

Google SketchUp

Photorealistic Rendering



THIS HANDBOOK IS NOT FOR COMMERCIAL USE

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Introduction

A brief about rendering class

2012 - Jakarta, Indonesia

Welcome to Google SketchUp Training, rendering class. You will learn some basic understanding of ray tracing and assign material properties techniques. Please note if you take this course, we assumed you've been understand about some modeling and texturing techniques on SketchUp, because we'll not cover that again. There are specific SketchUp classes that cover about topics outside rendering.

There are so many rendering plugin and application out there that you could try, but for this course we will use SU Podium V2, rendering plugin that works inside SketchUp. We choose Podium V2 because it's easy to setup, as intuitive as SketchUp, produce good results. If you want to go basic, Podium V2 is a right choice. Most importantly, there is free version of Podium V2 that we can use for learning purpose.

Rendering is different nature with modeling, it require some art sense, logic and understanding about material and light behavior, little bit about physics there. Your render quality depends on experience. Luckily, there are so many learning resources out there that you can use, this class is just a few portion of it. Thus, never stop to seek more resources to enhance your rendering skill.

For this course you need good machine to achieve good speed and quality. While SketchUp using GPU for performance and running on 32 bit mode, Podium V2 using CPU for performance and can running on 64 bit mode. Thus to increase your Podium performance you need fast multicore CPU, large amount of RAM, and 64 bit Operating System. These specifications will save you much time and produce professional result.

This course will divide about 3 main parts: Lighting, Materials, and Output Settings. You have to copy project files to your computer before class started. We try to not much doing modeling stuff here, because most of project files contain skp files as companion with this guidebook.

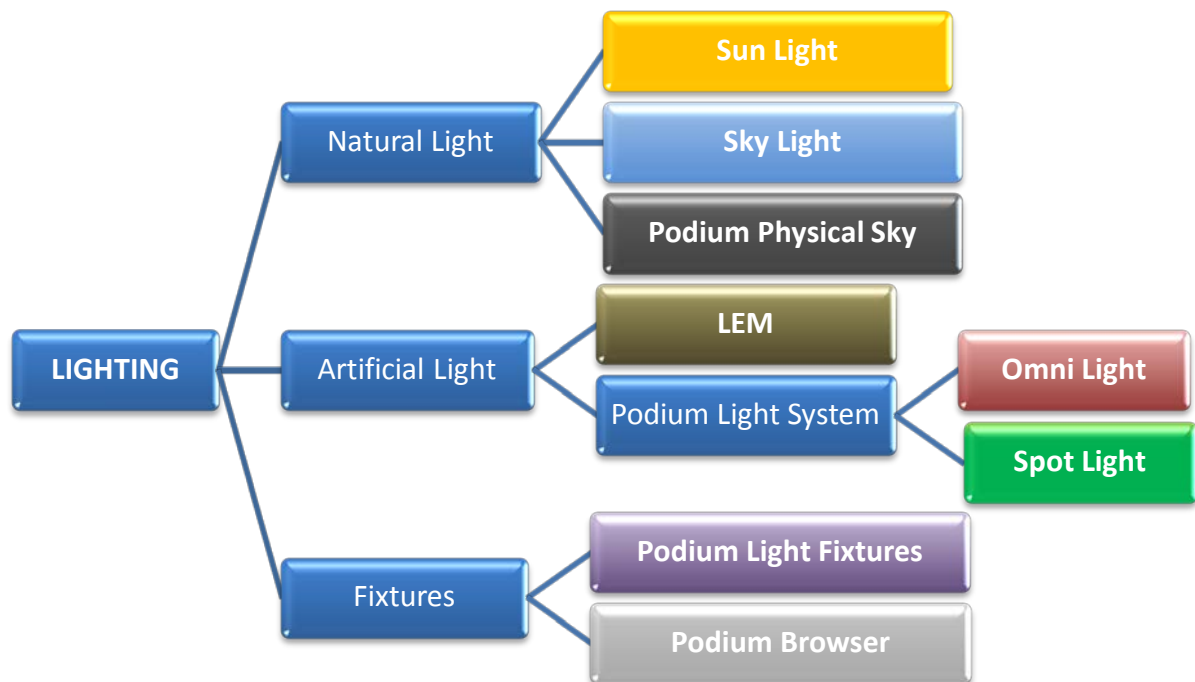
Can't wait to hit render? Let's get started.

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Lighting

Understanding Ray Tracing on Podium v2

Lighting in Podium divided into 3 main parts: natural light, artificial light and light fixtures. Diagram below explain entirely. We will use color code to identify explanation about particular kind of lighting.



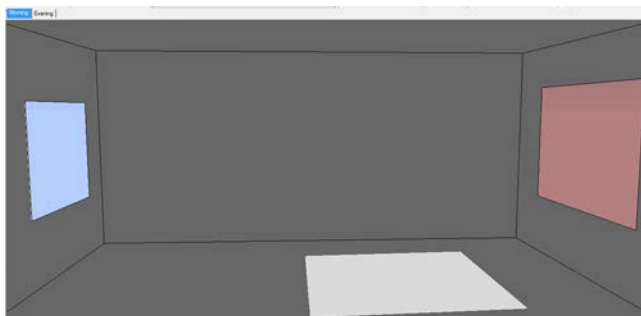
Sun Light

Activate sun light as external light source

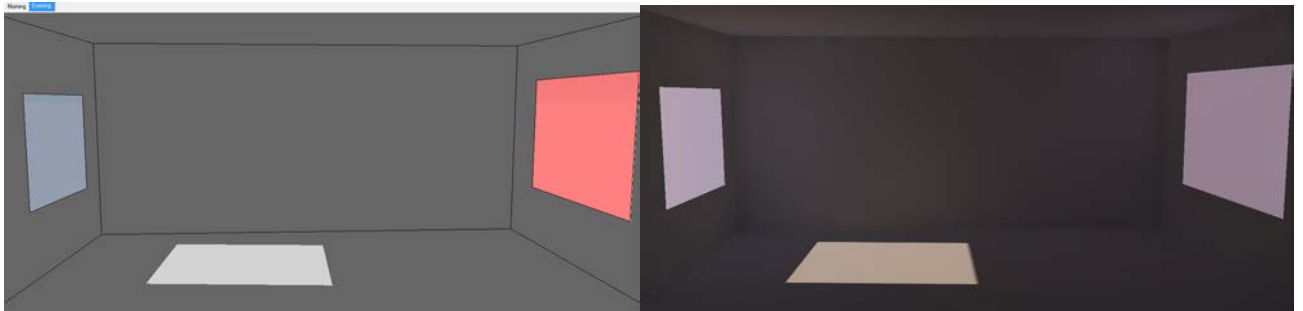
Sun Light produces the most realistic lighting. To activate Sun Light, just turn shadows ON



Click scene "Morning". Sun light comes from right window (east). Render using "default" Preset.



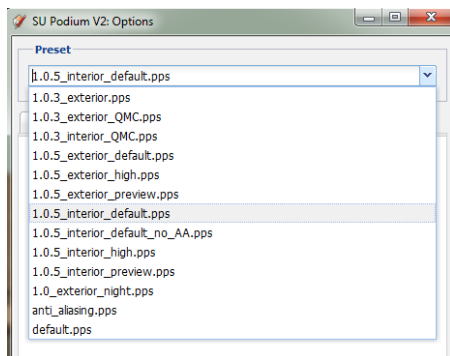
Now move time slider to the right, or simply click scene "Afternoon". Notice that Sun Light follows SketchUp sun direction from left window (west).



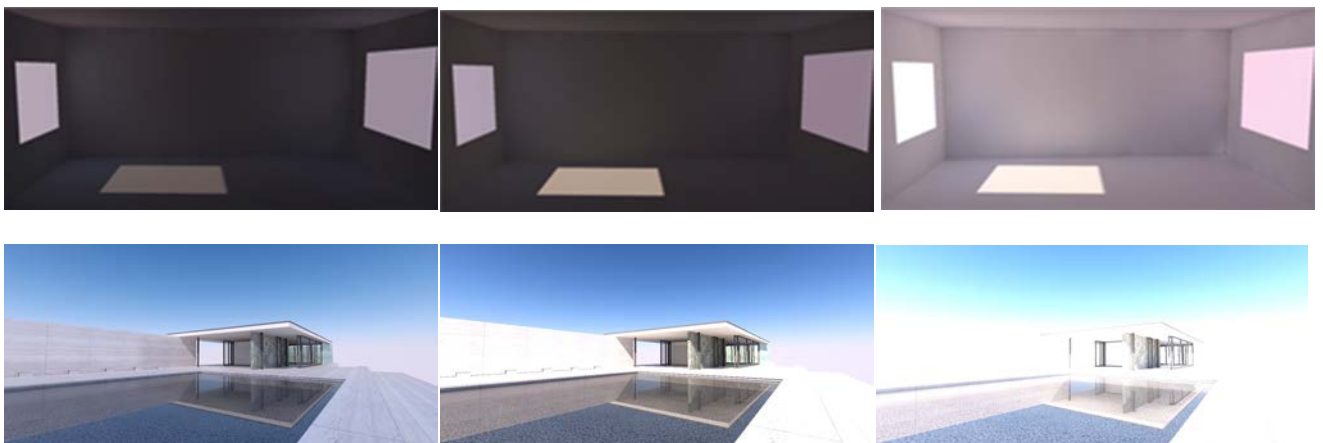
Controlling Sun Light Intensity/Brightness

There are several ways to controlling sun light intensity: preset, sun/sky brightness, opening size, and opening opacity.

By **Presets** : You can access presets from Podium Option window



Render the same scene with different preset type (default, interior, exterior) will results differently. Notice that interior preset will boost sun light intensity, while exterior preset will slowing down sun intensity. Default preset have balance between them.




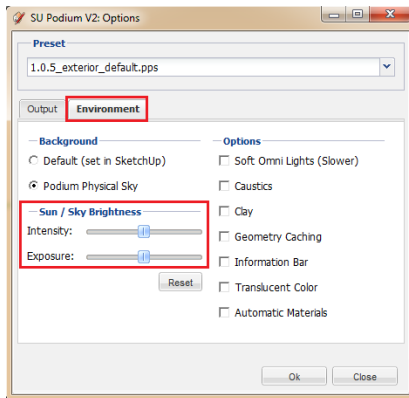
Exterior preset

Default preset

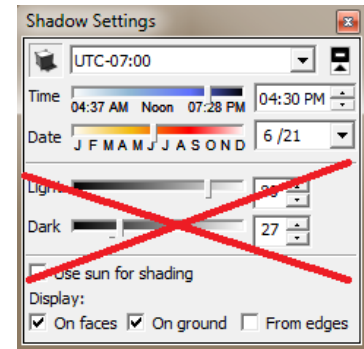
Interior preset

As you noticed that exterior preset well suited with exterior scene, and interior preset works well with interior scene, while default preset shows the balance.

Sun/Sky Brightness : Access from Podium Option window  , environment tab







Note : Controlling sun intensity from SketchUp Shadow settings will have no effect to the results.



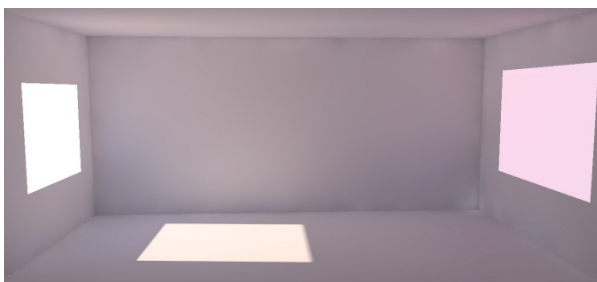
Both images below rendered with preset "interior" with minimum and maximum Sun / Sky Brightness value to give you an idea about its range.



Sun / Sky Brightness
Intensity: 
Exposure: 

Sun / Sky Brightness
Intensity: 
Exposure: 

Opening size also contributes sun light intensity. Resize left window bigger will boost sun light.



In this way, you can increase sun intensity by making large opening on the wall that not visible on your screen (e.g. : behind camera).

Opening opacity can also affect sun light intensity. You can adjust this opacity from SketchUp material editor window.



As an alternative, you can also adjust transparency from Podium Material Properties.



Transparency is Opacity's opposite, that means 10% opacity equal to 90% transparency. We will discuss it further on Material section.

Sky Light

Learn how sky light can affects the scene atmosphere

To study sky light effects, we will use Barcelona exterior model. Unlike sun light, sky light is always ON and its intensity cannot be controlled, but you can control sky color to affect the atmosphere.

Sky light effect is adjustable when you choose Default background (set in SketchUp) in Podium Option – Environment.

Sky color could be adjusted from Styles background editor. What color you see in SketchUp is what you get in render results.

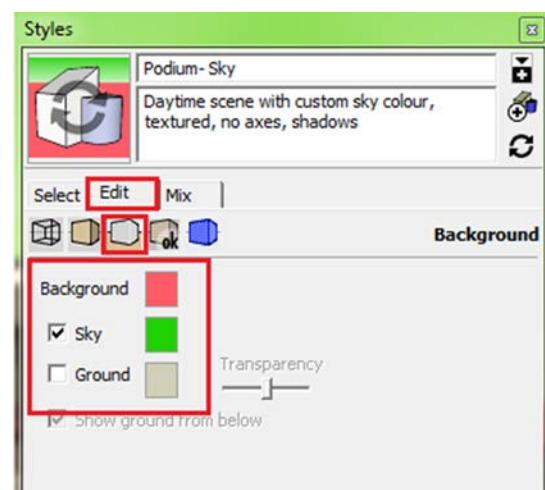
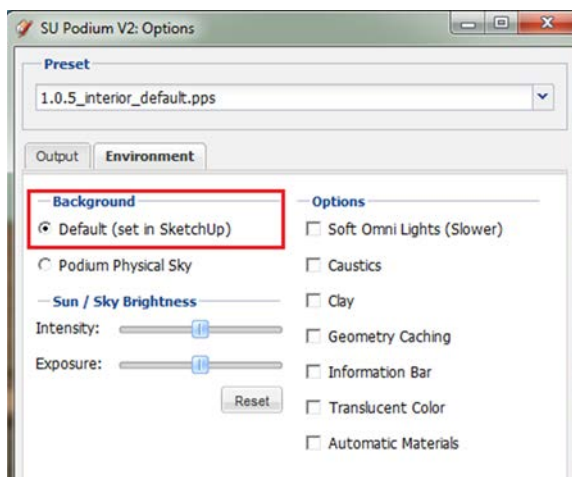
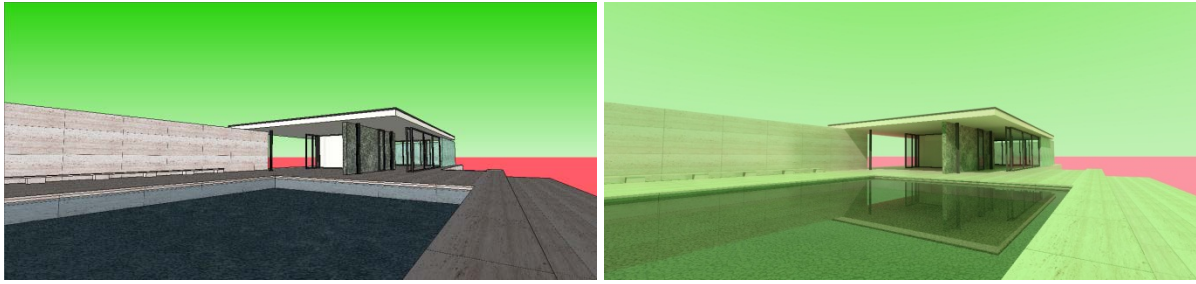


Image below is rendered with Red background and green Sky (sky box is checked, shadows ON).

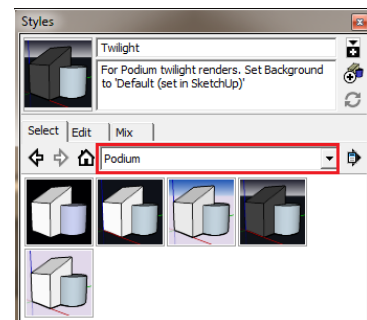


Noticed that Sky color dominated over background color.

With sky light features, you could set up night scene with build in Podium Styles, please note that Podium style only available if you installed Podium V2 build 10 or above, otherwise you must install Podium Styles manually.

To access Podium styles go to Style window, and choose "Podium" subcategory.

There are 5 pre-made styles that you can choose, mostly for night rendering purposes. For night scene, turn OFF shadows.



Examine images below to study how each style behave.



Podium Physical Sky


Simulates the sky light and sun light with easy setup

If you confused with Sky and Sun light set up, the easiest way to set up your natural light is with Podium Physical Sky. It simulates color of sky and sun direction simultaneously.

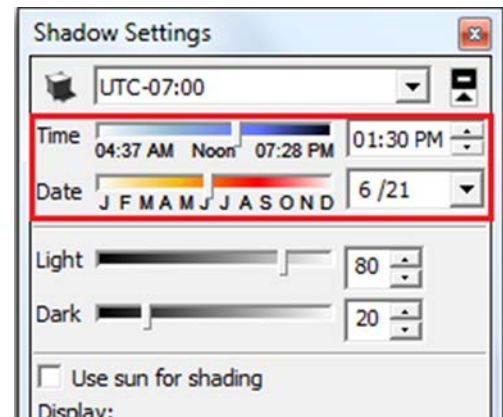
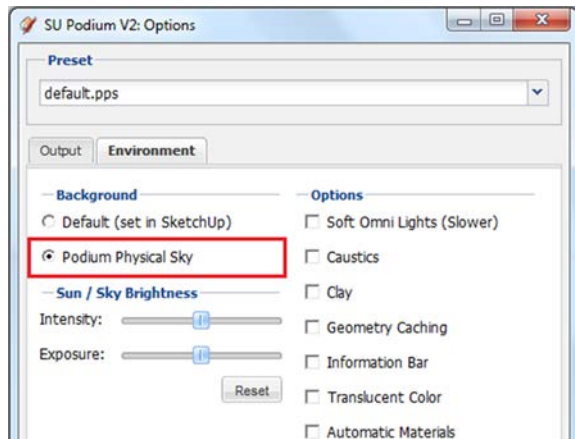
Podium Physical Sky only takes effect if you turn ON the shadows.



With Podium Physical Sky active, all SketchUp styles (background and sky) setting will be ignored.

Choose Podium Physical Sky from Podium options .

The only way to control color of the sky is by setting up time from time slider or Shadow settings if you need precision.

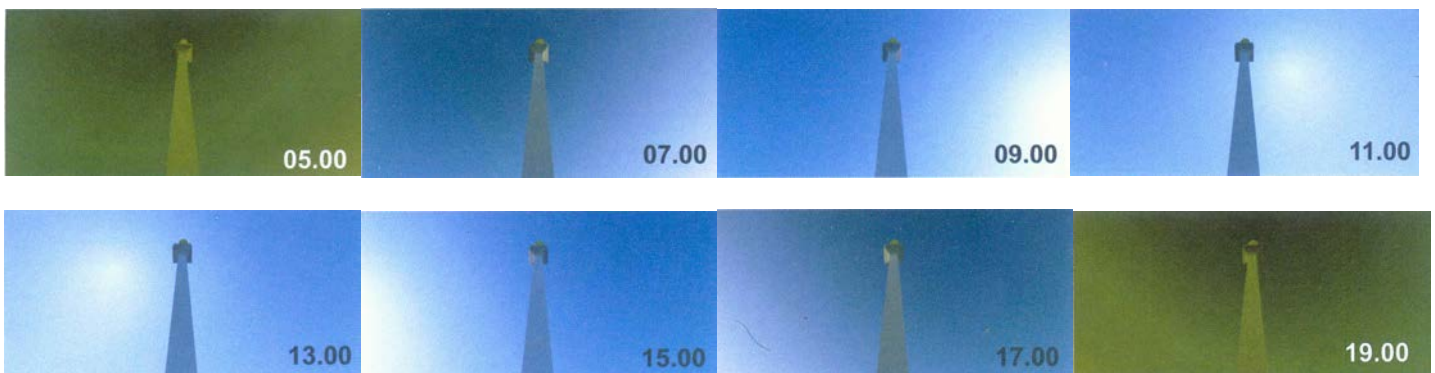


Now, let's render Barcelona scene with morning, mid-day, afternoon, evening, and mid-night time.



Noticed that sky color change differently according given time. It's accurate for day time but less accurate for night time, but it depend your model location on earth. If your model geo-located, the easiest and accurate way to simulate sun and sky is to use Podium Physical Sky.

Actually you can see actual sun movement with Physical Sky. You can check this by facing your camera towards sky. Images below show how sun move from east to west.



To control sun intensity, use Sun/Sky Brightness in Podium Options - Environment.



Light Emitting Material (LEM)

Artificial lights type that give a light value to the material

LEM is the quickest artificial lights on Podium V2. Note that only front face emitted lights, if you assign light value to back faces it will darken your scene. So make sure that you have front faces towards you. We will discuss how to detect back and front faces in material section course.

Click scene "LEM" and you will see LEM appear on ceiling. Let's render this scene.

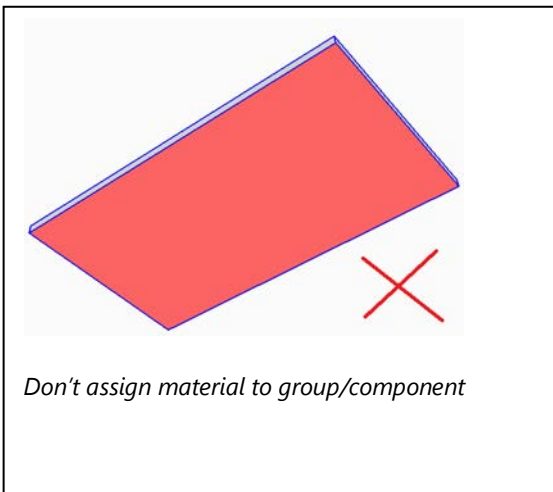


Face on ceiling assigned with orange material

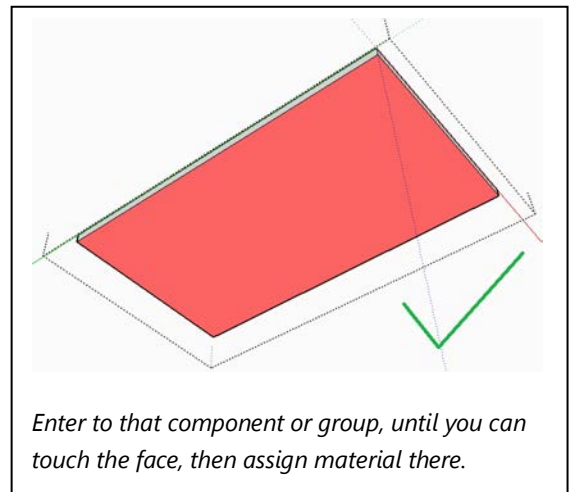


Assign light value to that material will emit orange light

To create LEM, you have to assign material to face, not on group or component.




Don't assign material to group/component

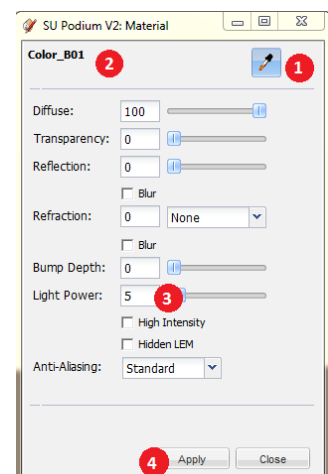


Enter to that component or group, until you can touch the face, then assign material there.

To give light value, open Podium Material Properties



1. Sample that material with 
2. Make sure material name appear.
3. On Light Power, type value or move slider to the right.
4. Always click Apply button, otherwise your setting will not be saved.



Therefore, LEM intensity depend on two things:

1. Light Power value
2. Size of LEM surface

High Intensity LEM

High Intensity will significantly increase your LEM value, usually used in exterior rendering. You can use high intensity LEM in interior rendering depend on size of the room, size of LEM surface, and its position on the scene.

Click on scene "HI LEM" to demonstrate High Intensity LEM.

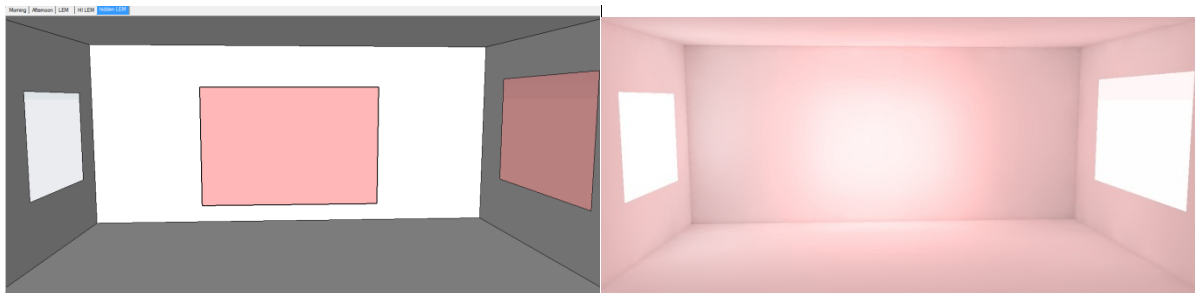
In this scene, LEM light power is 1, and High Intensity is active. Notice that with very low value, High Intensity is enough to brighten entire room.



Hidden LEM

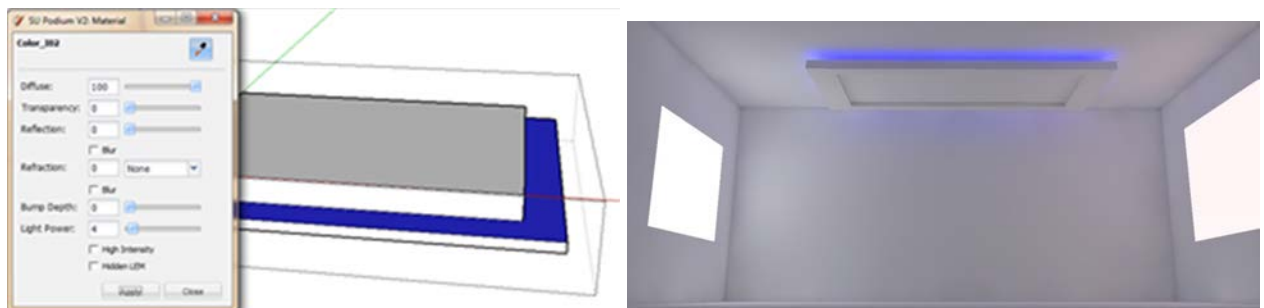
With Hidden LEM active, LEM face geometry will hide and only show its lights.

Click scene "hidden LEM" then render. Sample its material and noticed Hidden LEM is active.



With LEM, you can mimics drop ceiling lights by assign LEM on top side of its surface.

Render scene "drop ceiling". It contains LEM surface with blue material and value 4.



Another LEM Application

LEM rendered faster than Omni light, make it suitable to brighten your scene. There is another application of LEM that could enhance your render.

1. Interior LEM - Behind camera - Simulate camera flash.

Just like photography, if you need more lighting for indoor scene, you can use flash light.

Scene "no light" have no light at all, while scene "LEM behind" contains flash. It produced nice distributed lighting for interior scene.



No light at all



with LEM behind (simulate flash)

2. Exterior LEM - Behind opening – Simulate soft sunlight

Sun light produce crisp light through opening such as window. If you want to produce soft natural light, you can add LEM behind opening (window).



Sun light produce crisp natural light



LEM simulate soft natural light


This image is an application example of using LEM as soft natural light source.



Image by Tom de Ceuster

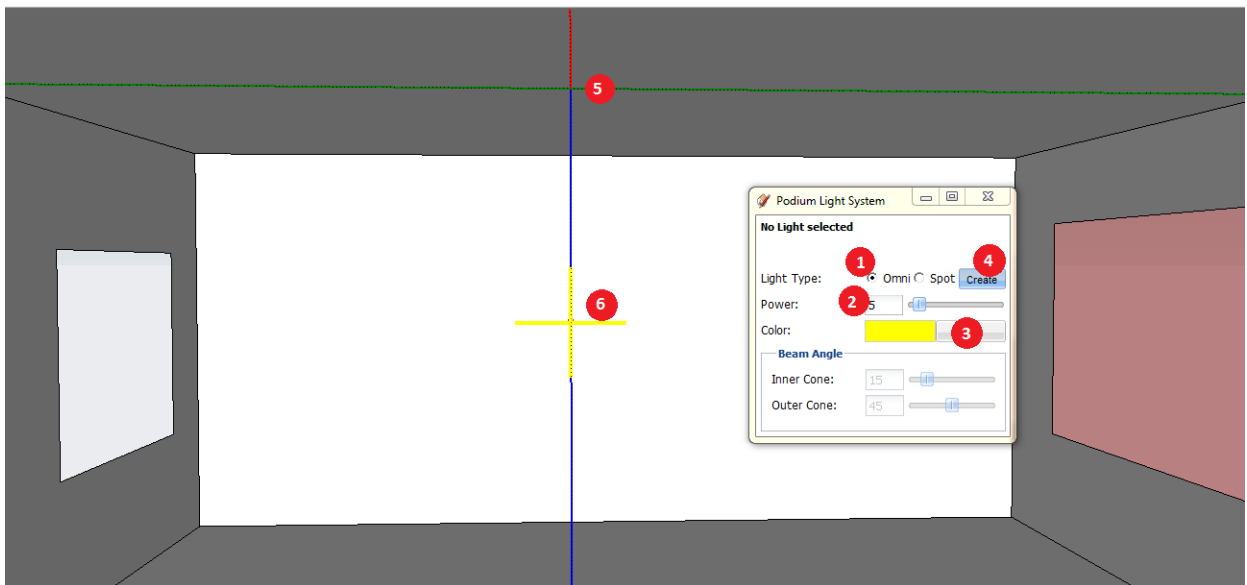
Omni Light

Artificial lights type that transform component into light source

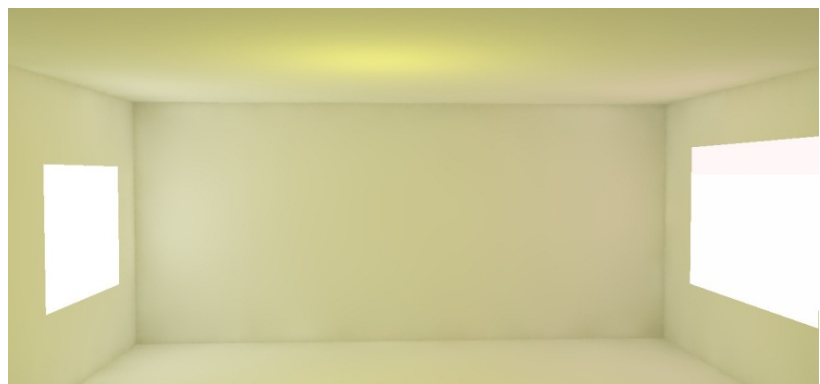
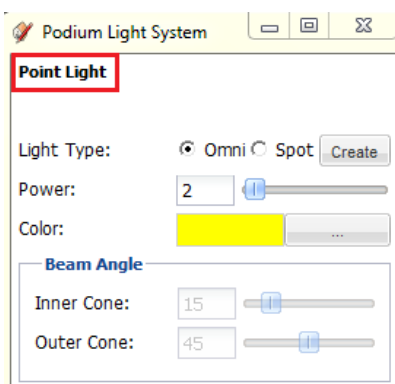
Omni Light is one type of Podium Light System that you can access from its panel. 

To create omni light do the followings:

1. Choose Omni
2. Adjust Omni's Intensity
3. Choose its color
4. Click "Create" button
5. Click on reference wall
6. Move cursor to place light



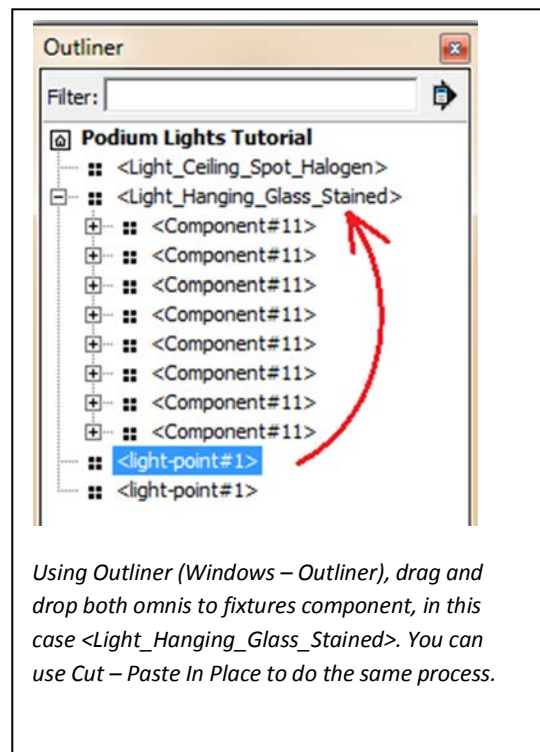
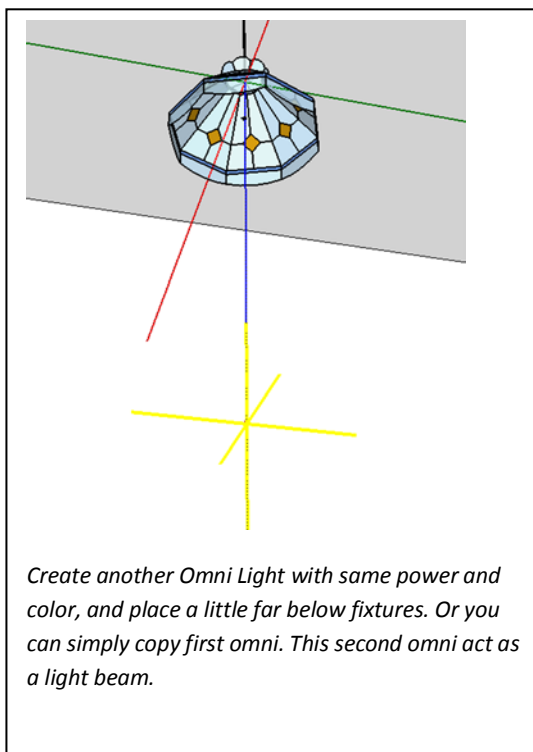
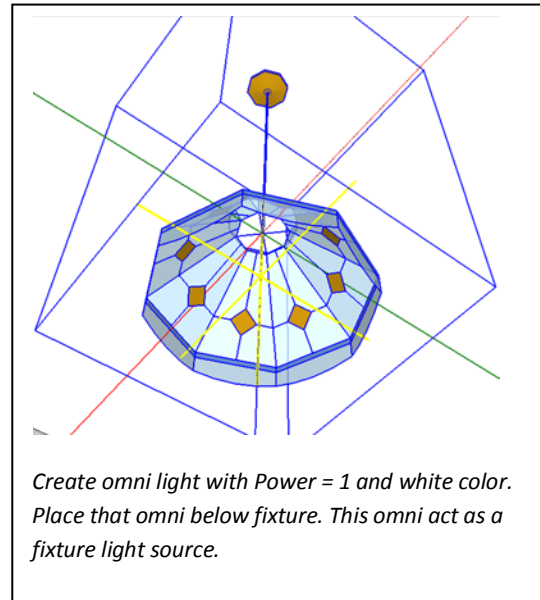
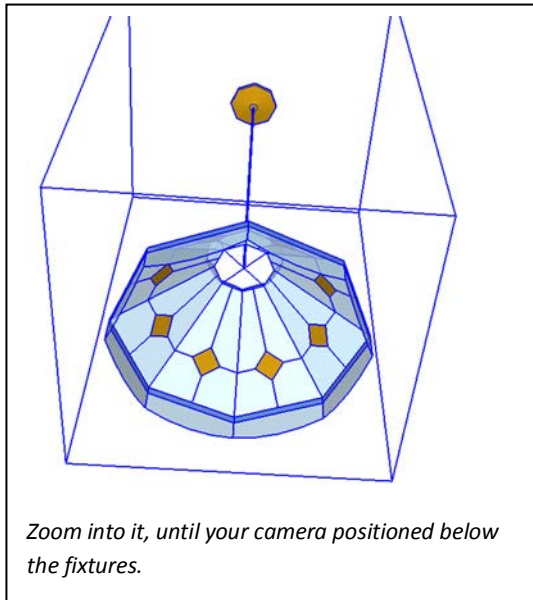
You can change omni's intensity and color anytime by catch that omni and adjust from Podium Light System Panel. Make sure text "Point Light" appears on top left corner.



Embedding Omni Light into Component

This omni light usually embedded to light fixtures component in order to give it light source. You can download various light fixtures component for free in Google 3D Warehouse.

Click scene "PLS" to begin our exercise. We will try to embed omnis to hanging fixtures on the right.



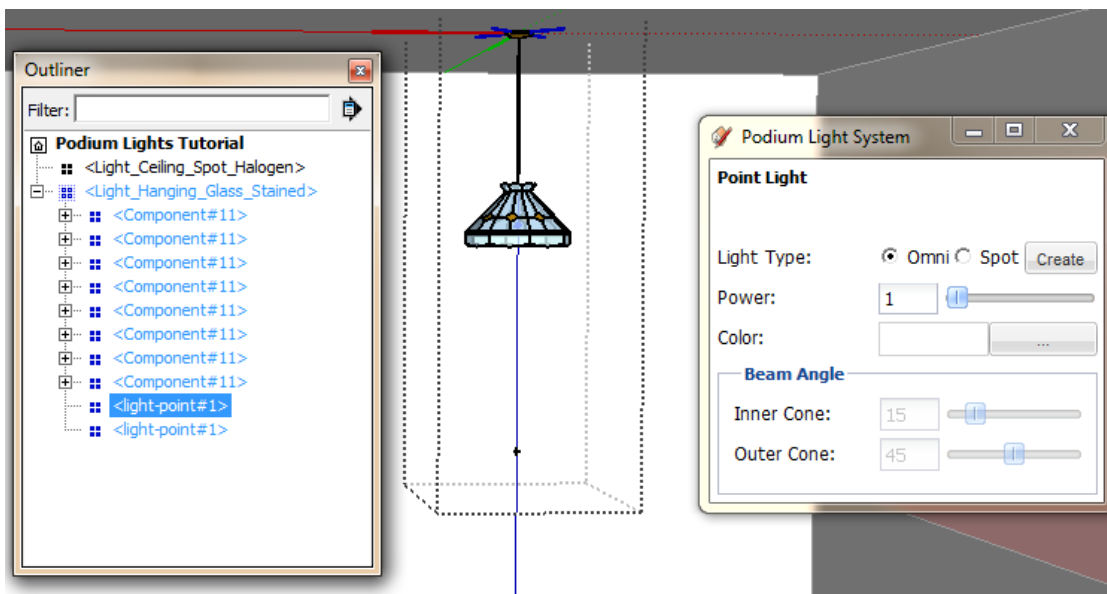
Back to PLS Scene and let's render our scene.



You can see white omnis emit from fixtures. First omni act as a light source looks brighter because it surrounded by fixtures geometry, and produce nice shadow profile on wall.

Catch Omnis from Fixtures

Sometimes you need to adjust omni's intensity and color within some light fixtures. This can easily accomplished by Outliner. Open your Outliner window and PLS panel and we can begin adjusting.

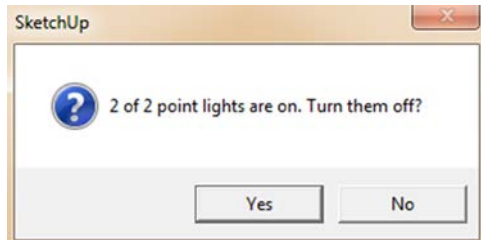


When you click light fixture geometry, that fixture name will be highlighted on Outliner window. Enter to that component will show all part of component fixtures. Seek omni light by keep drilling down in this way. The omni's component usually named as '<light-point##>'. Don't double click on that, just select it and we can adjust its value and color with PLS panel, make sure "Point Light" text appear on top left corner.

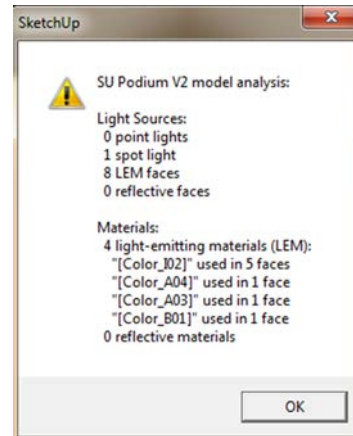
Turn Off Point Light

Sometimes we need to temporarily turn off all omni/point lights, especially on day scene rendering. We don't need to choose every single omni light and turn it off by giving light value to zero, because we can turn them off at once from Podium V2 menu.

Plugins – SU Podium V2 – Tools – Toggle Point Lights



Podium identifies all point lights status, click Yes to turn them off.



Podium making report about our scene. Notify that there are 0 point light sources after we turn them off.

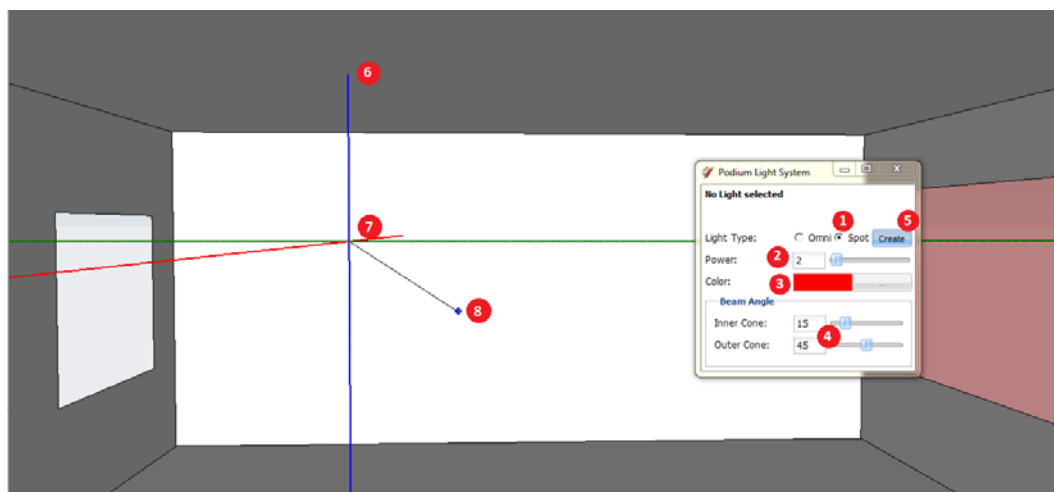
To turn them back ON, just doing the same process.

Spot Light

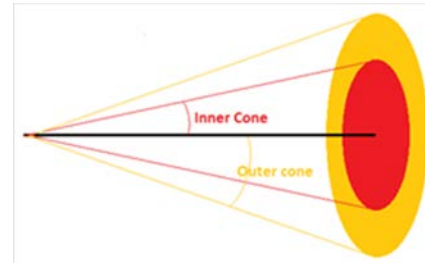
One directional artificial light with a light cone

Spot light is another type of Podium Light System, it's also access from its panel. Usage and settings pretty much same with Omni Light, but in Spot Light there is additional step to place a beam angle.

Click again scene "Empty" to begin our Spot Light exercise.



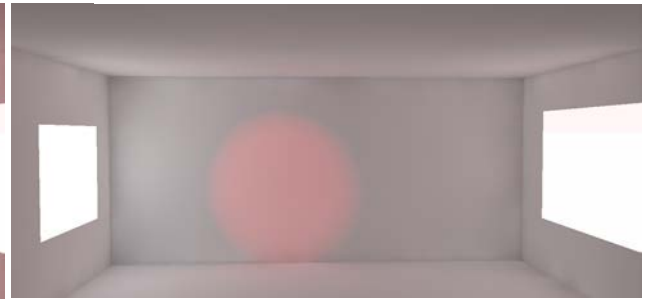
1. Choose "Spot" for PLS type
2. Adjust Spot intensity
3. Choose Spot's color
4. Adjust Beam Angle, see image for description.
5. Click "Create" button
6. Take reference wall
7. Move cursor to place spot light
8. Determine direction of spot light



*Inner Cone : area with highest spot light intensity
Outer Cone : outside area that still gradually affected.*



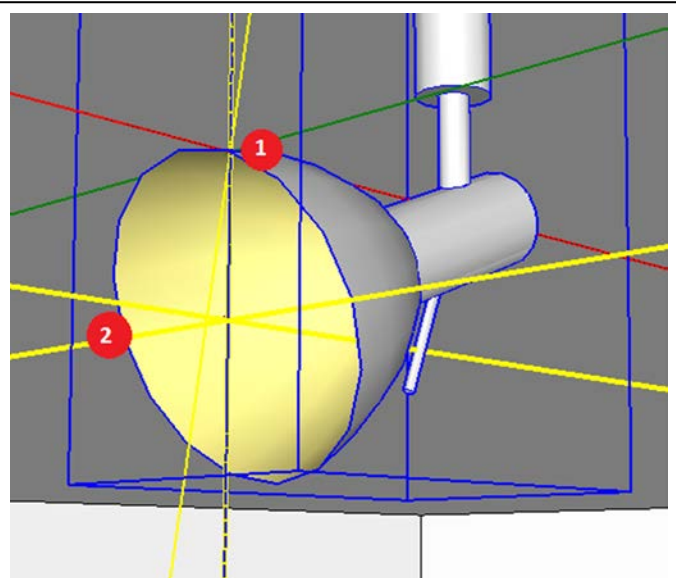
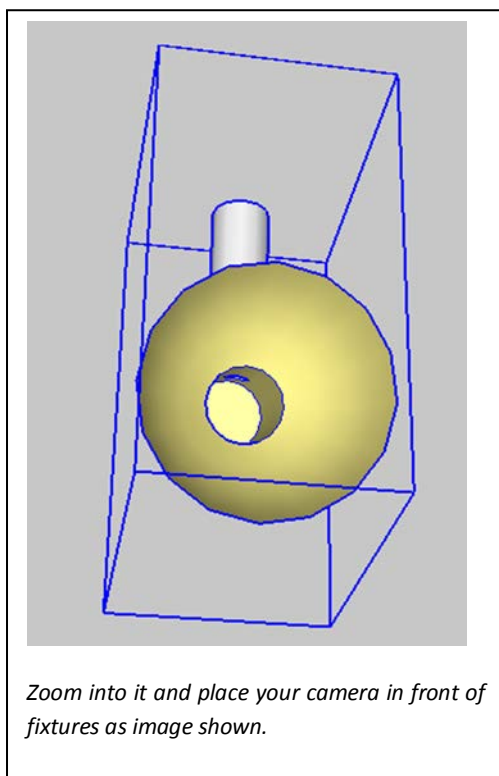
Inner cone : 15, outer cone : 45



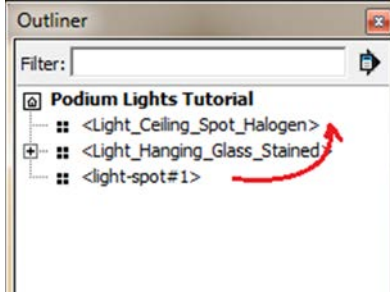
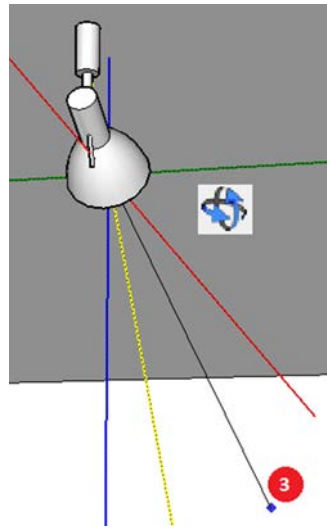
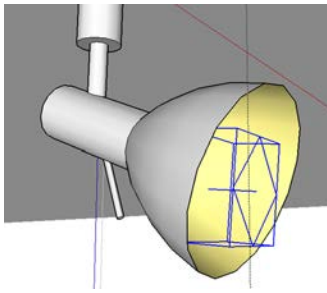
Inner cone : 10, outer cone : 20

Embedding Spot Light into Light Fixtures

For this exercise, we will use scene "PLS", and embed spot light to fixtures on the left.



Create spot light with power = 3 and yellow color. To place spot light, click on edge of circle (1), move in blue direction and hold down Shift, use (2) as reference. In this way we placed Spot light in the middle of circle.

 <p>Open Outliner window, drag and drop <light-spot> into <Light_Ceiling_Spot_Halogen>.</p> <p>You can also use Cut – Paste in Place method to do this.</p> <p>Now our spot light has been embedded.</p>	 <p>Orbit your camera so you can click on wall for spot light direction.</p>	 <p>You can adjust (move or scale) spot light if geometry result is not satisfying you.</p> <p>You can even modify light intensity and color by re-adjust it with PLS panel.</p>
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Back to our "PLS" scene and hit render to see result.



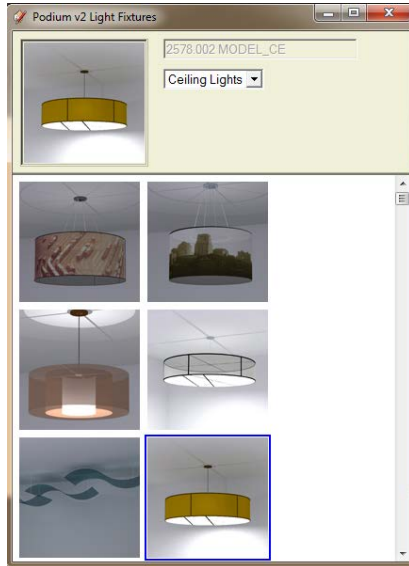
Unfortunately unlike omni light, you cannot turn off all spot light at once. You have to do it manually by catch spot light one by one and give 0 to light power.

Podium V2 Light Fixtures

Render ready light fixtures component

If you don't want to manually setting up your fixtures, you can use render ready light fixtures from Podium. Install Podium V2 Light Fixtures first before we continue.

You can access these fixtures from SketchUp menu Plugins – Podium V2 Light Fixtures



There are several categories you can choose from:


1. Ceiling Lights
2. Floor Lamps
3. Street Lights
4. Table Lamps
5. Wall Lights

All fixtures contain omni light that you can modify both its intensity and color.

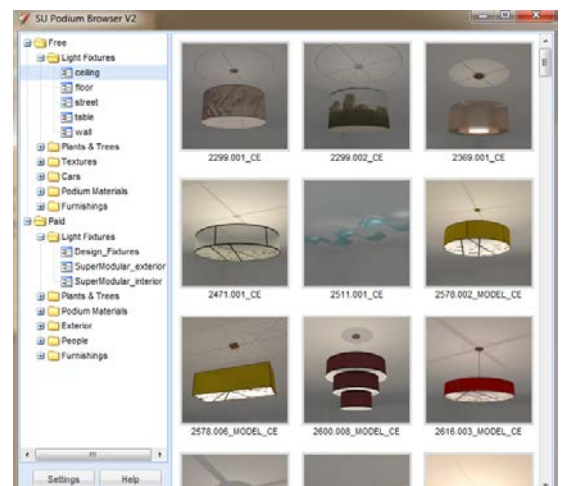
Remember you can always turn it off at once anytime.

SU Podium Browser

Online Render Ready Podium V2 Light Fixtures

Podium Light Fixtures may not enough for you and some fixtures is not up to date. You can access Podium Browser  to download render ready light fixtures online. Some free and some paid. You need another license (not same with Podium V2 license) to access paid content.


Of course you have to get connected to internet to use Podium Browser.



Podium team continuously updates this content, whether adding new content or revise existing content. You're not only got light fixtures, but also some components, Face me component PNG Plant & Trees, and materials.

Materials


Assign some properties into material on SketchUp

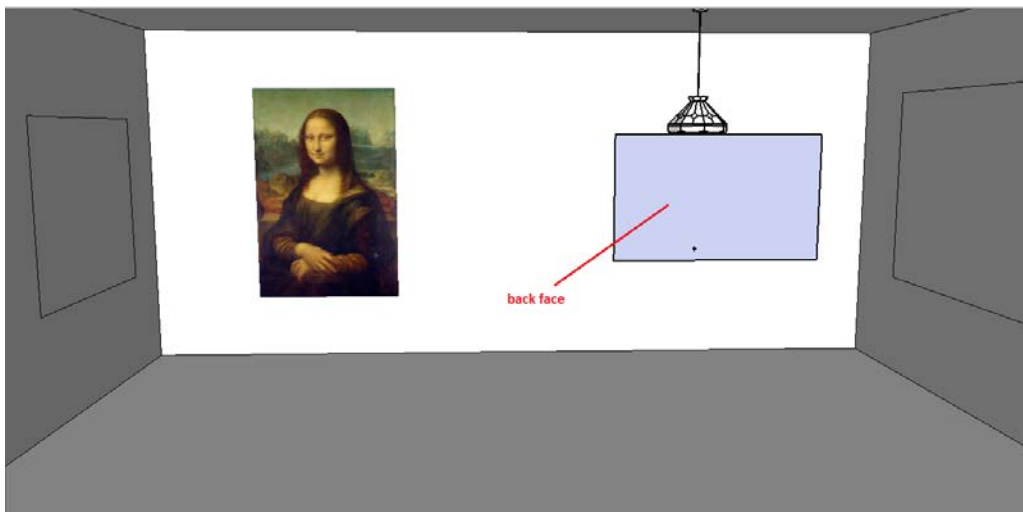
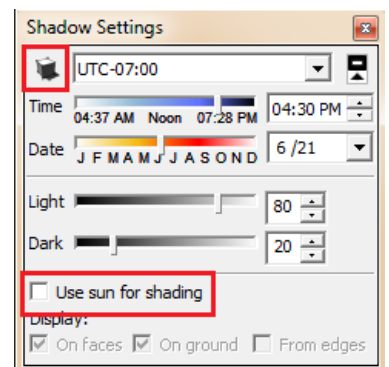
Once you understand its nature, material setting is easy with Podium V2. All setting to material is done through Material Properties . In this section we will examine some properties we can assign into SketchUp Materials.

Podium material settings only support on Front Faces, and most rendering engine too. So, before we set anything, we better make sure that all faces toward your camera are front faces.

Front Face Checking

Fast Detecting Back and Front Faces

The easiest way to check front faces is with Monochrome mode . With this mode, front faces rendered in white and back faces rendered in grey. To clearly see the difference, sometimes you need to turn OFF shadows and disable "Use sun for shading" checkbox.



In "material" scene we clearly found 1 back face. Even though floor and wall looks not white, they are still front faces. Sometimes you need to orbit your camera to check that they are rendered in white.

We need to reverse all back faces with select that face then Right Click – Reverse faces.

Preparing Material

Using SketchUp Material and Photograph as Texture

Podium can read SketchUp Material and you can directly assign some properties to it. But Podium can also read imported material, usually from images. When you import images into SketchUp, there are 3 types: images, texture, Matched Photo. Between this three, only "image as texture" that Podium can read and assign properties directly, the other two need some workaround.

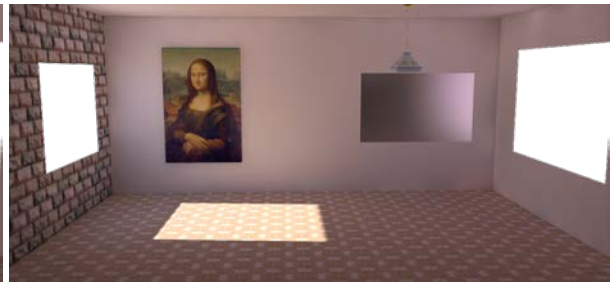
Images

When you try to render imported material as images, it will fail, because its material is not registered yet into material library. You can register it by **Explode** it.

Click scene "Material" and try to render, you will find that Monalisa painting is gone in render result, because it's still imported images. Now try to explode that painting, it will solved problem.



Before monalisa exploded



After monalisa exploded

Matched Photo

Podium is not compatible with textures projected from Photo Match. You have to **make unique textures** on each surface that textured with it.

We will discuss this further on "adding background" section.

Diffuse, Transparency, Reflection

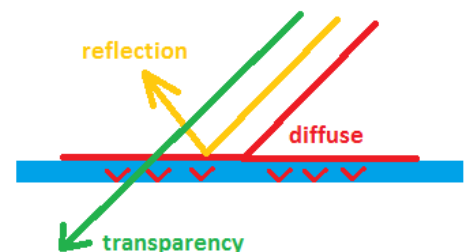
Material behavior towards light particles

Diffuse, Transparency, and Reflection (D/T/R) determine how material reacts to the light particles (photon). Basically, when photons hit some surfaces, they will have three reaction probabilities, some will be absorbed, some will be bounced, and some passed through.


Diffuse is percentage photons will be absorbed.

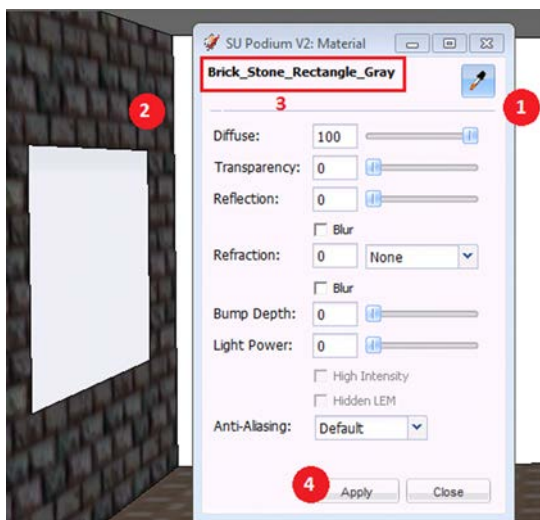
Transparency is percentage photons will be passed through.

Reflection is percentage photons will be bounced.

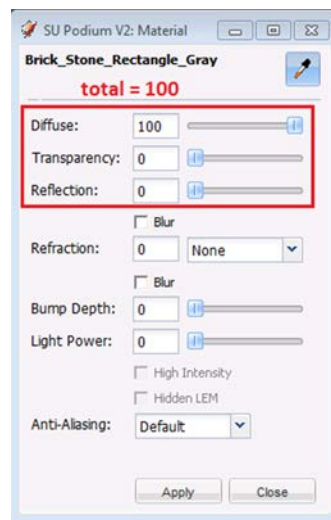


Different materials have different combination of D/T/R, sometimes you have to do trial and error to accomplish right combination. Your experience will enhance your understanding of this combination. For rule of thumb, **total value of D+T+R=100**. That means it's impossible to have material that has 100% transparency and 100% reflection.

To pick material, it's recommended to always use sample button  on Podium material properties window until material's name appear on top left window, in this way you don't have to enter group/component to pick material, now you can setting your D/T/R. Last step, always click "Apply" button every time you finish, otherwise all your settings will not be saved.



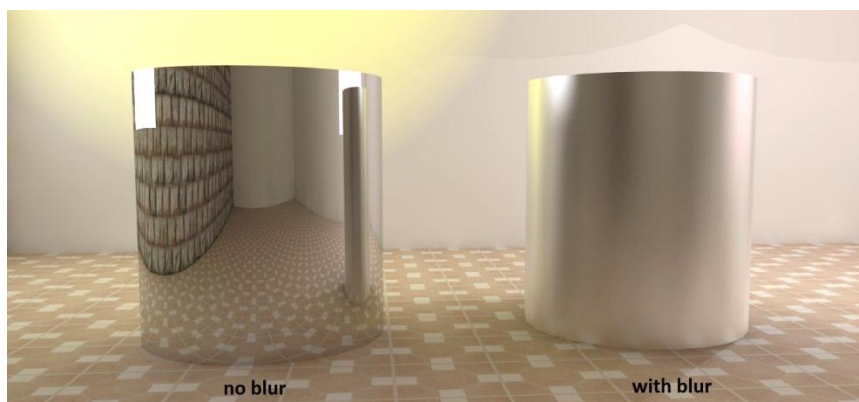
1. Activate sample, 2. Pick material, 3. Make sure its name appear, 4. Always click "Apply"



Total D/T/R should be 100

Blur Reflection

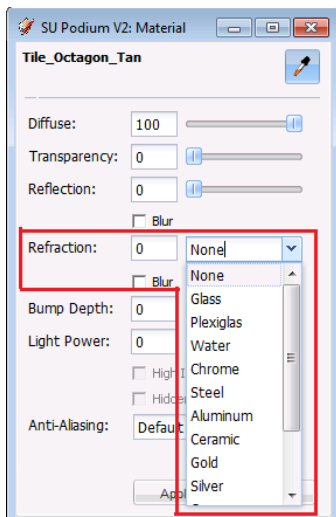
When you assign reflection properties, you can make it blur by enable "Blur" checkbox, it will make your reflection blurry. Image below show its difference, both with 80% reflection.



Refraction

See how light path bends through different material

Material usually has Index Of Refraction (IOR) that bends photon path from different medium at any angle other than 0^0 and 90^0 , that's why a pencil looks bend when part of it below water, because IOR water (1.33) different with IOR air (1).



You can set IOR to material by assign a value to refraction, if you don't know a value, simply select pre-defined IOR of some material on the right. It's recommended to always give IOR when you meet some material listed on this pre-defined IOR.

Bump Depth

Makes textures bumping and create displacement effects

Bump mapping is material properties that simulates displacement, it determined how bounce your texture is. The more bump depth value the more texture looks popped out.

Give it a try, open Barcelona file, then give some bump depth to water.

Noticed that reflection on bumped water become chaotic, this give a sense that low bump value produce subtle water and higher bump value produce more wavelet water.



No bump



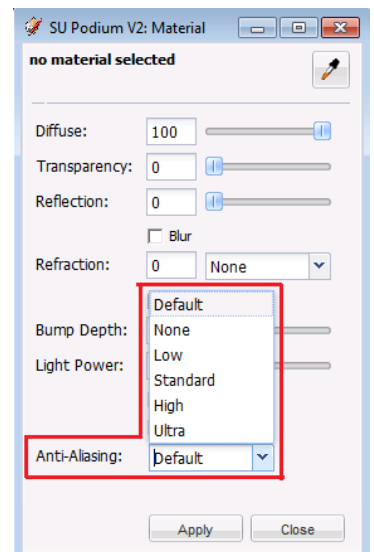
bump depth = 80

Anti-Aliasing

Configure each material quality to speed-up rendering time

Basically when you render scene that contains material with default quality or lower preset, Podium will lower material quality a bit and thus increase render speed. If you don't want it happened, you can assign anti-aliasing of some material to high or ultra, for example to grass texture. Podium will enhance your material with higher antialiasing.

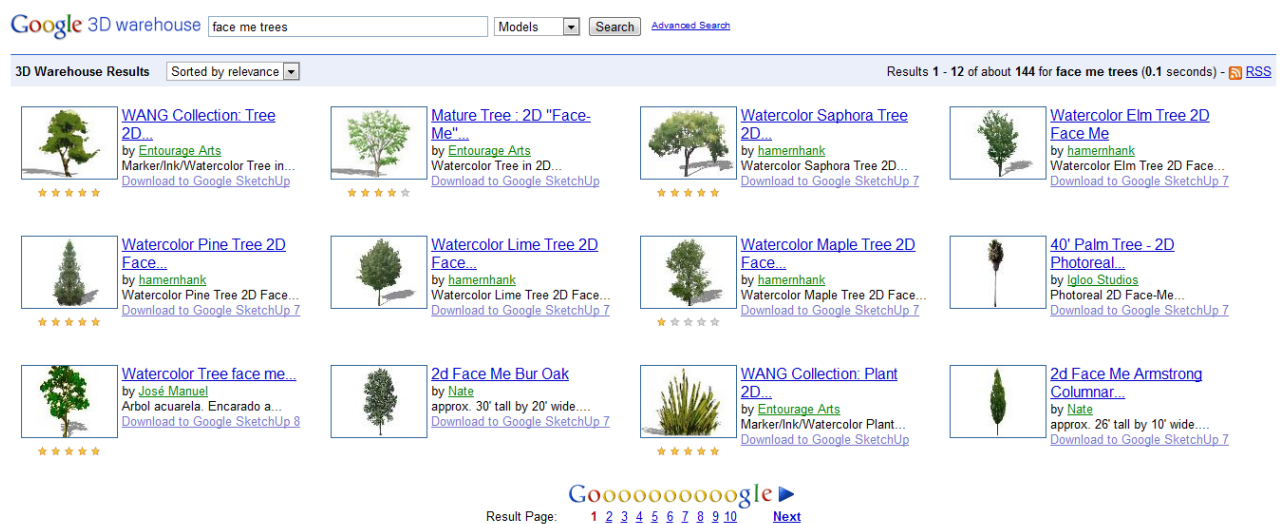
If you render with high or QMC preset but want to lower some material quality then you can assign low anti-aliasing to it. If you don't know what to do about it, just left it "default".



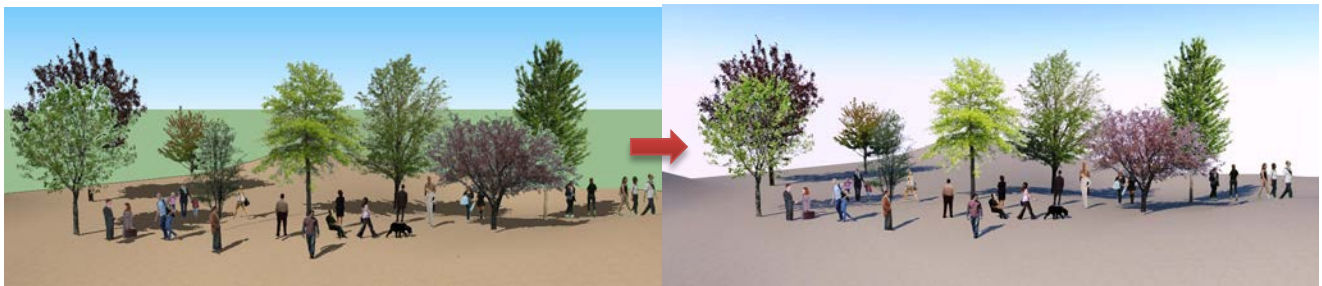
Transparent Background Material

Enhance rendering quality and detail with less poly-count

SU Podium V2 support alpha transparency material, usually in PNG (Portable Network Graphics) format. That means you can use Face Me Component with transparent background such as character, trees, animals, etc. Another typical uses is application on fence that saves you from a lot polygon count, and speed up render time. You can search any kind of face me component on 3D Warehouse by keyword "Face me", or you can simply import PNG image as a texture.



Google 3D Warehouse search with keyword "Face Me"



Face-me Component on SketchUp

Podium V2 support to alpha transparency material

We're not discussing about how to make Face-Me Component, this thing covered on another course. For now you can utilize 3D Warehouse to find it.

TIPS :

Using photography texture will enhance render result. In professional fields, there are some theory and philosophy about how to combine different material and color to produce certain atmosphere, feel, and themes. Having knowledge on this area will be added value for you as professional.



You often need companion software to tweak your texture, such as Adobe Photoshop, Adobe Fireworks, Corel Photo Paint, etc. Choose one that most comfortable and familiar to you. Repeating pattern texture sometimes looks odd and not realistic, there are several techniques to deal with it.

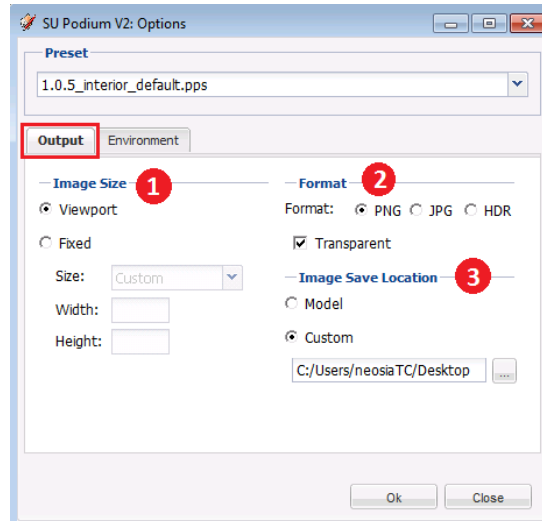
There are many source of material: SketchUp material, taken from photo, Google images, or many website that provide various kind of material such as www.cgtextures.com . But usually some company provides images and textures in their website about particular product, such as tile, wallpaper, etc.

Outside esthetics you have to consider availability of material on the market and technical aspect to install them. If you are a consultant, your client might be unsatisfied if your design is not match with the real result.

Output Settings

Adding some effects on output and specify its properties

All settings related to output located on Podium Options . In fact before you hit Render button  you should set some option about output you'll made.



1. Image Size : determine resolution of your render.
 - Viewport : what resolution you see on SketchUp, that's what you'll get.
 - Fixed : you can choose some pre-defined resolution by pixels. By software, you have no size limitation by determine on width and height, but practically you will limited by hardware. Fixed size option only available on licensed version.
2. Format : what image extension you want to produce.
 - PNG : when you choose PNG, you could produce transparent background image that you can use later for post processing, adding background for example. See "Adding Background" section on this course.
 - JPG : typical image format. This is fastest compare than others.
 - HDR : High Dynamic Range, if you want to use your result as a further background for another rendering.
3. Image Save Location
 - Model : image result will be in the same folder with SketchUp model.
 - Custom : you can determine where render result should be located.

Background


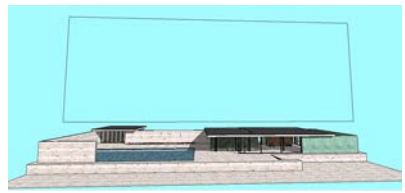
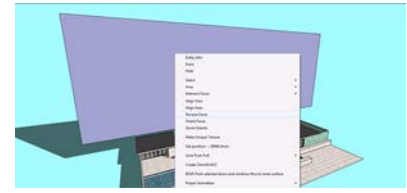
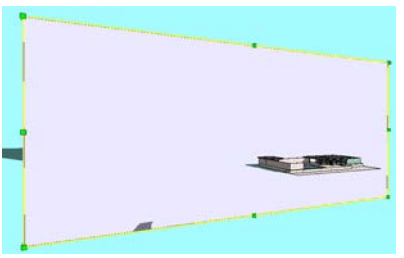
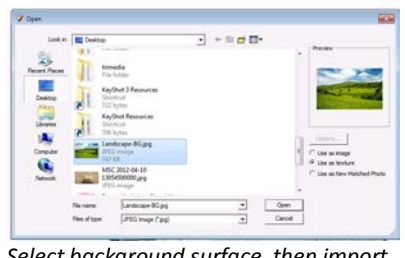







Adding some environmental detail to your render

Your render will not look nice without background, especially if your model is architectural model.

There are several ways to add background. Each one has their own characteristics.

Plane Background

We will use Barcelona model for this exercise

 <p><i>We begin with click "Scene 1"</i></p>	 <p><i>Orbit to position camera and draw big rectangle above it</i></p>	 <p><i>Reverse face if front face is not facing camera</i></p>
 <p><i>Scale, move to back, and sometimes rotate to align your background.</i></p>	 <p><i>Select background surface, then import image background as a texture</i></p>	 <p><i>Place your image on background surface</i></p>
 <p><i>Re-position your camera.</i></p>	 <p><i>Right click – texture – position, to refine your background. Activate fixed pins.</i></p>	 <p><i>Move and Resize texture to match your model. Done.</i></p>
 <p><i>Now try render with exterior preset. You will now have rendered version.</i></p>	 <p><i>With image editor, crop and correct contrast and brightness.</i></p>	 <p><i>END RESULTS !!</i></p>

This is very long process but intuitive and very traditional method. Some people still use this.

BMVB Background

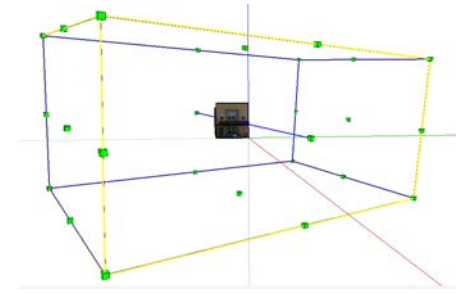
We have to use some PhotoMatch model to do this and plugins called Bring My View Back (BMVB).
Open PhotoMatch.skp for this exercise.



Prepare your model, click scene "HouseSite".
Try to render this and you'll see textures are not mapped correctly.



When your camera in position, activate
BMVB Plugin from menu Plugins –
TM[BMVB] – Bring My View Back. You will
have BMVB plane.



Scale this plane in blue direction by holding
shift key. This will scale proportionally. Scale
until you have your background plane.



Back to the scene. Enter to BMVB plane
group by double clicking it, and select its
surface.



On PhotoMatch window, click "Project
Textures from Photo". If you asked partially
trim visible faces, answer no. Otherwise
you'll ruin your geometry and faces.



Right click on surface once again, and choose
"make unique textures". Make all projected
textures in the model as unique textures.
Podium didn't support match photo textures.



Back to the scenes, setup shadow so
background is bright enough. Try render with
exterior.



With image editor, crop images and adjust
color.



Voila! We have photomatch rendered.

Actually you can apply BMVB without PhotoMatch, as long as you have a scene that records your camera position. Because we have to always back to that exact position.

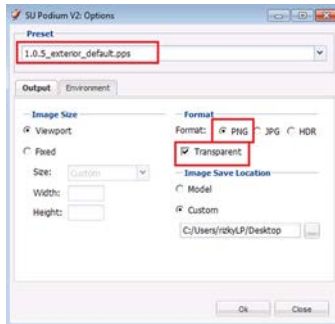
Try using Barcelona model to use BMVB without PhotoMatch, because we already had couple of scenes there.

Post Processing Background

In this exercise, we'll use Barcelona scene again and image editor to give a background. In this modul, we will use Photoshop. We will use PNG format for output and enable transparent background.



Begin with scene "interior"



Render with exterior preset and PNG transparent



We'll have transparent render, go to Photoshop and add background.



Place background layer below, and render layer on top. Resize background properly.

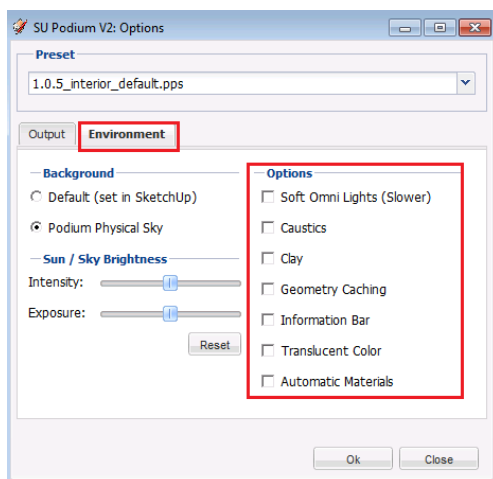


We have the Result!!

Podium Options

Some features that enhances your render realism

Podium had some cool features that can enhance your render. You can enable and disable it from Podium option – environment.



Soft Omni Lights (Slow)

When enabled it will soften omni light shadows casts on the surface, but increase render time.

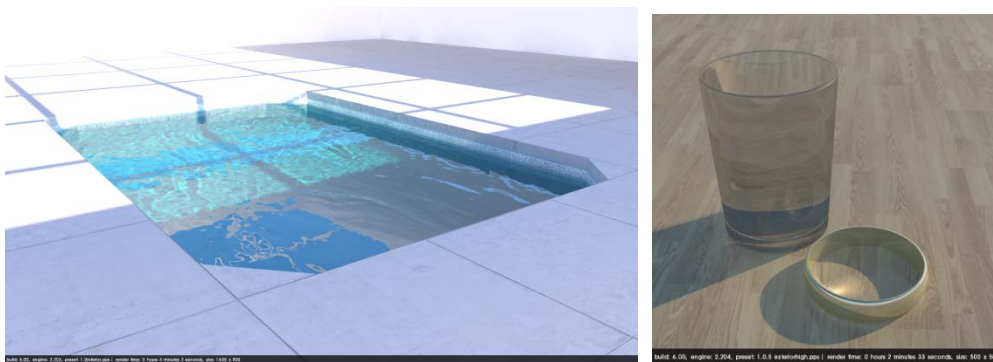


Soft omni light OFF

Soft omni light ON

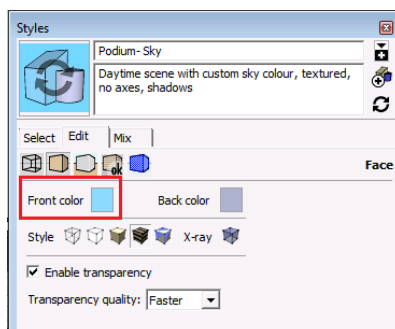
Caustics

When enabled will add caustics effect and increase render time.

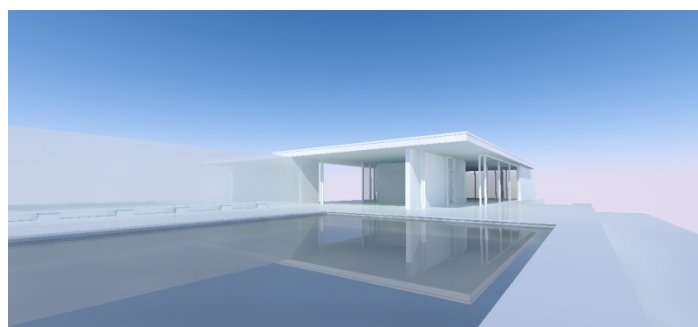


Clay

If enabled will ignore all textures and all surfaces will rendered with one color, that is front face color. You can specify front face color from SketchUp Style window – edit – face settings. This can decrease render time.



Style - face settings



White clay render

Geometry Caching

If geometry caching enabled, Podium will save geometry information to cache, then if you only change camera position and no geometry modification or change material/light properties, Podium doesn't need to recalculating geometry and this could be decrease render time (faster).

Information Bar

When enabled, Podium always put information about your render including: podium versions, preset used, render time, image size. You can learn from this information bar by comparing them each other and you will get some idea about preset's nature and their relationship with lighting, render time and size.

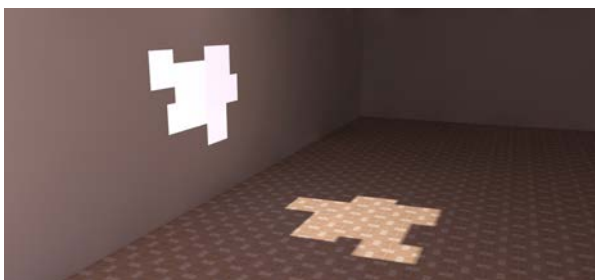
build: 6.00, engine: 2.203	preset: 1.0.3intdefault.pps	render time: 0 hours 0 minutes 17 seconds	size: 852 x 480
Version	Preset	Render time	Image size

All this information (besides your machine specs) often asked when you discuss with other user about rendering on forum.

Translucent Color

When it's enable, sunlight passed through translucent color will have shadow with same color, and it's affects environment lighting.

You can test this feature with scene "Translucent".



Translucent color off



translucent color ON

Automatic Material

Tired to set up all material properties? Let Podium do that for you, just enable this feature. However this only works with SketchUp default material.

If this active, any settings you assigned to SketchUp default material will temporarily ignored and Podium replace with pre-defined setting of Diffuse, Transparency, Reflection, Refraction, Bump, etc. Un-checked this will bring back your settings on that material.

If you want to try this feature you can use Courtyard.skp model.

Presets

Using appropriate presets to achieve particular degree of quality

We've already mentioned about presets in lighting sections, because main different of interior and exterior presets is brightness. But this section will discuss about the rest of presets.

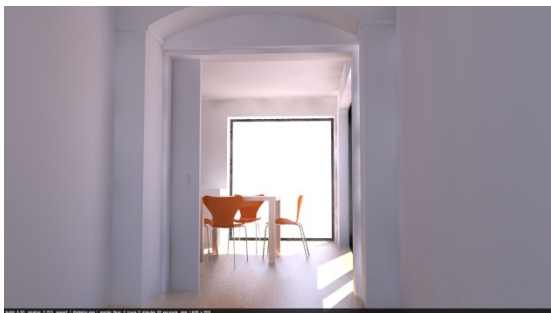
On each type preset there are 3 kinds sub-preset: preview, default, and high.

Basically, Preview preset is used for check lighting level of our scene; it's fastest but poorest quality.

Default preset is a balanced preset between render time and quality. There are still some jaggy lines and low resolution textures, but for quick rendering in place, it's tolerable.

High preset have the best quality result, off course rendering time will increases. If you have enough time before your presentation, it's recommended to render with high quality.

There is other kind of preset that called QMC (Quasi Monte-Carlo). QMC is used when you frustrated with white or black blotches, QMC can eliminate them all.



Without QMC, noticed that blotches



with QMC, blotches all gone

QMC preset will increases render time significantly. So be patient with this guy. QMC also has a little noise, so sometimes you have to render 3 times of target size then reduce its size to target size.

Post-Processing your Render

One effective method and straight forward to enhance your render is through post-processing with image editor software. Use **Level Adjustment** to brighten your scene or add some background.



Image taken from SU Podium website.

Rendering Workflow

Some key aspects you should consider to achieve realism

Even though every person has unique workflow to do rendering, but below is recommended workflow to rendering with Podium V2 for most users:

1. Purge your model
2. Front face checking
3. Fix material (re-textured, position, explode, make unique, etc.)
4. Save camera position and shadow with scenes
5. Assign some properties to material
6. Set up lighting
7. Render with preview preset to check lighting level and material
8. Final Render with high preset
9. Final Render with QMC if there are some blotches
10. Post-Processing

Tips for Good Renders

Actually there are so many aspects that could be a key for good rendering, but perhaps we can conclude them in several main points:

1. Model : The more detailed of your model, the more realistic your render will be.
2. Material : Material and color combination and material's resolution.
3. Lighting : use lighting properly, don't exaggerate it such as add much lighting that shouldn't be there. Using natural light could increase realism of your scene.
4. Preset : Use appropriate preset. Use information bar to get more understanding about preset.
5. Logic : Always critics your own render, seek parts that looks not realistic or logic. Study physical properties of material and lighting in the real world. This "making sense process" is usually iterative process. You seldom succeed in first try.