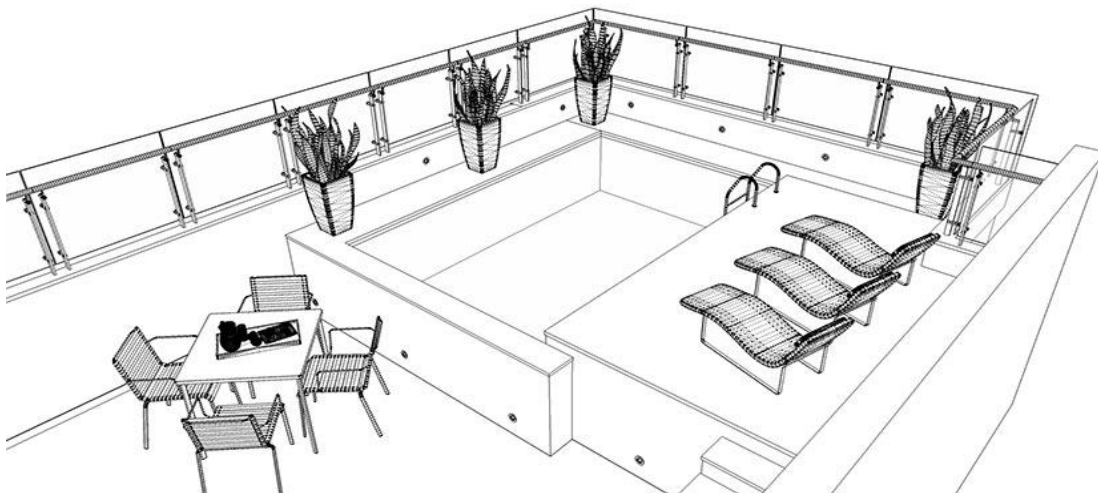


Hi, my name is Ricardo Cossoli. I am based in Argentina and primarily work in the area of architectural visualization, both 2D and 3D. This includes 3D modeling, photorealism, photomontages, studies of materials and lighting. I welcomed this opportunity to make this tutorial for SketchUpArtists and especially for James, who saw my finished images and wanted to learn more about them.



This tutorial is based on an outdoor day render (natural lighting) and a night time render (artificial lighting). The challenge I set myself was to assemble both different lighting scenes in the same model and configure all materials so they respond well in both cases (both day and night). I hope I've succeeded. The software I used in this tutorial was Google SketchUp, V-Ray for SketchUp and Photoshop. My 3D model is available for download [here](#) if you want to examine it closely and follow along with this tutorial.



Wireframe of SketchUp Model

Modeling

This is how I basically model a scene. I try to keep it as simple as possible and optimize it always by using layers, which enable me to work more efficiently and keep things better organized (each group has a corresponding layer for components, such as furniture, floors, railings etc..). My workflow is pretty much the same steps each time, basic modeling is the first stage followed by lighting adjustments, adding

textures and components (in this case all components are [3D Warehouse](#) models or other download pages with free models). After these adjustments comes lighting and textures for materials which are suitably adjusted until the scene reflects what I'm looking for.

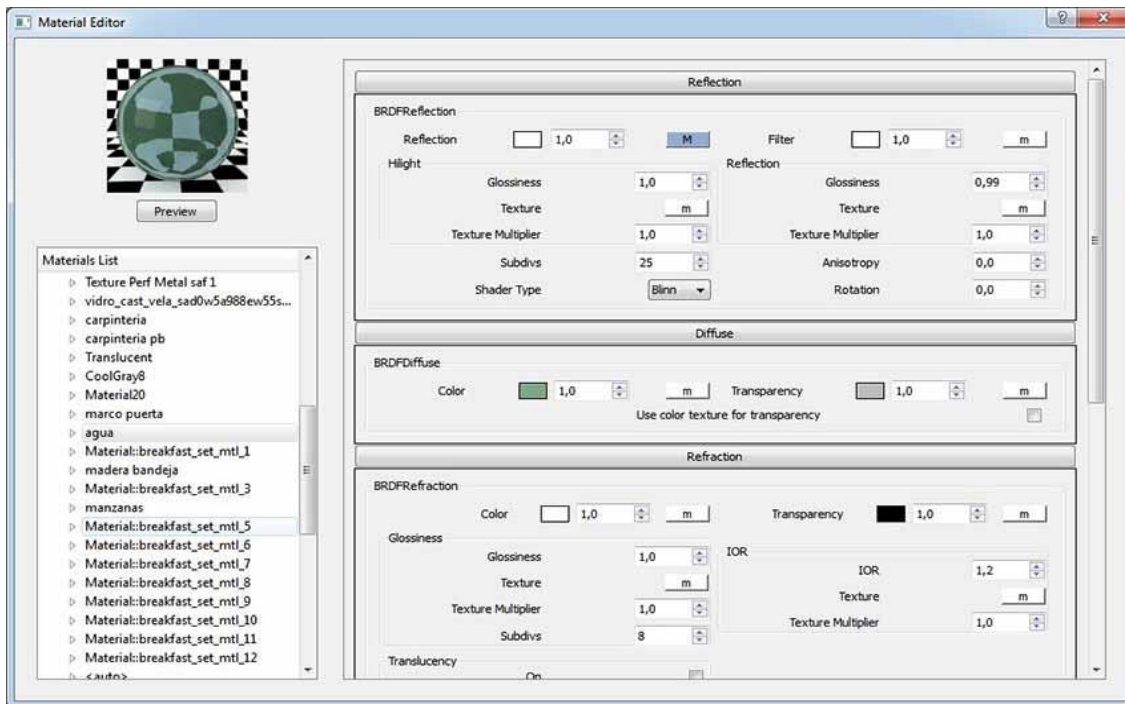
Components

With components I tend to use free components and edit the materials and properties within them, thus making them more suitable for my scene. Often this process includes adjusting their geometry or some other necessary details.

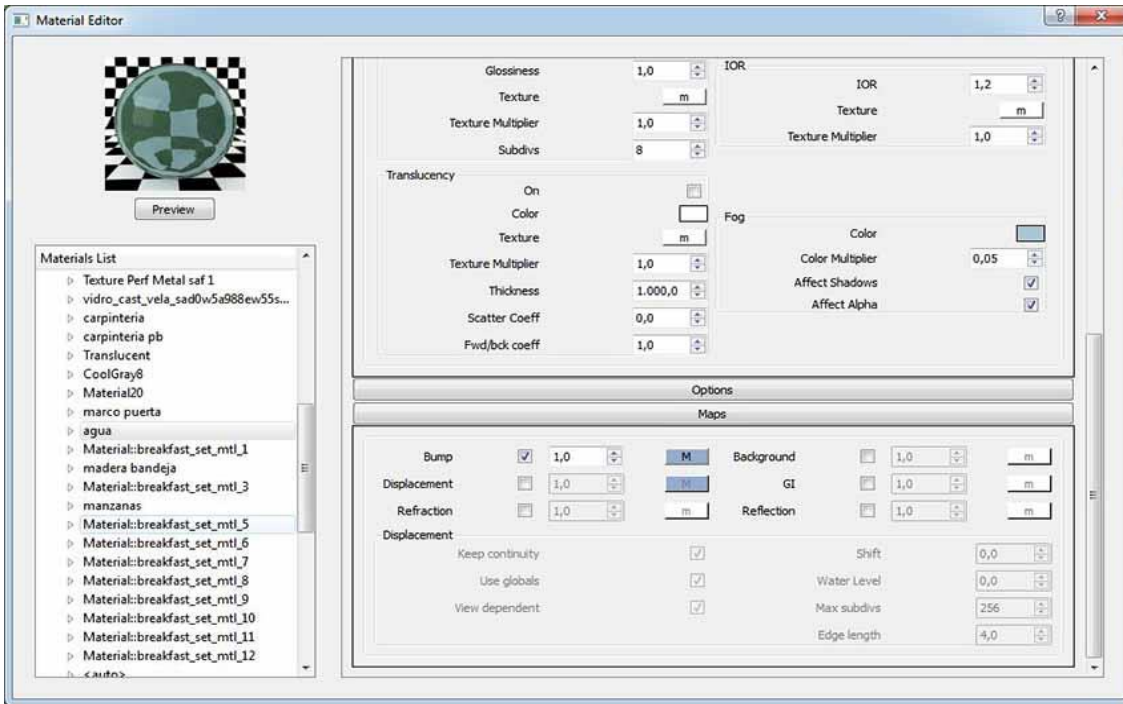
Materials

In terms of materials and textures, the V-Ray materials are provided and configured by using SketchUp V-Ray vismats made by me (see following images showing some settings), always trying to set the channel Diffuse and Reflection for each material in a scene, which gives added twinkle to the area and improves realism for the set.

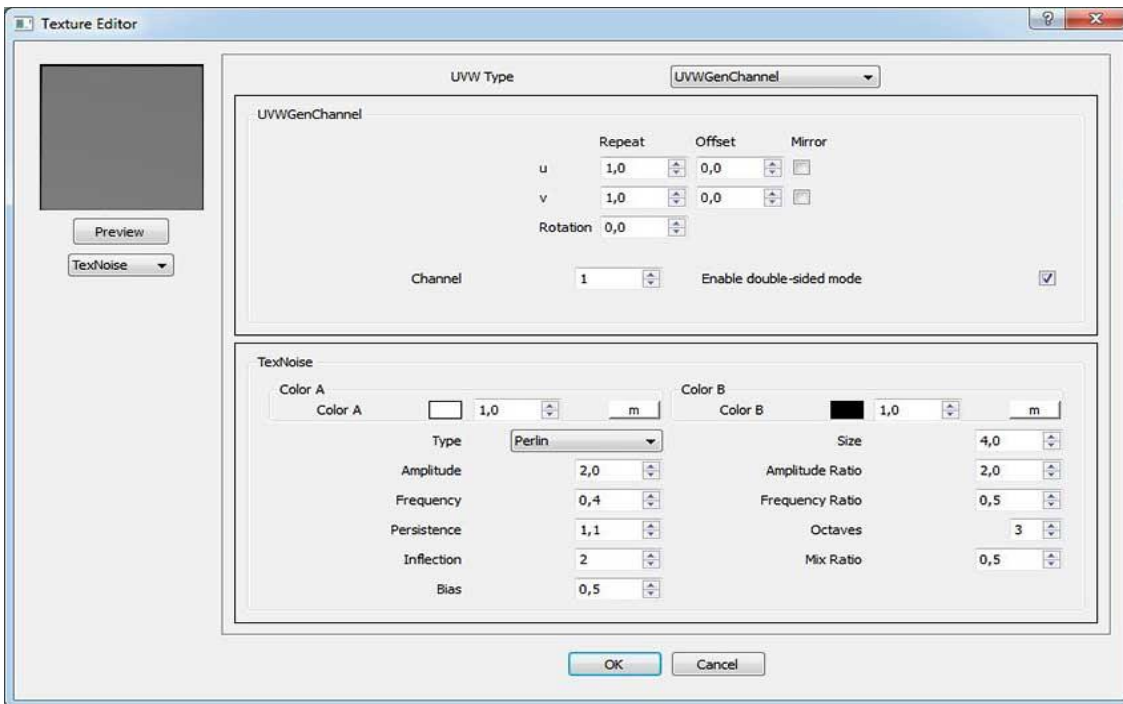
Material Settings – Water



Water Settings

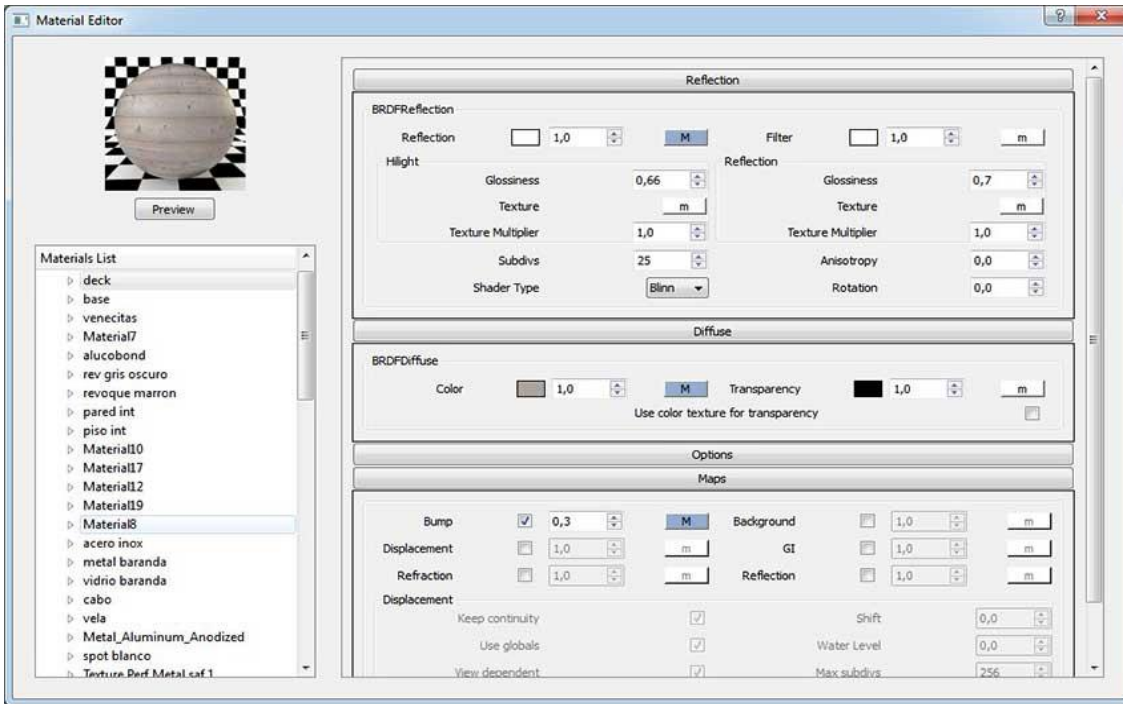


Water Settings

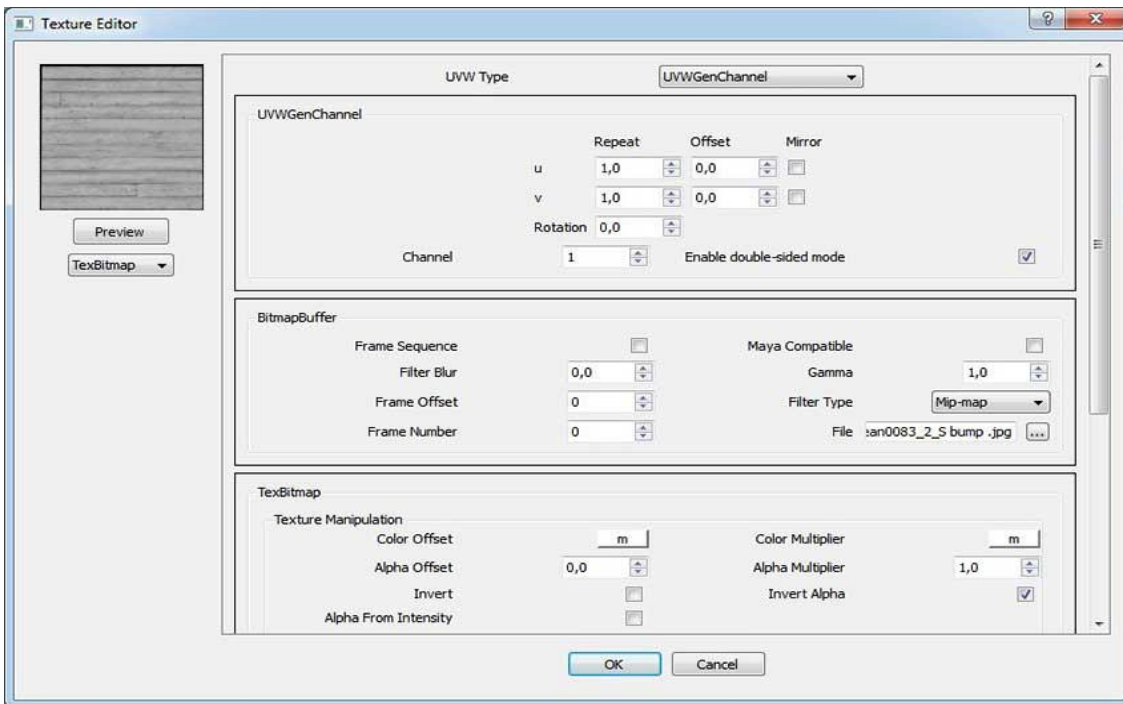


Water Settings

Material Settings – Wood

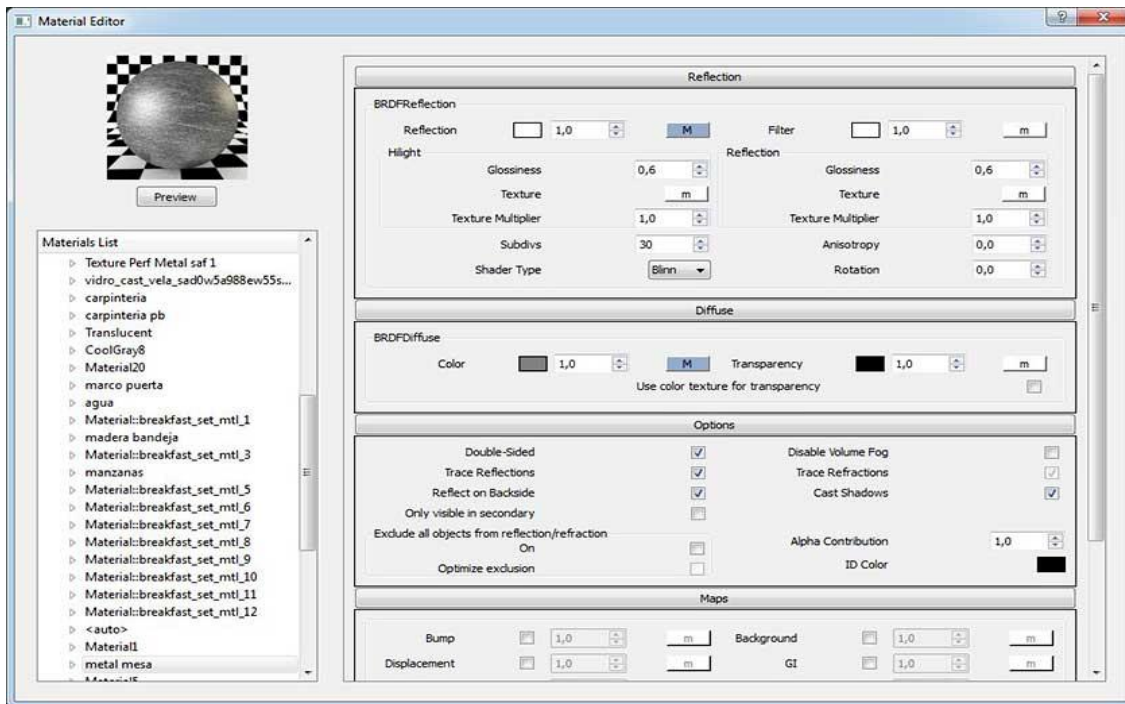


Wood Settings

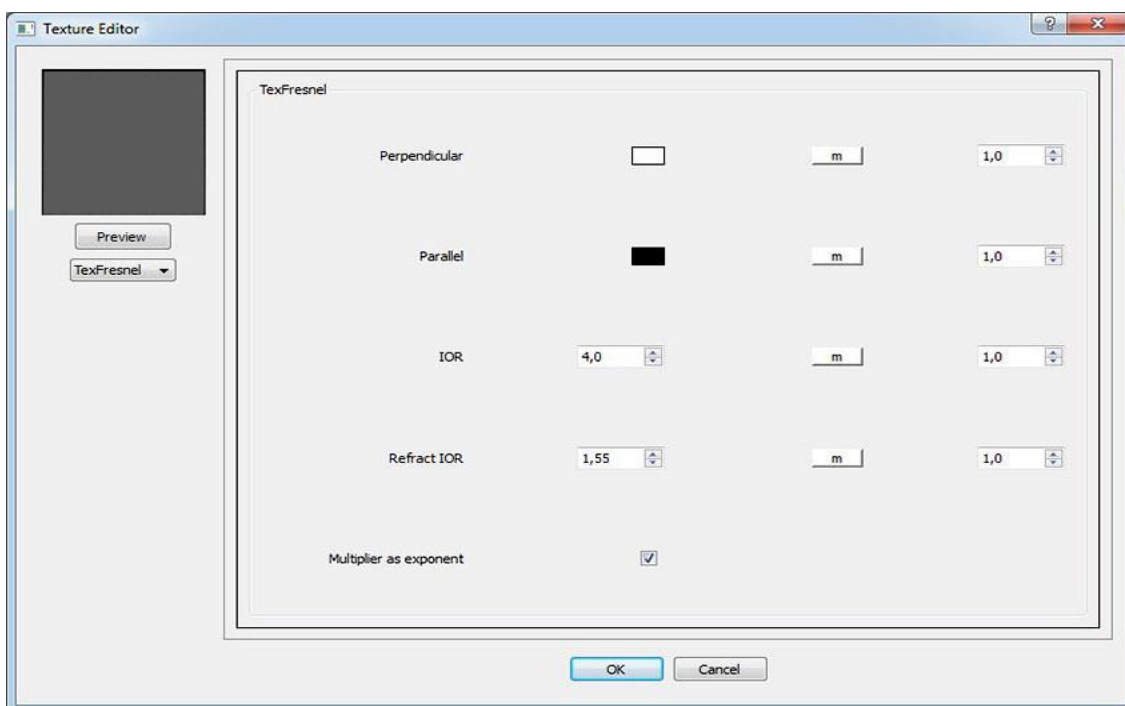


Wood Settings

Material Settings – Metal Table



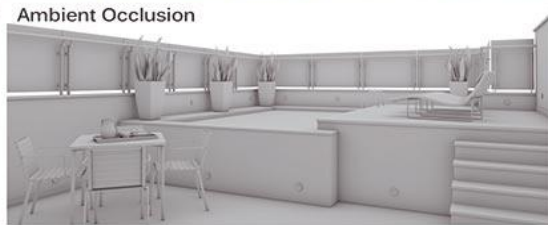
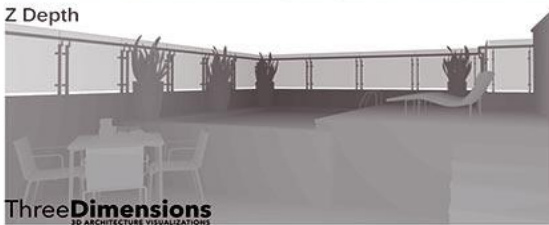
Metal Table Settings



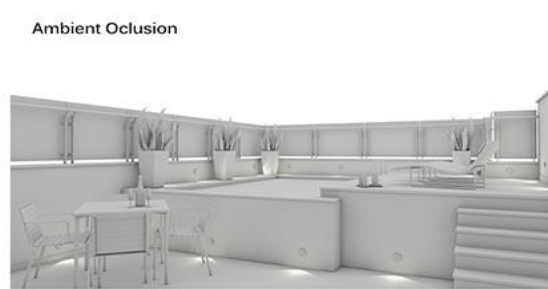
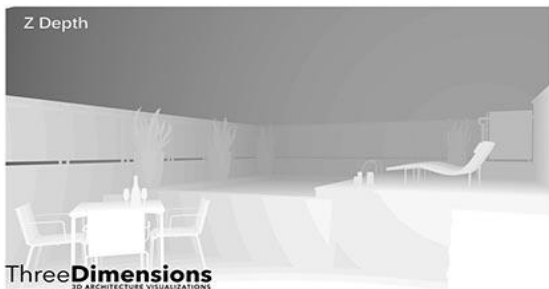
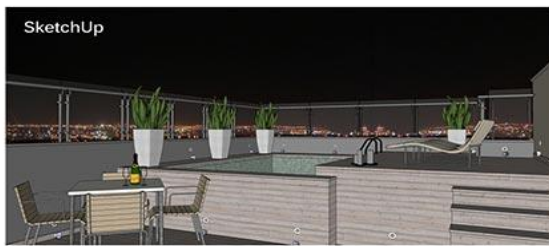
Metal Table Settings

Rendering Overview

A render result is not only an image but can also be an image with various support channels (render elements) that serve different functions such as the Alpha Channel, a channel with its own lighting, Ambient Occlusion, Depth of Field etc... Each scene also has different configurations, as we know, V-Ray has different configurations depending on the type of lighting and time of day you want to interpret.



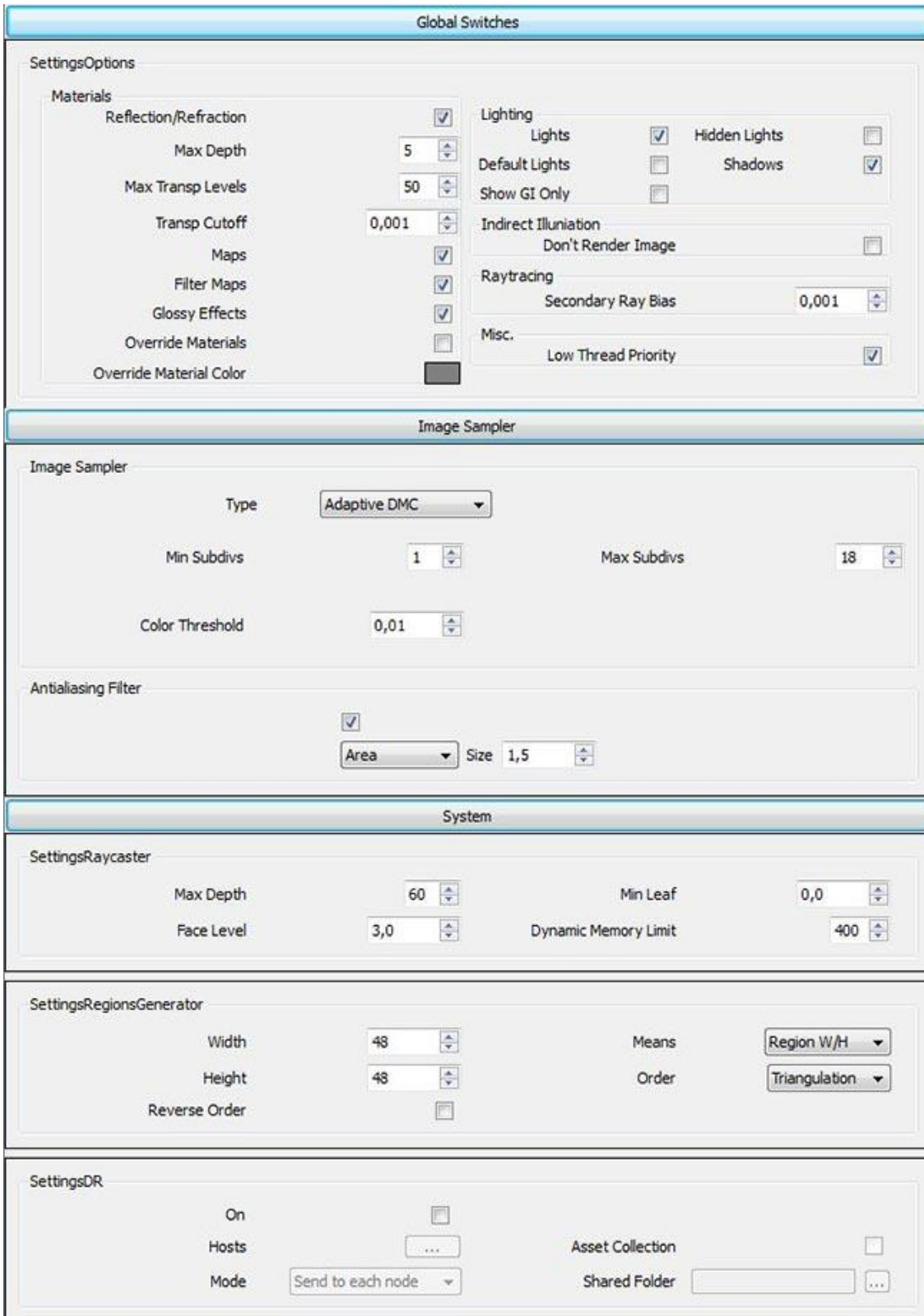
Daytime Render Elements



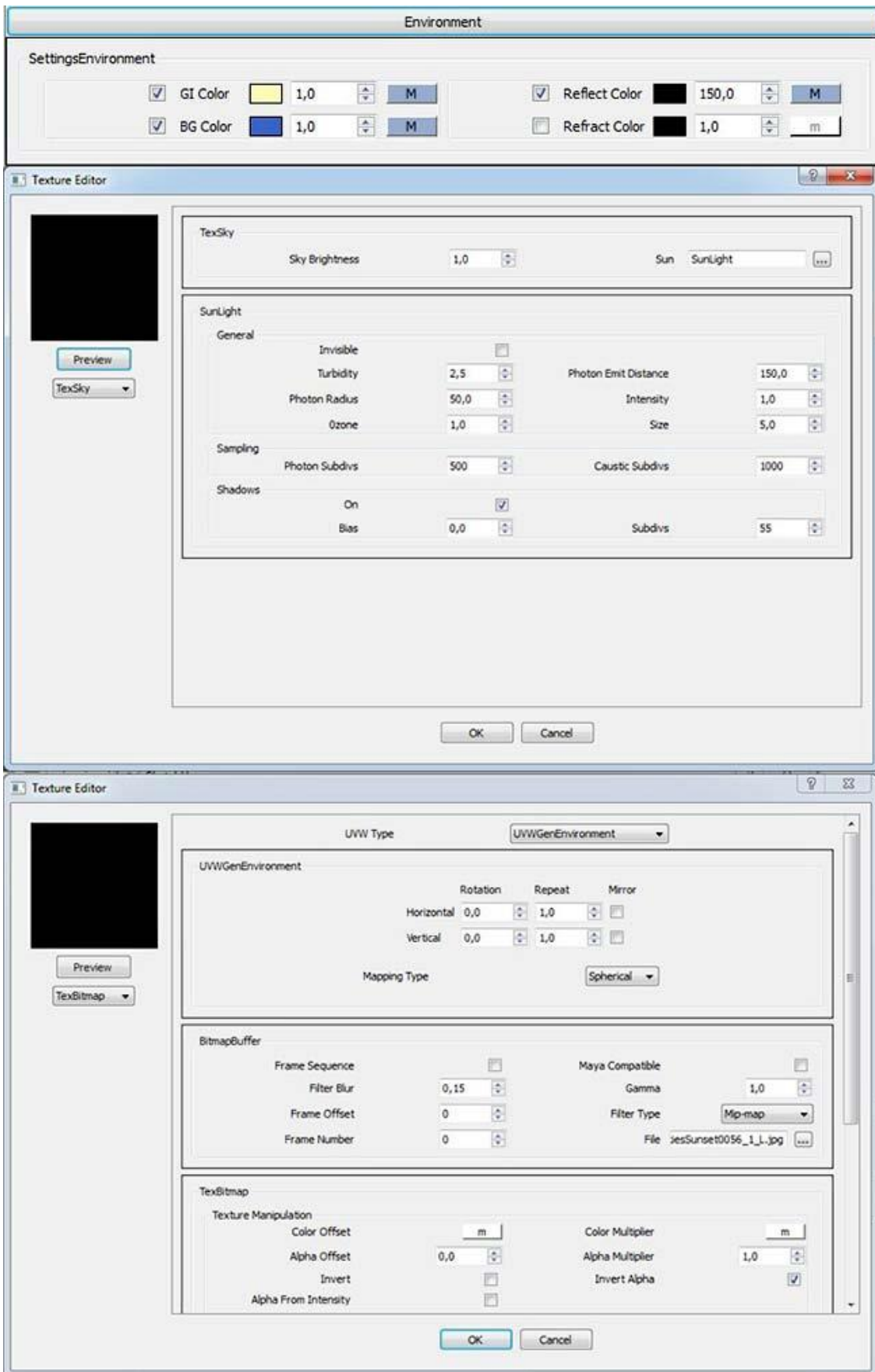
Night Time Render Elements

V-Ray Daytime Light Values

As you can see I always use physical camera and V-Ray sky to naturally illuminate my scenes. I think it is the best and most accurate way to do this. We must also correctly handle the values of the physical camera, being careful not to force it. By this I mean not to force it to achieve a scene that is illuminated by just changing values, because by doing this you will only achieve unsatisfactory lighting and in such cases it is better to rely on some other type of lights or increase the values of ambient lighting.

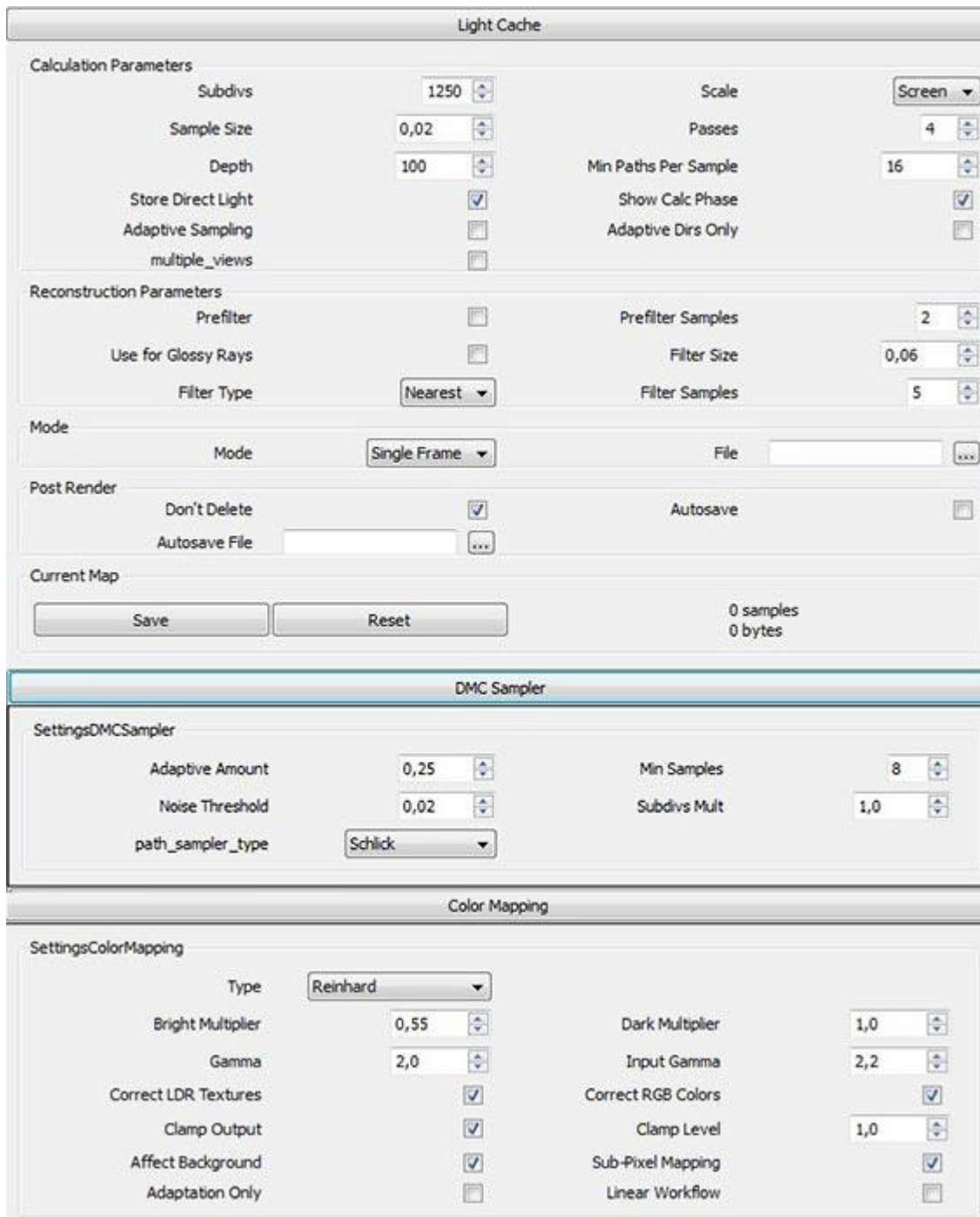


Daytime Lighting Values



Daytime Lighting Values

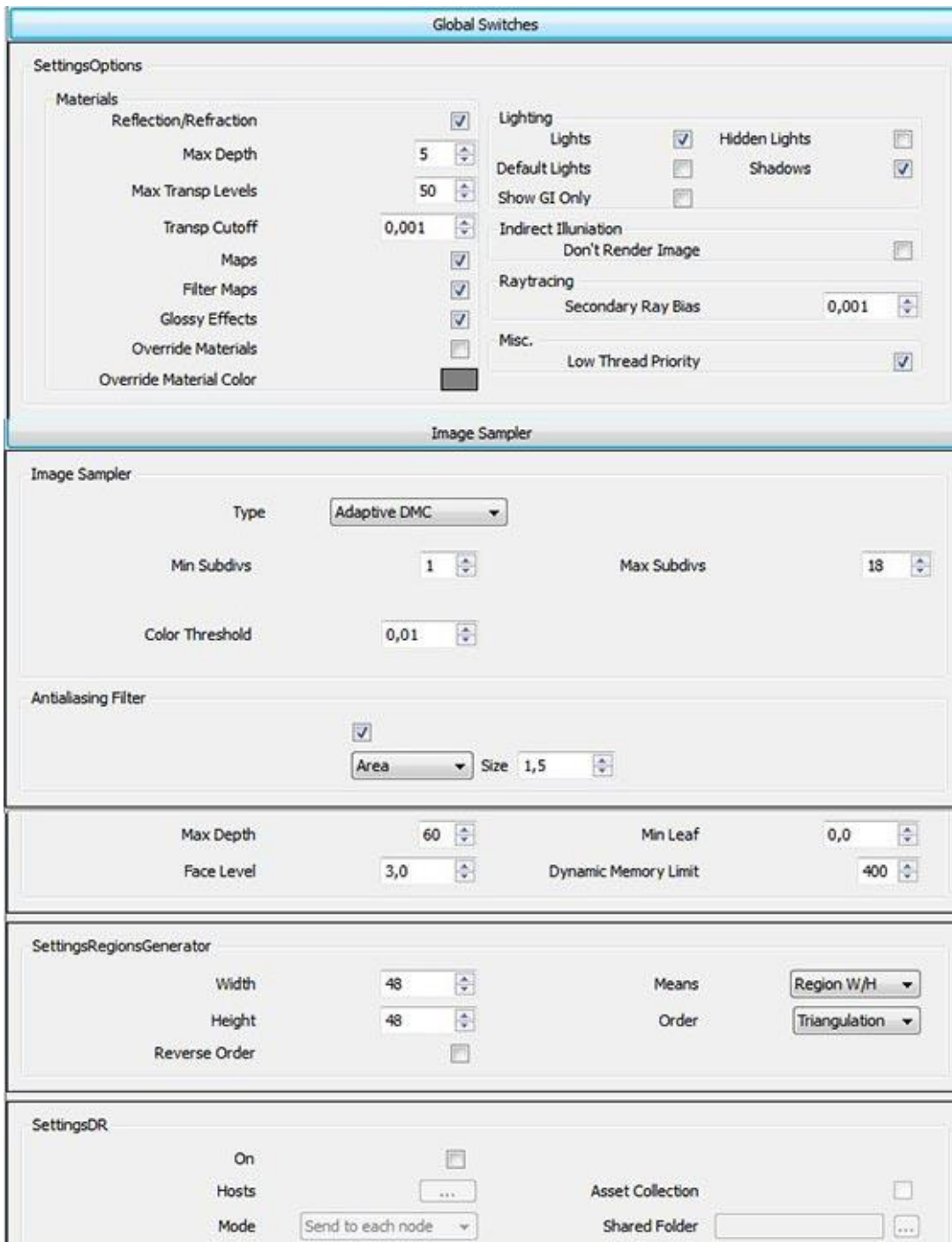
Daytime Lighting Values



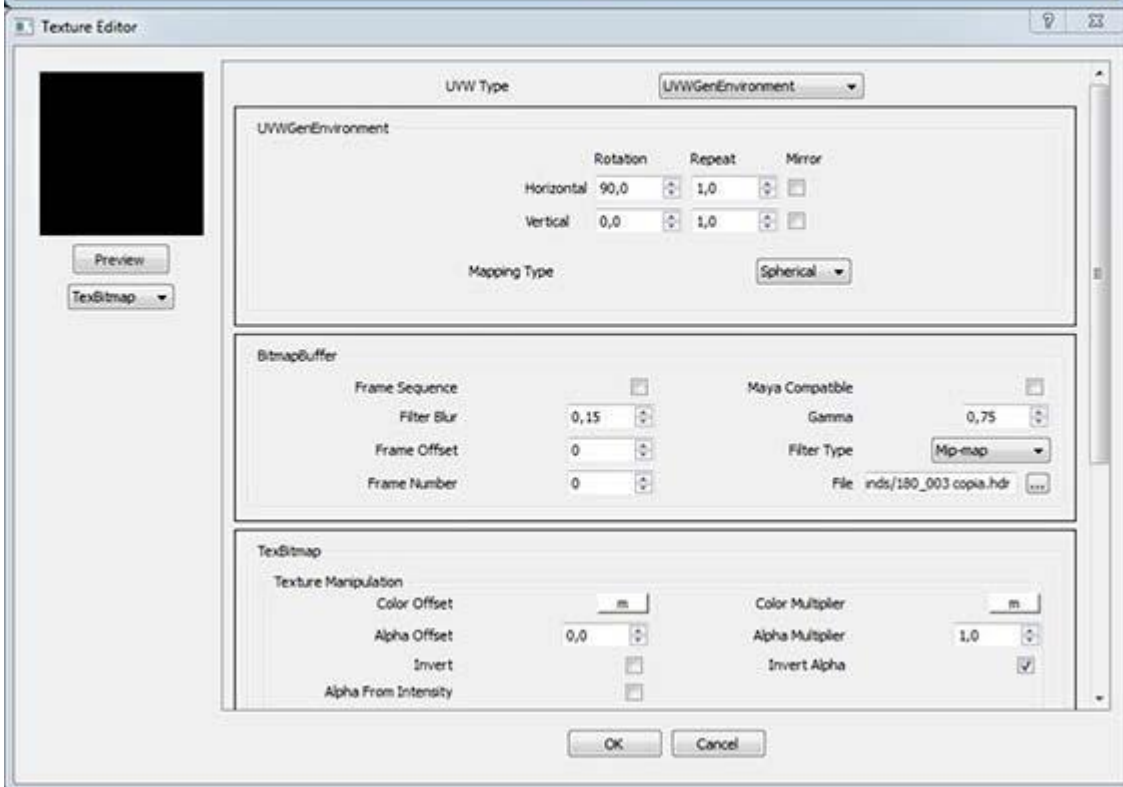
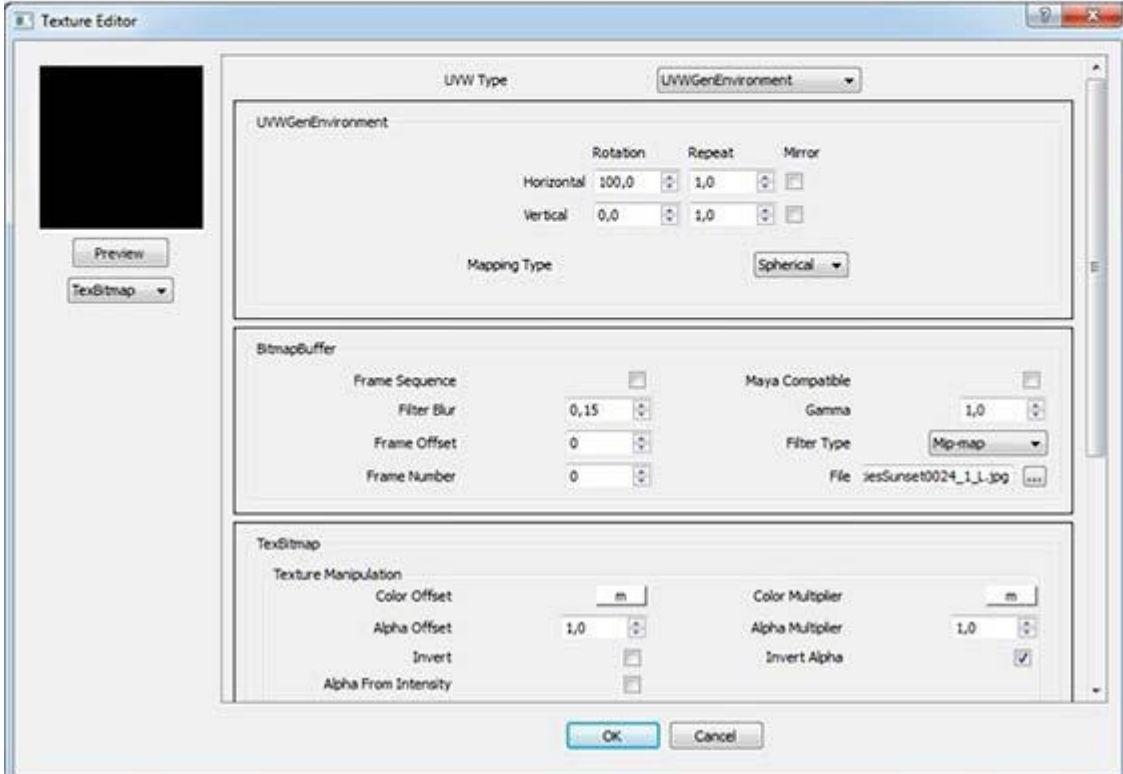
Daytime Lighting Values

V-Ray Night Time Light Values

Night lighting is very different, but only on aspects of global illumination and the physical camera settings. If you look at the following screenshots you will notice that I used HDRI in global illumination, color of the sky and the reflections of the channel environment. I could use only one color to give the tone I wanted in the scene, but in carrying out different tests to get better results, I found that the HDRI background provided much better colors and reflections in the final image.



Night Time Lighting Values



Night Time Lighting Values

Camera

SettingsCamera

Type	Standard	Height	400,0	Delta	2,0
Override FOV	<input type="checkbox"/> 45,0	Auto Fit	<input checked="" type="checkbox"/>	Curve	1,0

CameraPhysical

On

Type	Still Camera	Override Focal Length	<input type="checkbox"/> 26,9263	Distortion	0,0
Shutter Speed	350,0	Specify Film Width	<input type="checkbox"/> 36,0	Lens Shift	0,025
Shutter Angle	180,0	Zoom Factor	1,0	White Balance	
Shutter Offset	0,0	F Number	10,0	Exposure	<input checked="" type="checkbox"/>
Latency	0,0	Film Speed(ISO)	250,0	Vignetting	<input type="checkbox"/>

SettingsCameraDof

On

Basic Params

Aperture	0,1	Subdivs	6
Override Focal Dist	<input type="checkbox"/> 2.388,91		

Bokeh effects

Blades On	<input type="checkbox"/> 5	Rotation	0,0
Center Bias	0,0	Anisotropy	0,0

Indirect Illumination

SettingsGI

GI On

Reflective GI Caustics	<input type="checkbox"/>	Refractive GI Caustics	<input type="checkbox"/>
------------------------	--------------------------	------------------------	--------------------------

Post-Processing

Saturation	1,0	Contrast Base	0,5
Contrast	1,0	Save maps per frame	<input type="checkbox"/>

Ambient Occlusion

On	<input type="checkbox"/>	Subdivs	15
Radius	2,0	Amount	0,4

Primary Engine

Primary Multiplier	1,0	Irradiance Map	▼
--------------------	-----	----------------	---

Secondary Engine

Secondary Multiplier	0,8	Light Cache	▼
----------------------	-----	-------------	---

Irradiance Map

Basic Parameters

Min Rate	-3	Max Rate	0	Color Threshold	0,3
HSph. Subdivs	50	Samples	20	Normal Threshold	0,1
				Dist Threshold	0,1

Basic Options

Show Samples	<input type="checkbox"/>	Show Calc Phase	<input checked="" type="checkbox"/>	Show DirectLight	<input type="checkbox"/>
--------------	--------------------------	-----------------	-------------------------------------	------------------	--------------------------

Detail Enhancement

Enabled	<input type="checkbox"/>	Scale	Screen	Radius	60,0	Subdiv Multiplier	0,3
---------	--------------------------	-------	--------	--------	------	-------------------	-----

Advanced Options

Interpolation Mode	Least Squares Fit	Multipass	<input checked="" type="checkbox"/>
Sample Lookup Type	Density Based	Randomize Samples	<input checked="" type="checkbox"/>
Calc Samples	15	Check Sample Visibility	<input type="checkbox"/>

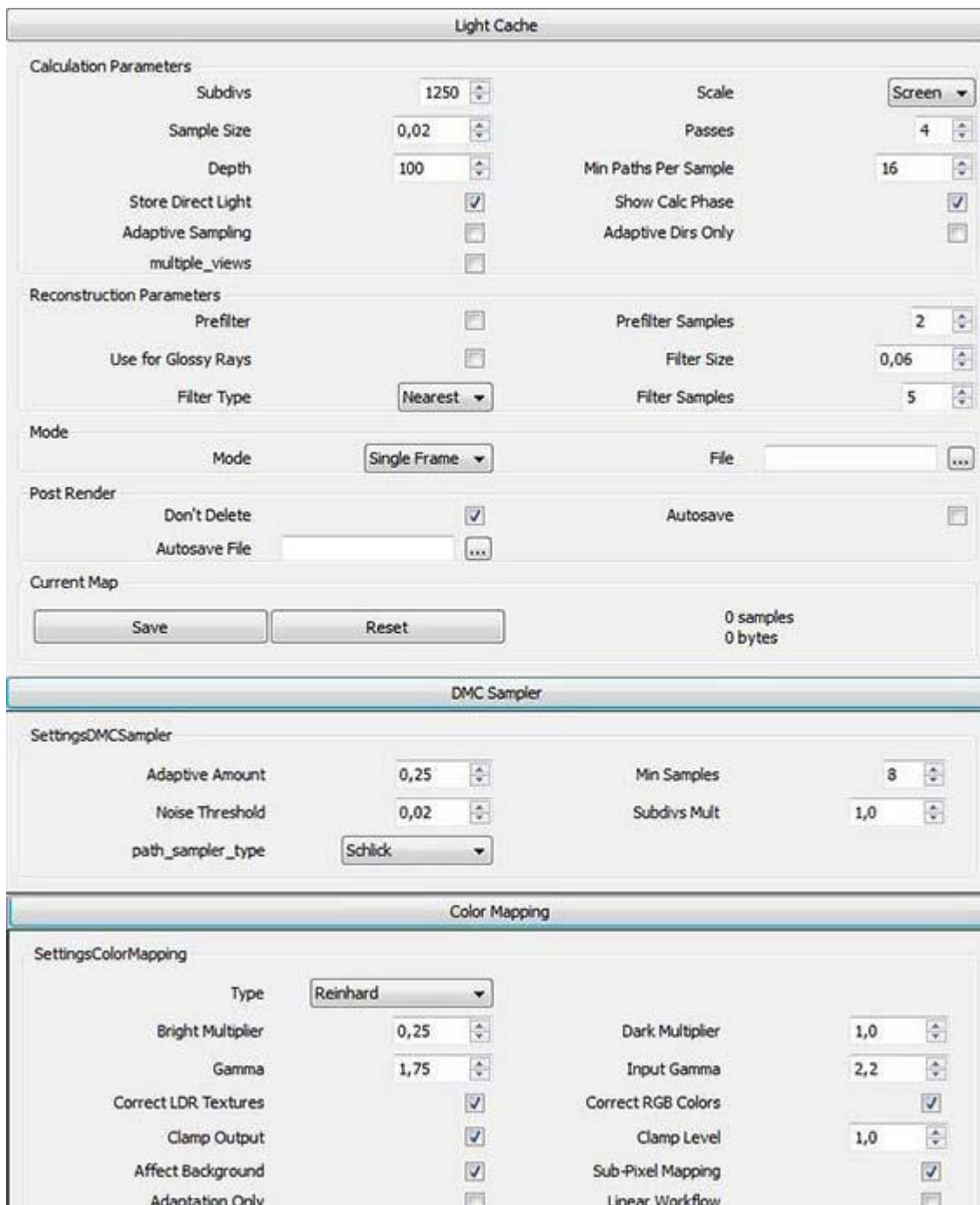
Mode

Mode	Single Frame	Post Render	
File	<input type="text"/>	Autosave File	<input type="text"/>
		Don't Delete	<input checked="" type="checkbox"/>
		Autosave	<input type="checkbox"/>

Current Map

Save Reset 0 samples
0 bytes

Night Time Lighting Values



Night Time Lighting Values

Photoshop

The last step of an image for me is post-production, using photo editing software, in this particular case Photoshop. There are two important things for me in this part of the process. I think post production is very important in the image making work flow, because it enables us to be more individual and lets us add a unique defined style to our work, allowing us to differentiate our design creations from others (in case we want to achieve that of course!). Also keep in mind the result we want to achieve with our image as we begin and have yourself a target set if the end result is not expected.

In the following collection of different Photoshop screenshots I show the steps I used for editing the images for both the day scene and night scene. Also the different channels (Render Elements) used from the rendering (Depth of Field, Ambient Occlusion, etc.).

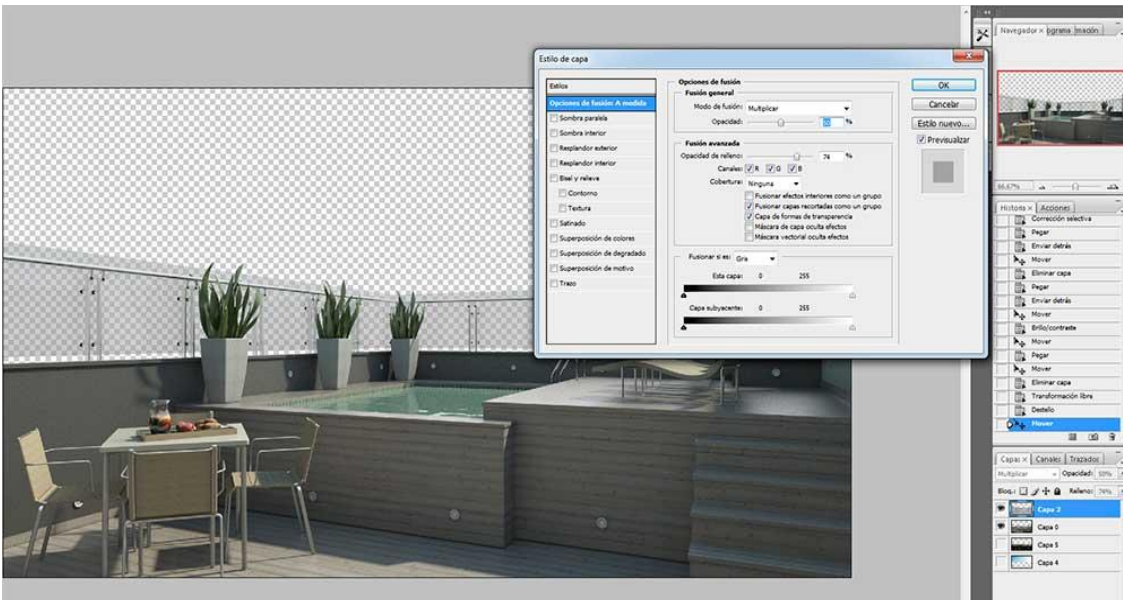
With the inclusion of rendering channels in my work flow, I chose to add these two in particular, because they are the ones that help me better define surfaces or edges (ambient occlusion) and different depths in the same scene (Z-depth for depth of field).

As for the Ambient Occlusion, I could have configured it directly in the scene but by also making it separately and then mounting it in Photoshop, you achieve much better results and better control.

With the Depth of Field you could blur it with brushes and Photoshop Blur, but the results are not always optimal and set it in the scene for rendering greatly increases render times.

Photoshop Post-Production - Daylight Scene

The Ambient Occlusion render element is on top of layer stack with original raw render under it. I set the Blend Mode to Multiply, Opacity to 50% and Fill to about 74%.



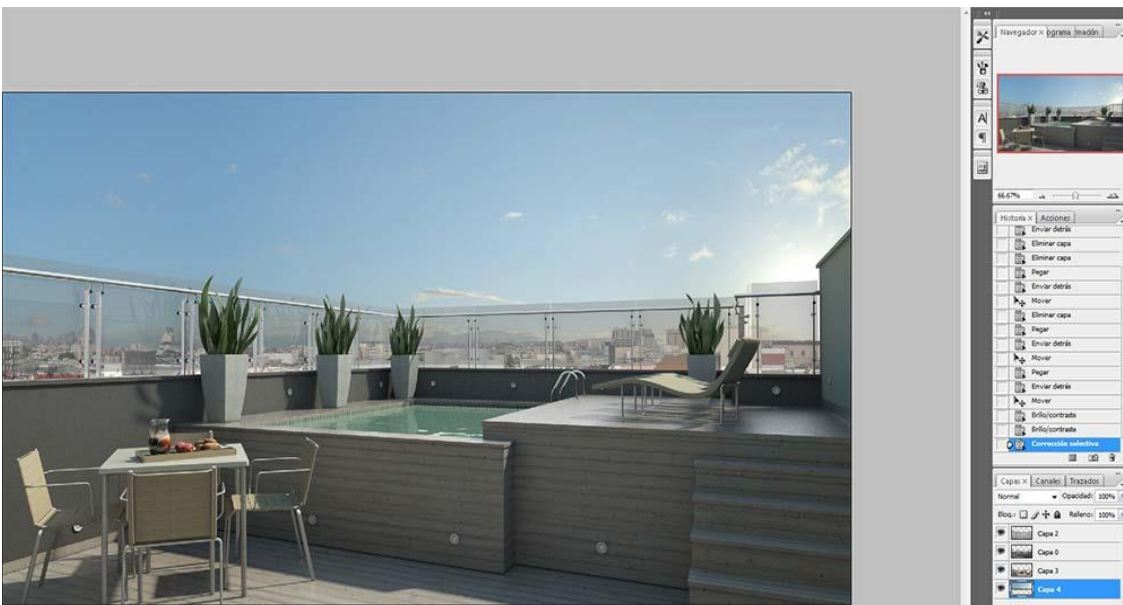
AO and Original Render

Next a suitable city landscape at the bottom of the Layer stack.



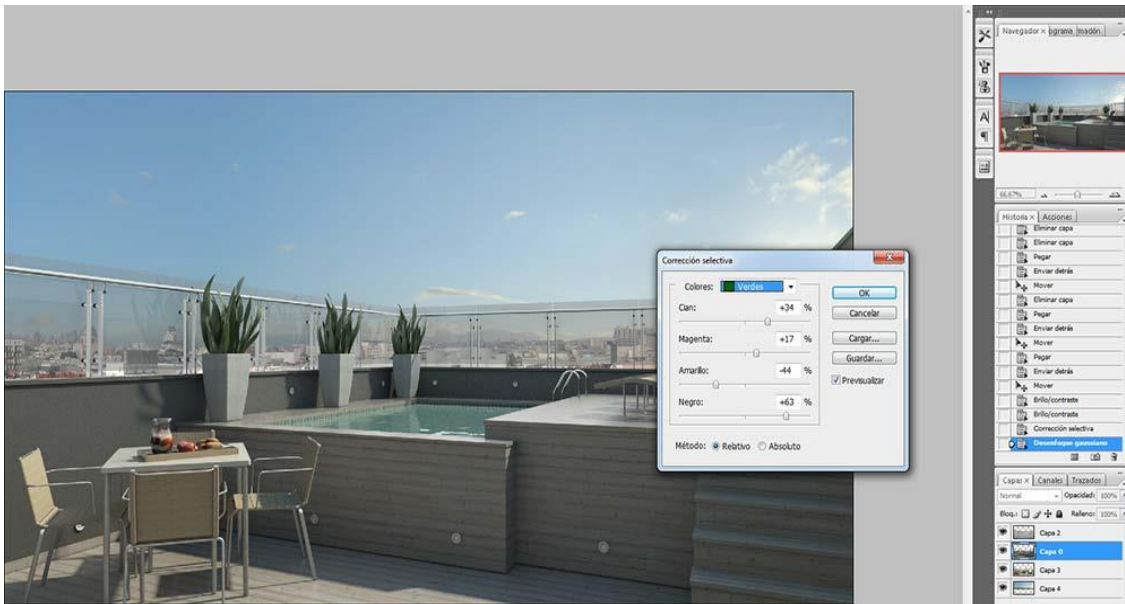
Landscape Added

I added my sky next to the background.



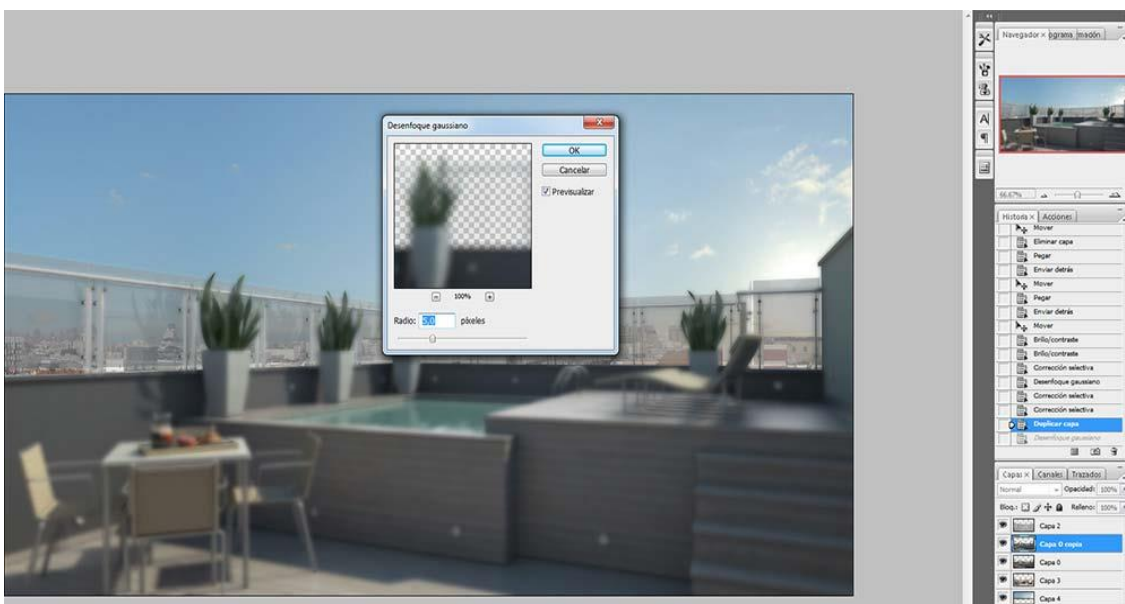
Sky Added

Next some color adjustment on the original raw rendered image (Layer 2 from the top) using Selective Color (Image>Adjustments>Selective Color). Here I adjust the greens.



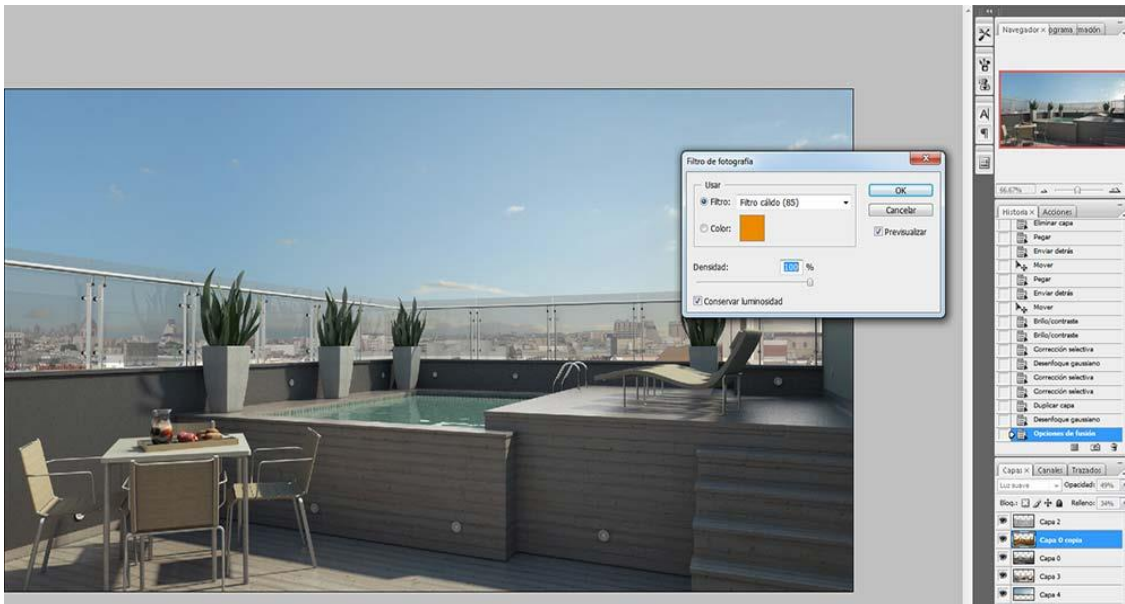
Color Adjustment

I duplicated Layer 2, the original raw render image, and added some Gaussian Blur (Filter>Blur>Gaussian Blur) to this new layer. I set the Radius value to 5.0 pixels.



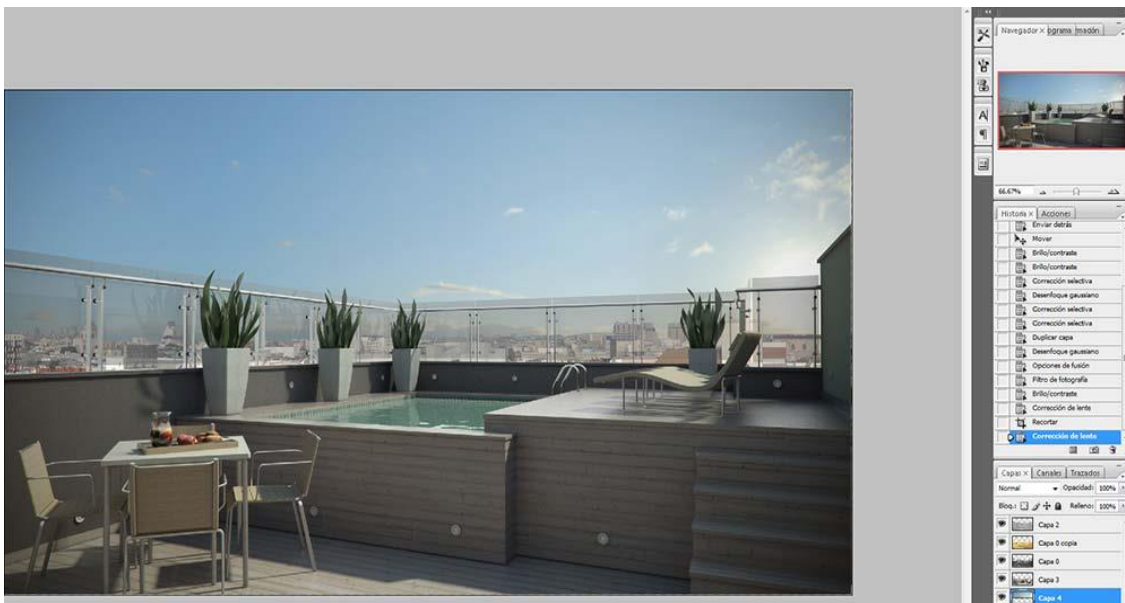
Gaussian Blur

I now add a Warming Filter to the Layer (Image>Adjustments>Photo Filter). Set the Blend Mode to Soft Light.



Warming Filter

Next, a little Lens adjustment (Filter>Lens Correction).

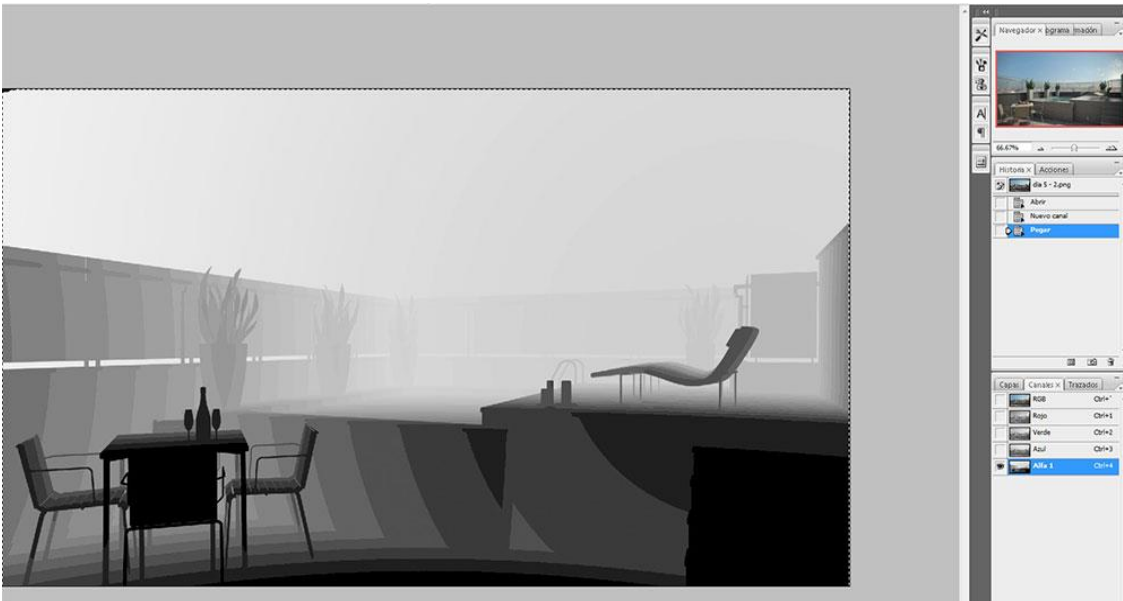


Lens Correction

In V-Ray, not only can we get the original color rendering image, we also get a variety of channels containing different information with different results. Two channels used for these images were the Self Illumination channel (for night scene) and the Z-depth channel for daytime and night time scene (It should be noted, to use these extra resources you should have some knowledge of Photoshop).

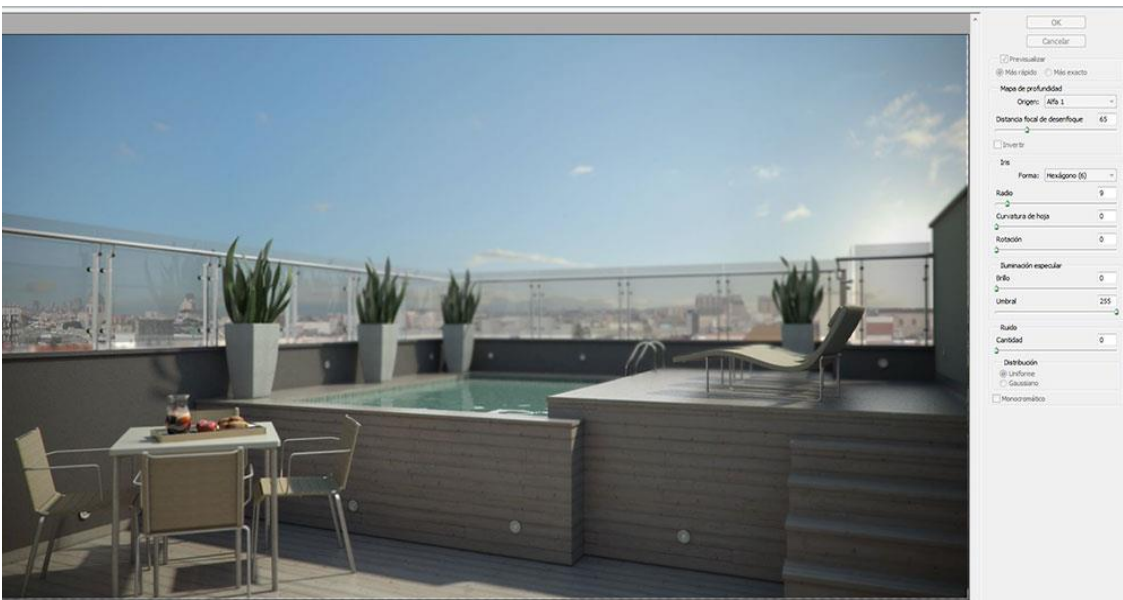
With the V-Ray Z-depth render element, this adds more depth to the image by focusing on a particular element or desired sector in it. When using this effect, care must be taken not to use too much blur in some areas because it can cause loss of image scale. I combined the Z-depth image by creating an Alpha channel and modifying the values through the Lens Blur Filter. Currently there are many plugins available to do this effect in Photoshop, with similar results to Lens Blur. This is an example [tutorial](#) which briefly gives an idea

of what is involved in the process. The image below shows the Z-depth image and extra channel called Alpha 1.



Z-Depth Channel Image

The image below shows the effect with value settings for the Lens Blur Filter set at; Source alpha 1, Blur Focal Distance 65, Radius 9, Threshold 255 and Distribution set on Uniform. The focus is on the table and chairs.



Lens Blur Filter Settings

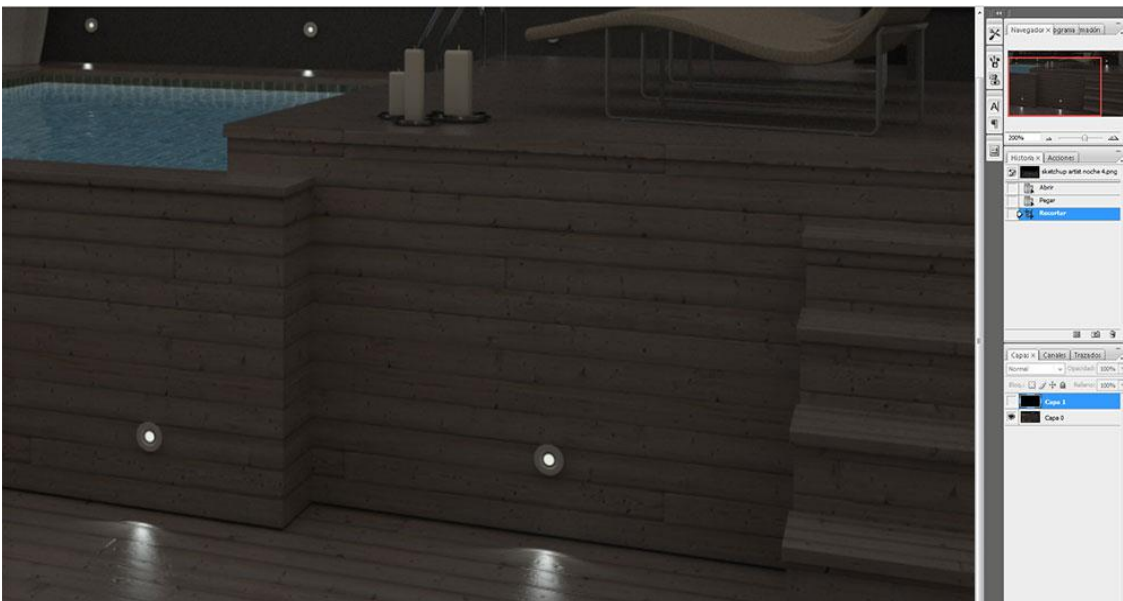
Some final little tweaks and the completed daytime image.



Final Daytime Image

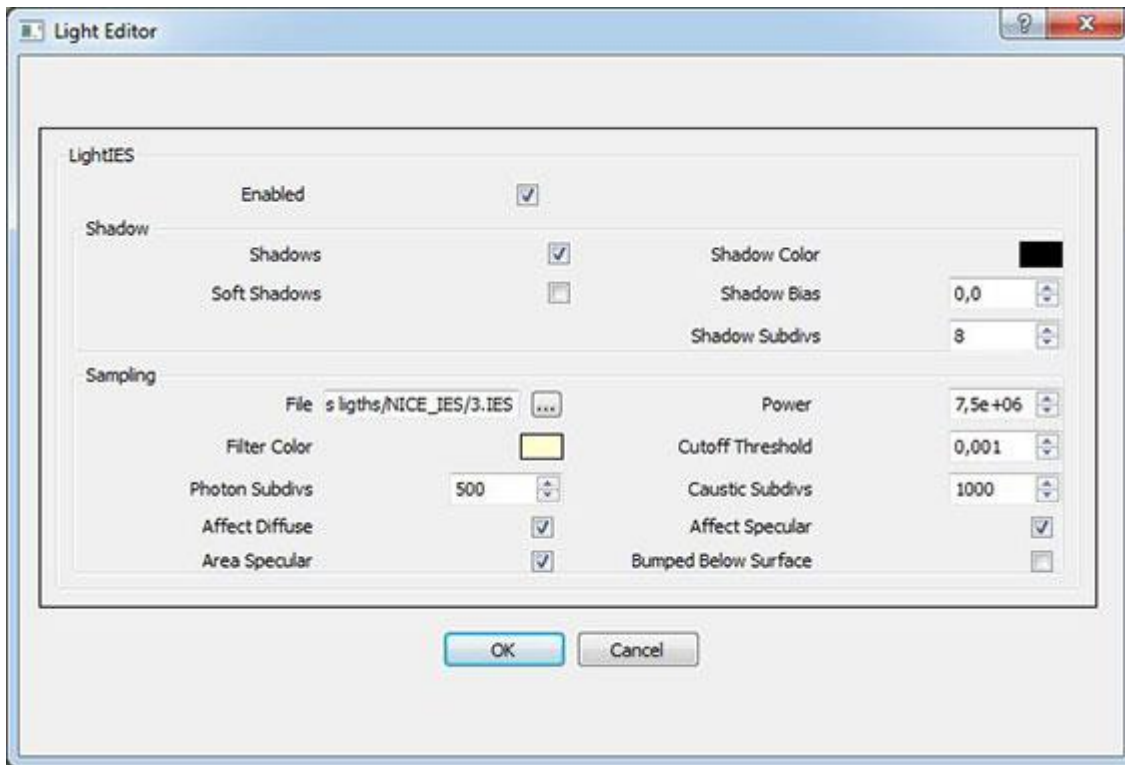
Photoshop Post-Production – Night Time Scene

With the night time scene, I started with the colored night rendered image from V-Ray. You can see a close up of some of the lights in it.

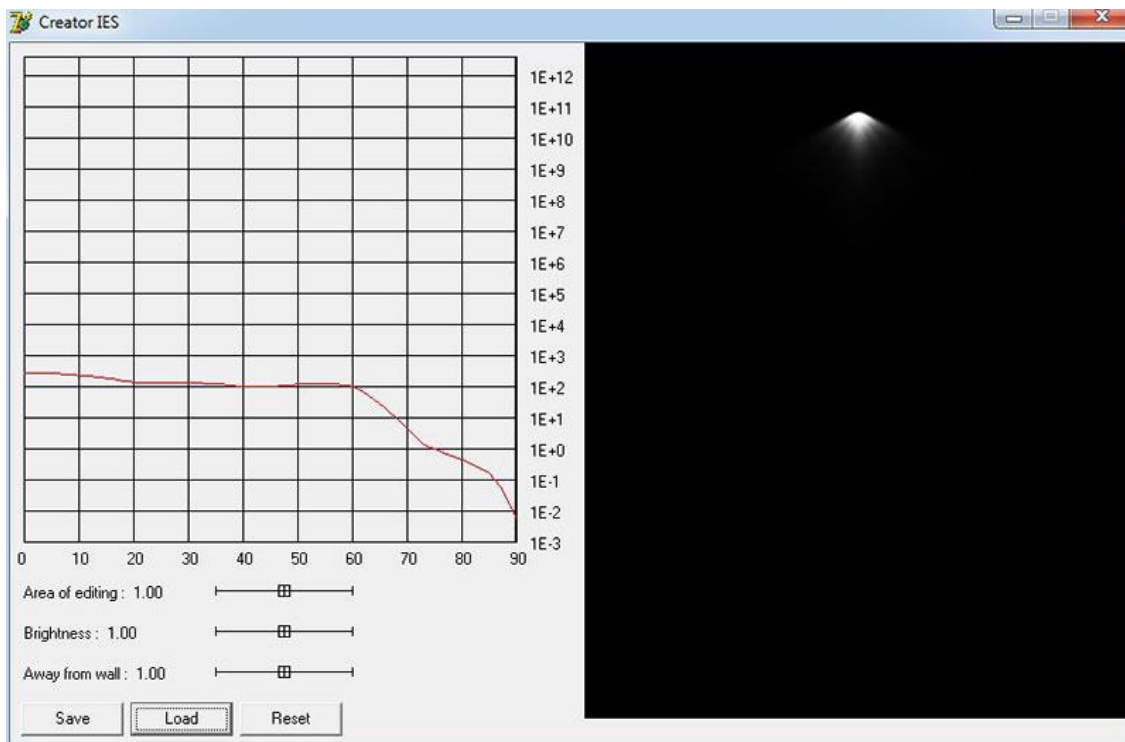


Night Render from V-Ray

These are the screenshots of the configuration of IES lights that appear in the spots. They show the values of light and a screen capture of the IES viewer where you see what kind of light cone I used.



Light Values



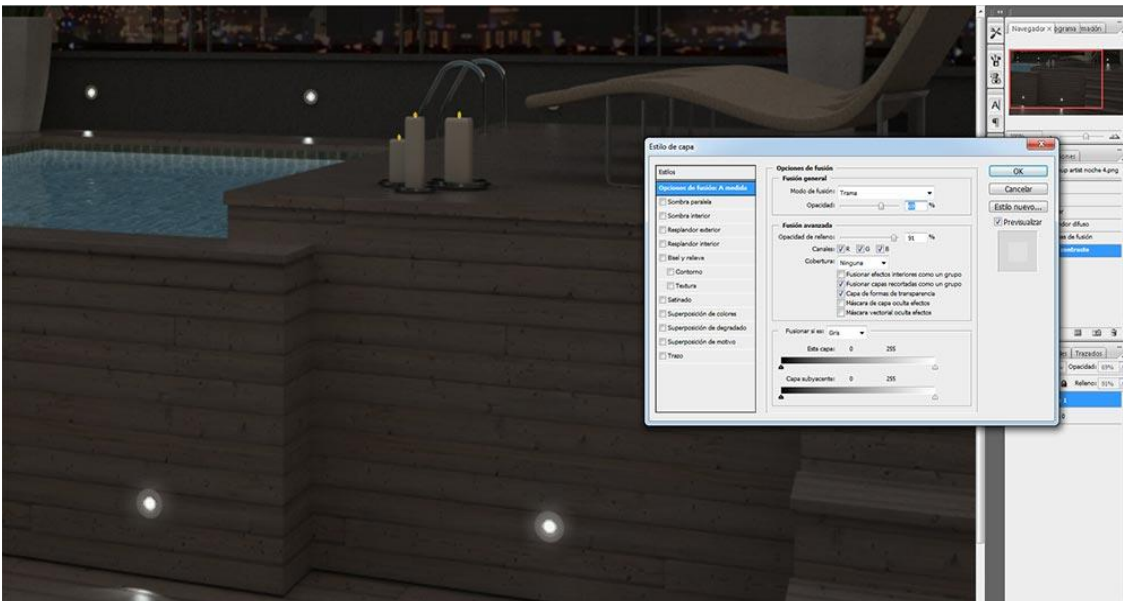
Light Cone Values

The other image I used was the Self Illumination channel from the V-Ray render. I use this to enhance the brightness of the emitting materials.



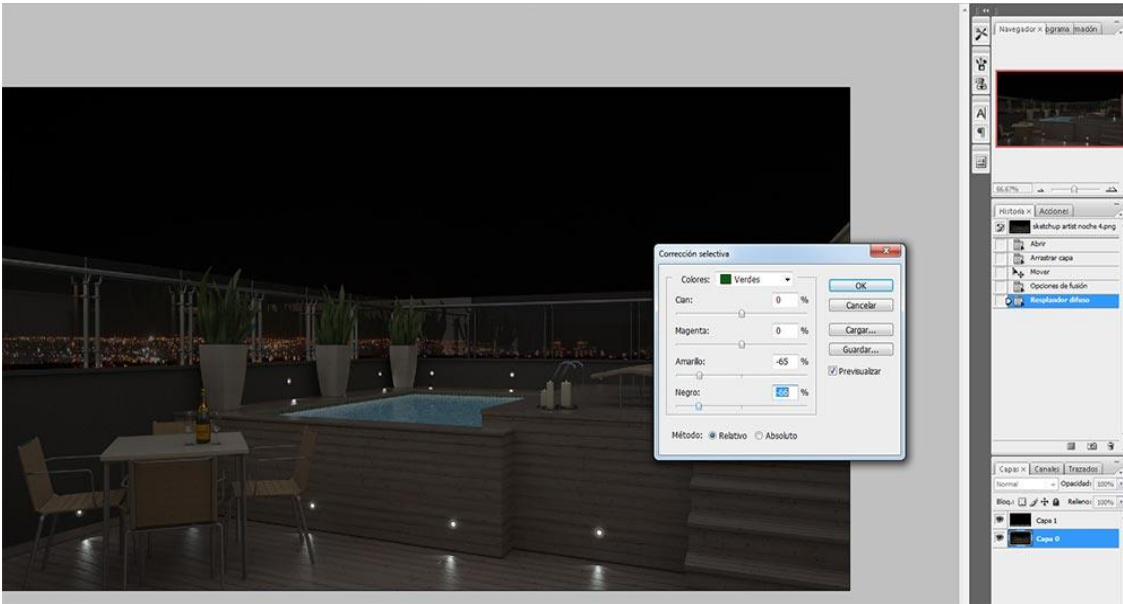
Self Illumination Image

With the Self Illumination image placed on top of the Layer stack, I use the following settings to combine the two images; Blending Mode set to Screen, Layer Transparency set to about 69% and Fill Opacity set to 91%. And the result is below. I also used the Diffuse Glow Filter to further enhance the effect.



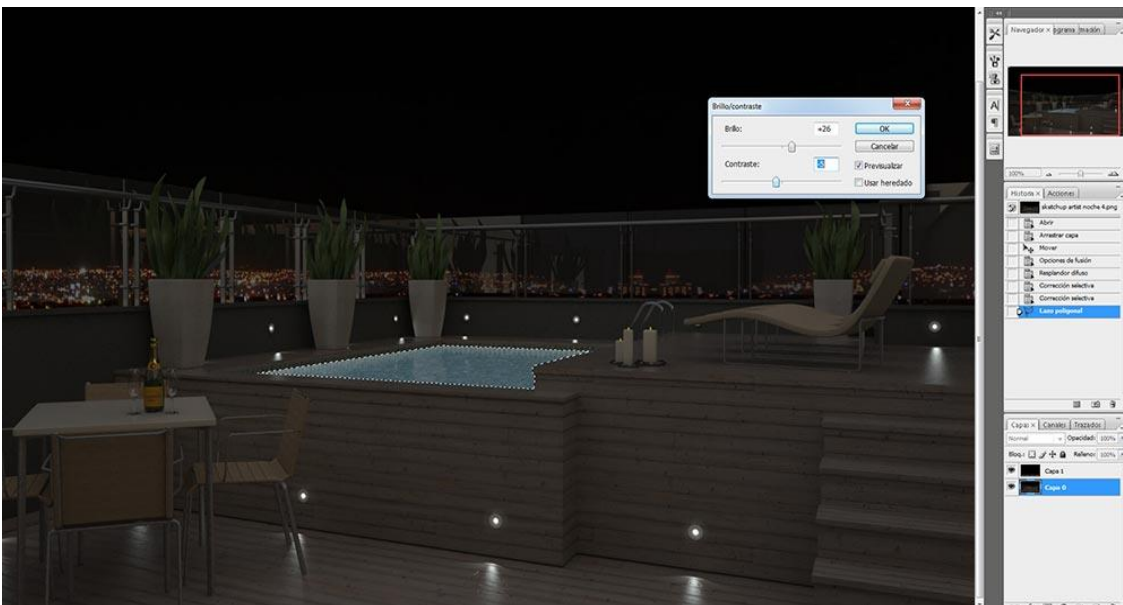
Change Blending Mode and Opacity

Next some color adjustment on the original raw rendered color image using Selective Color (Image>Adjustments>Selective Color). Here I adjust the greens.



Color Adjustment

Following this, I selected the pool and adjusted the Brightness to +26 and the Contrast to -5 on the original colored Layer.

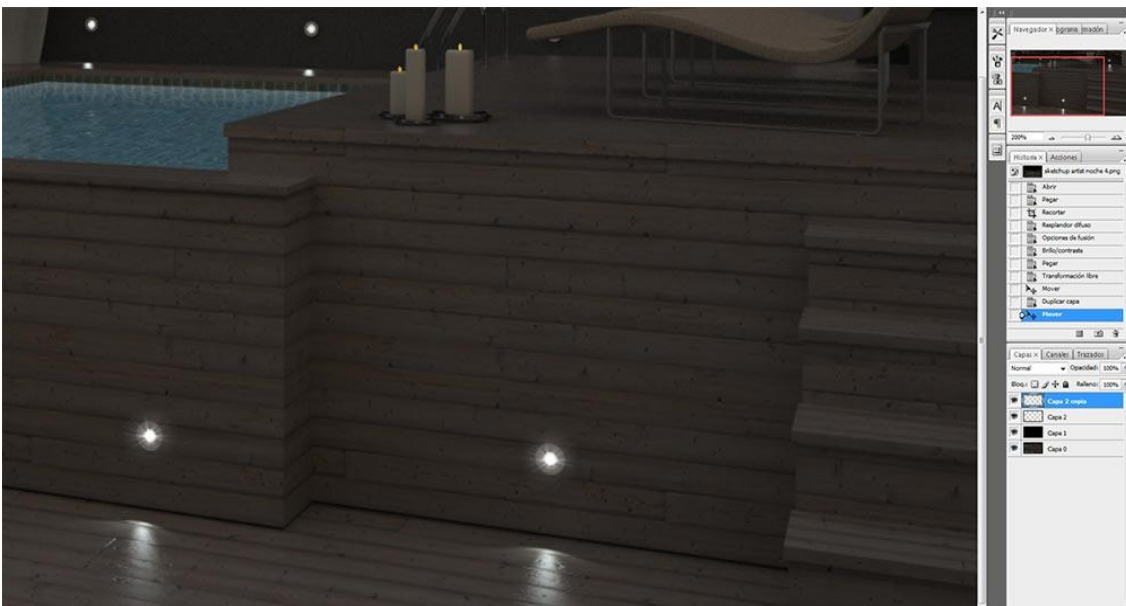


Adjust Brightness of Pool

Next I used a vectorized image of a flashlight to give a gloss around the appliance, some rendering systems have this option built in, V-Ray for SketchUp currently does not have this option so is something we have had to add in post production.

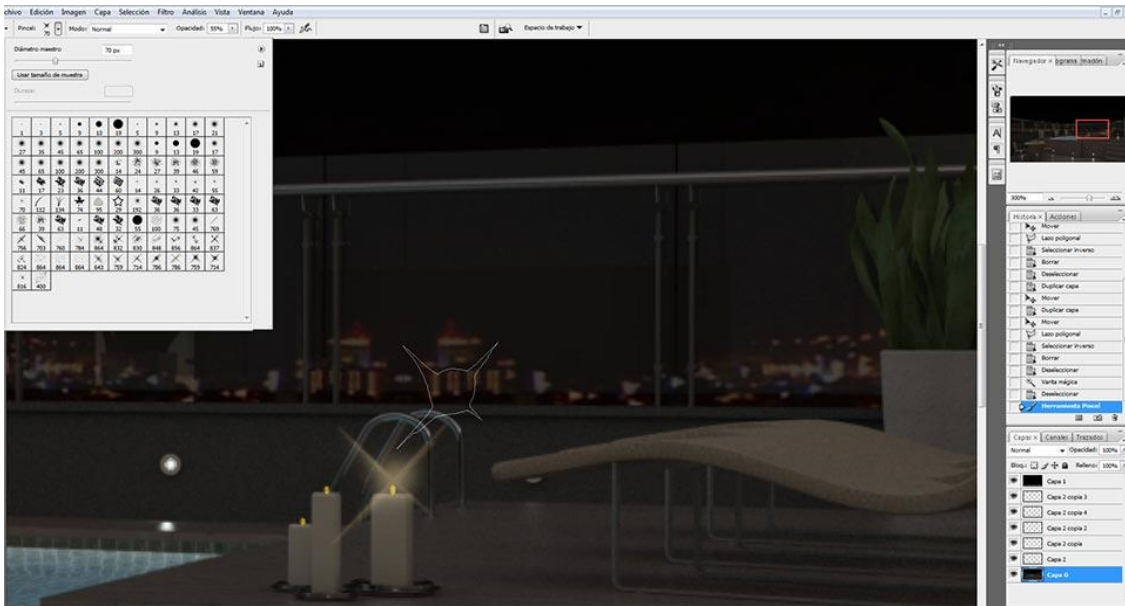


Vectorized Flashlight Image



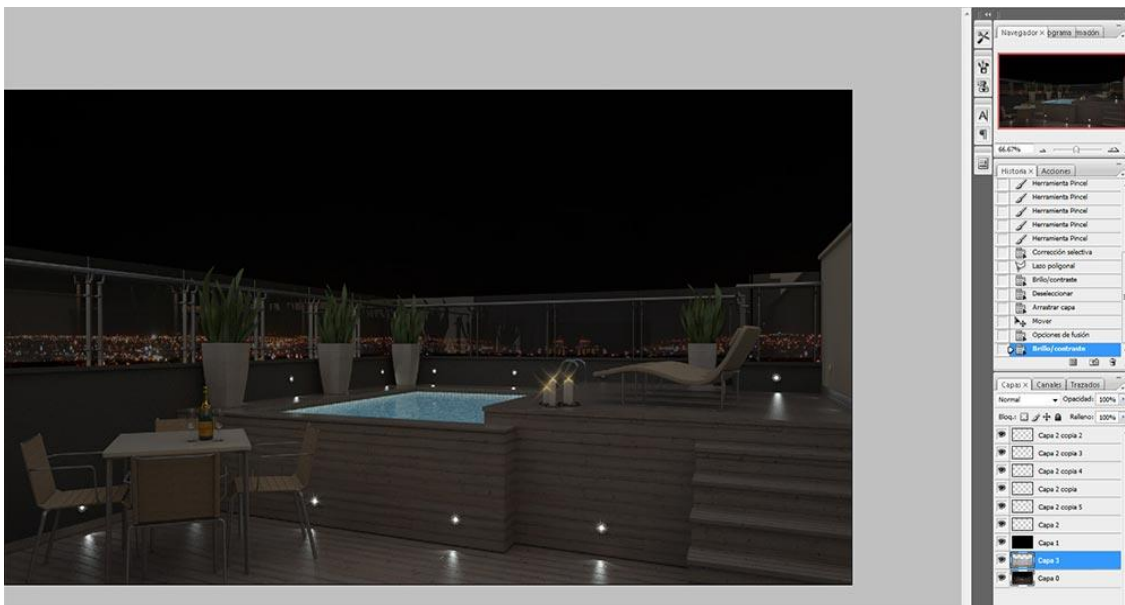
Combined Images

For the candle glow effect I used a Star Brush, I thought best suited for the job with the Opacity set at 55%. The color I chose was #F7DB9C.



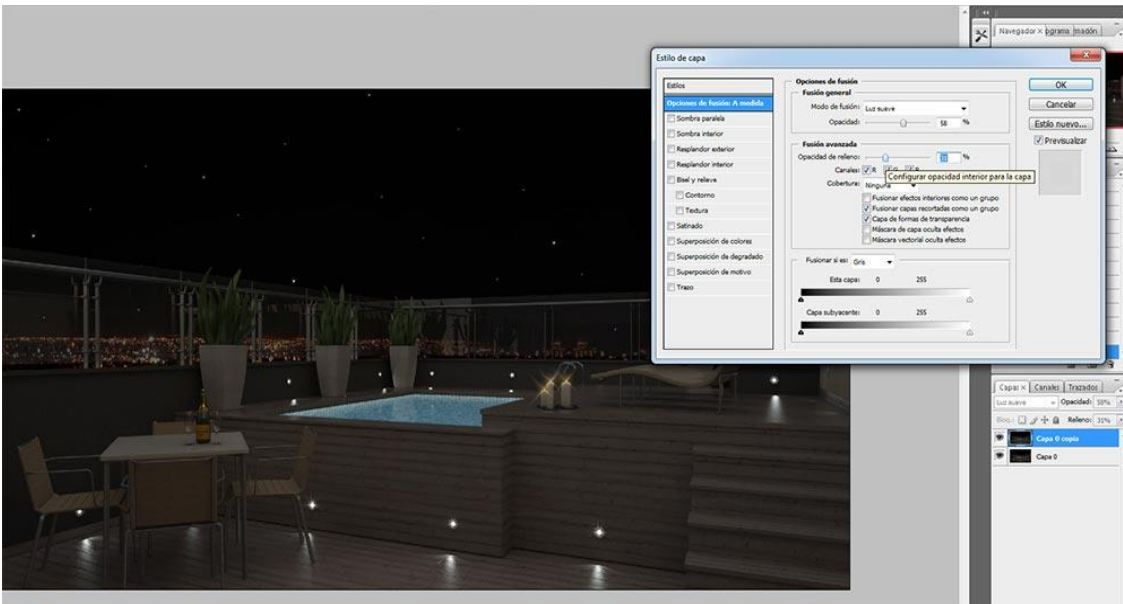
Candlelight Glow Effect

The Ambient Occlusion render element is combined (on top of) the original color raw render image and the Blending Mode set to Multiply.



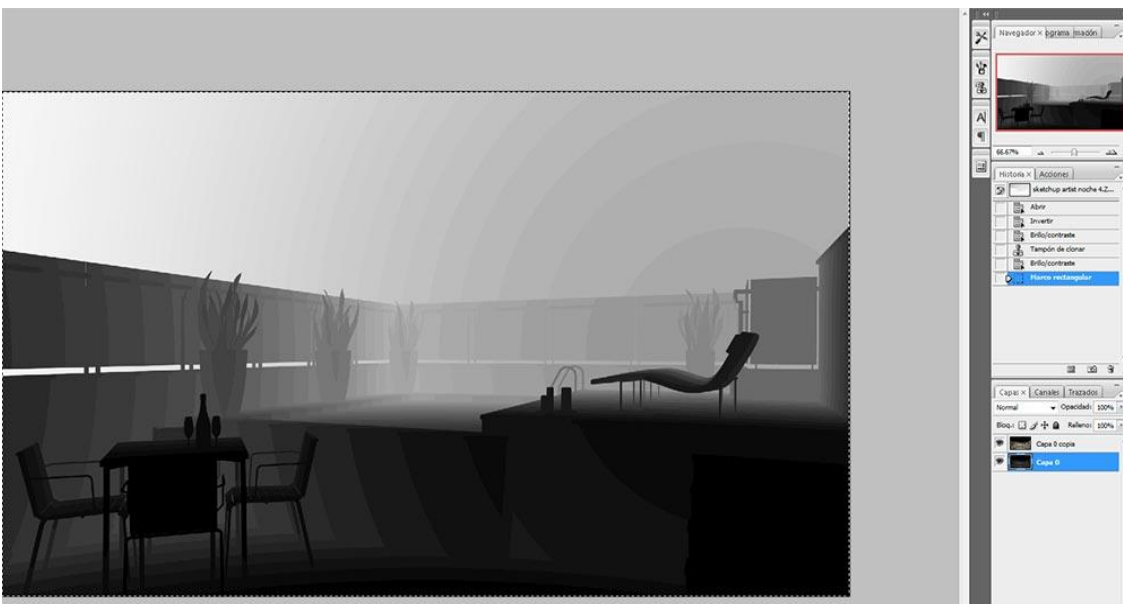
AO Layer Set to Multiply

Now with my Layers merged together I copy Layer O and add some Gaussian Blur to this new Layer and change the Blending Mode to Soft Light with the following settings; Blend Mode Soft Light, Opacity 58% and Fill Opacity 31%. This is something I use to give contrast to the image.



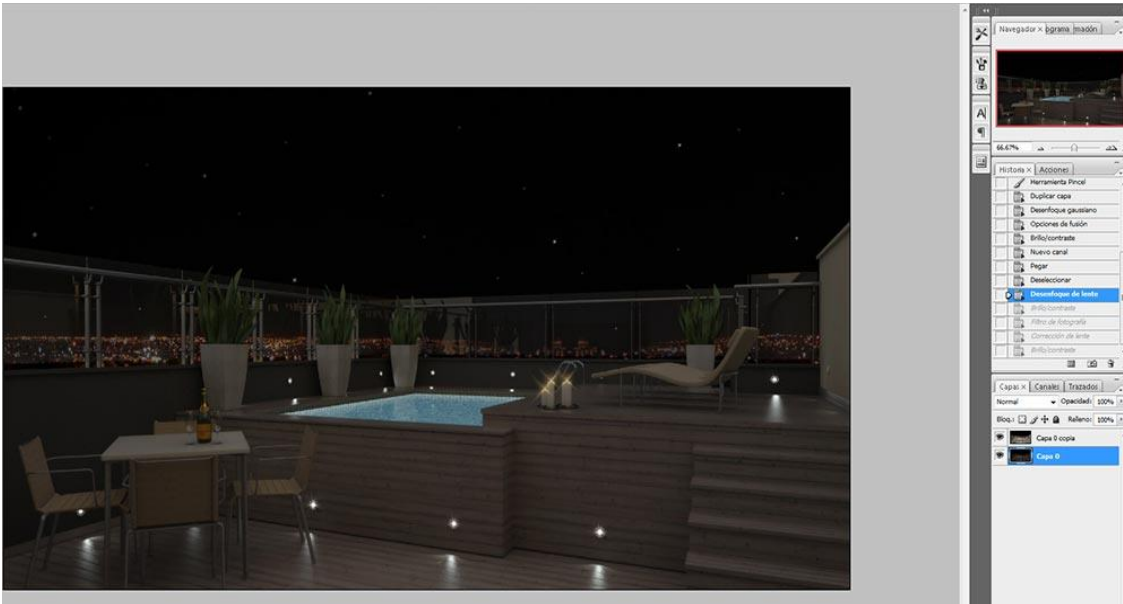
Add Contrast to the Image

With Layers merged again I add the Z-depth channel image on top. The V-Ray Z-depth render element will add more depth to the image. Again I combined the Z-depth to the image by creating an Alpha channel and modifying the values through the Lens Blur filter as I did in the daytime image.



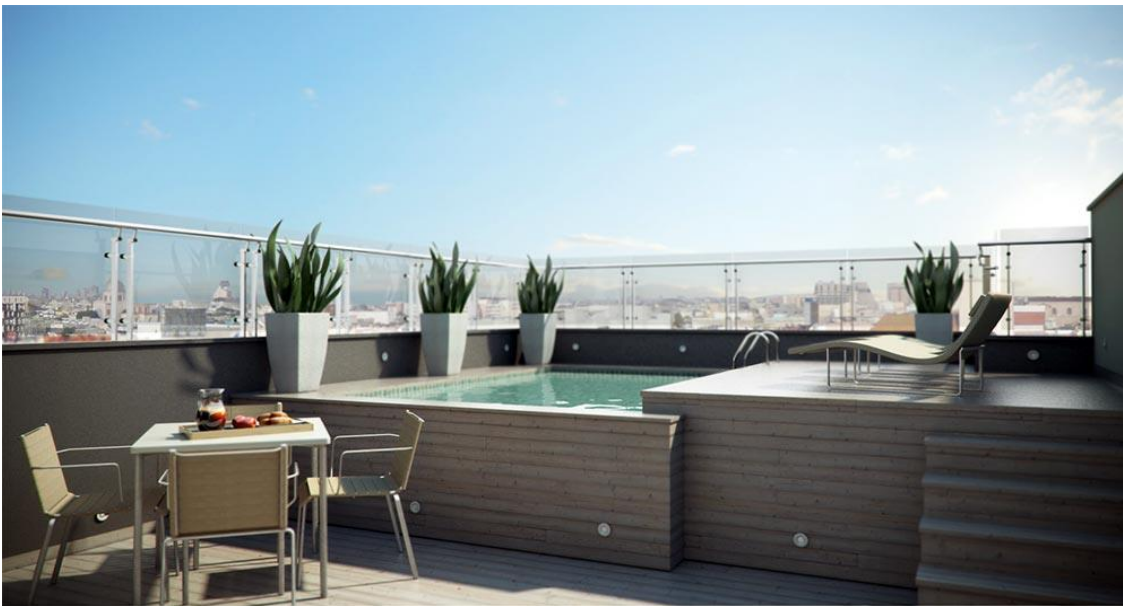
Z Depth Image

Final image with Z-depth channel added.



Z-depth Combined with Image

Final Images



Final Daytime Image



Daytime from Different Angle



Final Night Time Image

Thanks for reading my tutorial and I hope it will help you in your own professional workflow.

Ricardo