Design a Sofa in 3D Studio Max

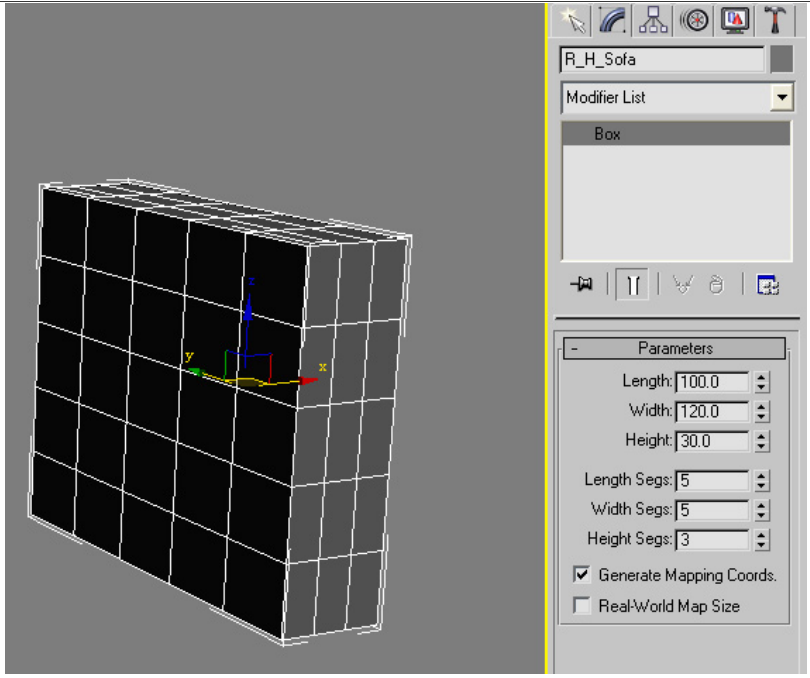
in this 3D Studio Max Tutorial I want to show how to modeling a sofa in very easy steps. then I will show you how to prepare you scene and create your material for having a realistic shot on your sofa.

Final Result Preview

Part 1: Modeling

Step 1:

Create a Box in Left view same as below picture. Change its name to R_H_Sofa which is short form of right hand sofa.

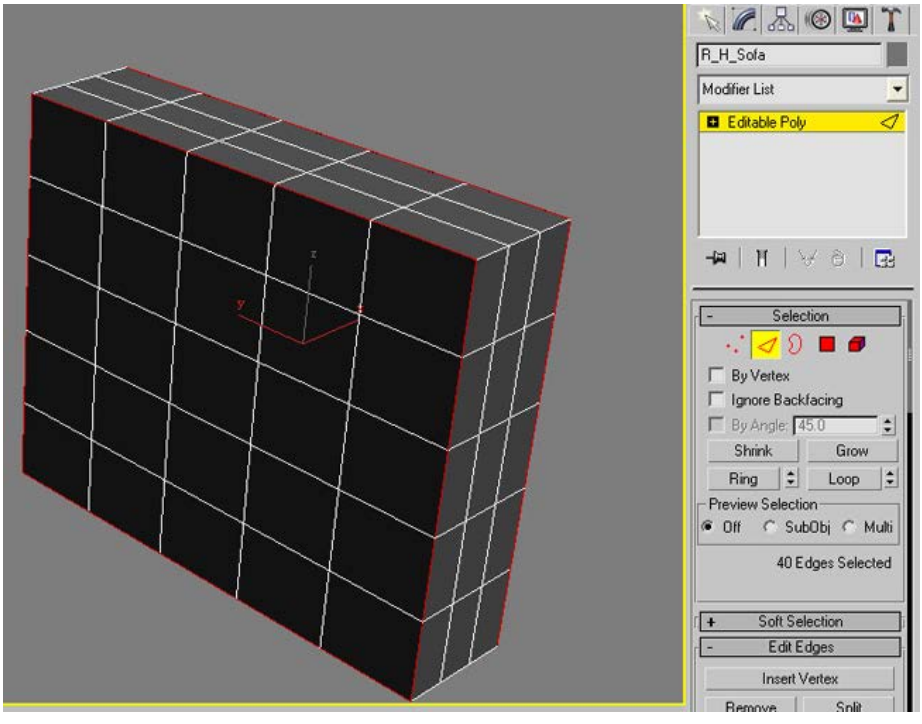


Step 2:

Right click on the Box and choose Convert to Editable Poly.

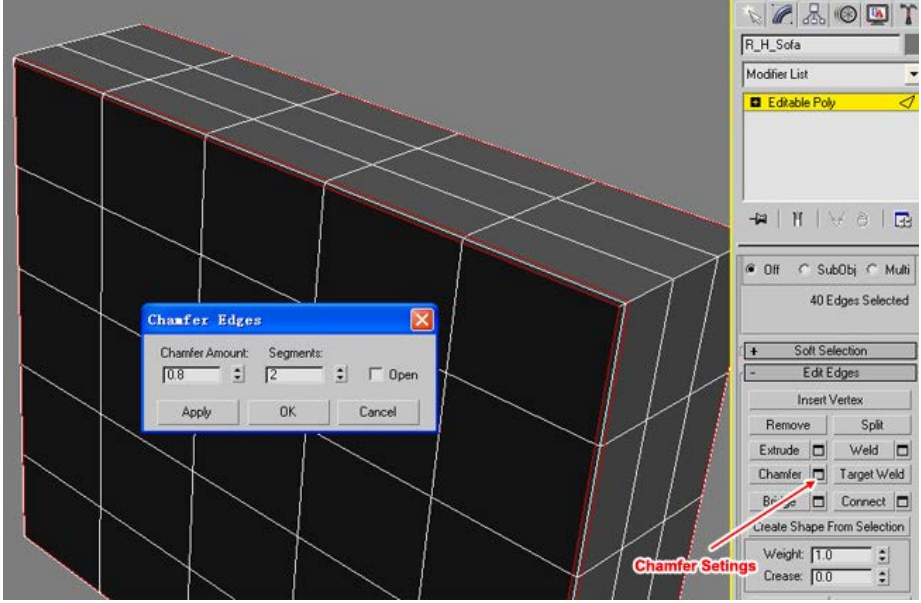
Step 3:

Select Edge from Editable Poly sub-objects. Now Select all segments around box same as below picture.



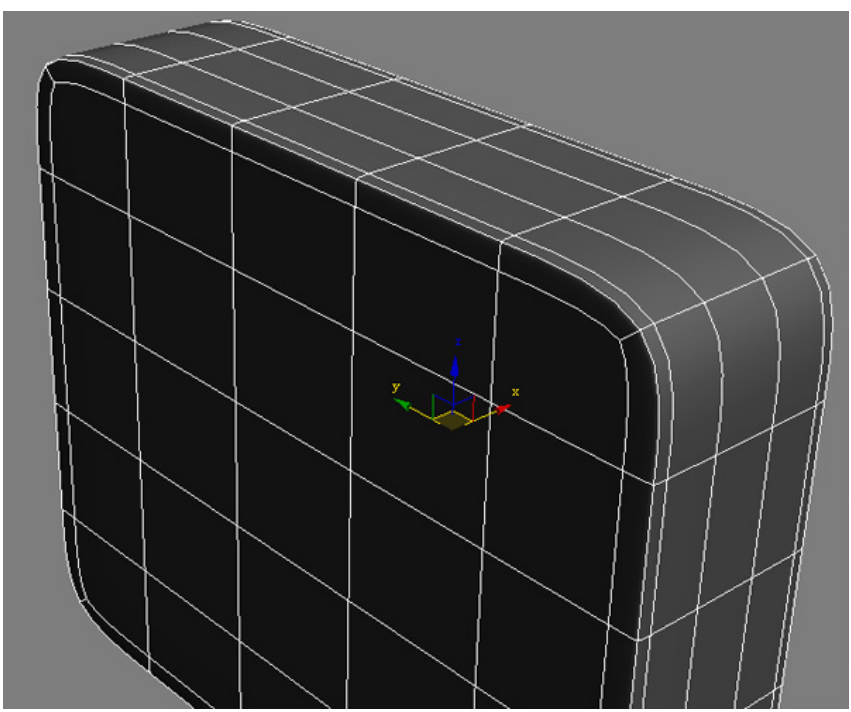
Step 4:

On the Editable Poly parameters hit Chamfer Settings button. Chamfer Edges dialog will be open. Change its parameters same as below picture.



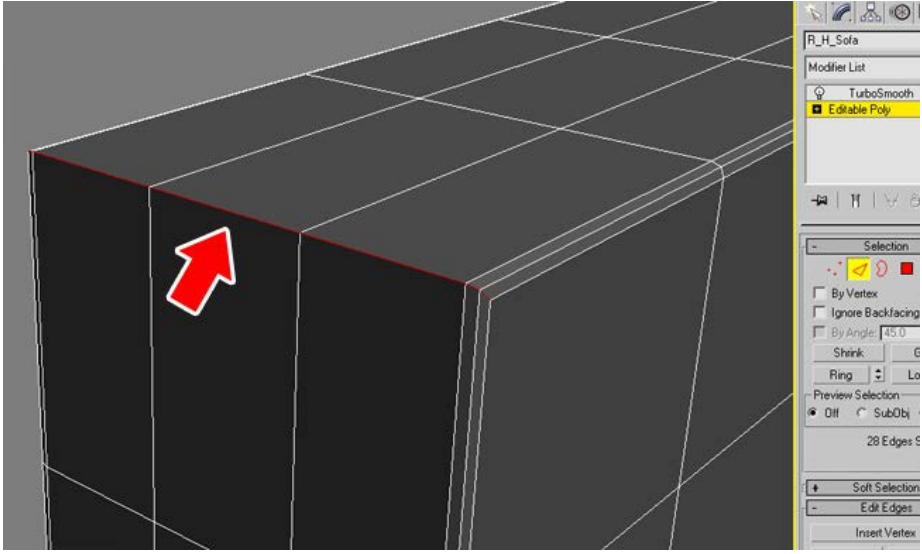
We need to add more segments to border of our object to keep shape after smoothing. Here I preferred to add more edges with Chamfer tool.

Now if you apply TurboSmooth modifier to the box result will be same as this picture.



Step 5:

But we need sharper edges at all corners. So select one edge of each corner and then hit Loop button. Now all corner edges are selected. Again use the Chamfer tool with same settings to add extra edges.



Step 6:

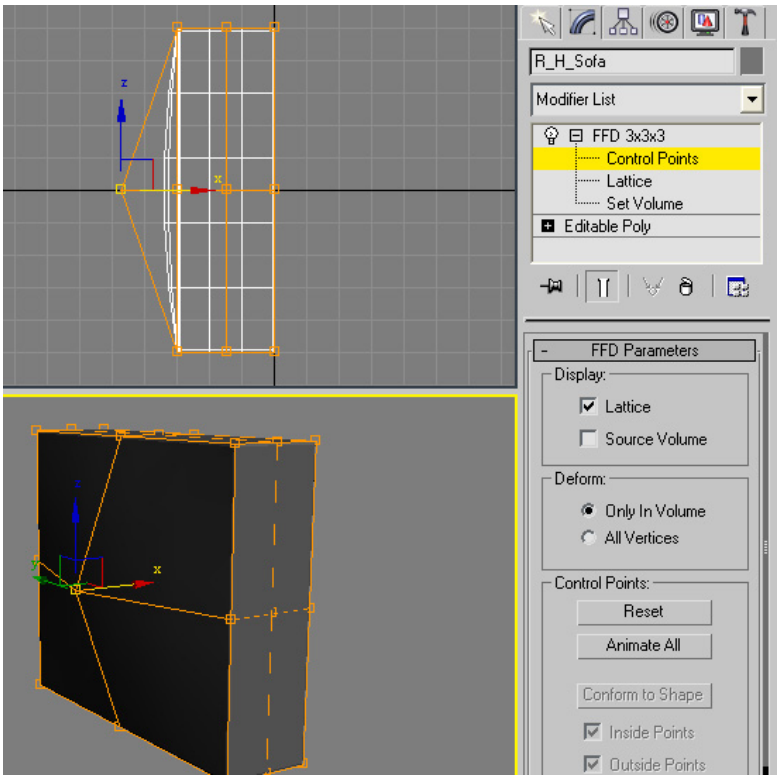
Apply FFD 3x3x3 to the box object

Step 7:

In Modifier stack, expand FFD 3x3x3 and choose Control Points.

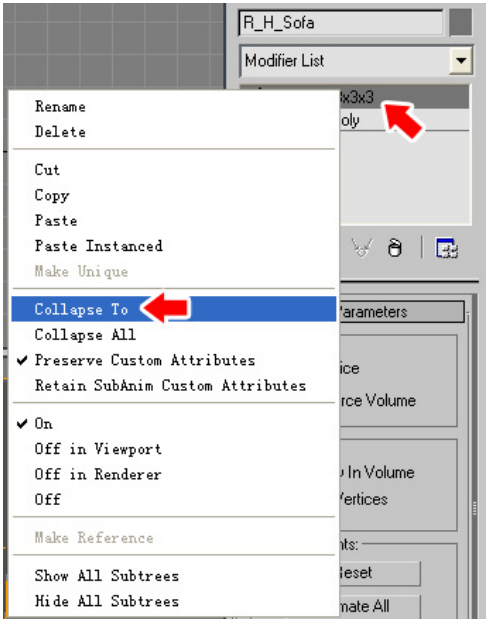
Step 8:

Select the point on the center of box and move it out to have a puffy shape.



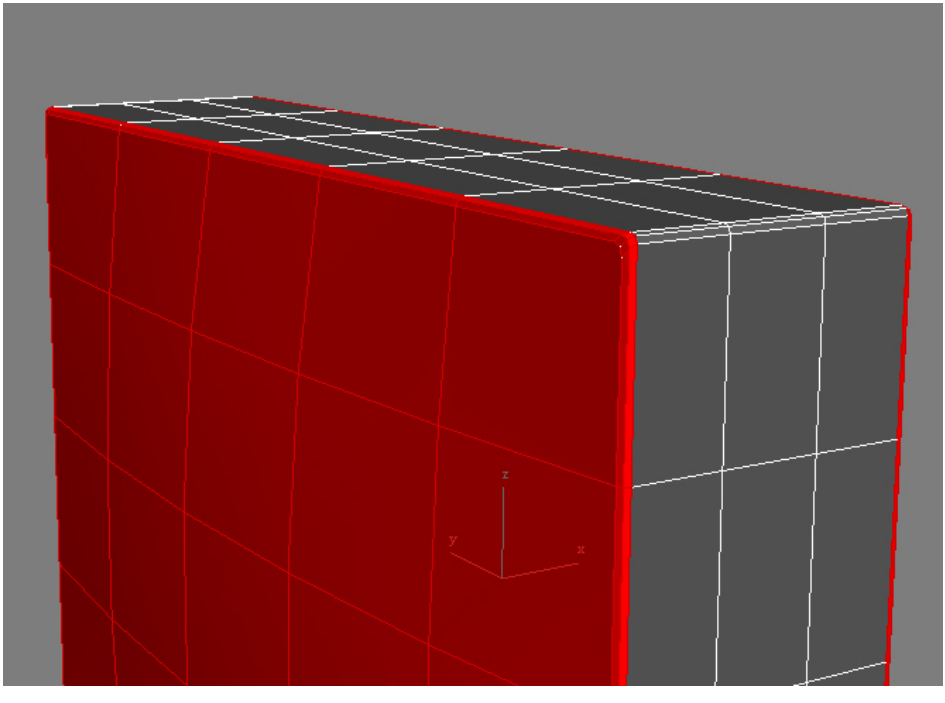
Step 9:

Now that you don't need FFD modifier, right click on FFD 3x3x3 in Modifier stack and choose "Collapse To". Hit "Yes" button from warning window that will appear.



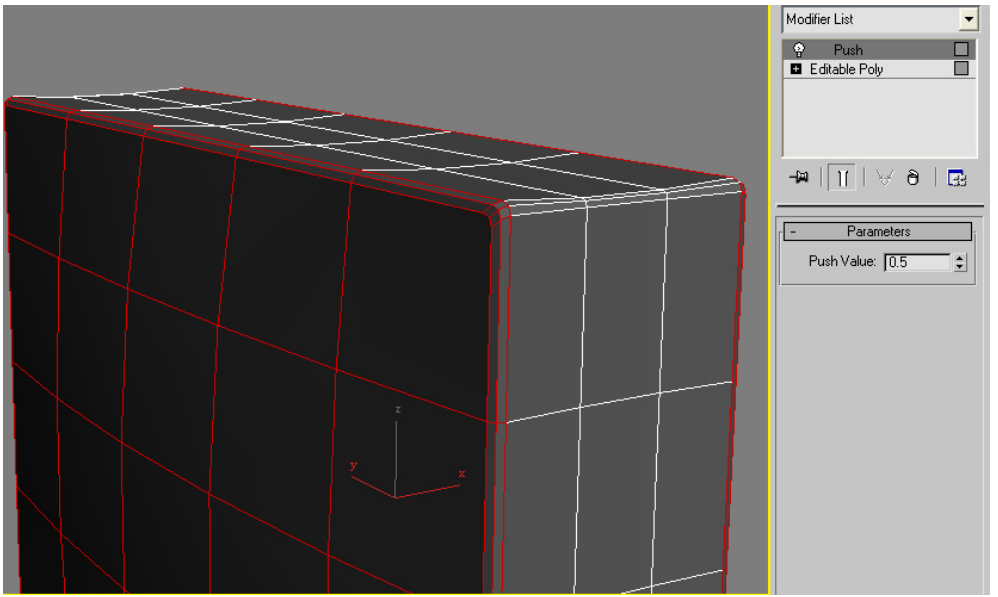
Step 10:

Similar to the below picture, select faces of both sides.



Step 11:

While faces are selected, apply Push Modifier. Change its value to "0.5"

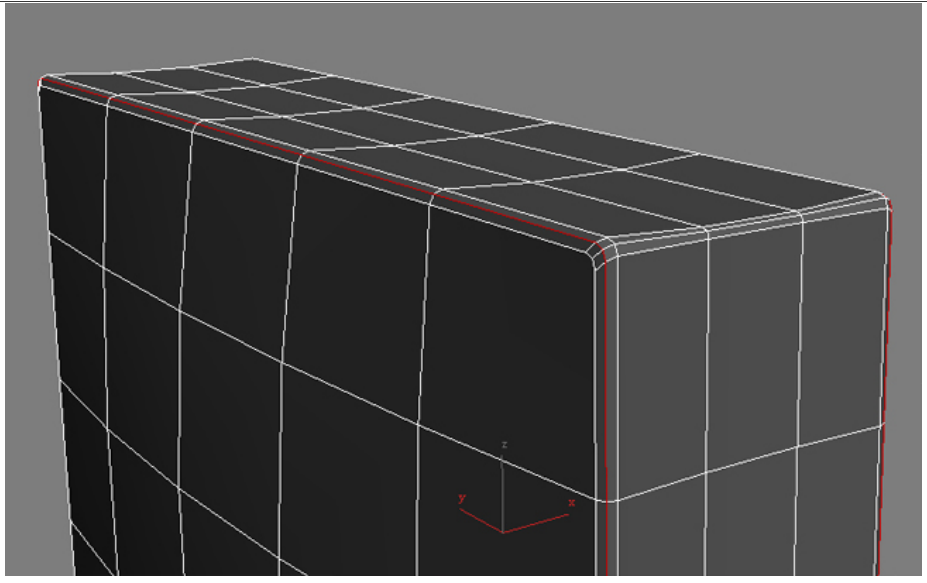


Step 12:

Right click on Push in Modifier stack and choose "Collapse To". Hit "Yes" button from warning window that will appear.

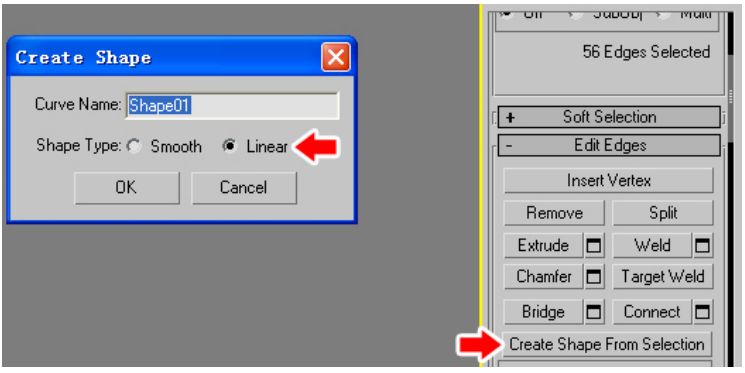
Step 13:

Select the middle edges around of the box. Use Loop tool to do it easily and fast.



Step 14:

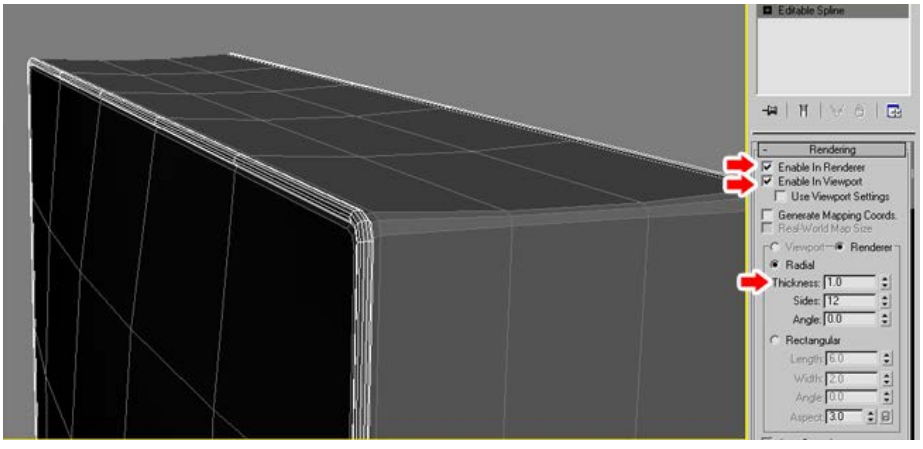
On the Editable Poly parameters click on the "Create Shape From Selection" button. On the Create Shape dialog make sure that "Linear" is selected and hit Ok.



Now you have a Box object and a line shape which created from your selected edges.

Step 15:

Select Shape01 and in its parameters check "Enable in Viewport" and "Enable in Renderer". Now the shape has its radius. You can increase or decrease its radius from Thickness field. I left it with default value.

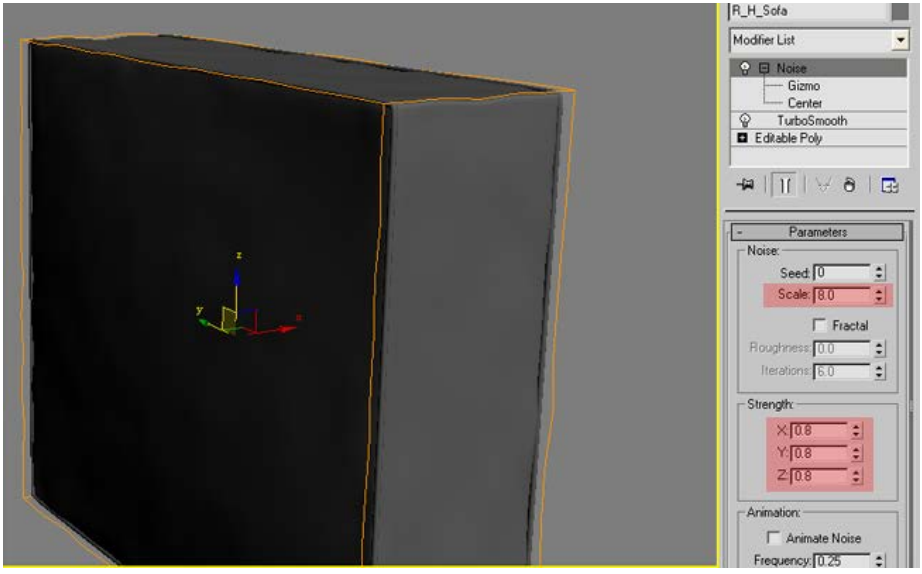


Step 16:

Apply TurboSmooth to both shape and box.

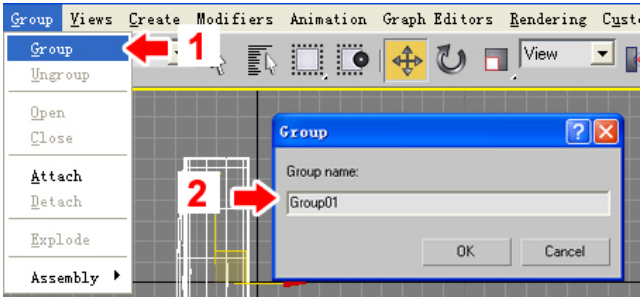
Step 17:

Select the box object and apply Noise Modifier to it. Change the Noise parameters same as below picture. You can also try different values for Noise.



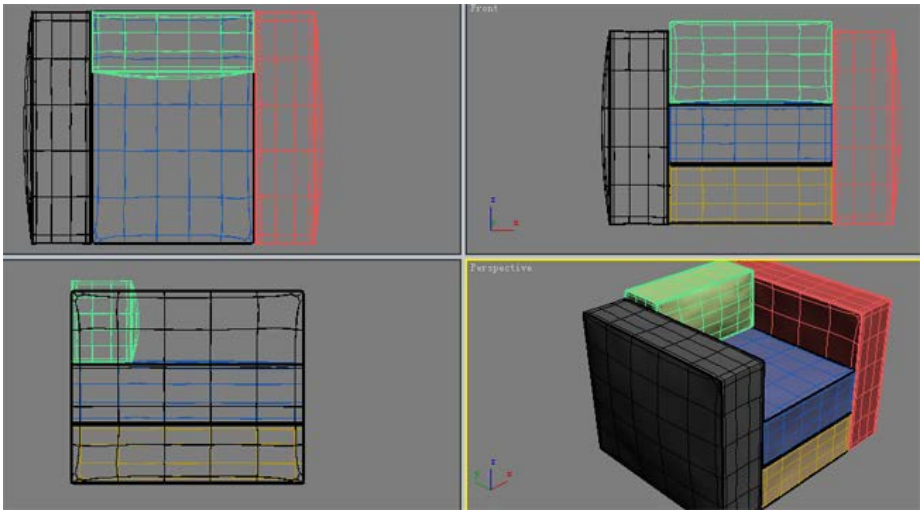
Step 18:

Now we need to group shape and box. Select both and choose Group from Group menu. Group dialog will be open. Type a name for this group and hit Ok.



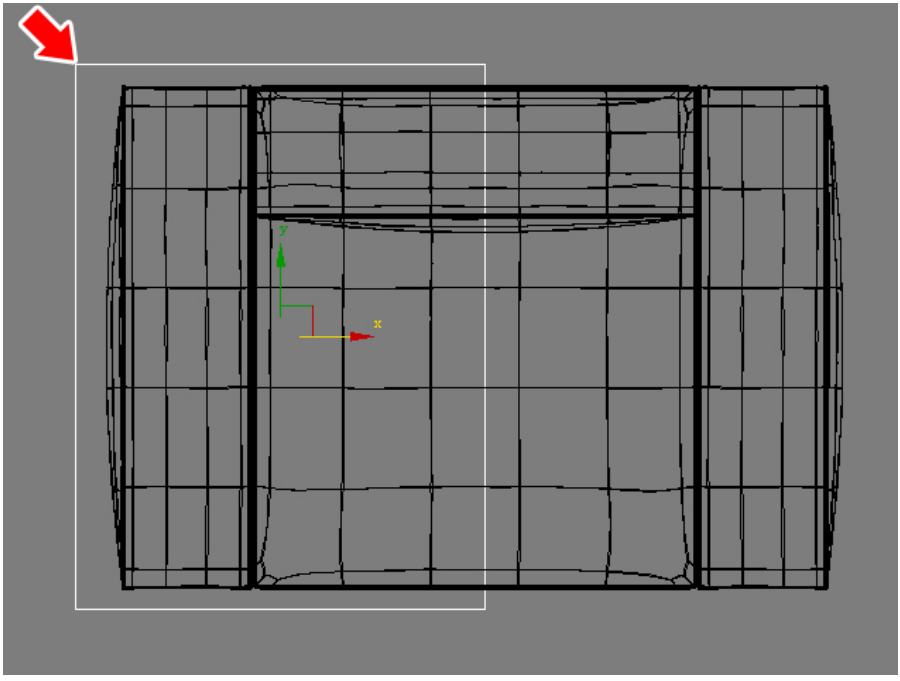
Step 19:

Now that we already made one pad of sofa, need to copy it to create something same below picture. All pads are same just direction and size is little different. in the below picture I have change color of each one just for your reference. later we will apply same material to all.



Step 20:

Continue modeling with creating a bar around sofa. Create a Rectangle shape in Top view. The size is not very important as we can change it later.



Step 21:

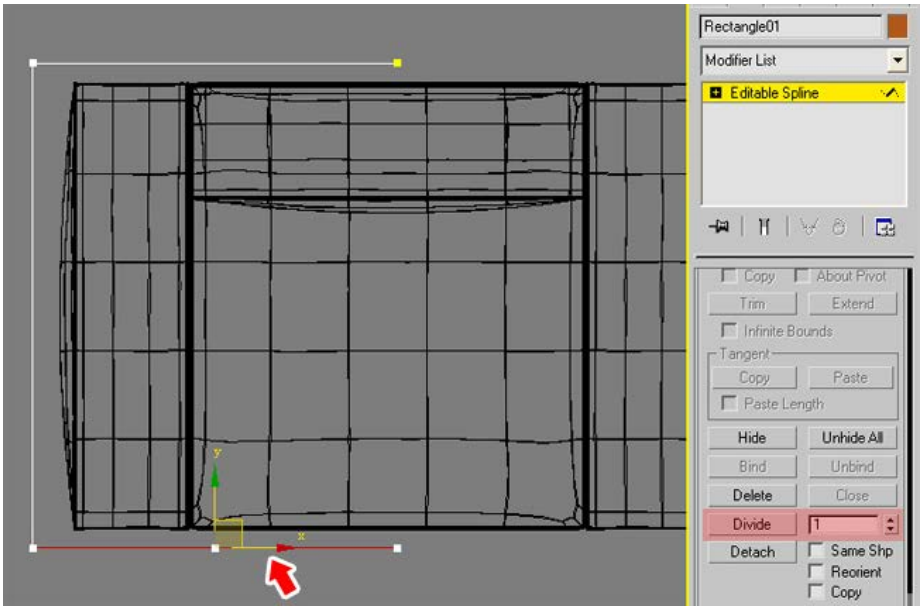
Right click on the Rectangle shape and choose Convert to Editable Spline.

Step 22:

Now select the right vertical segment from top view and Delete it.

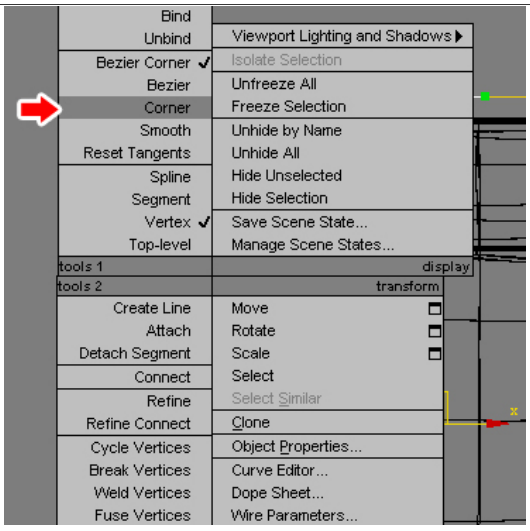
Step 23:

Select the bottom segment and in Editable Spline parameters, click on Divide button. Make sure its value is set to 1. Now the selected segment will be divided to 2 equal segments.



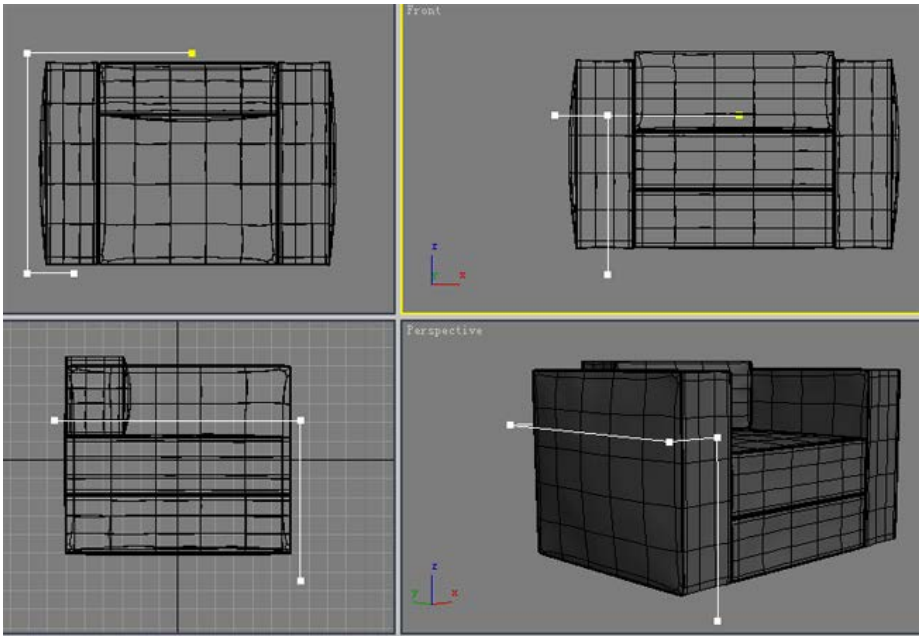
Step 24:

From Editable Spline sub-objects, select Vertex mode. Then press Ctrl+A to select all vertices. Now right click on rectangle and choose Corner from the popup menu. We do not need any smooth corner for now.



Step 25:

Now same as below picture move the vertices to create similar shape.

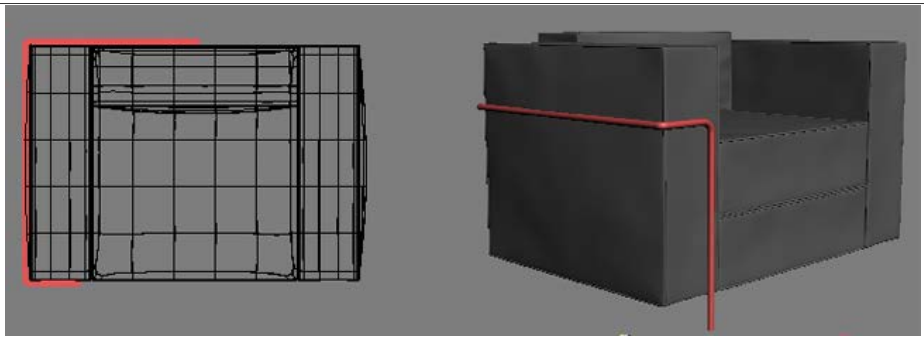


Step 26:

In the Editable Spline parameters, in renderer rollout, check both "Enable in Viewport" and "Enable in Renderer". Change its Thickness to 3.

Step 27:

We need to fillet the corners of rectangle shape. So select each vertex at corner of shape and use Fillet tools in Editable Spline parameters to smooth it. Look at the below picture and also see how I match rectangle shape with sofa.

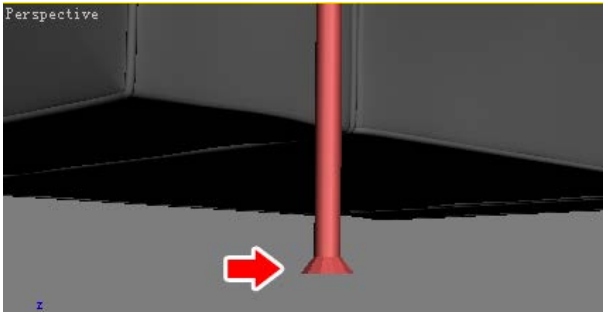


Step 28:

Right click on the Rectangle shape and this time choose Convert to Editable Poly.

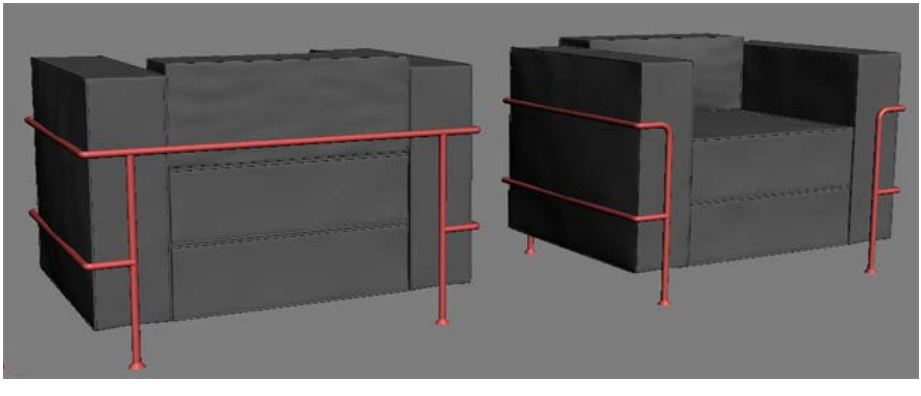
Step 29:

Now select the faces at bottom of bar and bevel them.



Step 30:

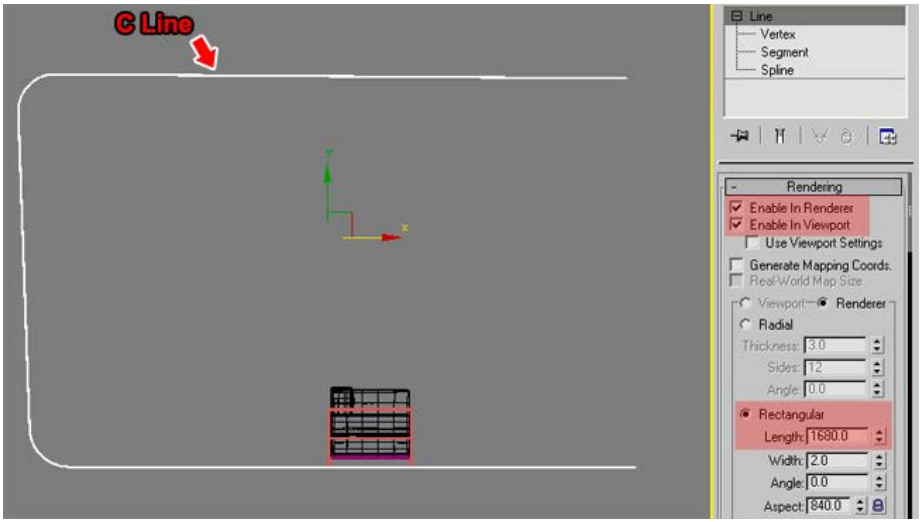
Well now you can mirror this bar to complete it for both side of sofa. Add more bars to complete your design.



Part 2: Scene and lighting

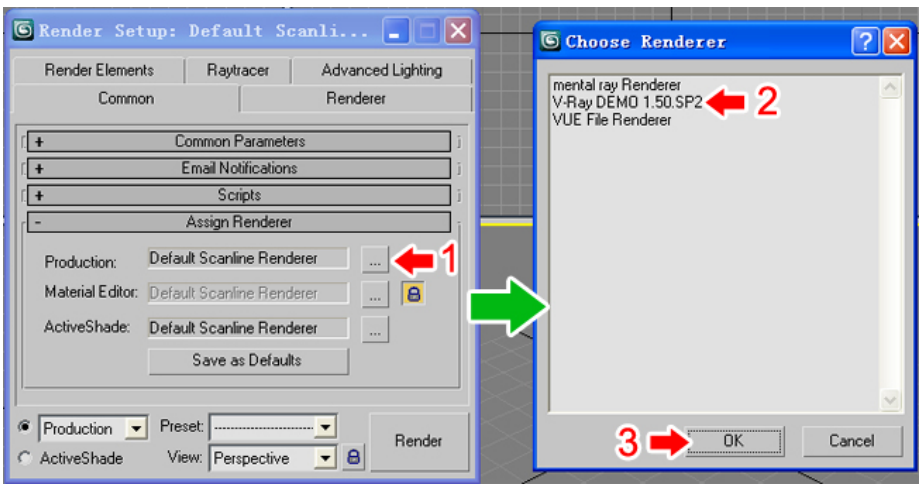
Step 31:

Create a C line around sofa same as below picture. Then in its settings check "Enable in Renderer" and check "Enab in Viewport". Active Rectangular mode and increase Length value. We will use this object as scene background



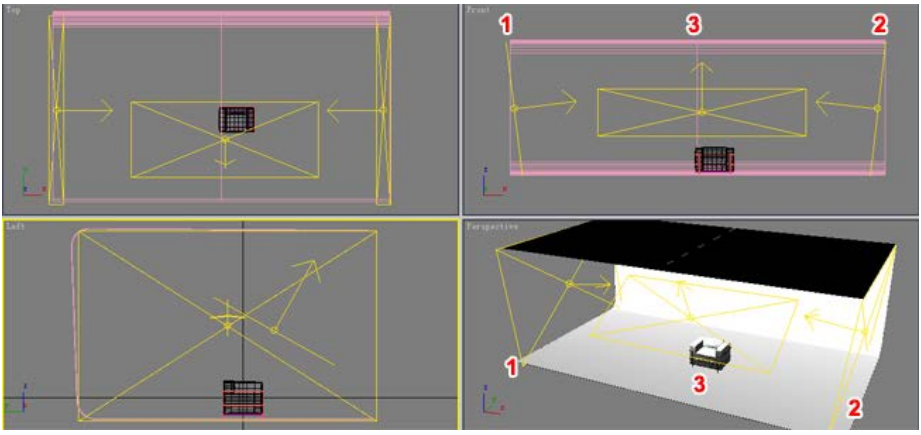
Step 32:

Open Render Setting dialog. In Assign Renderer rollout click on Production button and choose Vray from list.



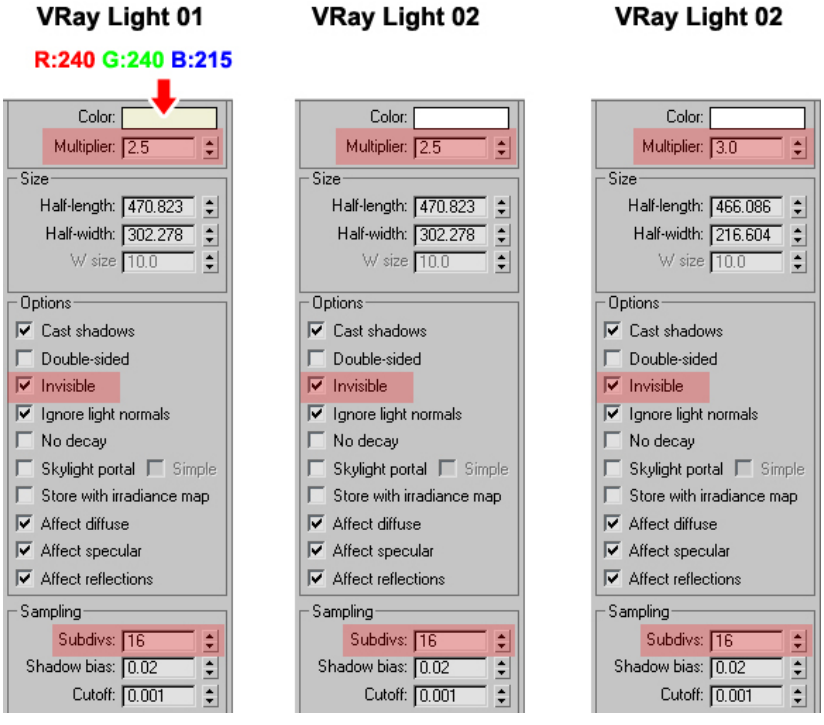
Step 33:

For lighting this scene I want use VRay light. Same as below picture, create three Vray lights and set them in right place.



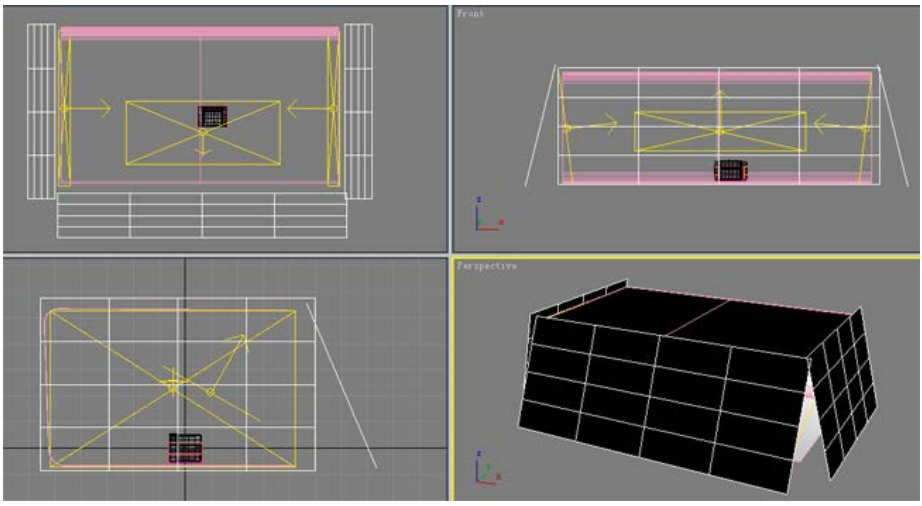
Step 34:

Here you can see the setting of each VRay light:



Step 35:

Create three planes and set them behind the lights same as picture below. These planes will help to control lighting of the scene.



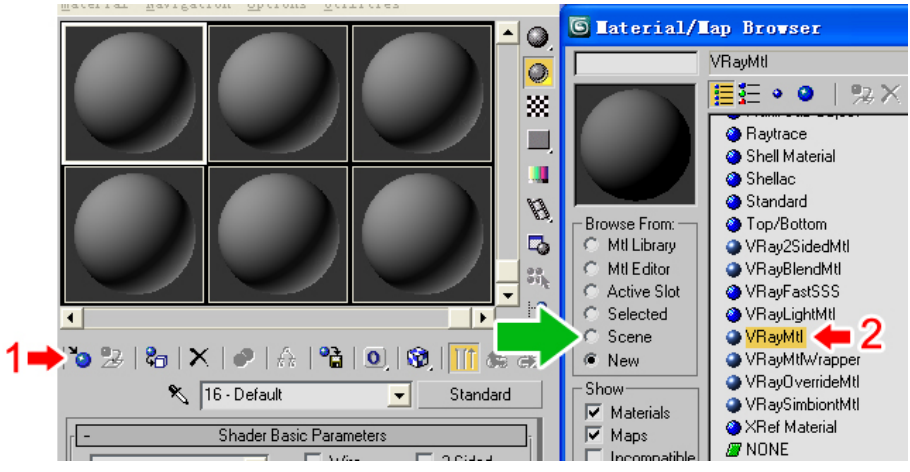
Part 3: Creating the Materials

We need to create materials for leather part and metal part of sofa, for background of scene and for lighting planes. In this part we are going to do that.

Step 36:

Open Material Editor. The first slot is selected. Click on Get Material button and double click on VRayMtl in Material/Map browser. Change the name of this material to BG_color. Then change its diffuse color to light gray.

Apply this material to background object (C shape).



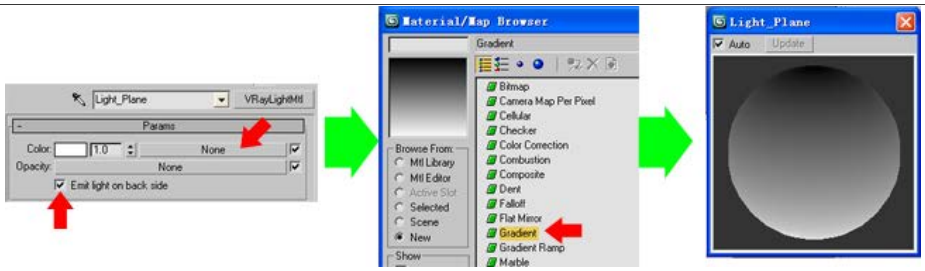
Step 37:

Select another empty slot in Material Editor. Click on Get Material button and double click on VRayLightMtl in Material/Map browser. Change its name to Light_Plane.

Step 38:

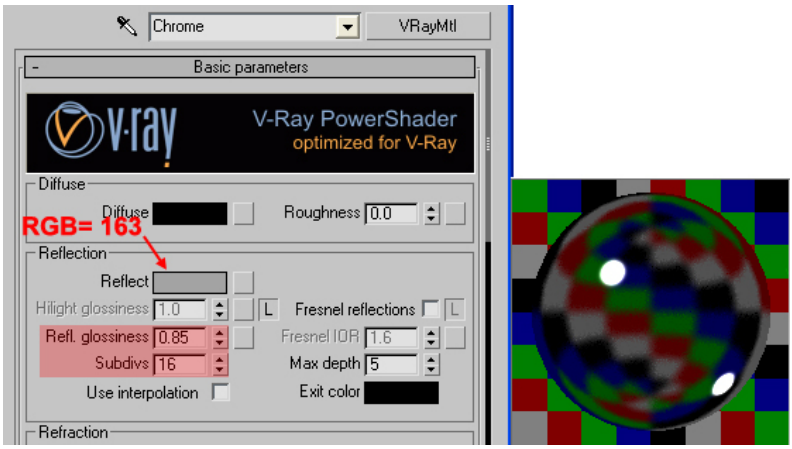
In the VRayLightMtl parameters, click on Color button and choose Gradient map from Material/Map browser. You do not need change anything in here. In the VRayLightMtl parameters make sure "Emit light on back side" is checked.

Now apply this material to the planes we created behind lights.



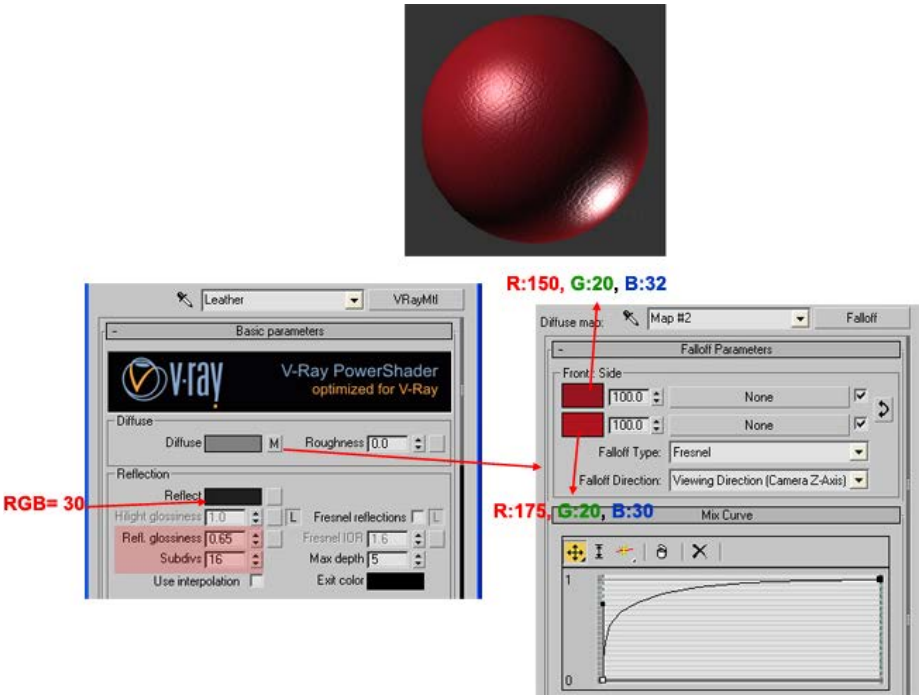
Step 39:

Make a new VRayMtl in empty slot. Change its name to Chrome. We will apply this to metal part of sofa object.

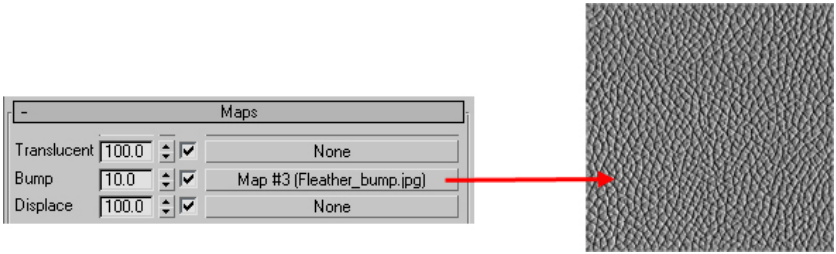


Step 40:

The last material is leather for sofa. Again make a new VRayMtl in empty slot and change its name to Leather.



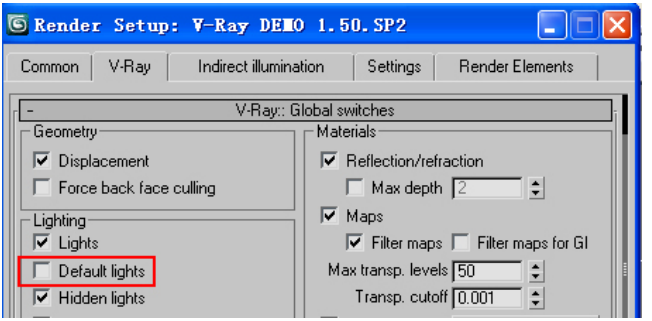
I have used a grayscale picture for its Bump map. you can find it with this tutorial.


Maps
Translucent
100.0
None
Bump
10.0
Map #3 (Fleather_bump.jpg)
Displace
100.0
None

Part 4: VRay Rendering Settings

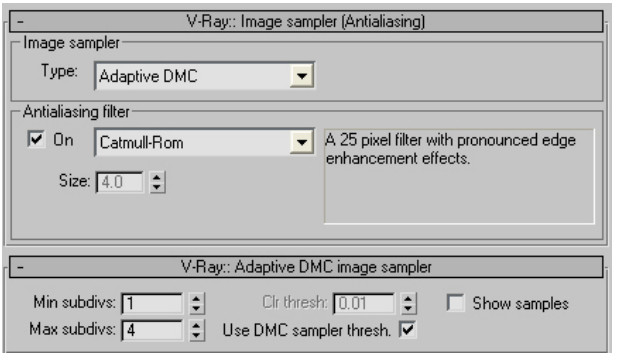
Step 41:

Open Render Setting dialog. Under V-Ray tab and on V-Ray Global Switches rollout turn off Default Lights option. It is the first thing in your render setting that almost in all scenes you need to do.



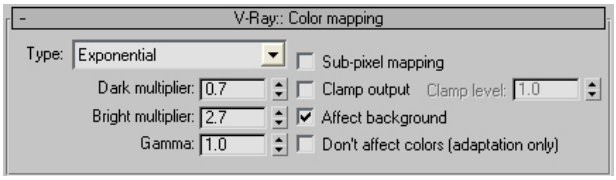
Step 42:

Choose Adaptive DMC as Image sampler and leave its setting as default. For Antialiasing filter as far as we just want to render as pictures (not animation) you can choose Catmull-Rom.



Step 43:

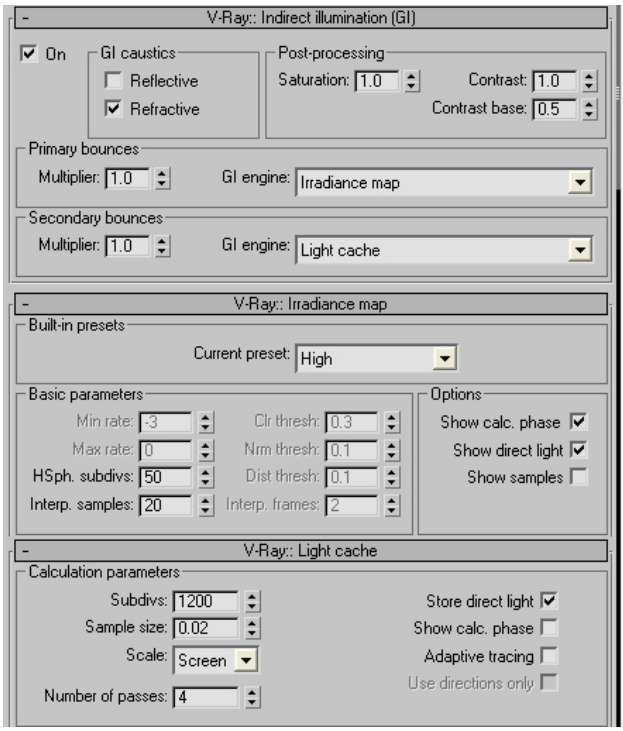
Choose Exponential for Color mapping and change its values same as below picture.



Step 44:

Next, on V-Ray Indirect illumination (GI) rollout turn on GI. Choose Irradiance map as primary engine and set secondary GI engine to Light cache.

Change Irradiance map and Light cache parameters same as below picture.



Everything is ready. You can push Render button to see result.

Final Result: