

3/3/2009



BY:M.YEGANEHI

KT FAST START 4ARCHITECT



First edition | dedicated to KT team and Pushpullbar users

KerkyThea Fast start for architects.

Hi every one! I did this project to show my respect to KT team who had a great impact on my sight to easy and high-quality rendering. And also I hope you too, to find KT easy to use and joyful like I did ☺ .

There are some notes that I must say, before you start to learn KT. first of all, because this is an easy-to-use and simplified and also an architect-oriented guide, so I've ignored some tight and technical material tips. Maybe future you'd be so impressed to be encouraged to learn KT deeper. And also there is a fact that knowing some simple material, light and render settings and tips will direct you to great, photo-realistic renders. Therefore I focused on this sort of tips and tricks and so some of them are not tight and correct and hope that great KT team members would forgive me! Note that, this is a SKETCHUP based tutorial. On other 3d software it vary somehow

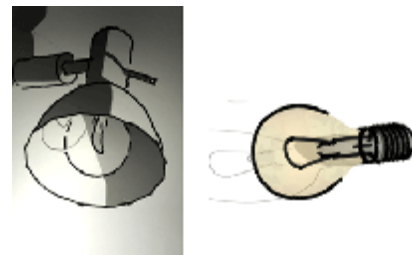
Ok, let's start: first of all, be sure that you have installed the latest version of KT, and appropriate SU2KT plug-in to place and adjust your lights inside sketchup and export your model to KT.



I strongly recommend you to use SU2KT3_0.exe installer plug-in because of being the easiest to install.



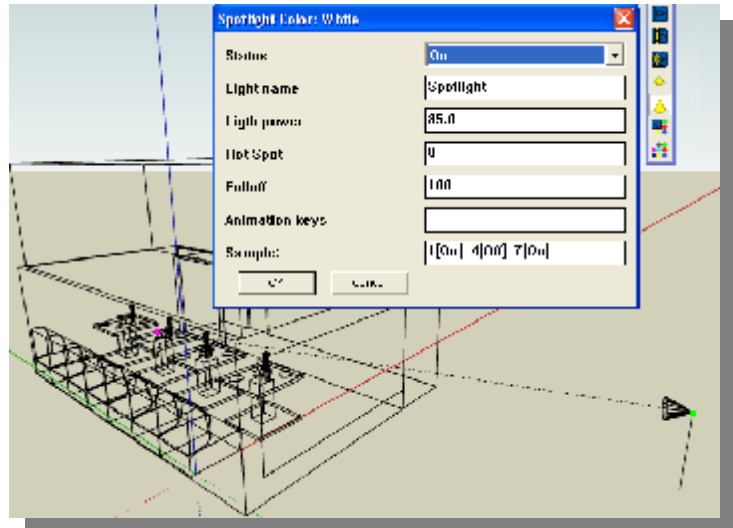
Now you would have a new toolbar called SU2KT

If you don't see that, in your sketchup app. go to View menu → toolbars → SU2Kerkythea and ensure that you had selected and activated this menu. I'll describe just 1st, 4th and 5th icon that are: "export to Kerkythea", "point light" and "Spot light". After finishing your modeling and texturing it's now time to put your lights and then export your model to KT. Generally we have 2 kinds of light: point light and spot light. Sample of point light is a general tungsten bulb lights and if you put it inside of a shader, then it is a sample of spot light in general.



Now you can start to use point/spot lights.  is point light while  is spot light icon. Choose a point light, click where you want to your light to be, and click somewhere in your model that is rang of your light. A dialogue box will appear that let you to rename, and modify your light's power and If you use spot lights, so the second point shows the light's target. Easy? Yes that's all!

After putting all of your lights now it's time to send your model to KT to be rendered. Be sure that nothing is selected (because if you select something, then dialogue box will ask you to export selection only? And by now you are going to export



whole model). So click .

Now you can answer dialogue box whit yes-no (and also you can change nothing and just click OK). Maybe you are interested in clay render that makes your render, something like Maquette. If then so the 3rd question that is asking "export clay model?" must be answered by "yes". This is a sample of clay render:



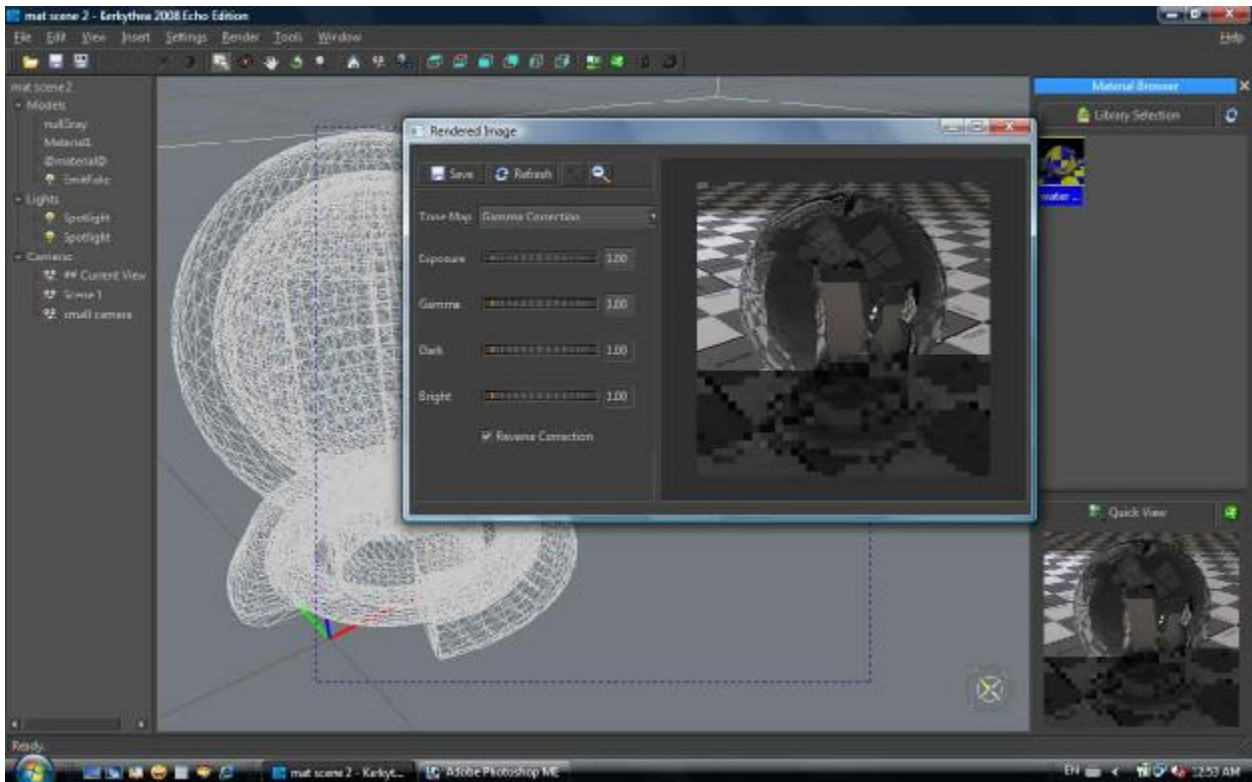
If you select this, then none of your textures would be exported to KT, and your entire model has one material (but every object is selectable separately so that you can modify it, while if you haven't textured your model then KT wouldn't let you to modify each object separately).

TIP: as KT is physically correct so you must pay attention to your model scale, and try avoid off-scale models!!!.

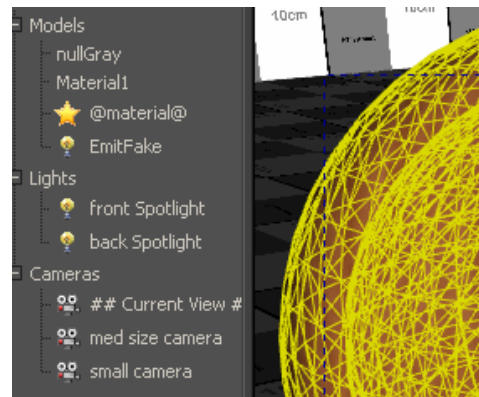
When your model is opened in KT it's a bit confusing because of lots of gray lines you see!!! Pres "V" in your keyboard! Now it's better to understand, isn't?



Being more familiar with KT interface maybe is the next step in my sight. Take a look at it. And you would find these major parts:



Now we are going to learn about the materials, adjusting them simply, a bit deeper and then start our architectural rendering job. Using "Ctrl+O" open "mat scene 2.kzx" file. Hit the "Esc" and "Space" on keyboard to ensure nothing is selected and you are ready to select objects in your scene. Hit "V" to see your model with textures/colors. Now select @material@ wood-textured object using click over it. As you see the selected wooden object would be wrapped in a yellow mesh and in "Scene tree view" a tiny yellow star will appear beside materials name and shows that it is now selected. Press "Alt+m" to material editor be appeared.



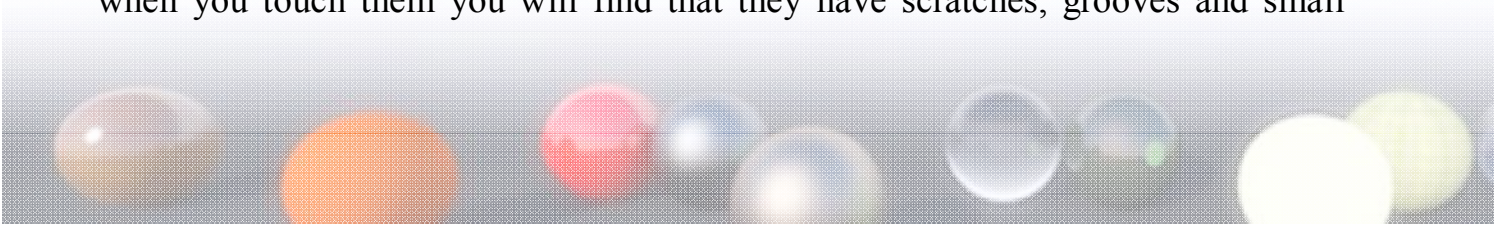
KT material editor is a bit confusing but in fact very simple and handy. There are some major parts over it that we are going to describe just common parts:



[Matte/Phong], Reflection, Transmittance, Self Luminance, Bump Mapping and Clip Mapping are most used and common parts and trust me, knowing just these parts, would end to acceptable renders ☺. Now what does those names mean? In fact most of materials we see reflect the light that hits them, "Reflectance" part of material let you to tune this property of materials. Some materials like glass, camera lenses and water, let light to transmit through them, so "Transmittance" part is about this characteristic. You have seen that a candle, neon tubes, safety match or fire and also your computer monitor glow when it's dark. "Self Luminance" part is about glowing emitter materials such as above. There are lots of materials that when you touch them you will find that they have scratches, grooves and small

fast start about glowing

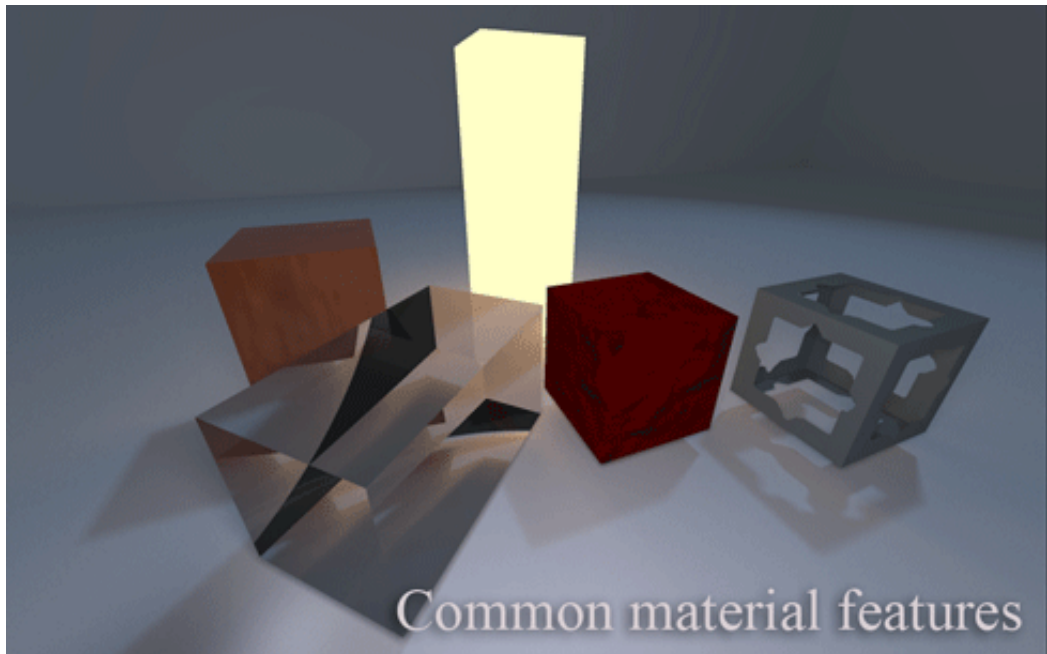
with Royce Yegorov 2012



dents, or small bumps, like raw fabrics so that it's hard to model. You can do these reliefs using a bump map easily. Also making fences, which have lots of small holes and are much pitted, is not wise to be modeled and using a map that masks some part of material is easier to create. Clip Mapping part is for you then.

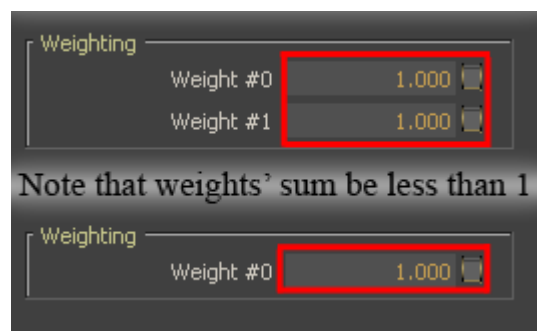
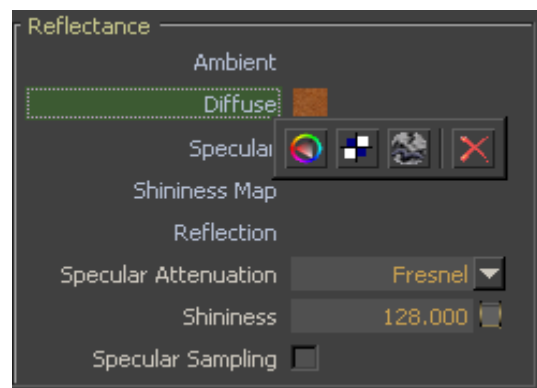


Common material features are reflecting (like wood material), transmitting (as glass), emitting light (as neon bulbs and fire) having bump and clip map.



Our wood material has a texture, and its thumbnail is shown as a brown square in front of "Diffuse" word. Generally we call these color or textures as "map".

By right-clicking over "Diffuse" you can change it. First colored circle lets you to add color, second checkered square lets adding or changing material texture and the red multiply sign is to delete color or texture or any other "map". It is the same for other items like "ambient" "Specular" "Shininess Map" etc. . . . Note that each time you add any map such as color, texture, etc. to each item "weightenig" panel will appear at middle-down part of the material editor. Note that if you are adding more than one map at the same time (that by now we strongly recommend you to avoid! And if you have done you can delete it by right clicking) whole weights sum mustn't exceed than 0.96 .because it means that your material is reflecting more light amount than receiving!!!.



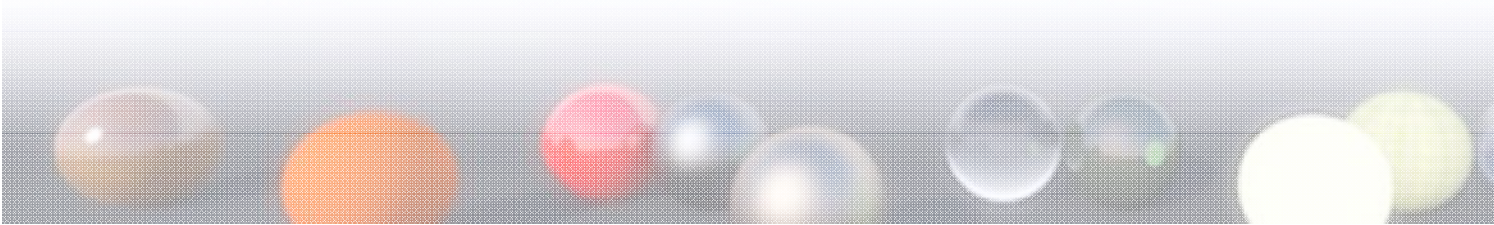
Our material is too matt and dull and needs some polish in my sight. To do that adds a weight color to "Specular" item and mark "Specular Sampling" at the same time to have some reflectance over your material. By adjusting and increasing "Shininess" item, you can have a polished wood while by decreasing it your wood goes more matt. Change "Shininess" to 5000, 2000, 500, 100, 50, 20, 5 and carefully observe the differences. Greater number ends up to a clear reflect.

To decrease the amount of shininess simply lower the material's "Weight" (as a tip: how shiny is your material, is directly linked to "Index of Refraction" under the "Transmittance" part. Note that your IOR (index of refraction) is normally more than 1. Increase it and see the result).





Relation of IOR and shininess					
Shininess=8	30	130	1000	10000	
					IOR=1.1
					IOR=1.5
					IOR=3
					IOR=10
					IOR=20
					IOR=100





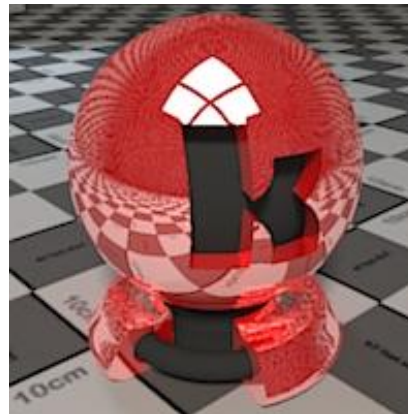
Consider that by increasing the IOR amount, our material goes more reflective, while how shiny is our material, determines clear reflected environment on our material. Now if you increase the shininess amount, you'll reach a point that your material is mirror-like. At this point you can delete specularity and instead, use reflection. Reflection is much faster. It doesn't depend neither on IOR, nor shininess and you can control it's amount by "Weightening".

We are going to make a shiny red plastic. Change materials "Diffuse" from bitmap (I mean wood texture) to red color by right-click over "Diffuse". Add white reflection to it. Hit Quick render, and you have a shiny red plastic.

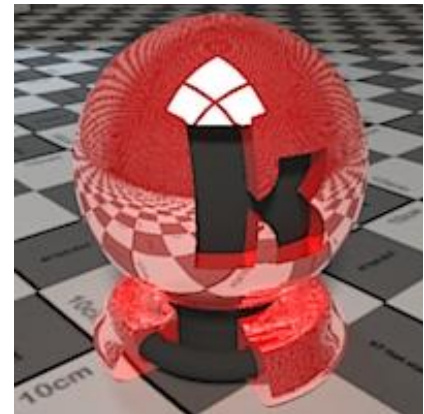
When you increase the "Shininess" whit a fix speculariy amount (i.e. .96), you'll reach a point that you can using "Reflection" instead. You can also decrease reflection amount using lowering "weight" of reflection as desired.



Specular= white, Specular Sampling=, shininess=100



Specular= white, Specular Sampling=, shininess=1000000



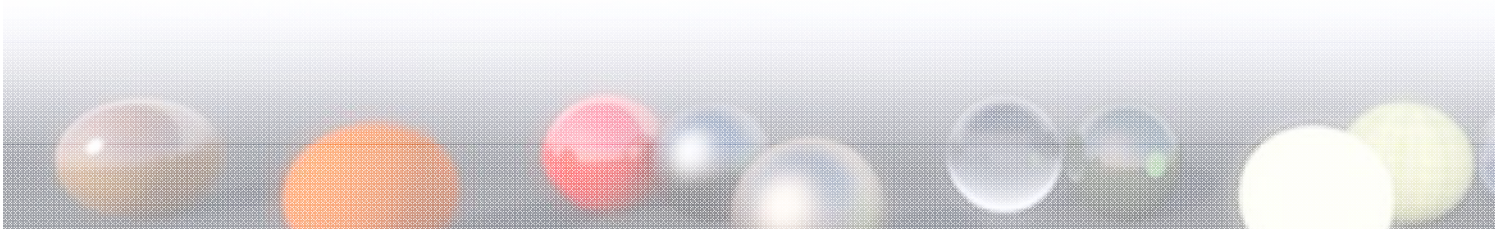
No "Specular" but "Reflection"=white

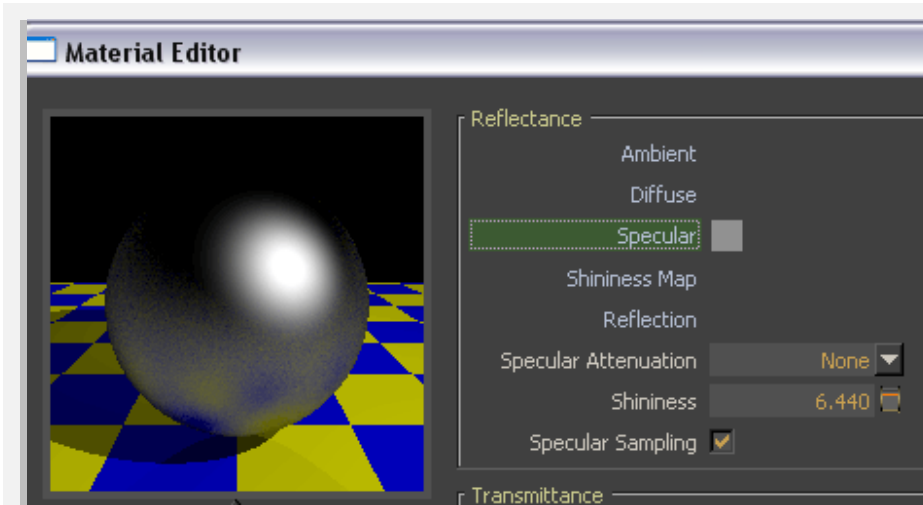
Now you can make lots of materials, like porcelain, ceramics, polished shiny wooden floors and shiny plastics. All of these materials have a "Diffuse" (that maybe is a color or a texture) and some reflections (that could be achieved in 2 ways: 1-"Specular" + "Spaacular Sampling" and "Shininess" + "IOR" for controlling

2- Just adding "Reflection"). Obviously if you have a perfect reflection , you must use reflection, but if you have a jaggy reflection, so use Specular.

Usually there are a few materials that have a perfect reflection .in fact most of them have a soft and wide-range, that means you can use some "Specularity" over them. i.e.as a good sample, aluminum has no color and just some gray specularity while colored aluminum has a colored specularity. written by :M.Yeganegi 2009

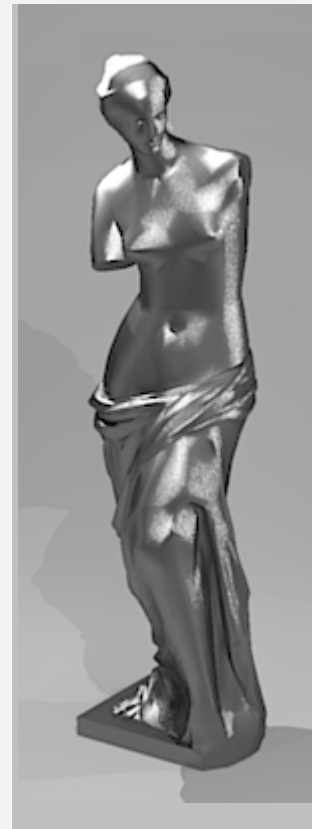
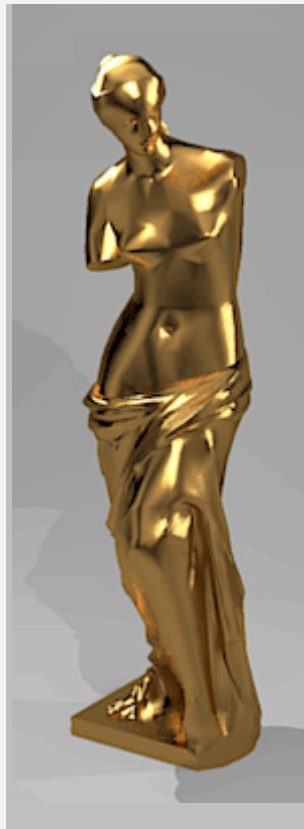
fast start - Aroncoo





Aluminum, Bronze and Gold have no color in fact and reflect their environment. So add appropriate color as specular, active "Specular Sampling" and also adjust "Shininess".

Colored aluminum, Gold and Bronze have a colored Specular



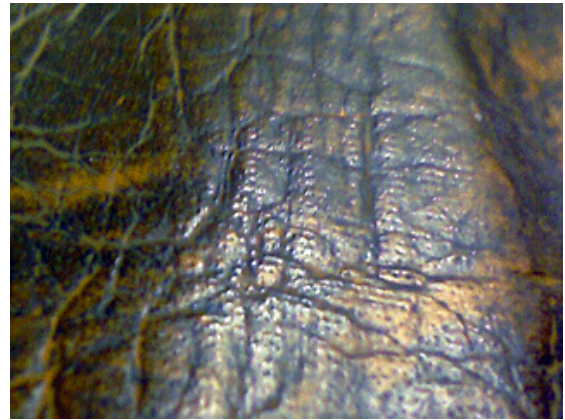
Bump Mapping:

First of all take a look at these pictures and pay attention to materials:

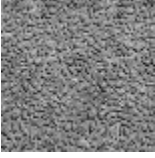
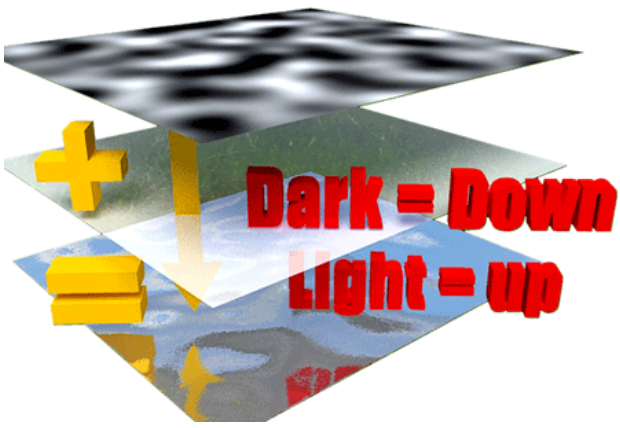


Everyday leather chair materials



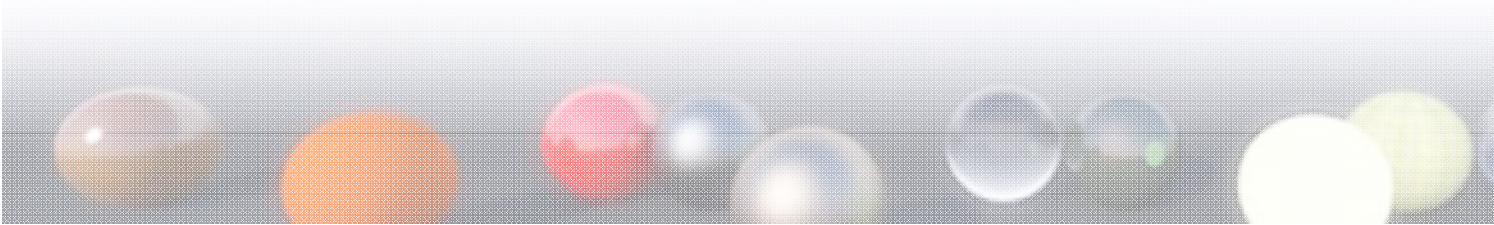
Close-up detail , same material

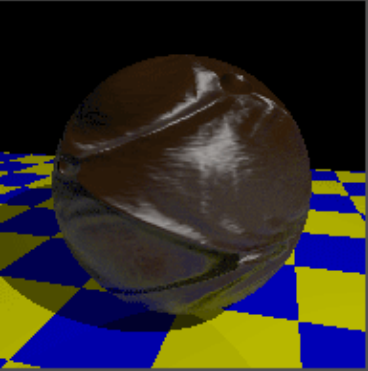


There are plenty of materials that have a tiny or huge bumps. In such situations you can add a bump map to your material so that simulate the material. As a rule, bump maps are black-white maps that dark parts are deep, and light parts are hunch/up parts of material. now look at a leather material setting

Bump map + material result		
		
		

Here we added a noise texture as bump to a reflective plane, (that simulates water)
written by :M.Yeganegi 2009





[Matte / Phong]

@material@

Settings

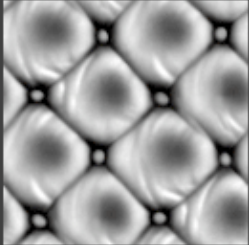
Scene: standard

Apply to same name materials

Copy bitmaps in library folders


Small previews in selections


Model shape in preview



Reflectance

Ambient

Diffuse 

Specular 

Shininess Map

Reflection

Specular Attenuation Fresnel

Shininess 6.440

Specular Sampling

Transmittance

Translucent

Transmitted

T. Shininess Map

Refraction



Index of Refraction 1.770

Transmitted Attenuation None

Transmitted Shininess 128.000

Transmitted Sampling

Texture Editor

Self Luminance

Radiance

Power 1.000

Efficiency 1.000

Unit Watts/sr/m2

Emitter

Front Side

Back Side

Fog

Absorption 1.000

Emittance 0.000

Scatter 0.000

Falloff 0.000

Model Flags

Enabled

Visible

Shadow Caster

Shadow Receiver

Caustics Transmitter

Caustics Receiver

Weighting

Weight #0 1.000

Bump Mapping #0

Texture: 

Strength 3.000

Bump Mapping #1

Texture

Strength 1.000

Normal Mapping

Texture

Bevel Mapping

Smoothing Angle 45

Thickness 0.000

Clip Mapping

Texture

Threshold 0.500

Edge Outline

Color 0.000

Inner Edge Angle 45

Umbrs 0.000

Penumbra Ratio 1.000

Inner Edge Ratio 0.100

KT fast st

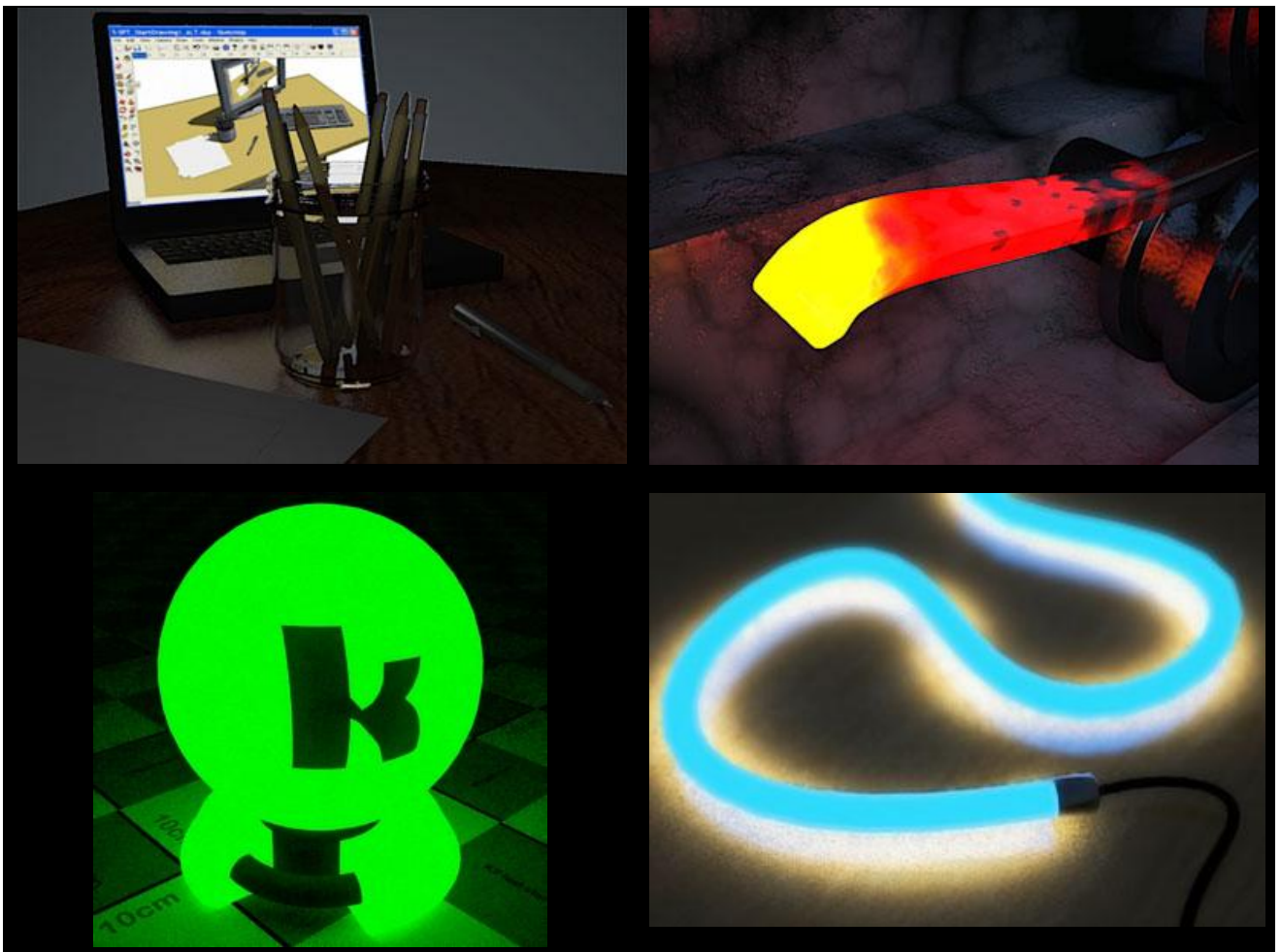


As you see this is a brown material (that I've used color, but you may use a texture instead) + white "Specularity" and also a black/white map as material's bump. I've reduced shininess to about 7 that causes a wide range of specularity over our material. You can bring lots of your texture to life, using a good bump map . I.e. ceramic tiles, bricks, rough fabrics and textiles rough wooden textures and etc. .after a while when you became more expert, also it's possible to use multiple bump maps over your materials.



Self luminance:

Some materials emit light. Candle, neon tubes, computer screen TV and LCDs are sample of these material type. If you give some "Radiance" to your material , it will behave as a light source so we call it "emitter" material. If your emitter material has a complicated geometry, render time will become very enormous. So it's wise to avoid use of such geometries as light emitter sources. As a trick you can give a color to "Radiance" part but uncheck "Emitter" part, and then your material will glow but doesn't give light to environment. Then you van add a point light beside it to gives light. Here are some samples of light emitter materials:



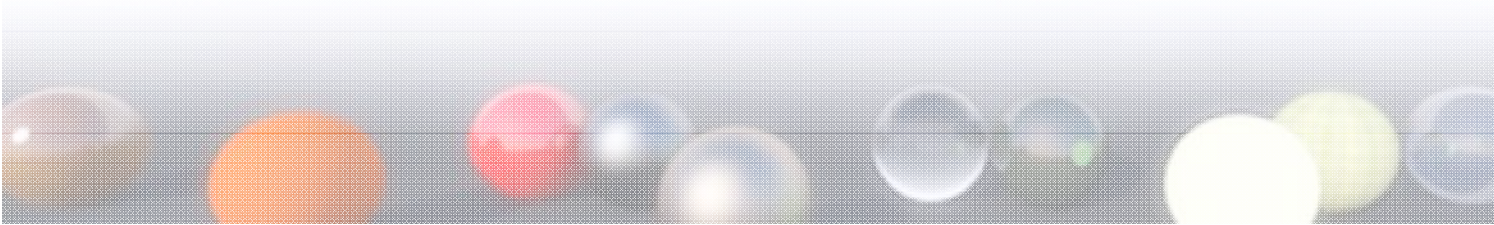
Clip Mapping:

There are also some pitted materials that have some holes in them. Like fence materials, that have a mesh of tiny holes and pores. In such situations you can use a black/white map as your "Clip map" texture. Notify that just "WHITE" part would be "VISIABLE" after render. Here are some samples:

Clip map samples



Result renders



Transmittance:

Water, paper, lamp shader, thin fabric curtains and also glass are sample of transparent materials that light passes or transmits through them. Glass for example lets light to be half-reflected and half-transmitted through it. Water also is the same but at the same time refracts the light and you must add an "Index of Refraction" of about 1.3 to it and maybe some bump to be more real.

For a thin glass (that we use in windows) do as below:

Add a white "Reflection" and using "Weight" reduce it to 0.24 or a bit more or less (or you may add a color to "Reflection" part to achieve a colored glass). Add some white (or color, if you need a colored thin glass) and don't change "Index of Refraction" at all.

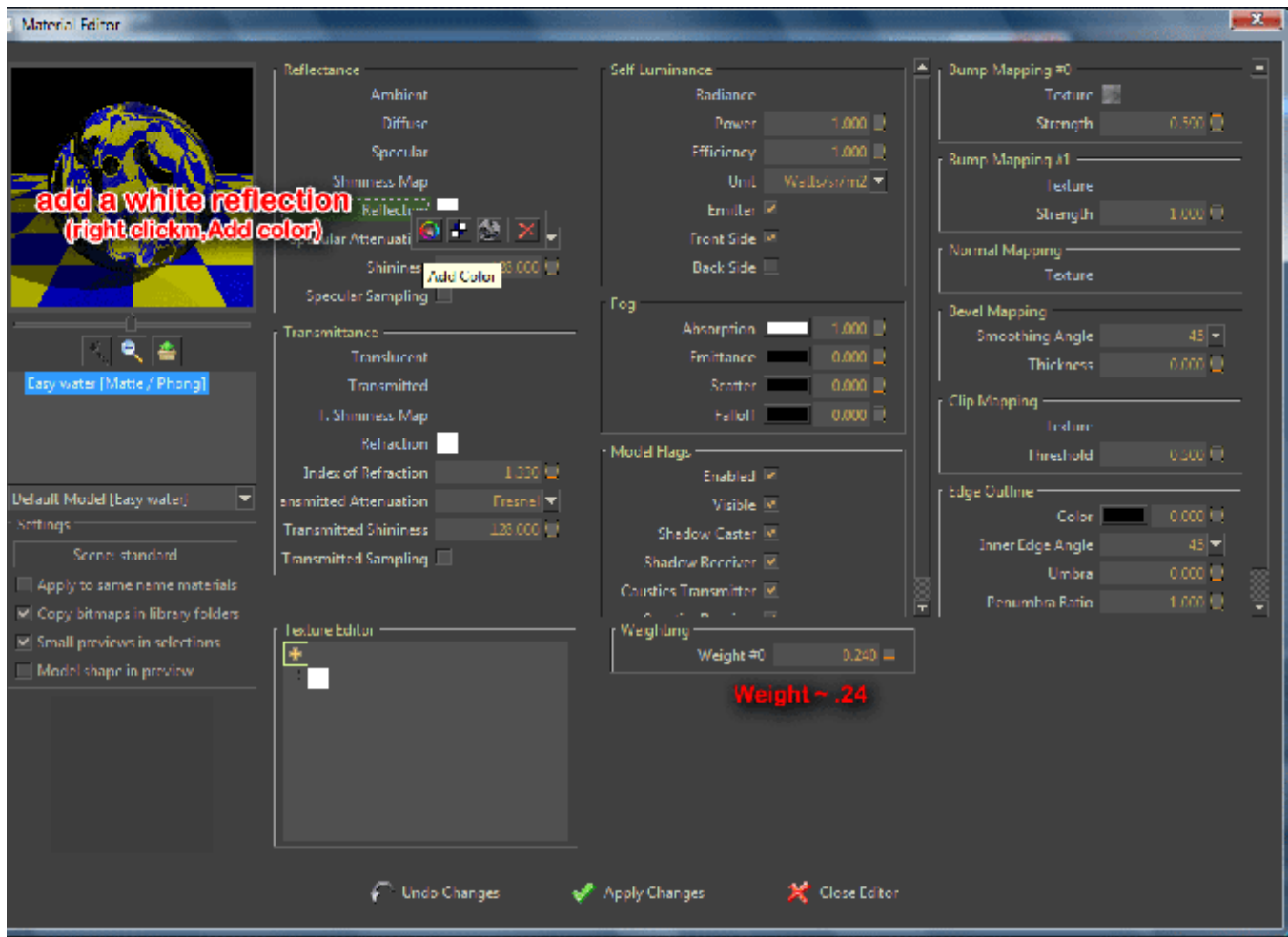
For thin frosted glass: add some reflection (About .24), at the "Transmittance" pane, add white (or color) to "Transmitted" part .set "Index of Refraction" to 1. Set "Transmitted Attenuation" to "Fresnel". Check and select "Transmitted Sampling".

For wavy water material, do as below:

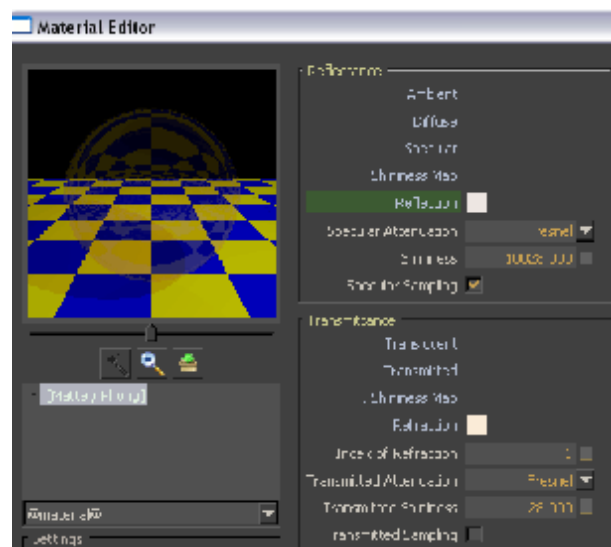
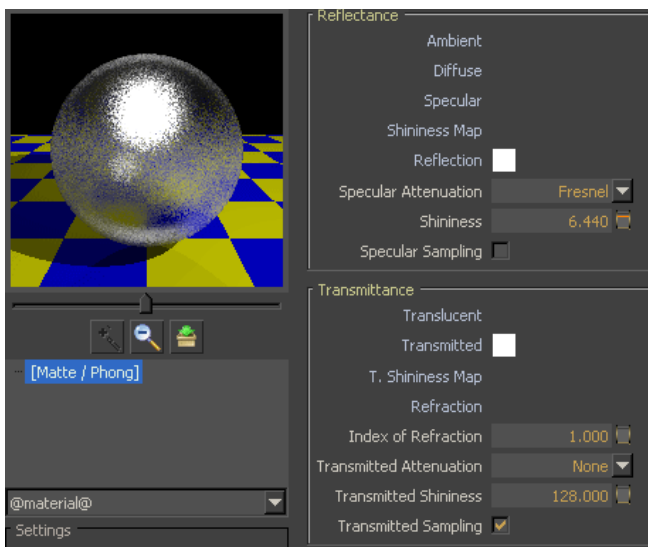
Do the same as thin glass material and then change the "Index of Refraction" to 1.32. also a water texture map to "Bump mapping" part.

Thick glass material (i.e. glass vases or a glass cup) are like water but with "Index of Refraction" of 1.5.





Water material (UP) – Frosted glass material (Below left) – Thin Glass (Window glass- bottom right)



Rendering:

At "[MOST COMMON TASK](#)"s bar the third icon from right that is a running man in a green circle is the camera and render setting panel. Hit the green runner man to appear the panel. Camera part shows as many "Scene" as you have made in your Sketchup model with their exact name as your cameras in KT. "Resolution" part determines your render size. Simply type your desired render size instead to change it as: "width*height"

Just beneath it "Settings" part is a preset of render settings that each one would end to a different result. For fast draft render, choose preset no 03 (Photon map-Quick) and for final render preset no 06 is good enough. Maybe for exterior renders preset no 17 is the best one. If your computer has more than one processor, you can choose a different number under "Threads", to match your processor numbers. I.e. if you have 4 processor you can force all 4 of them by choosing 4, in front of "Threads".

To see the render result: at the left of the green runner, there is a tiny landscape icon. Hit it. While your render has been finished, you can save it by choosing "Save Image"



Tips and tricks:

Save your scene for further refer using "CTRL+S".

KT separates objects by their materials. So give different material to each part of your model and avoid use of same color/material for those parts that you need them to be defined and modified separately.

If you need some partial change and not all of your model, or need more cameras or lights, there is no need to re-export your model to KT. Just add new cameras, lights and materials or geometries and select them while exporting to KT and say "YES" to first question on kt exporter that asks you: "Export selection ONLY".

Then in KT from "File" → "Merge", merge these 2 files and adjust merging process as your desire.

From KT site download page, download "Globals" you need and install them from "File" → "Install Library" . now you can add globals to your model from "Insert" → "Globals" to change your environment from a plain sky to desired one.

From KT site download page, download material packs you need. There are plenty of them. Then open your library from "Library Selection" [on right part of KT main interface](#). You can easily add desired material to your model as below:

Select material or object you wish from left "Scene Tree". Double-click on desired material on right library.

Install "Fast start 4Architects" material library (its full name is " Fast Start 4Architects.mat.zip") . there are some most-using materials in it and you can change them easily or learn from them.

Be more familiar to KT forum, there are lots of good helpful guys there .

My special thanks goes to Frederick (KT team member) that helped me a lot and invited me to KT forum

NJOY RENDERING!!!!

M.YEGANEHI

