

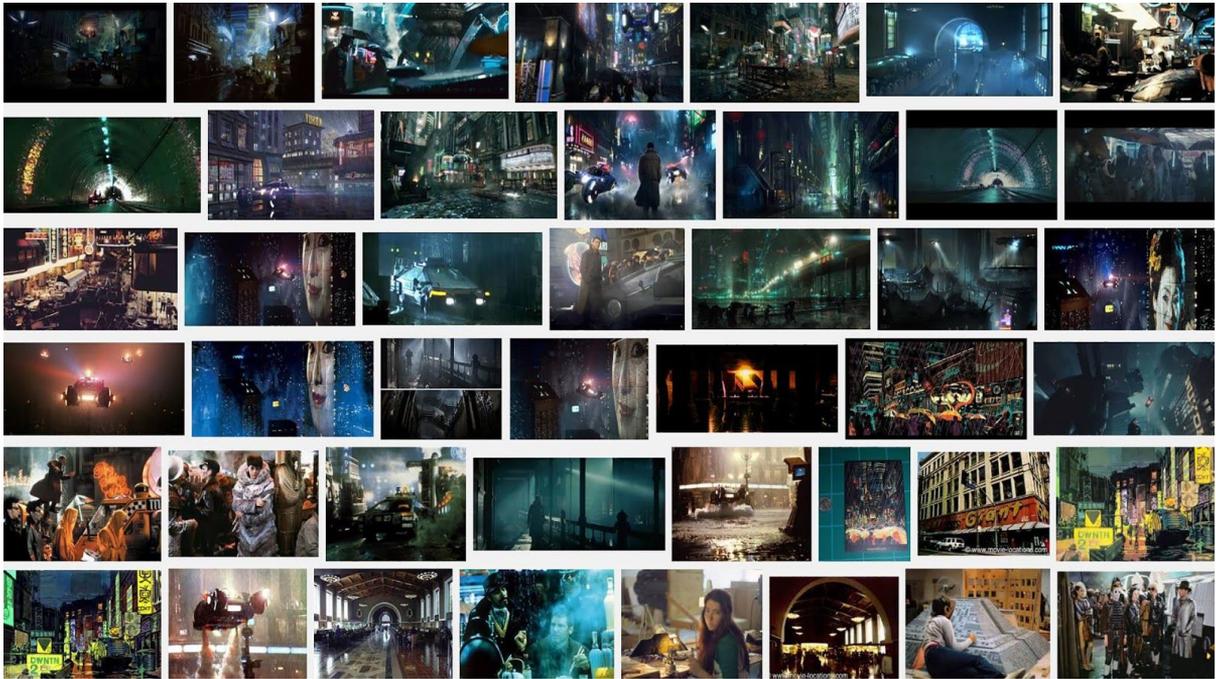
**Bio:** My name is Mateusz Wielgus. I used to be an Architect from Poland but, now I'm working as CG Artist. At this point I run my own company called Black Chilla Design Studio working for others as a freelancer.



**Company:** Black Chilla Design Studio has been established in 2013 in Poland (Silesia) as a company focused on creating Urban and Architecture designs. In September of 2015 working in CG industry has become company's main goal. Since that moment, with full professionalism we serve our customers by granting our knowledge and skills in designing and creating CG.

A hand-drawn logo consisting of a thick black line forming a stylized, rounded shape above the text "black chilla". The text is written in a casual, lowercase, handwritten font. The line starts as a thick stroke, loops around to form a shape resembling a stylized 'B' or a cloud, then continues as a thick stroke that tapers off to the right.

## 1. Idea and inspirations



Having an idea and knowing what you want to make is the first step to create anything. Inspiration is literally everywhere - common objects, movies, books and other people artworks. In this case the idea of noir and slightly cyberpunk city scene has been born after I watched "Blade Runner" movie (for like 5th time) and wanted to see if I can squeeze this kind of look from my skills and Blender software.

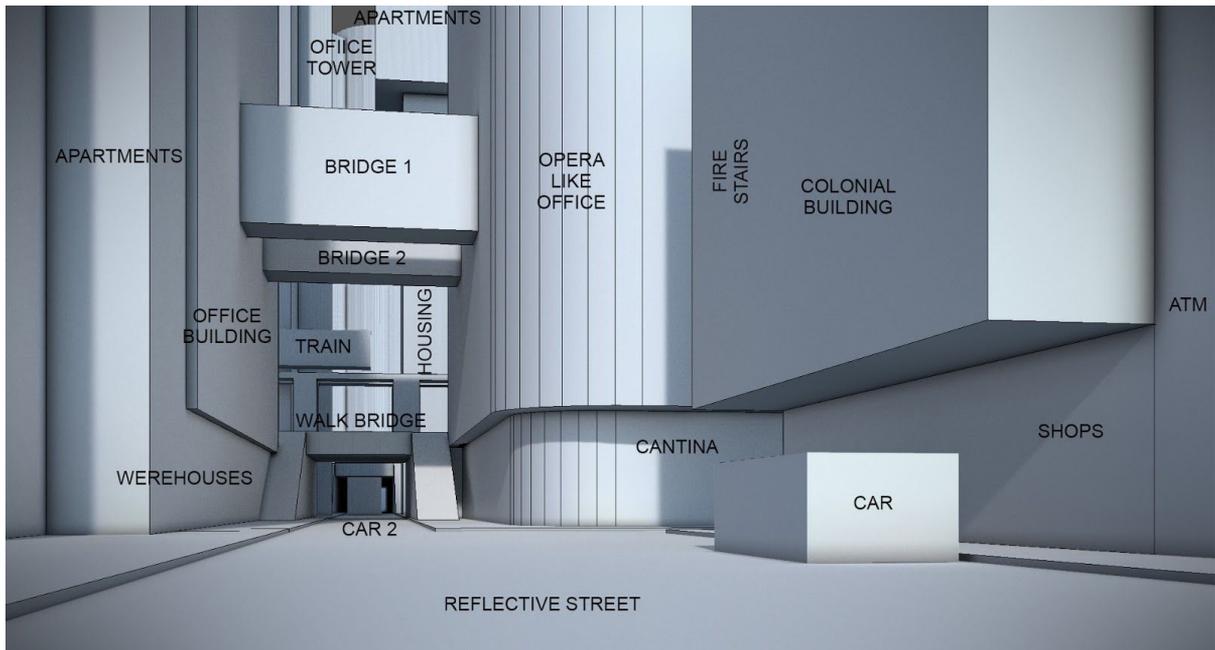
## 2. Using the references



It is not a necessity to use reference images during creation process but, it surely makes life much easier. Using real life pictures saves a lot of time because, instead of making things from scratch you can re-create them from photo and be sure that they look correct. During making this scene I used plenty of such images - photos of colonial buildings, wet roads,

street lamps, bus stops, different materials (like asphalt and concrete) and all the cyberpunk/futuristic game and movie trailers I could find. As an example - extraordinary photo of Tokyo's Street by Masashi Wakui.

### 3. Sketching and planning



Once the idea is established it is good to make a general concept of scene we want to create. There are many ways to do this. Some people like to sketch doodles, some prefer to do matte painting or even make a photomontage. I prefer to “sketch” directly in 3d software by setting a camera and placing around primitive objects to create a general composition. In this scene, at first, I’ve set two rectangular planes as a road crossing. Than, I started to add multiple cuboids as buildings and vehicles.

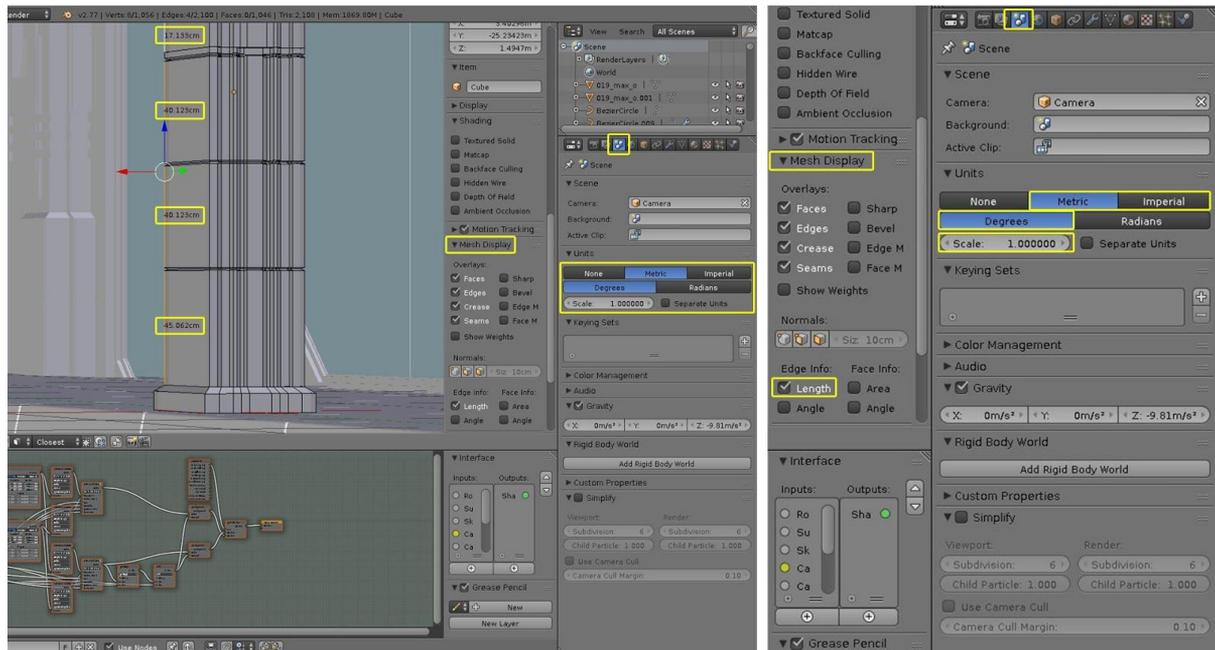
### 4. Composition



Working with primitives gives the opportunity to establish intended composition really fast, while preserving the ability to change everything really quickly. At this point it is not

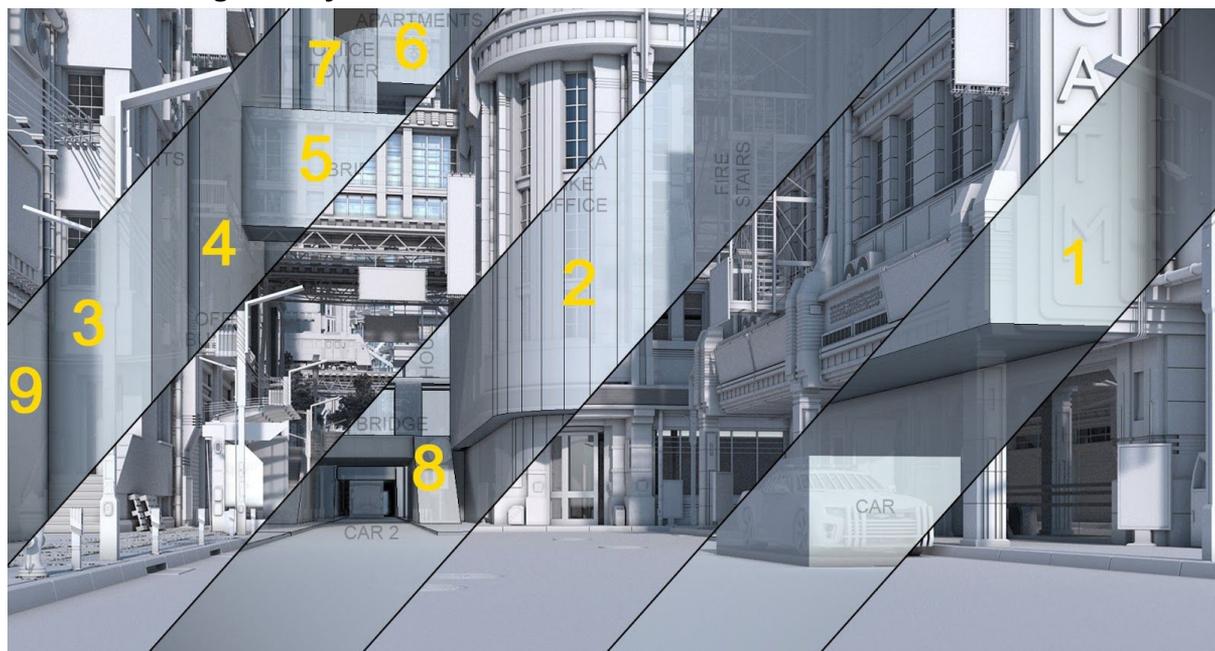
important to know what kind of buildings they are going to be - just basic shapes that will work as walls for “urban interior” limiting the field of view and guiding viewer's eyes to the point of interest. In this scene I wanted to direct spectator along the street into the tunnel by placing buildings guide lines starting from every possible side of picture.

### 5. Using real life scale



Even during working with just primitives it is important to use objects real life scale. It doesn't matter that scene is just a fantasy. By keeping realistic measurements it is easier to achieve more reliable results and also, it allows to avoid incorrect size relations between objects on the scene and texture inaccuracies. In Blender You can change measurement method in “scene” tab.

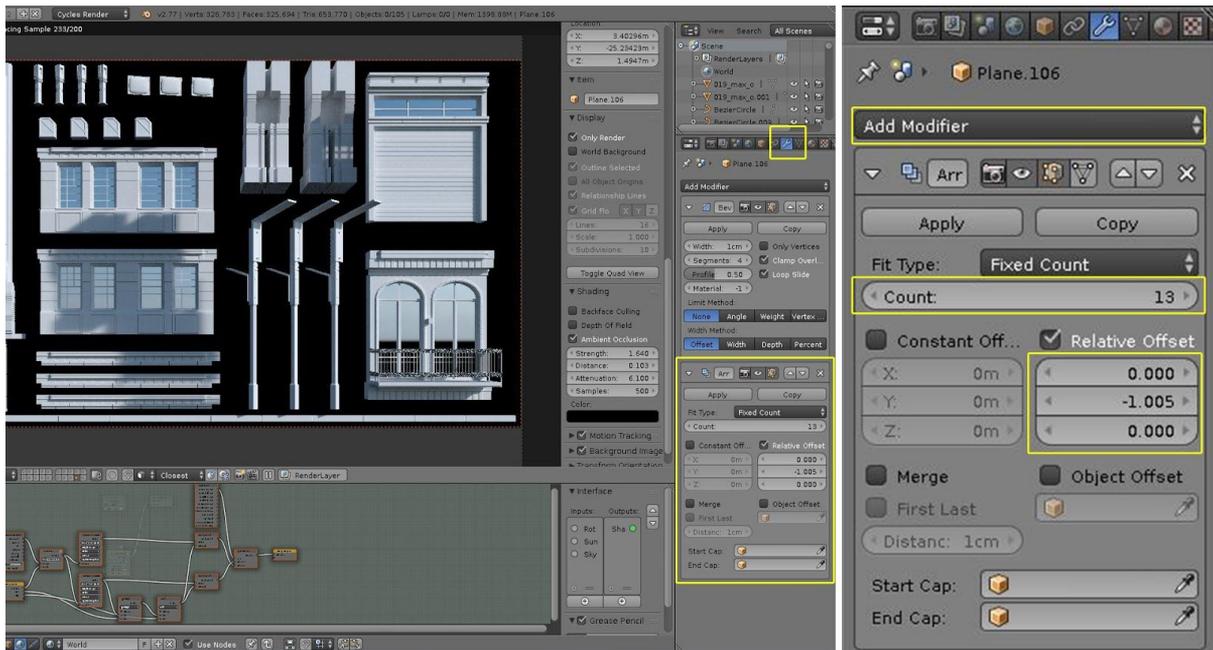
### 6. Modeling the city structure



Next step is all about replacing created primitives with real objects. Here all gathered reference photos comes in handy. A lot of people say that it's better to work over the whole

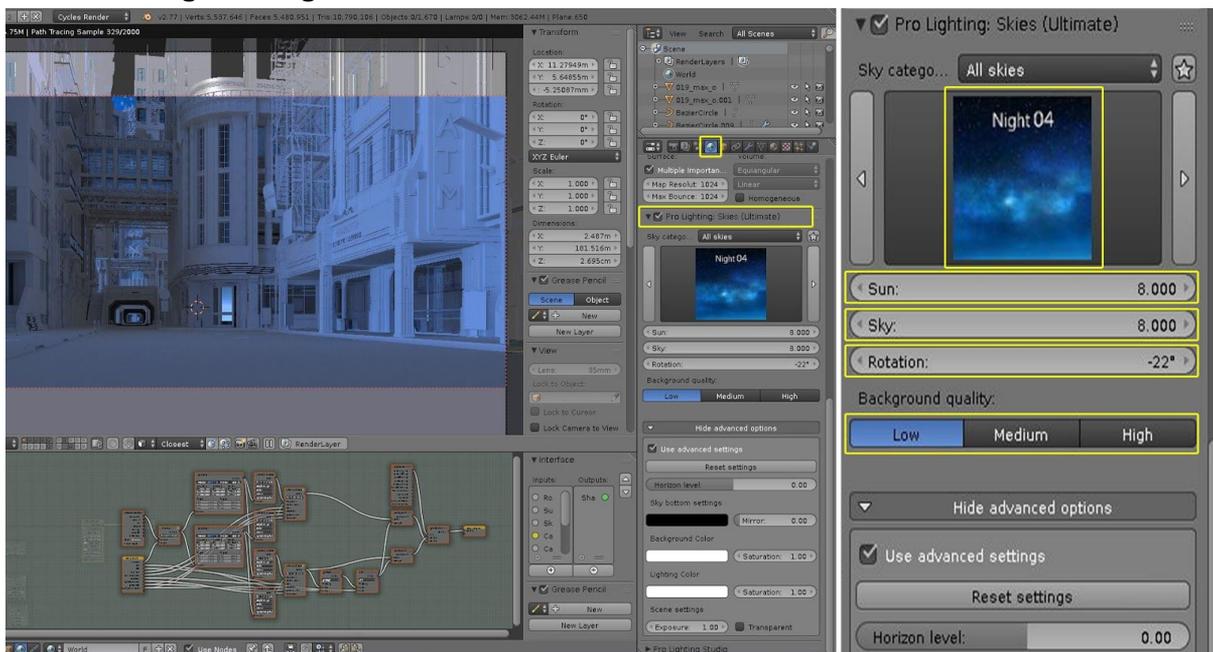
picture at the same time but, I like to focus on one individual element at the time. In this case I was making building after a building (as numbers on illustration follows) just making sure that they match stylistically (more/less) one to another.

### 7. Architecture is all about primitives and rhythm



All those buildings might look intimidating at first. But, in architecture almost every element is just a simple primitive shape cube/cone/tube (with or without extruded elements) which has been multiplied enough number of times. It is crucial to use “array” function(modifier) to effectively create buildings in 3D. For example In building on the right side I started from modeling one pillar and arraying it. Then I did the same with windows, ledges (arrayed cubes), wall ornaments and wall tiles. Once whole floor was ready I joined all elements into one object and arrayed it vertically to create a tall structure.

### 8. Setting main light source



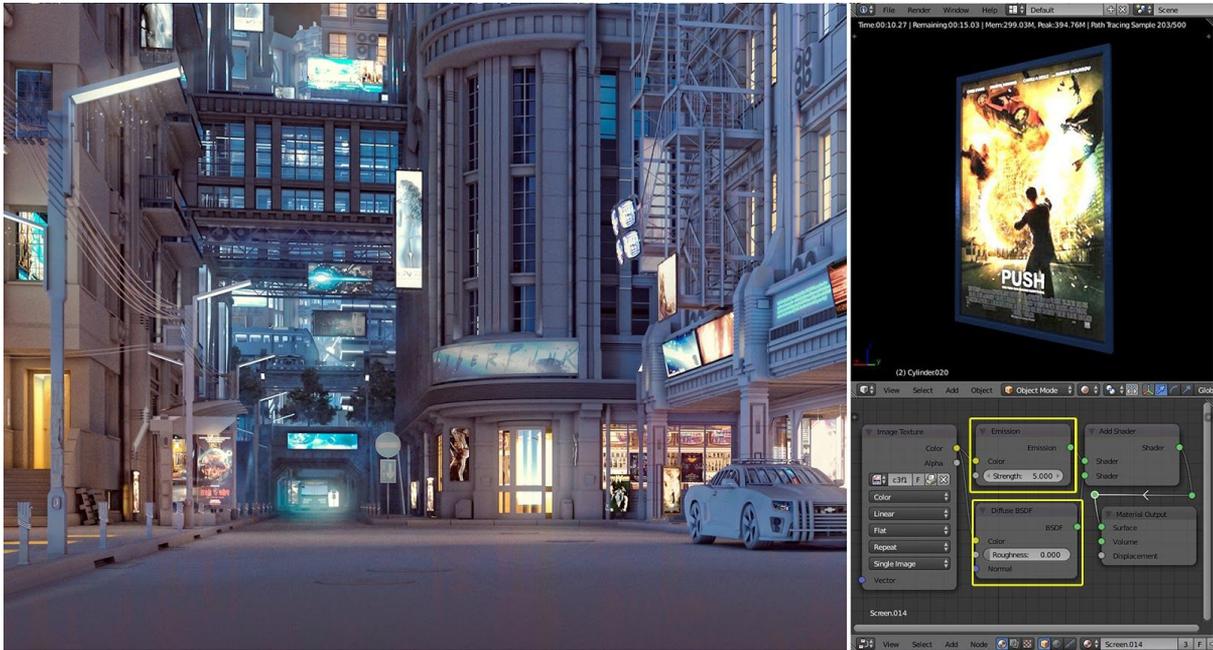
After modeling buildings it's a good idea to set the main light in the scene. As always while rendering architecture it's necessary to set hdri environment map as a main illumination source - this, in most cases gives the best result. I use Pro-Lightning:Skies addon to Blender (hdri map:"Night 04") - it's easier and faster than setting all nodes manually and allows to test different lighting styles really quickly. But, any other night/blue evening environment map will do the trick as well.

### **9. Adding environment elements**



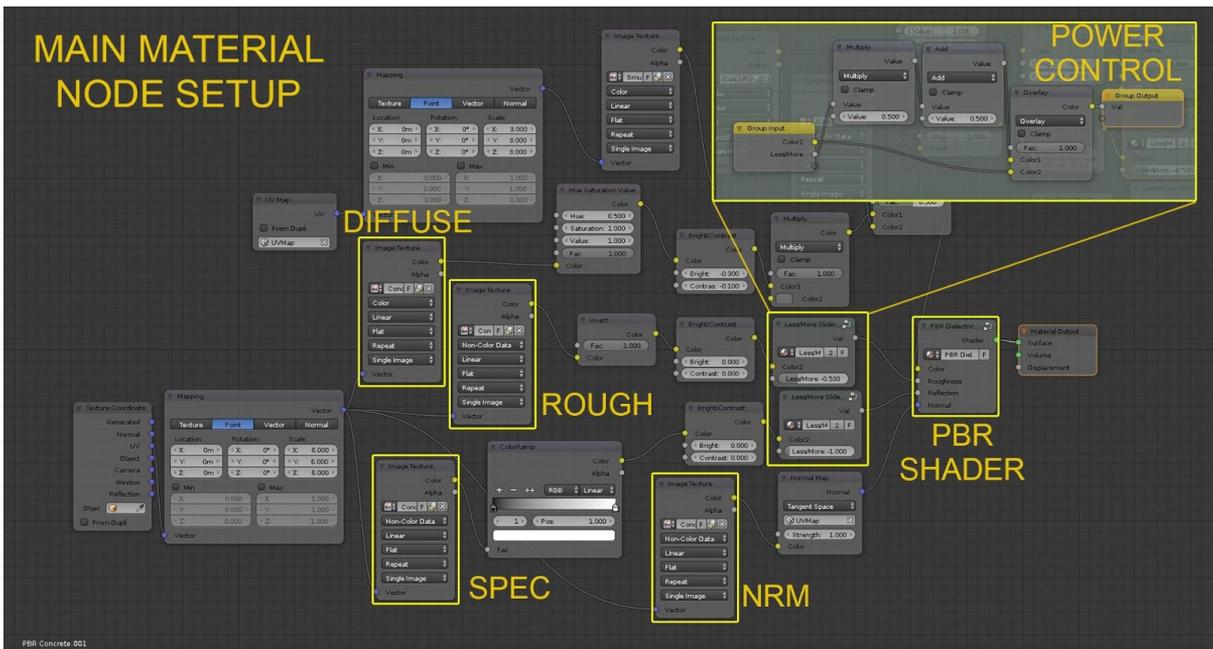
Lighting from environment texture will reveal all imperfections on modelled surfaces and all the missing details. This is a good moment to start adding smaller environment elements like lanterns, pistils, trash cans, sidewalk tiles, signs, etc. - remembering that most of those elements are objects with array modifier. The more objects will be added to the scene the better - however it needs to be remembered that the further something is from the camera the less detailed it should be.

### **10. Applying ambient light**



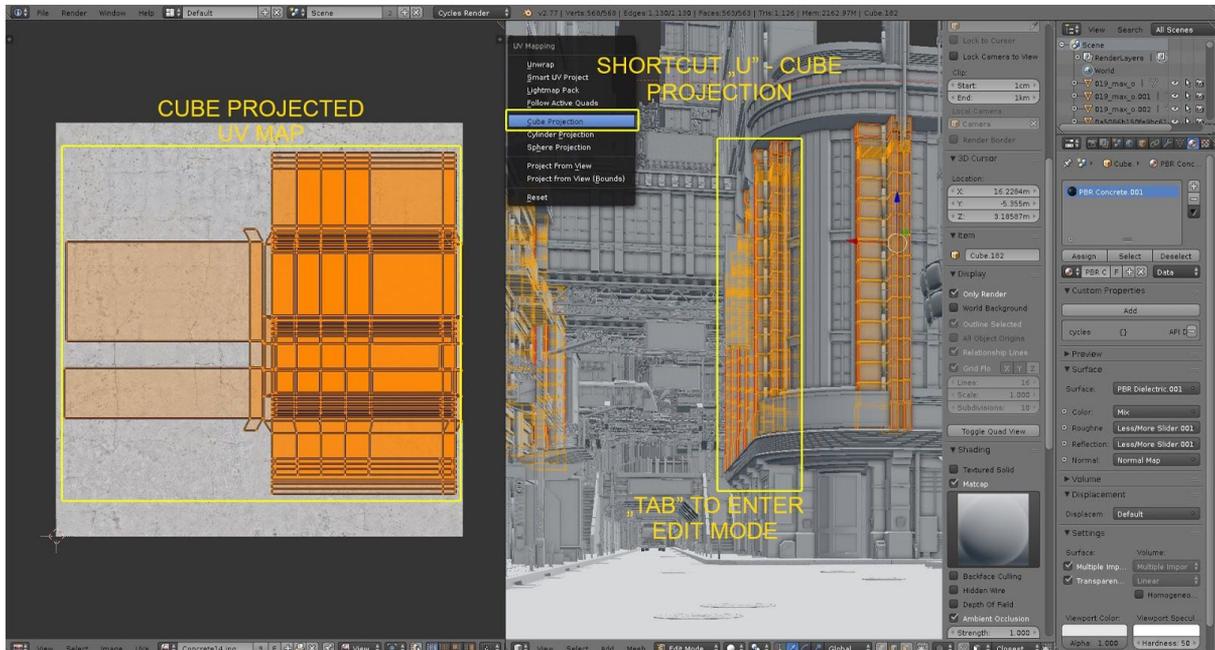
When I'm happy with modelled result (not only in this scene but, in general) I set all materials on the scene as a white diffuse material (except glass shaders) and I start adding additional light sources to achieve previously intended look and feel of the scene. Here I wanted to collide cold blue street illumination with warm living lights. All the additional lights are planes with "emission" shader - except for TV screens and billboards - these are textures plugged into color input of "emission" and "diffuse" nodes which are added together.

### 11. Texturing main elements



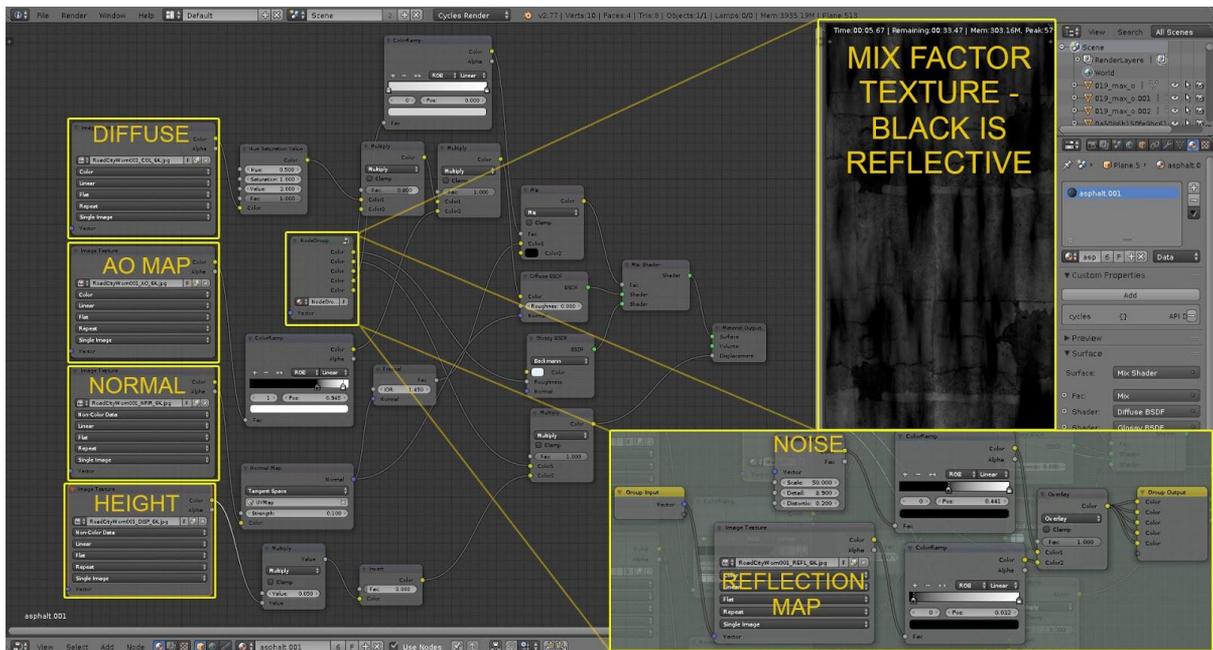
Once the lighting is set it's time to start adding materials. In Blender in this particular scene it was easier to tweak materials to look good with created previously lights than other way around. Practically all materials are using PBR shaders (there is plenty of tutorials on how to make 'em) and are mix of albedo/roughness/specular/normal textures.

### 12. Quality balance



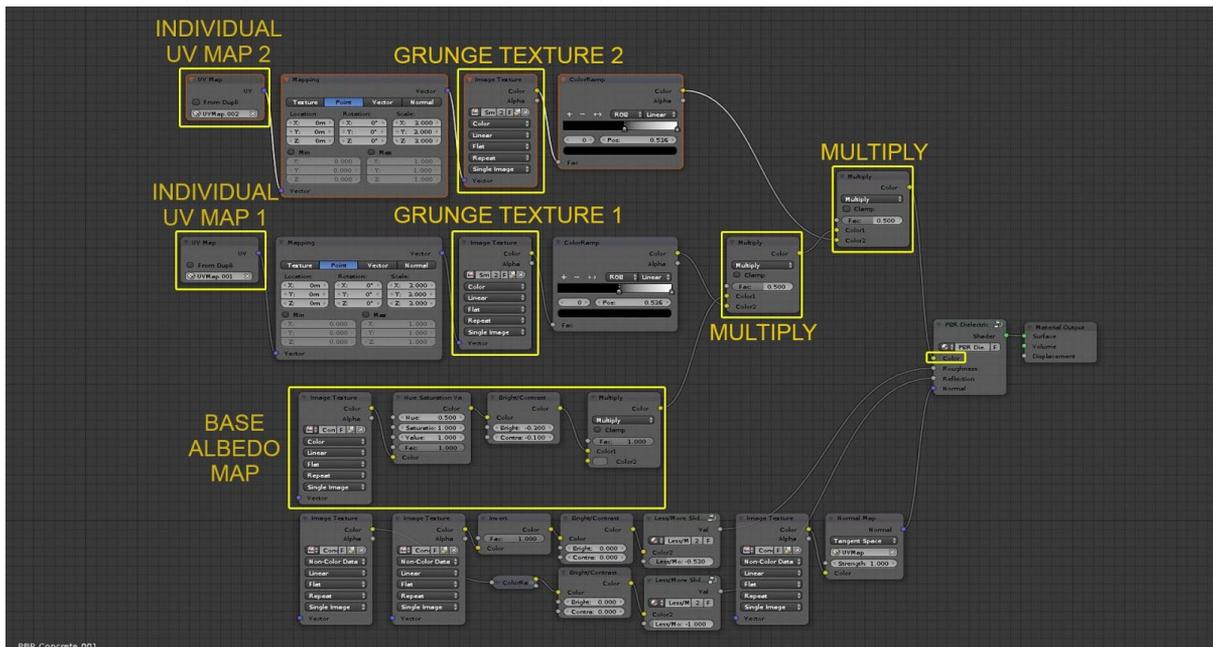
Since the scene is rather big it is crucial to watch over texture sizes to save memory. The further an element is from the camera the less detailed it can be and the less quality texture it requires. It's no point in having high quality textures all around the scene especially, when they will be truly visible only in a "first row" of objects on the picture. Same goes to UV maps of objects - since the scene is huge and full of modelled details, most objects have "cube projected" UV maps - as a method which is fast and giving good results for seamless textures.

### 13. Wet road



One exception from PBR shaders is wet road material. It's a mix of two materials which are using same textures - only difference is that first one is extremely rough and second one is extremely smooth/reflective. As a factor in mixing those two materials I used noise texture added to some handpainted black/white texture created in texture paint mode.

### 14. Making details



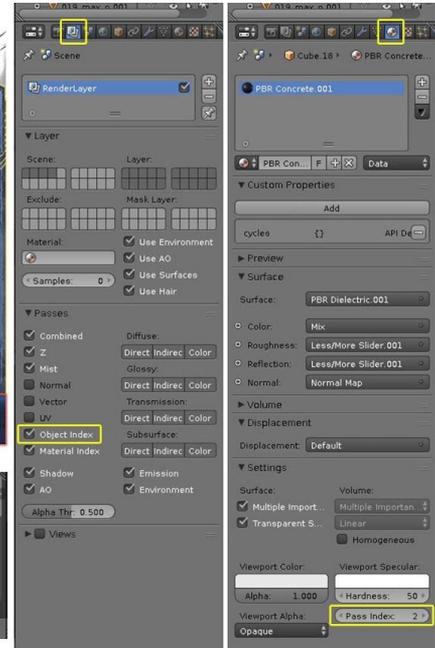
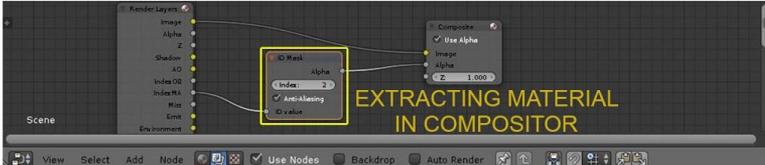
After all the main materials are set and are working well with lighting, it's time to add some imperfections to them (dust, scratches, grunge drips, water streaks, cracks, etc). It can be done simply by multiplying diffuse map with a grunge texture (with it's own UV coordinates). While adding grunge details - in couple of places I used Substance Painter as a material generation tool - for example: street lamps or some of the ledges.

### 15. Rendering layers

## BASIC CONCRETE MATERIAL

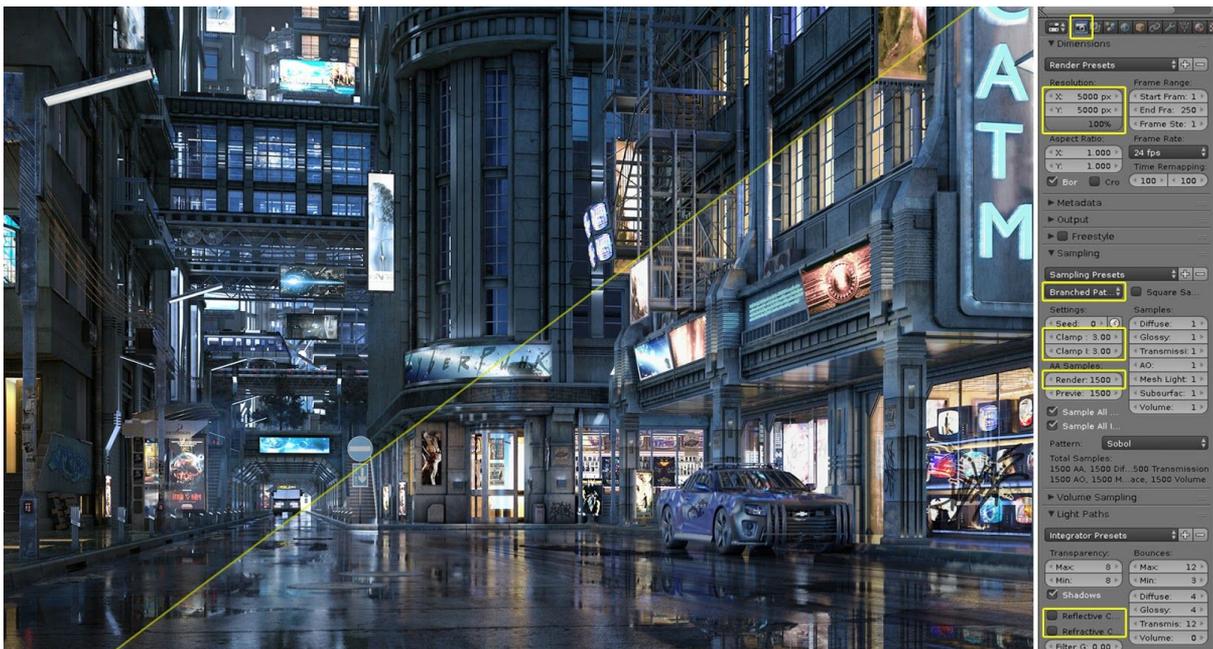


## WET ROAD MATERIAL



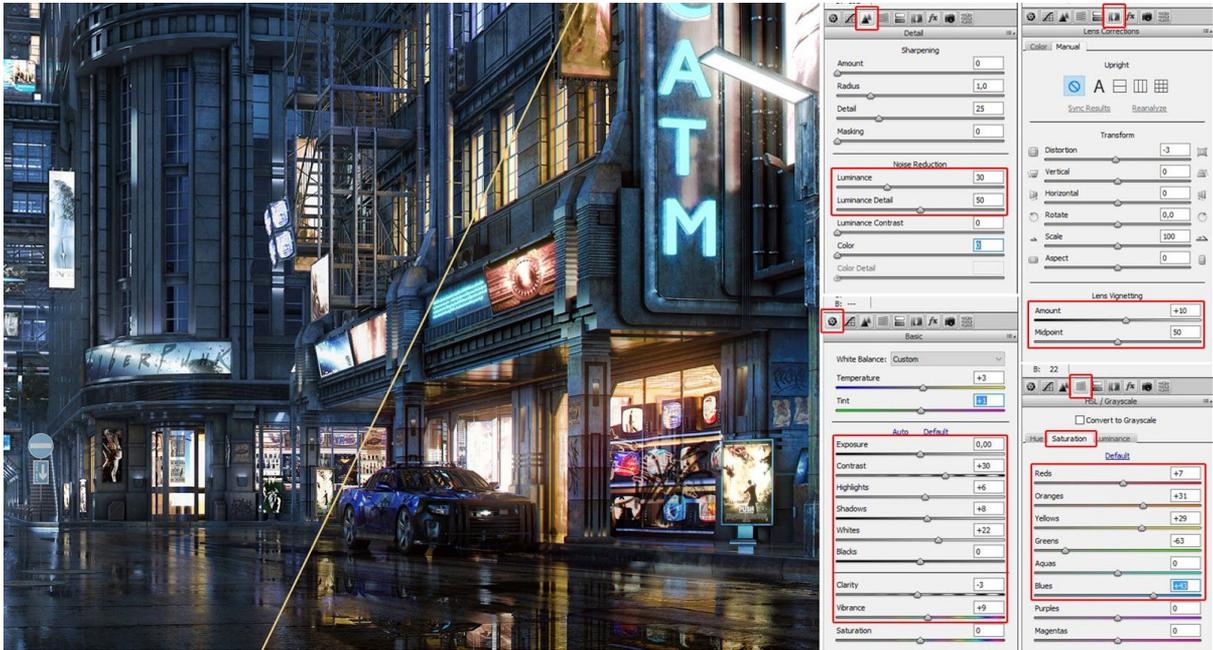
Scene has been rendered using Cycles render engine and was looking far from the way it's looking at the end. It's not important to get a 100% awesome look directly in Blender. A lot of things can be fixed/corrected in postprocessing. That's why it's always a good idea to render main materials as a separate "render layers" giving them different "pass index" in material tab. This way it's easy to extract them after rendering is finished for further editing. I try to set as many index materials as possible to avoid further frustrations.

## 16. Making two renders



In this particular case I rendered this scene twice, making two completely different images. One was extremely bright and reflective and second one was very toned down and diffused. This way I had more control in post-processing by mixing both images together. I recommend it for everyone - make more than one render and pick elements that came out nicely and combine them into one shot.

## 17. Compositing in photoshop



At the end, in photoshop, I like to do all the things that would require a lot of effort to make in Blender - like color grading, brightness/contrast balance, levels and filter effects. Most of the time I use “camera raw filter” function - it’s a very powerful tool. Photoshop is also a good place to add missing details like some grunge, imperfections, atmospheric effects, smoke/mist elements and “of course” lens flares. It can be done by matte painting or by overlaying individual textures - for example lens flares are just \*.png files placed over the picture with blending option: “screen mode” selected.

