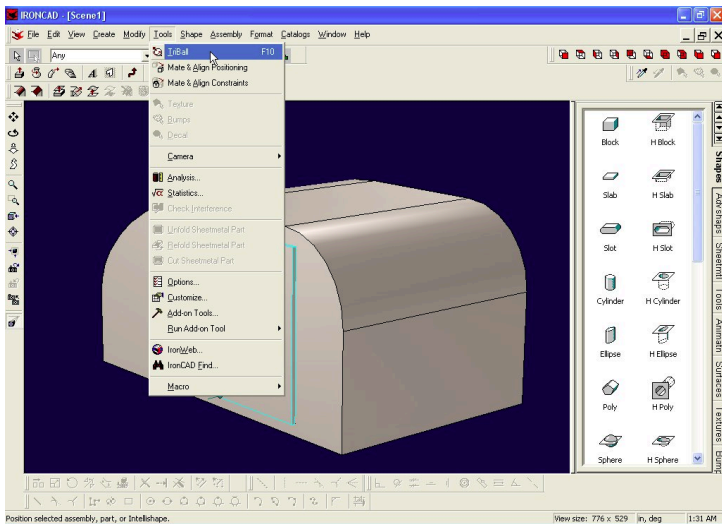
And then select "Finish Shape"

Working on the door

The door is not flush with the body of the teardrop. We'll take care of that now... Let rotate it around so we can see the other edge.
Orbit Camera (F3)

Now we are going to learn about the triball. That is the moving and rotating tool that comes with IronCAD. Select the door, and then Tools->Triball...
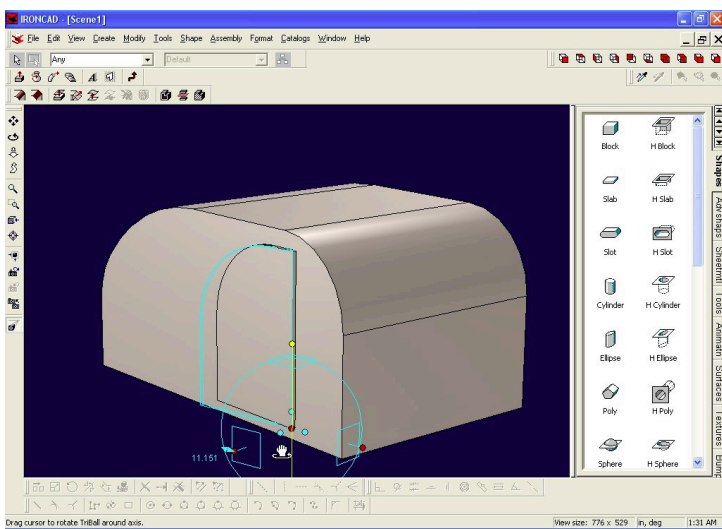

Hit the spacebar to detach the Triball. Grab the center dot, and drag it to the lower right hand corner of the door. Let go when you hit the green dot!
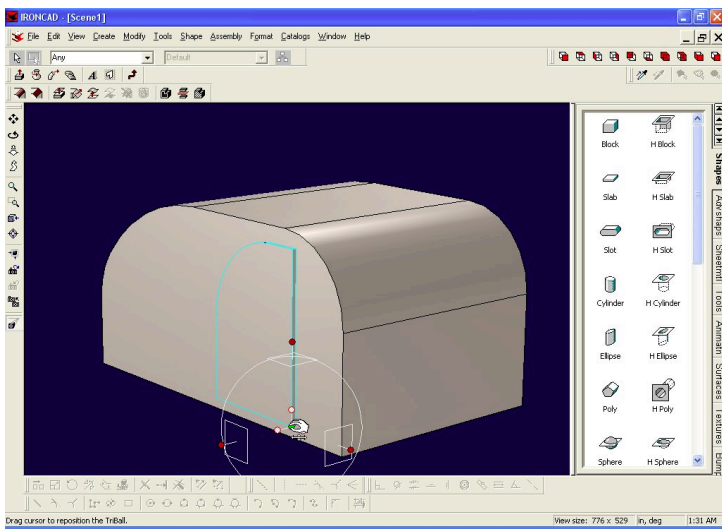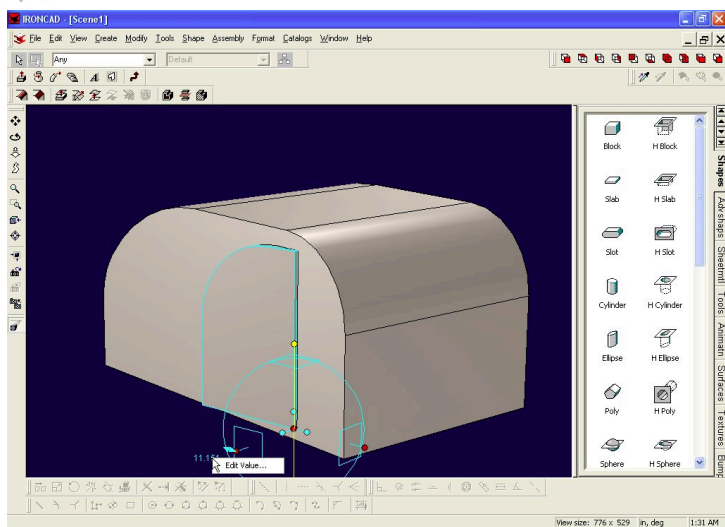
Hit the spacebar to reattach the Triball to the door. Now hit the upper red handle to turn on your axis of rotation.
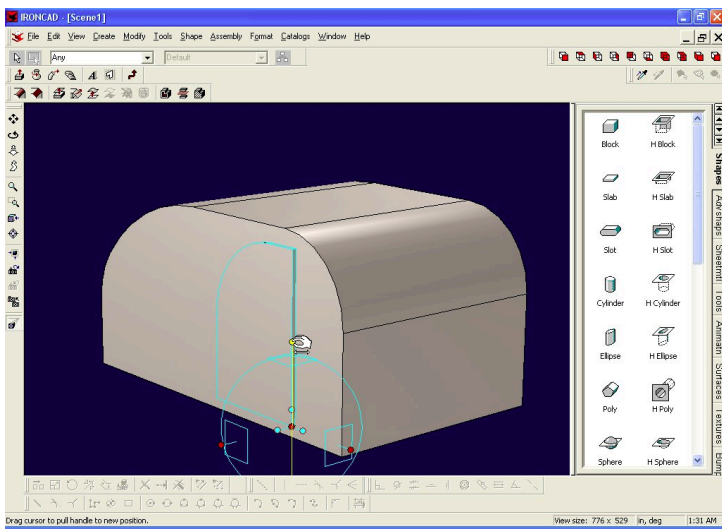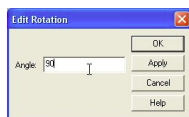

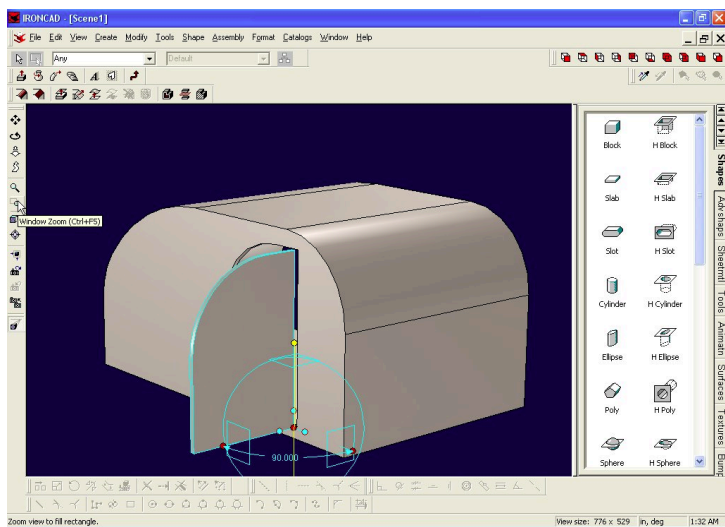Drag your mouse inside the ball to rotate it...

Right click on the dimension and select "Edit Value"

Type in 90 for your desired angle of rotation...

It looks like the door is open now!!! :-) Hit the yellow dot on top to deselect the axis of rotation...
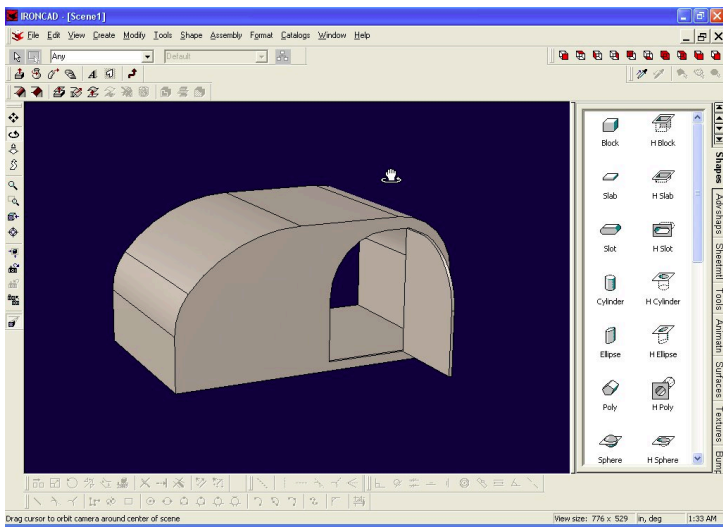

Now it's time to position the door to the body...lets zoom in on the lower right hand corner of the door... Window Zoom (Ctrl+F5)

Now grab the center dot of the Triball and move it to the lower right hand corner of the door opening... Your door is now properly positioned.
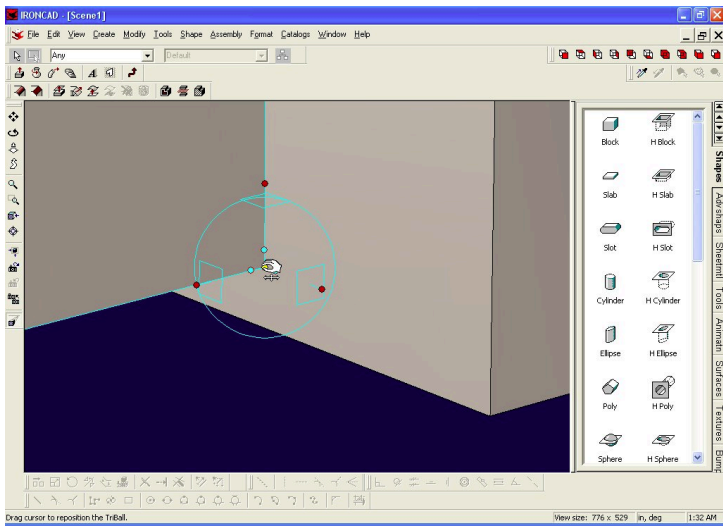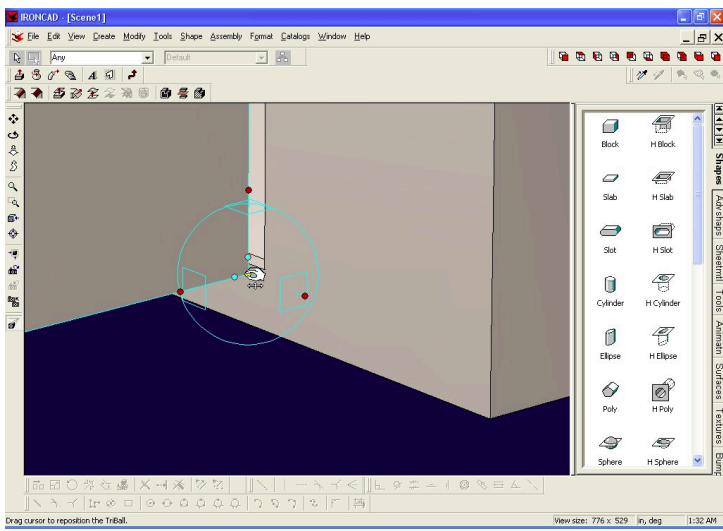
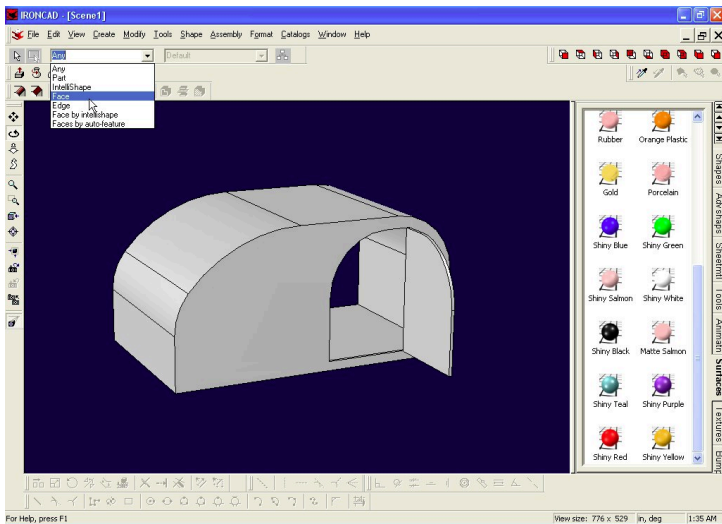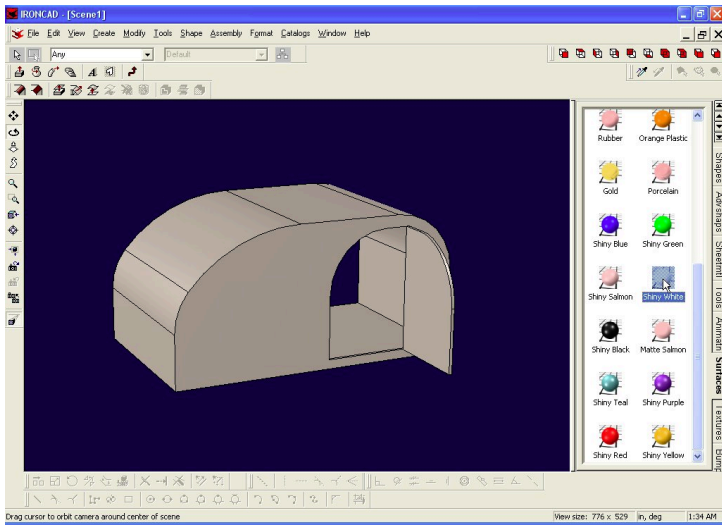Orbit F3 and rotate the model as shown.

Let's have some fun... the hard work is done... let get out the box of crayons and color!!!

Make sure that the type "Any" is selected in your drop down box...

Click on the Surfaces Tab of the Catalogs... now scroll down until you see the Shiny White...

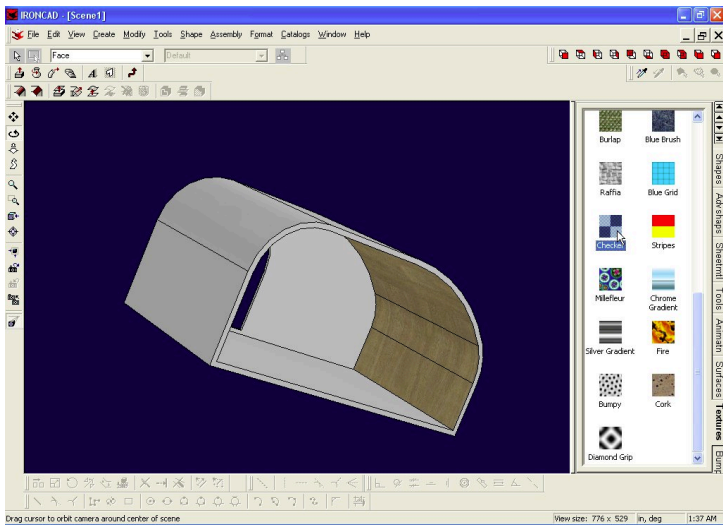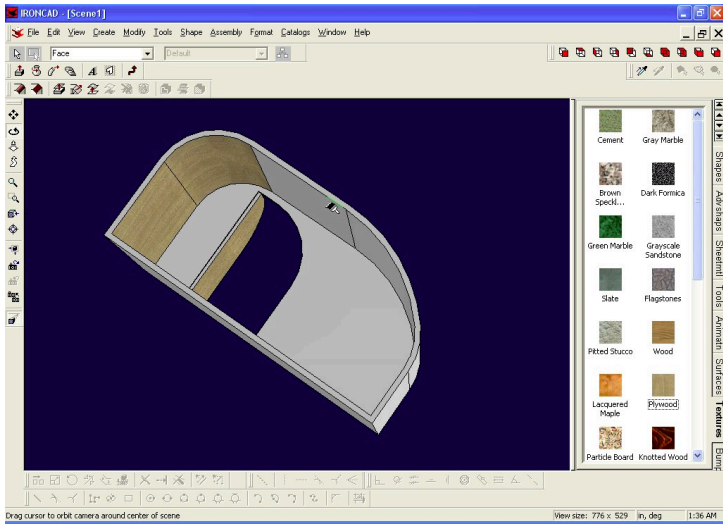Drag the Shiny White item onto your teardrop. The entire teardrop will turn white...

In your dropdown box, change the type to "Face"

Now select the textures tab of your catalog. Do you see the plywood item? Drop that on the inside face of the door.
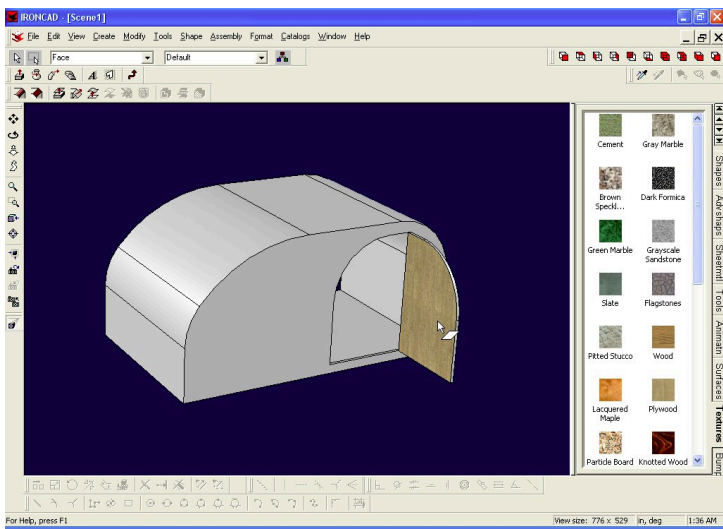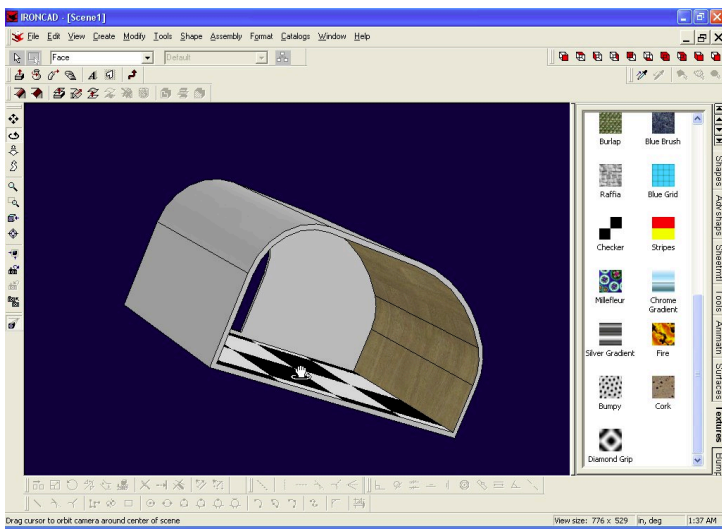
Spin your model around so you can color the inside...Orbit(F3)

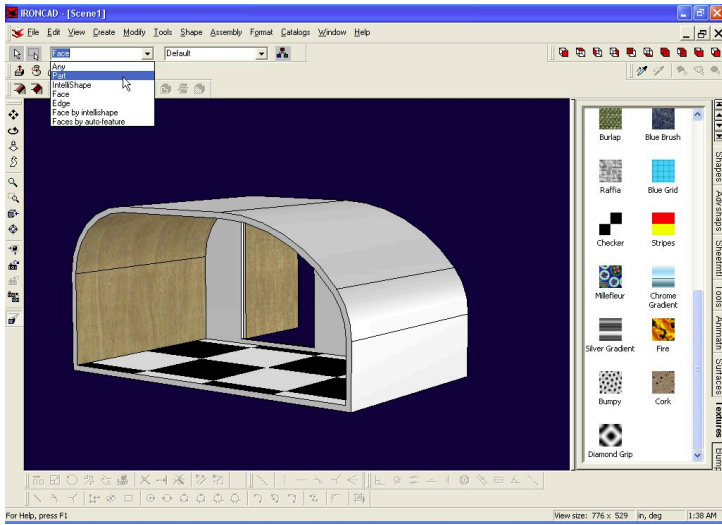Now drag the plywood item to each inside surface you want to color...

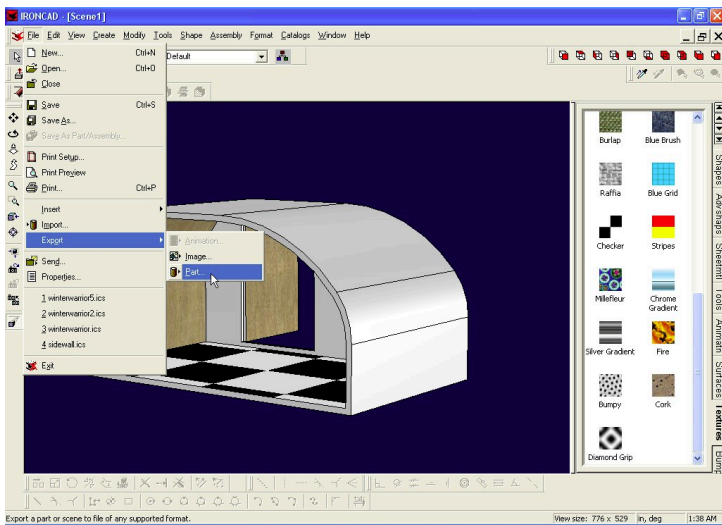Finally, drop the checker item onto the floor...

Are you ready to share your teardrop with the world? The virtual world... Here's how to do that...
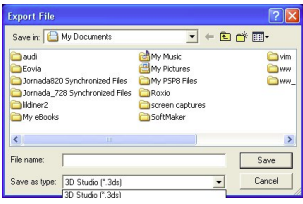
Change your type back to "part"
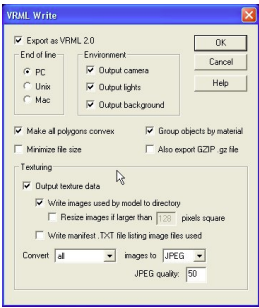

Select File->Export->Part
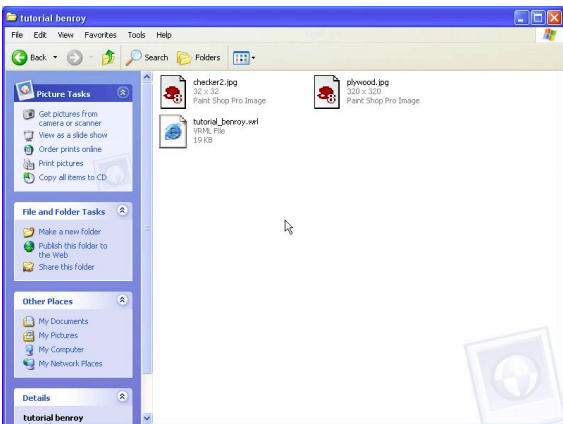

Change your file type to wrl

I create a new directory so I can see all the files that have been exported

I make sure to output camera, lights and background...

Let's go into that directory and see what we created... Ah.. 3 files... the wrl and two texture files... All three file have to be uploaded to the web, and then you can share the wrl with the forum!!!

Have fun, and be sure to save your part in IronCAD. i.e. File->SaveAs...

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