SU Podium

photo-realistic rendering for SketchUp

Installation and loading SU Podium

To Install

1. Double click on SU Podium_Setup.exe file from your CD or from the file you downloaded. This begins the installation process.

2. During the installation you will be asked where to install SU Podium.
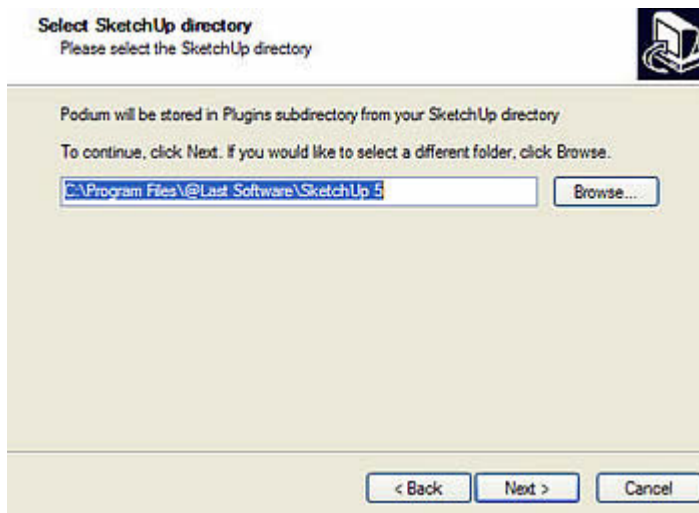
SketchUp 5 Pro users - select the default location or use the browse button to find the folder that SketchUp Pro is located. You should install Podium in ¥Program Files¥@Last Software¥ SketchUp 5.

SketchUp 6 Pro users - use the browse button to find the folder that SketchUp 6 Pro is located or type in c:¥Program Files¥Google¥Google SketchUp 6
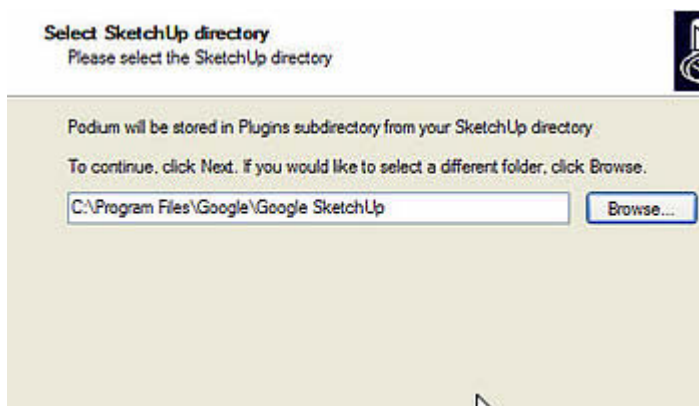
Google SketchUp users (free version) - use the Browse button to find the folder where Google SketchUp is located such as ¥Program Files¥Google¥Google SketchUp..

Note - do not try to install Podium in the ¥Plugins folder. The install program will do that for you and create a folder for Podium.

To start SU Podium in SketchUp

Restart SketchUp. You can access Podium from the SketchUp Plugins pull down menu. Pick the Show option from the Podium menu to display the Podium interface.

Enter your serial number (full version)

If you purchased the full version, when you start Podium for the first time, you will be required to enter your SU Podium serial number that comes with your purchase. If you purchased Podium as a download product, you should have received an e-mail with your serial number. If you purchased Podium CD version, the serial number is located in the inside cover of the SU Podium DVD Case. If you have not received a serial number with your purchase, please contact support@cadalog-inc.com and one will be sent to you.

Register (full version)

It will be a good idea to register your serial number and your user information on SU Podium web site. Registering will give you access to many free updates and texture libraries as well as other information regarding Podium.

Uninstall

It's best to use Podium's uninstall program to uninstall Podium completely. To uninstall, use the Windows Start key and select All Programs. Then select Podium from the list of Windows Programs. From the Podium menu, pick Uninstall. Then browse Windows for the Podium folder. When you find it, click on unins000.exe.

Install problems

The most common problem encountered after installing Podium is not being able to find Podium from the Plugins menu inside SketchUp. If you can not find Podium from the Plugins menu, it has not been installed correctly. The most common reason for this is that Podium was installed in the wrong folder. The recommended solution is to Uninstall Podium as instructed above. Then reinstall it. Make sure SketchUp is closed when you reinstall Podium. Pay careful attention to what folder Podium gets installed. It must be installed in the ¥Google SketchUp 6 or ¥SketchUp 5 folder. Do not install it in the ¥Plugins folder.

Note - During installation, the install program creates a new sub-folder called Podium in the ¥Plugins folder. The program files are installed in this Podium folder. However, an important file called Podium_load.rb is copies to the ¥Plugins folder.

Brief description SU Podium

SU Podium is a photo-realistic rendering software program that works entirely as a plug-in to SketchUp Pro or Google SketchUp. We will be referring to SU Podium as "Podium" in this help page.

Podium works entirely inside SketchUp and uses SketchUp's surfaces, textures, views, background color and shadows to produce a photo-realistic image. It also works with SketchUp groups. If you are already familiar with SketchUp you will notice that Podium does not require you to learn a lot of complicated rendering techniques to create photo-realistic renderings.

The SketchUp model that you see on your screen will be what is rendered in the final image. What you see on your screen will be referred to as the render scene. If you want to change the angle of a scene or get a closer "shot" of your model, use SketchUp's zoom, pan or rotate commands to change the render scene.

You can apply the standard SketchUp textures and colors to surfaces and get an effective rendered image. Cadalog, Inc. will be providing additional high resolution texture images in the near future to registered SU Podium users. However, SketchUp's standard textures are adequate.

You can also apply SketchUp's background colors, sky colors and shadows to get effective renderings.

The final image that is created by Podium is a bitmap JPEG or PNG file. The file is saved to the /Plugins/Podium folder automatically. You can change the folder where you want to save the output image file. The current version does not allow you to name the image files but assigns a number which reflects the time it took to render the image.

Getting Started

To display Podium's user interface, pick Podium from the SketchUp Plug-in menu and pick Show.   This will display the Podium user interface.   The two main options that are displayed are the amount of lighting (applied to each surface) and the amount of reflection applied to each surface.
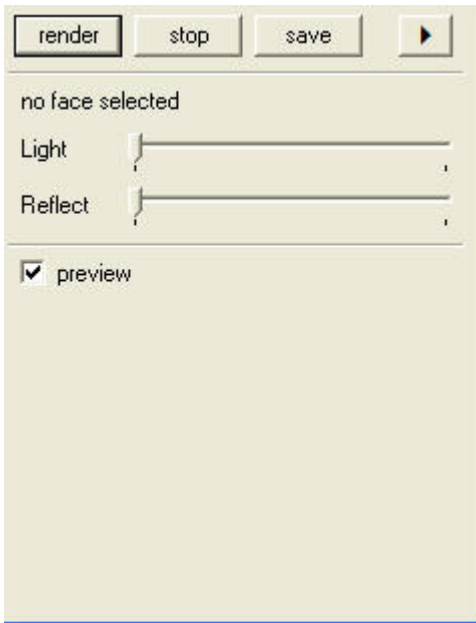
How it works

1. Select any surface or face in your SketchUp model by clicking on it

2. While the surface is highlighted, pick a value for reflection by moving the Reflect slide bar in the Podium UI.

3. Paint a texture or color to the surface you previously selected

4. Render it and examine the Preview image.

Podium will create renderings of your SketchUp scene by simulating the reflection of light on each SketchUp surface.   By default, Podium applies Sky Light light source to the scene. You can create an effective rendering by applying an amount of Podium's reflection on SketchUp surfaces. In addition, by painting surfaces with colors or texture, the rendered image will look realistic.

You can also change the lighting and reflection effect by changing SketchUp's background color or shadows.   For example, you can create an evening like image by choosing a dark background color in SketchUp. You can also create different effects by using or not using

SketchUp shadows.   For interior designs, Podium also provides omni lights which will further provide realism to your image.

Another important feature to Podium is light emitting material (LEM) or the Light feature. This feature is shown in the user interface as Light.   When applied to a surface, Light creates an independent light source.   For example, you may want to create the effect of a fluorescent light or a TV screen illuminating a room. The amount of lighting applied to a surface will simulate an independent light source.   This light will be reflected from surfaces that have reflection properties.

To get an understanding of how Podium works, we have provided two simple models. Podium-Exterior is a SketchUp model of a simple structure.   Podium-Interior is also a SketchUp model of a simple room design.   The sample models are available ¥Plugins¥Podium folder.

Note: Podium employs Global Illumination (GI) and Ray tracing to create photo-realistic images. Ray tracing simulates the path of a ray of light as it would be absorbed or reflected by various SketchUp surfaces. GI is an algorithm that takes into account not only the light which comes directly from a light source like Sky Light (direct illumination), but also subsequent cases in which light rays from the same source are reflected by other surfaces in the scene (indirect illumination).For more information about Ray tracing and GI, please read about it in Wikipedia.org

UI Items - Resolution, Settings and Preview

Podium has a simple user interface as described in the Getting Started section. The main dialog box displays Light and Reflect slide bars and a Preview button. The are a few other options in the user interface that should be explained before proceeding to the tutorials.
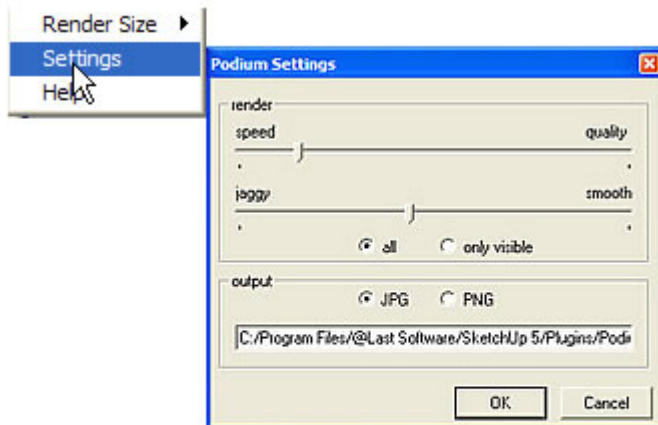
Render Size
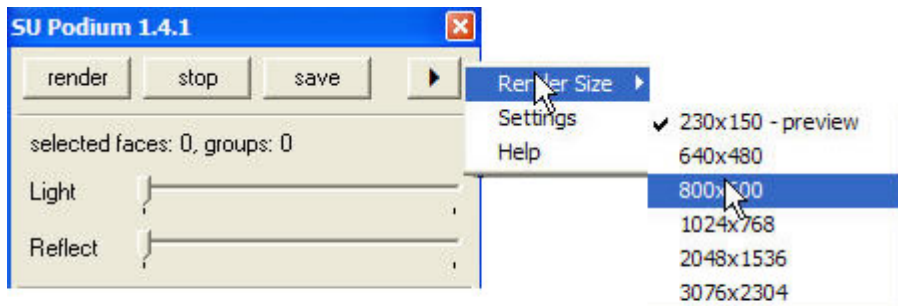
Click on the Arrow head icon in the main Podium user interface. This will reveal Render Size, Settings and Help options.

There are several render size options in the full version. The evaluation version only provides 230 X 150 (Preview) and 640 X 480. In all other respects, the evaluation version is the same as the full version.

Settings

The Settings menu is where you can control the speed vs quality and jaggy vs smooth settings. It is also where you can pick between JPG and PNG output formats and what folder you want your image files to be saved to. Settings is discussed in more detail in the Settings sections of this help desk.
Preview
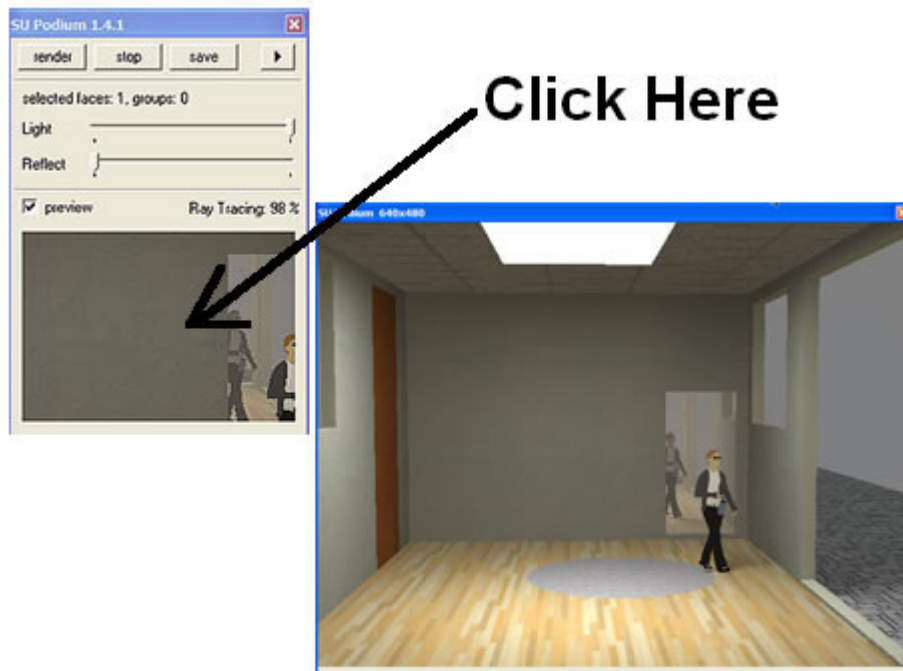
When Preview is on, Podium will display a Preview of the rendering as it is occurring. The default Preview image size is 230 X 150. When you pick a larger image size such as 640 X 480, the Preview will only display a small portion of your rendering as it is occurring. You can Preview the entire image size by clicking inside the Preview image area. This action will display a new window which shows a static image of the rendering. Click on the larger window to make it disappear.

Sample Tutorial- Exterior Model

Open Podim-Exterior.skp

Then pick SU Podium from the PlugIns menu.   Click on Show from the SU Podium menu.

The Podium user interface will appear.   From the Podium interface, pick Size.   This will display an option of render sizes for the final image.   For now, leave the default render size on Preview. (230X120 pixels).

Hint: The smaller the render image size, the faster the scene is rendered.   It is a good idea to first use a small render image size to experiment with reflection, background colors, shadows and Light settings to get speedy results.   When you are happy with the settings, choose a larger render size for your final image.

For this example, we will first apply standard SketchUp textures to selected surface. Then we will apply reflections and and experiment with SketchUp background colors to obtain a rendering.

**Paint textures on selected surfaces**

Select the Material Browser from the SketchUp Windows menu (Tools menu in SketchUp 5).   Select Cladding_Stucco_White from the Bricks and Cladding category (the Stacco from the Assorted Materials in SU5). "Paint" this texture to the exterior surfaces of the building (everything except the ground, windows and door).

Select Glass_Blue in the Translucent library (Glass + Transparent in SU5) for the window surfaces.   Edit the Glass texture and change the opacity of the texture to 18 or lower.

Select Wood-cherry from the Wood library for the two doors.   Select a Concrete texture from the Asphalt and Concrete library for the ground surface.

Your model should look something like below:

Apply reflection on selected surfaces.
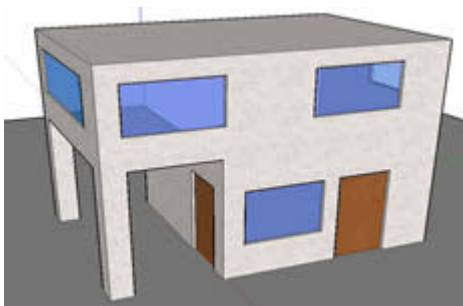
Applying Podium reflections to SketchUp surfaces is an important part of getting a good rendering.   You will find yourself experimenting with levels of reflection to get the best effect.

To apply Reflection to this model, click on a SketchUp surface and while this surface is highlighted, go to the Podium interface and use the Reflect slide bar to applying a value of reflection.   The higher the value, the more reflection that surface will have.   Podium will remember the value you assigned to a particular surface.

Note: With groups of components, you can double click on the group and use SketchUp's Select All command to select all surfaces in a group.   While the group's surfaces are highlighted applying a reflection value to the surfaces.

For this model do the following:

a. For the exterior surfaces or the surfaces with Stacco texture, click on the surface while the surface is highlighted, go to Podium and apply a reflection level of about 20. Podium will remember this setting.   Rotate your model and select all Stacco surfaces and apply a reflection level of about 20.

b. For the window surfaces with Glass_Blue texture, click on the surface or surfaces, go to Podium and apply a reflection level of about 5.

c. For the ground surface, click on the ground surface and apply a reflections value of about 30.   We are making the ground highly reflective.

d. For the doors, do not applying any reflection.

Shadow settings

For this example, turn shadow settings off in SketchUp.

Render the scene

Zoom, pan and rotate in SketchUp so that the model takes up most of your computer screen.   This is your render scene.

Then click the Render button in the Podium interface. (Make sure the preview button is checked).

Podium goes through several iterations and you will notice messages on the Podium interface like Exporting Geometry, Shooting Photons, Building Mesh, Ray tracing, Anti-aliasing.

When the messages have stopped and you have clear image, what you should see is a preview size of your rendered image. Save this file.   As a default, the file is saved as a number to the /SketchUp X/Plugins/Podium folder. You can change the folder location by using the Settings option.

Your preview image should look like this:
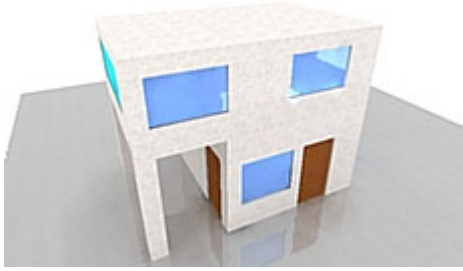
Notice how the roof of the building is almost white. This is because the roof surface has reflection but is only reflecting the sky light.   You can correct this by selecting the roof surface and changing the reflection value of this surface in the Podium UI.   Change it to 0 or no reflection.   Then try rendering the scene.
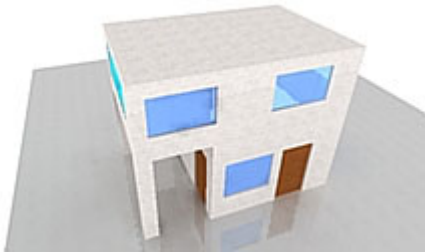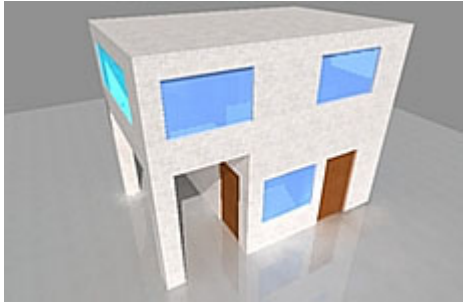

Adding Background color and shadows

To get more realism to the rendered image, lets make the SketchUp background color darker and also turn on the Shadow setting in SketchUp.

Select Styles menu in SketchUp 6 and pick Edit and click on the Background Color icon. (Model Info from the Windows pull down menu in SketchUp 5).   Click on the Background colors box and change the Background darkness level so that it is a dark gray.   Click OK.

Now turn SketchUp's shadow settings to Display Shadows and use the default shadow settings.

Render the scene with Podium.

Your new image should look something like this:

Are you happy with this image?   If not, continue to experiment with − surface reflections, background colors and shadow settings.

When you are ready, change the render size by clicking the >button in the Podium UI.   Pick 640 X 480.   Try rendering the scene.   Notice how much slower the render speed is when the image size increases.   Also the preview area within the Podium UI displays only a portion of your image.

Click on the preview image if you want to display the entire 640 X 480 image in SketchUp.

Save the image.

Sample Tutorial Interior Model

Open Podium-Interior.skp.

Podium-Interior model is a simple model of a room.   The goal of this exercise is to experiment with Light effect to create a new source of direct light and use reflection to simulate a mirror.   Outside Sky Light will also influence the interior lighting.

Texture has already been applied to this model.   SketchUp's background color has also been changed to a darker grew.   Shadow settings are turned off. You can examine what materials are being used in the model by going to the SketchUp material browser and selecting the InModel tab.

Also, notice that two components are being used. One is a face-me type people component.   The other is of a 3D bench.   If you Zoom out of the current view you can see that the model is of a room with three walls, a roof and a floor. Outside the structure there is a surface with Ashlar Stone texture to represent the ground.

The facing wall has a white surface that will represent a mirror.

Display Podium's UI by picking Show from the Podium pull down menu.

Let's use the Render size of of 230 X 150 for the Preview.

Add Reflection and Light to surfaces
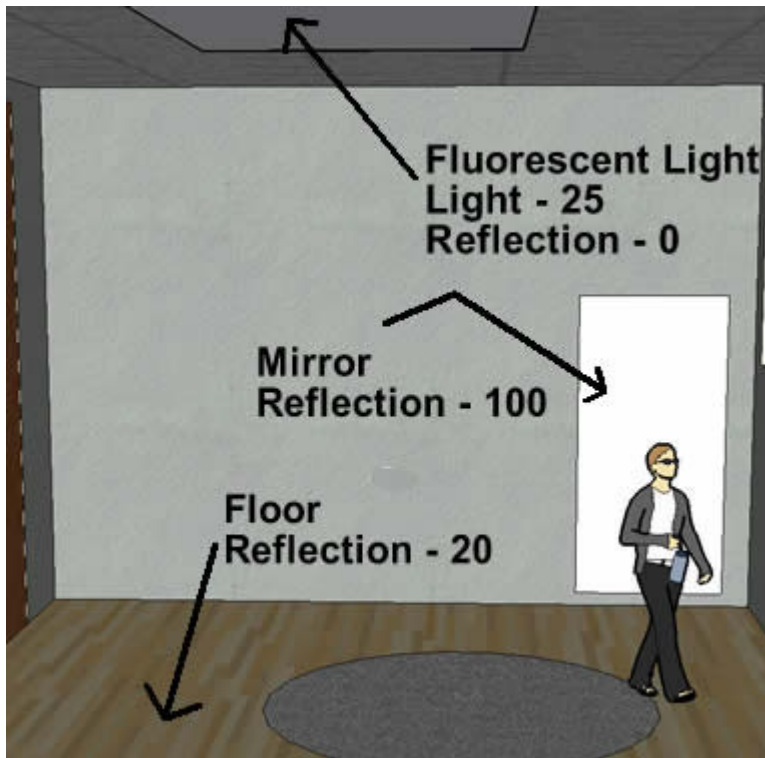
For this example, let's add reflection to the following surfaces – a. the mirror (this is the rectangular surface on the facing wall that has Ghost White texture), b. the floor

Apply Podium reflections as follows:

a.   Mirror – Select the mirror surface and while it is highlighted, use the Reflect slide bar in Podium's UI to add a reflection value of 100 for the mirror.   This is the maximum reflection value.

b.   Floor – Select the floor surface and while it is highlighted, use the Reflect slide bar in Podium's UI to add a reflection value of 20 for the floor.

We are also going to add a new light source in the room to the rectangle on the ceiling to simulate a fluorescent light.

a.   Fluorescent Light.   Select the rectangular surface on the ceiling and while it is highlighted, use the Light slide bar in Podium's UI to add a Light value of 25 for the "fluorescent" light.

Render the Scene

Zoom, pan and rotate in SketchUp so that the room, mirror, portion of the light and a portion of the outside is visible on your computer screen.   This will be the render scene.

Then click the Render button in the Podium interface. (Make sure the preview button is checked).

Podium goes through several iterations and you will notice messages on the Podium interface like Exporting Geometry, Shooting Photons, Building Mesh, Ray tracing, Anti-aliasing.

When the messages have stopped and you have clear image, what you see is a preview size of your rendered image. Save this file.   It will be saved as a number to the ¥SketchUp X¥Plugins¥Podium folder. You can change the location of where the image is saved by using the Settings menu.

Your preview image should look like this:

Want more light in the room?

Increase the Light value for the "fluorescent" light by select the surface and moving the Light slider bar to the left.

You can also increase light by changing SketchUp's background color to a lighter color or by changing the color and opacity of the window texture.

Notice how the mirror is reflecting the face-me component's front view (as you would expect a face me component to behave).

You have now been exposed to almost all of SU Podium's features.   The only other major feature is Omni Light.
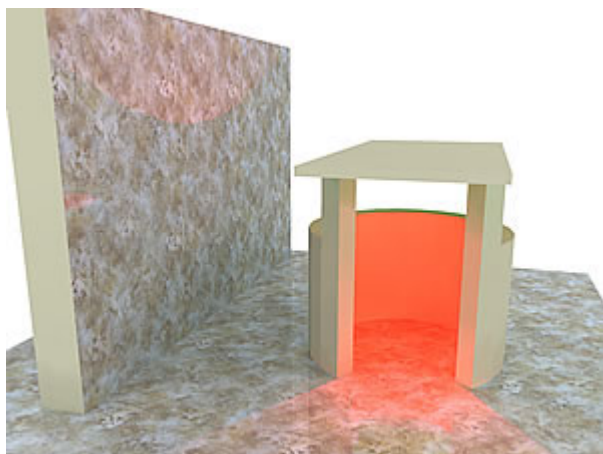
Omni Light

Omni Light is a feature that allows you to create an independent light source from SketchUp groups. Omni Light acts like a light bulb and emits light in all directions. Omni Light is a different from applying Light value to one surface as we did in Tutorial 2. Omni Light allows you to assign a Light value to an entire group. That group becomes a source of light that emits light in all directions. When you render the scene the Omni Light group will disappear and only the light it is creating will appear in your image.

You can use Omni Light to create the effect of a light bulb that lights up the entire room or use it in a light fixture that shine up a small area.

Omni Light Tutorial

Open Podium-omin_light.skp. You will notice a red cube in the middle of the model. This cube is a SketchUp group. The group was assigned a Light value by Podium and has become an Omni Light object.

Render the scene using the Render button in Podium's UI.

Notice how the red light spills out from the circular wall only at the gaps of the wall. Also, notice how the Omni Light object has disappeared from the rendered image. If you rotate the angle of your view and expose the bottom of the ceiling of the roof object and then

render, you will see that the omni light is reflected up to the ceiling and to the opposite wall.

As an experiment lets change the color of this Omni Light. Select the cube (do not edit the group but just select the whole group by clicking once anywhere on the cube). The cube group is highlighted. Go the Material Browser and pick green from the Colors option. Drag the paint bucket to the cube and drop the green color on the group. Now render the scene. You should have a green light glowing.

How to create an Omni Light

1. Create a SketchUp group from a shape.

2. Add a light value to the group. Make sure you have selected the group. Then go to Podium's UI and add a Light value to the selected group.

3. Add a color to the group (Optional). To get a colored light effect, add color to the group. You must add color to the group and not to the individual faces of the group.

You can tell if the group was assigned a color if you highlight the group, right click, pick on Entity Info. You should see an Entity Info. dialog box that says "Group" and a color in the color box. If you see no color in the Group Entity Info, the group was not assigned a color.

It's not essential that color is added to the group to get an omni light. If no color is added, the omni light will appear as a "white" light.

4. Render the scene.

**Creating a Spot Light effect.**

You can create a spot light effect with Omni light by completely enclosing an omni light group with geometry and then opening one portion of the enclosure so light can escape out in one direction.

For a simple example, create an omni light cube as described above. Make sure you assign a LIght value to the omni light. Then create a tube shape. Place the omni light group within the cube so that it is completely enclosed. Then open one end of the tube so that the omni light is completely enclosed except for one end. Render the scene and experiment with colors.

For a more detailed tutorial on Omni Light, see the Lighting Tutorial.

Settings
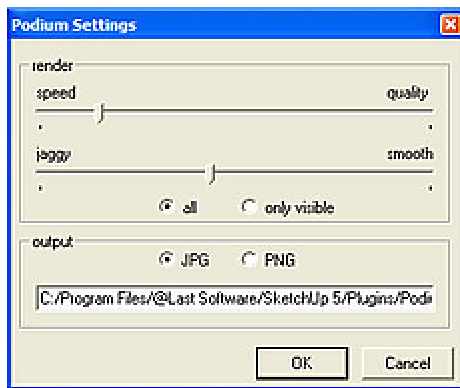
The Settings menu can help you increase or decrease the speed or quality of the render depending on what options you choose. The Settings menu also allows you to decide where you want to save your rendered image files and what file type to save images to. The settings user interface is accessed by clicking on the Arrow icon in Podium main user interface. The preceding menu will allow you to pick Settings which will bring up the Settings user interface.

The Settings interface is divided into two sections. The top Render section is for controlling the speed and smoothness of the rendered image. It also has a control for whether or not you want the entire SketchUp model included in the rendering/ ray tracing calculations or if you just want the scene that you are viewing on your screen to be calculated. The bottom section is for the output file.

Render Settings

Podium provides three types of render settings that will effect how fast or at what quality the rendering will be done.

Speed/ Quality slider bar controls how many ray tracing passes will be conducted during

the rendering. If you are looking for "quick and dirty" results, push the slider bar toward Speed.

Another slider bar controls the jaggy vs smoothness of the rendered image. An often used term for controlling how smooth or jaggy an image should look is called anti-aliasing. Generally rule of thumb for these two controls is you will get more speed and less quality the further you move the slider bars left. But speed and quality will also depend on the resolution size. You will also notice a considerable drop in the speed of rendering the further right you take the slider bars.

> *Note: A good practice is to first render the image at higher speeds, lower quality and smaller resolutions to examine things like reflection, lighting and the textures you are working with. Once you are happy with these things, render the image at higher resolutions and higher quality and smoothness settings.*

Another Render setting is the All and Only Visible radial buttons. When set to All, Podium's ray tracing program will calculate ray tracing on all surfaces in the SketchUp model whether they are displayed in the scene or not. When Only Visible is selected, the ray tracing program will only calculate ray tracing on the surfaces in the visible scene. HOWEVER, Only Visible will ignore groups and components so your render image will have none of your groups or components in it. Although it may seem logical to use the Only Visible when rendering large models, you must exploded all your groups and components in the scene before it is effective.

Note: A good practise may be to create a copy of your model, rename it and then open the renamed model and explode groups and components before using Only Visible.

Output Settings

You can use the output settings to save the rendered image files in a folder of your choice. You can also choose JPG or PNG from the Output options. The current version of Podium does not have a Browse button for the Output settings. You will need to key in the name of the folder you want Podium to save your image to.

Helpful tips and other features

1. **Clay rendering**
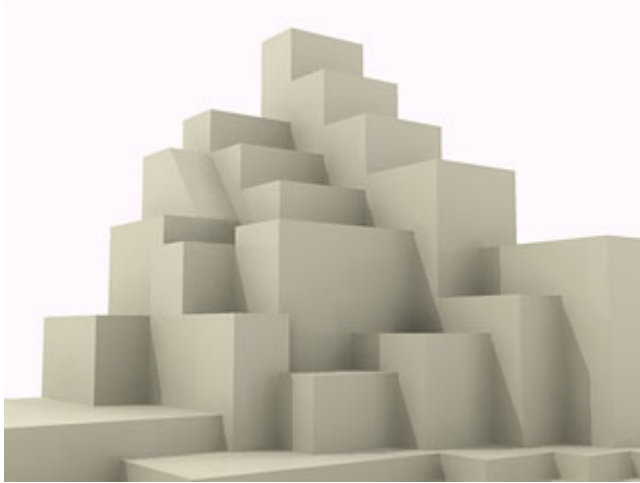
You can get clay rendering effect such as the image above by using the Color by Layer feature in SketchUp. Pick the Layer feature from SketchUp's Window pull-down menu. From the Layers menu, select the right Arrow icon.
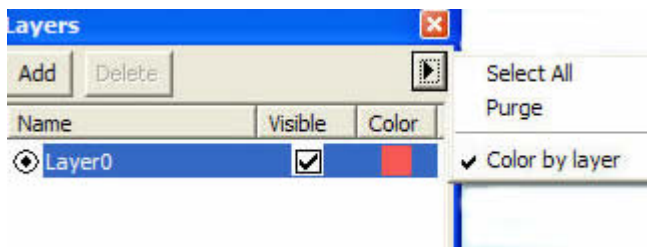
Then Render using Podium. You will obtain a clay rendering effect on material with opacity of 100.

2. **Why do some faces not get rendered in Podium. (Read more about this here - [Front Face](#))**

This often happens because, the back side of a SketchUp face is exposed. Podium only recognizes the normal side of a SketchUp face. If you are wondering why some faces will not show up in your render, it could be the "back side" of the face is exposed. Use Reverse Face command in SketchUp to expose the normal side.

3. **Render speed.**

You will notice that the more faces you have in your SketchUp model, the slower the speed for Podium to render it. The greater the render size, the slower the speed. Curved surfaces in SketchUp are comprised of many flat or planar faces and will take longer to render. We are working on some techniques to speed up the render process.

4. **Sky and Ground Background colors.**

You will notice unexpected results if you use the SketchUp Sky and Background colors. Please read about this in the FAQ section of this web site.

5. **Forum.**

The suplugins.com forum is a great place to find helpful tips, answers and a place to report bugs. Please use it as much as possible- http://www.suplugins.com

FAQ

Podium is the only plug-in to run natively within SketchUp, and the only one to have a true 'one click' photorealistic output. Although it is about as simple as you can expect photorealistic rendering to get, a number of repeated queries have arisen on the forum. There are a number of considerations which need to be addressed to get the most out of the software. These are not complicated, but are worth outlining.

This FAQ assumes that you know your way around SketchUp, and know how to display the information panels for things like Layers, Shadows and Materials. If you can not do these things, then Podium is probably a step too far for you at the moment, because you need to have a certain level of ability (although by no means an expert) to be productive with Podium.

Basics

First of all it is worth giving an overview of what Podium does, and an insight into how it works. First of all, the most obvious thing to mention is that Podium is integrated into SketchUp's normal workflow. That is, you set up your model geometry, lighting, textures, sun and site location in SketchUp in the normal way, and Podium uses this data for its renders without requiring any complex setup parameter and render settings. Currently there are just 2 controls and 6 settings to consider.

The most important setting is the render quality. When set at zero (i.e. configured entirely for speed) you get a faster result, but quality suffers. In v1.4 at least, anything other than a setting of around 10% for anything but the simplest models may take hours to render, even on well-specified machines. Fortunately the quality is good enough to use for commercial purposes.

(Note: Version 1.4.1 which is a free update, is considerably faster than 1.4. Customers are encouraged to download this and use it. You can download it from the user page on www.suplugins.com. You must register or login to access this user page.)

The other slider controls 'jagginess' (the technical term is 'antialising'), where jaggy edges are smoothed by refining and blurring the edges. This can dramatically improve the sharpness of images, and increasing its value and increases render time but (as of v1.4) not as dramatically as the quality/speed slider.

The remaining things to configure are the render size, output image type and output image destination. Render size varies depending on whether you have the full or evaluation version. The full version supports the following resolutions:- 1024x768, 2048x1536 and 3076x2034, whereas the evaluation version just offers 640x480 along with the 230x150 preview size. It is worth noting that you can currently use the evaluation version in exactly the same way as the full version, as the output images are not protected or watermarked. Obviously the larger images supported by the registered version will take longer to render, but in every other respect the 2 versions are identical.

Exterior Lighting / SketchUp sun

Podium understands SketchUp's standard sun position and colour, and will use it if you turn shadows on. If, in the rendered images, your sun appears to be coming from a different direction from SketchUp, turn all layers on, select all (Ctrl A) and then select copy. Open a new drawing. Set up the location again and paste the objects into the new file. This will also cure a number of other problems, including camera views which aren't displaying as they should.

Lighting levels are adjusted by adjusting the shadow lightness/darkness settings on the shadow dialog. Try adjusting both lightness and darkness settings and see what they do.

If you don't appear to have directional shadows, then they aren't turned on. You don't have to rely on SketchUp's sun, and in fact some of the nicest gallery images do not. You can create rectangular faces and make them light emitters.

If you don't appear to have directional shadows, then they aren't turned on. You don't have to rely on SketchUp's sun, and in fact some of the nicest gallery images do not. You can create rectangular faces and make them light emitters.

Environment and Background Colours

Podium can use SketchUp's sky and ground colours, but currently these tend to make exterior daytime renders somewhat dark, and night time renders just plain weird! Better results generally seem to be obtained by using a custom Background colour set to something like a sky blue for daytime or blackish for night time. This tends to produce better effects. You can see the the different results in the images below. The time, date and shadow darkness are the same, the only difference is the background colour and how it is set.
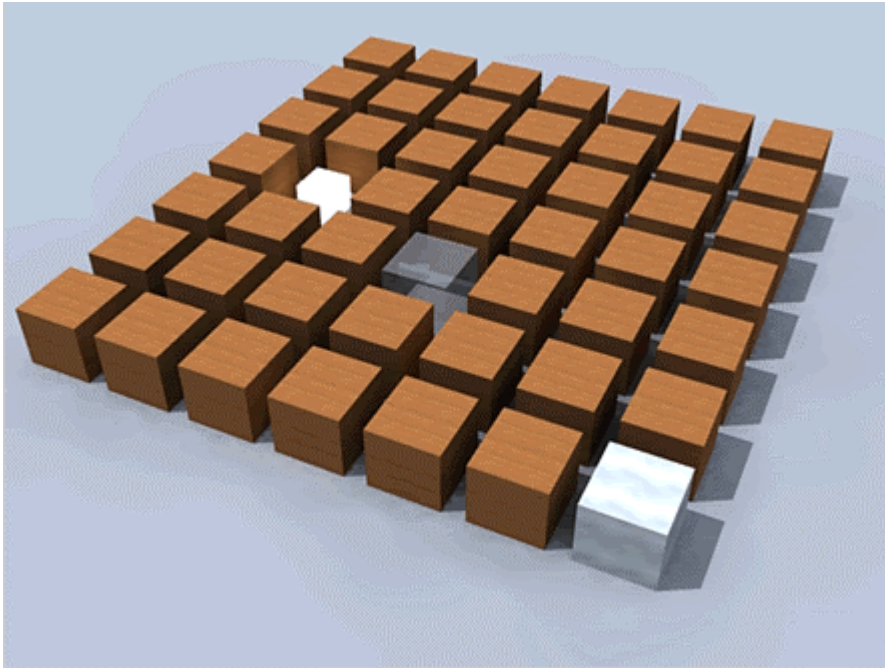
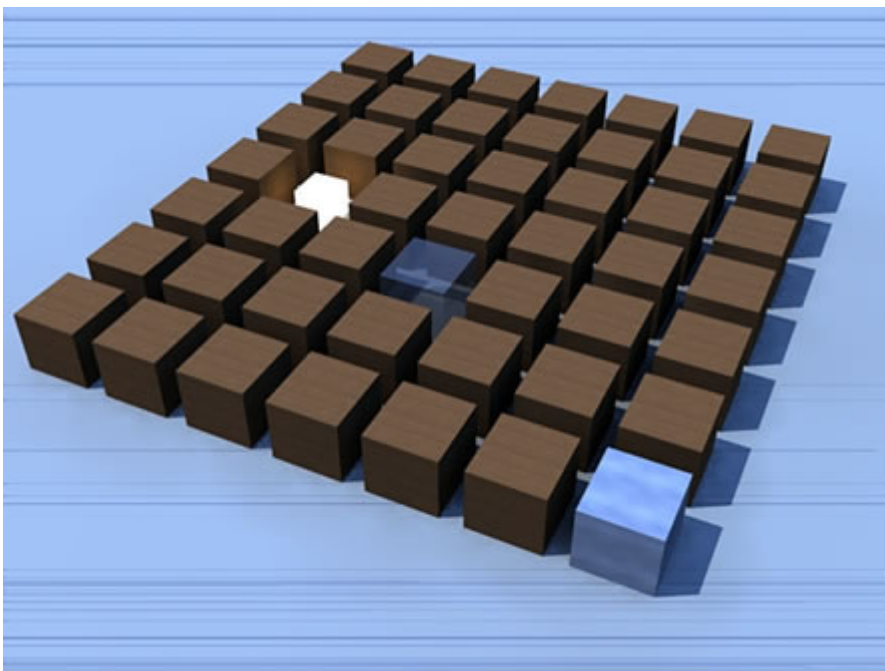Fig.1 - A daytime render using the SketchUp sun with the background colour set to pale blue.

Fig.2 - A daytime render using the SketchUp sun and sky and ground colours. Note the image noise.

You can also apply a background image to either a curved or flat vertical plane behind your image. But be careful to position it so that shadows are not cast directly onto it.

Other light sources

When you want to create a light source, there are two basic types; glowing geometry and more complex simulations of real world lighting. Podium supports both but currently in a very simple way. First of all, if you want to fake daylight through windows or show light fittings during the day that glow, then you just create your geometry, set the colour and light strength and you're done. This is very simplistic in that it makes the surface

glow with the colour that has been assigned to it, but doesn't actually project/distribute light in the way that you might expect. The image below shows the effect of this kind of lighting setup. The first image shows how things are modelled in SketchUp. There is the geometry for bollard fitting, which includes a glass lens around the light source, and a simple rectangle representing the bulb. The light emitted from the bulb makes the glass lens glow.
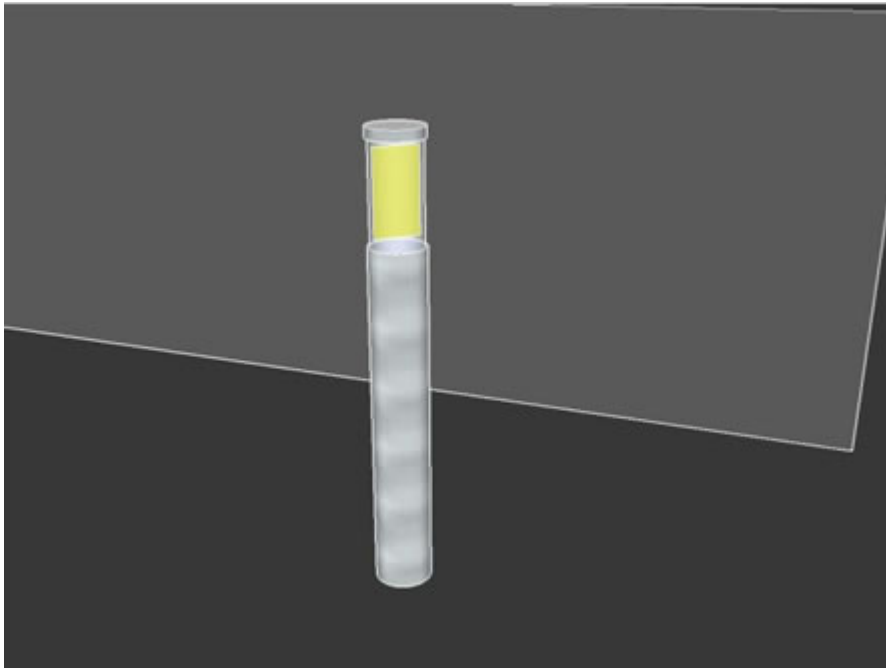

Fig.3 - A simple illuminated bollard model in SketchUp.
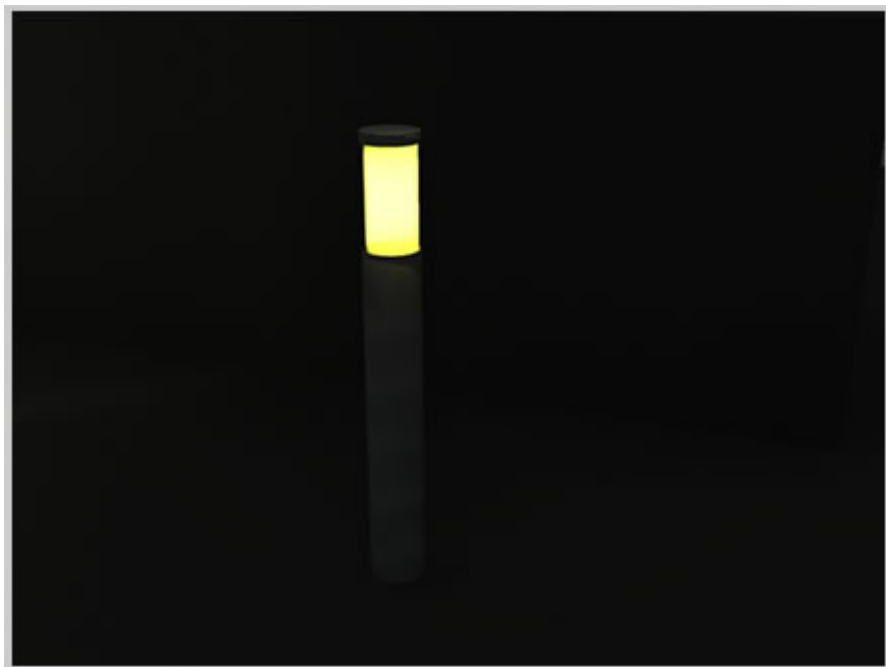
Fig.4 - The result rendered in Podium.

When you want the effect of a light fitting with a spread of light however things are a bit more complex. You have 2 elements to consider, a light source and its spread of light. Podium's render engine isn't advanced

enough (yet) for you to define some geometry as a certain type of light source with a certain power, and then create a reasonably accurate pool of light from this information. Instead you have to create some geometry which describes the shape of the pool of light created. If you want to see something which depicts the actual light source (in effect, the 'bulb'), you have to add some geometry for this too.

For the spread of light you have to use what Podium calls 'omni lights'. This means that you model the shape of the pool of light, make it a group, and then assign colour and light strength. Any group with geometry which is set to be light emitting (with the Light slider) will not display the geometry, but display as distributed light. So, if you want to create a light fitting in Podium, you first start by modelling your light fitting. Then you create the bit of the light that glows. The shape of this bulb or 'glowing bit' is probably better modelled as just a simple rectangular shape to speed rendering. You have to assign the colour of the light which is a straightforward matter of setting the colour in SketchUp, and the amount of light emitted, which is done wth the Light slider. Next you have to model the shape of the spread of light. As mentioned above, you create your shape, make it a group, and then set the colour and light strength. For a point light, this spread ought to be a sphere. For an uplighter or downlighter you could choose to model a cone shape instead. It isn't strictly correct, but it sort of simulates the beam effect you see in the rain or fog.

In the images below, you can see how this effect is modelled in SketchUp, and what the rendered result looks like.

Sphere representing spread of light – this must be a group!

Light source – plain rectangle set as light emitter
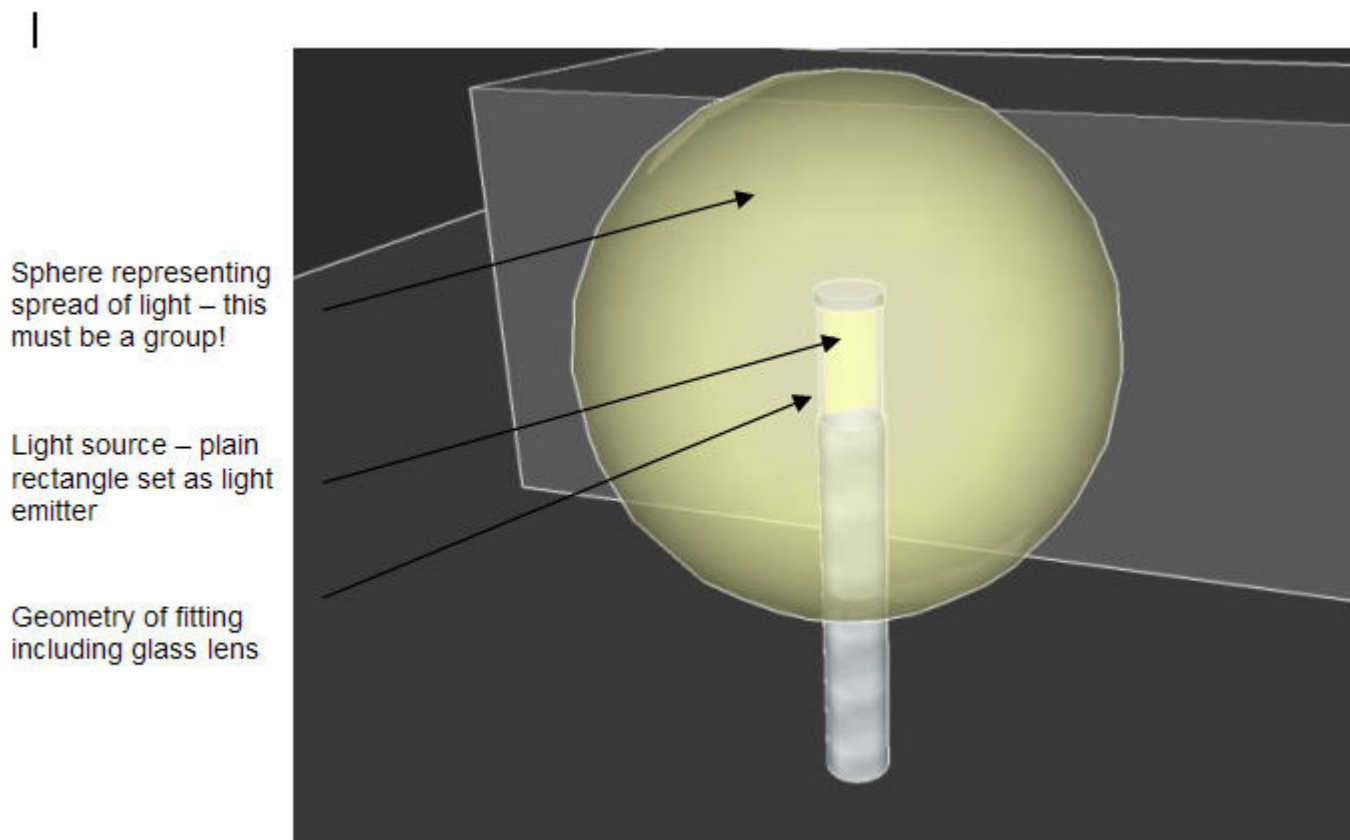
Geometry of fitting including glass lens

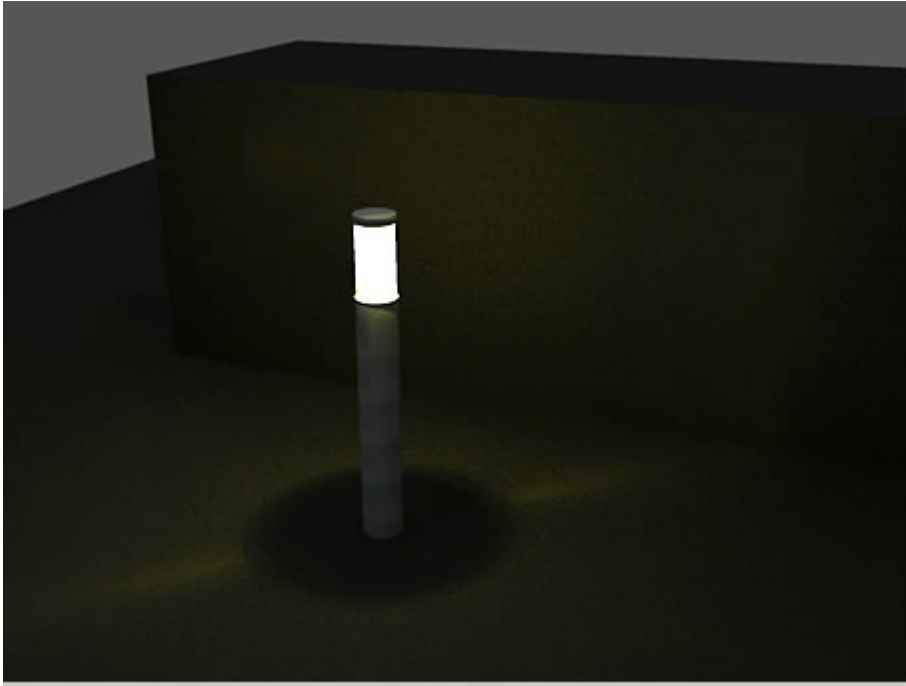Fig.5 - The same bollard, but with the grouped geometry representing the light spread.

Fig.6 - The result rendered in Podium.

Figure 7 below shows the difference between the two different lighting effects. Both bollards are identical apart from the lighting. The left hand image shows the effect of the more complex lighting method.
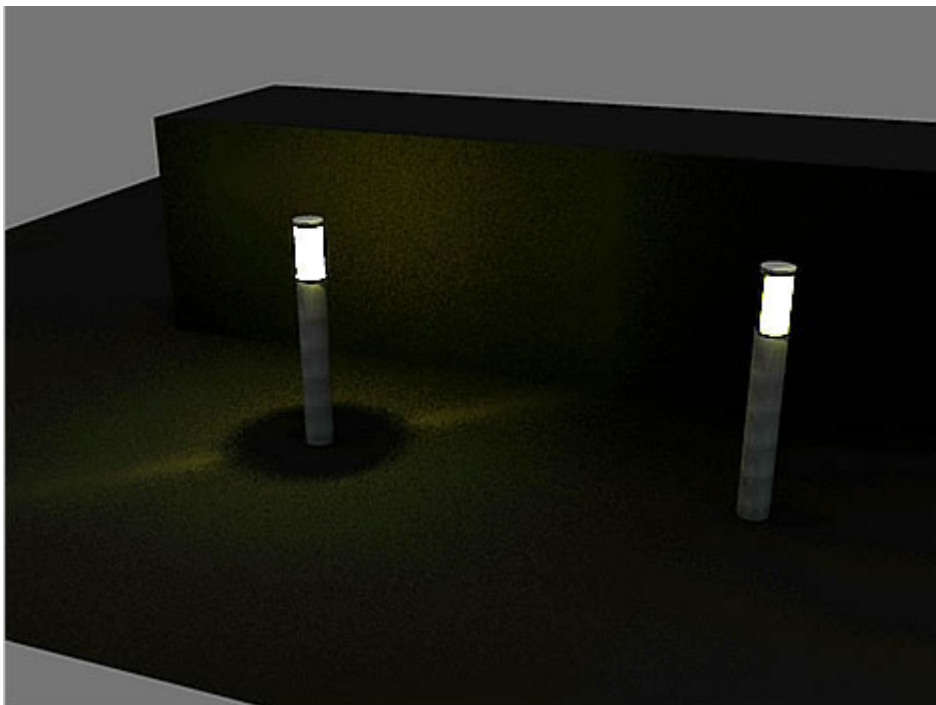

Fig.7 - A direct comparison between the two lighting methods.

At this point it is probably worth noting that a little layer organisation in SketchUp makes things much easier. In the above examples, the bollards are modelled on one layer, with the glass, light sources and light spread sphere all on separate layers. This makes it easier to isolate individual pieces of geometry by turning layers off

so that you can adjust the glow of the light source easily. Of course you can hide and unhide your geometry which is fine if you have just a couple of fittings. With quite a few fittings though, turning a layer off and on is much quicker.

Finally, at risk of confusing people, you can create a component of the light geometry, source and spread. Putting the grouped geometry representing the light spread inside a component does not affect the way it renders.

Textures and Materials

There are only a few things to bear in mind when assigning textures for use with Podium.

1. Render Modes

First of all, there are two rendering modes, by layer or by object. Podium supports "white card model" type renders as well as fully textured renders.

If you choose materials by layer option from the layer dialog, Podium will render all faces with the default material colour, but apply its subtle global illumination and shadow effects. Rather usefully, even in this render mode, Podium recognises which materials you want to be transparent, so that if in the colour by object mode, an object has been set as transparent, even in render by layer mode, these objects will still appear transparent. This is useful for massing and shading studies. As with transparency, lights tend to work pretty much the same in 'colour by layer' mode, which is also quite helpful.

If you compare Figure 8 below with figure 1 above you can see the difference between the colour by layer and colour by object modes.
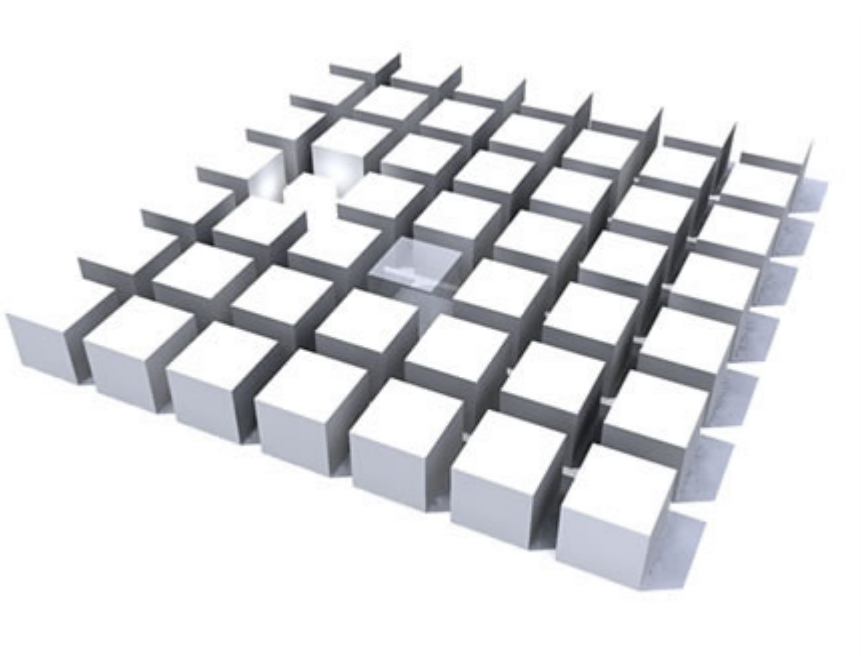

Fig.9 - An identical scene to Figure 1 but rendered with colour by layer.

In order for objects to be rendered properly, first of all it is better to assign materials directly to all faces, instead of assigning them just to the block or component itself as you do for light spread. This is easy enough; you select the group or component, double click to edit, then triple click to select all sub-objects. You can then just assign your material as normal.

2. Face normals

Secondly, face normals should be orientated correctly. For people who aren't familiar with the term, some 3D programs (like SketchUp) have geometry which has a front face and a back face. The front face is known as the 'normal'. If you have geometry where the 'back' face points outward, under some circumstances you can have problems rendering in that the texture won't render. One place this can happen is window openings. There is an easy fix though. Select the object in question. Right click. Choose 'Reverse Faces' and reapply the texture.

Sometimes you will find that your render 'just works' and you don't need to do this. But if you are having trouble with objects which are showing textures in SketchUp but not in Podium, checking the two things above will almost certainly cure the problem.

Reflectivity is assigned on a face by face basis. Podium deliberately prevents you from making lots of objects reflective because it can increase render time dramatically. If you compare Figure 9 below with Figure 1 above, there is not that much difference in the appearance, but render time has increased from just under 3 minutes to over 9 minutes. The difference between the two is that the ground plane and all boxes have reflective surfaces in the second image.
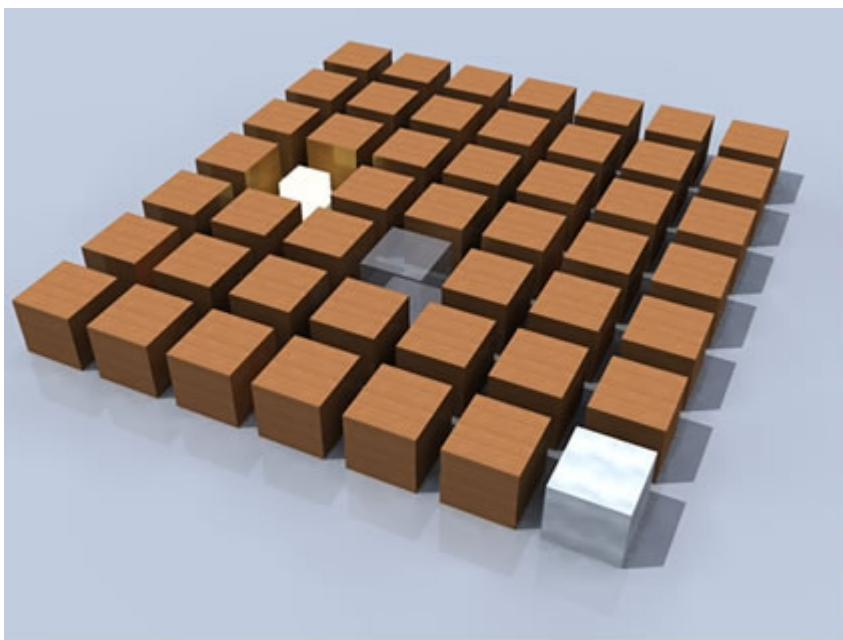

Fig.9 - An identical scene to Figure 1 but with reflectivity assigned to all surfaces.

For most purposes, you probably won't need to set the reflection value to more than 15 for surfaces like glass or water.

Render Speed

Apart from the obvious means of adjusting the quality and jaggy sliders, there are numerous other means of increasing render speed. Although many of these are also obvious, they are often overlooked. For example, the key to speed is simplicity. Only model what you need in your scene. You can organise different parts of your model by layer, or just simply hide them.

It is always worth purging files of unused textures and components. This in itself won't necessarily speed up Podium, but you may well find that you identify extra elements in your model that you don't need that are hogging memory that would be better used by Podium

There is no doubt that if you want the very best results, the quality of modelling is critical, and the more detail the better, but as we aren't all working for Pixar, and won't be seeing our work on a massive screen in high definition, for almost all of us, this won't be an issue!

In your search for simplicity, it is worth remembering that games designers tend to simplify geometry and add detail with texture maps. For things like paving and boarding, if you are modelling each board because you think you'll get a more accurate effect, you may well be mistaken. A good texture map will be better probably 95% of the time, and much quicker to render.

Next, try to simplify any components you are using. For example do you really need rounded edges, or cylinders with 24 arc segments? For elements in the background, you can often use extruded rectangles instead of extruded circles. This can reduce polygon count in components by a factor of 500%!

Next you need to consider reflectivity and lighting. As mentioned earlier, more reflective surfaces can really increase rendering time. The same is true with lights. The more you have in your scene, the longer it will take to render. As mentioned previously, the secret to speed is simplicity. The more surface effects you use, the longer your scene will take to render because the CPU has to calculate these surface effects.

The reverse face syndrome - why can't Podium render?

SketchUp faces are either front side or back side. Podium will not render the back side of a face.

One stumbling block that happens to all of us when rendering with Podium has to do with the front and back side of SketchUp faces. For people who aren't familiar with the term, most 3D polygonal surface modeling

programs (like SketchUp) have geometry which has a front face and a back face. The front face is known as the 'normal'. Podium can only render the front face or the 'normal'. If you have geometry where the back face points outward, you will have problems rendering. It will appear as if Podium is ignoring certain faces. Chances are the faces that are not getting rendered are back side faces.

This is easy to fix in SketchUp. Simply right click on the suspect face and pick "Reverse Face" and then apply color or texture to it.

But if you have already applied textures, how can you tell which face is "normal' or front side and which is back side. There are a couple of ways to find out.


SketchUp 6 has a nice tool that will turn off textures and display only the monochrome color of all the faces in the model. In SketchUp the normal or front side of a face is a light tan color and the back side is a darker, usually blue color. Using the monochrome icon in the Face Style tool bar, you can see which face is blue or back side. When you find the blue or back side faces, right click on them and use the Reverse Face option. You will have to reapply the color or texture to front side face.
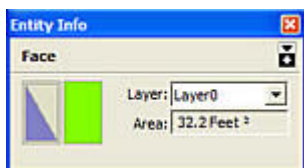

Another tool is the Entity Info. option. You can right click on any face and pick Entity Info. This will bring up a dialog box showing you two face boxes. The left box symbolizes the front side face. The right box is the back side face. If your textures are on the right box, then you need to apply textures on the left box.
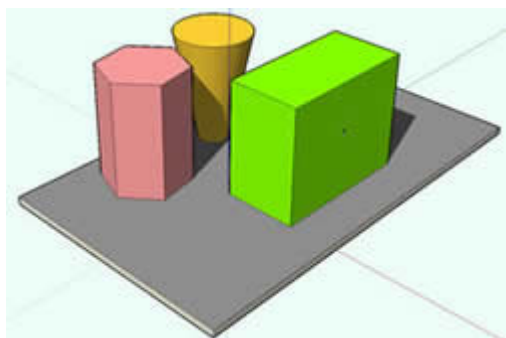

Here is a quick example. This very simple model has colors applied to faces. Some reflection has been applied as well. Yet when it is rendered it looks like this.
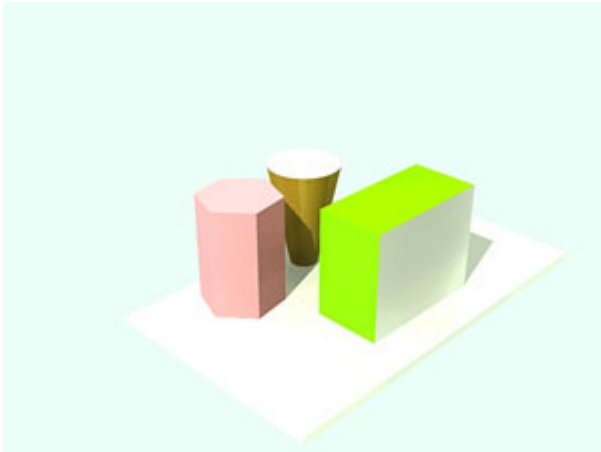
By using the Monochrome icon in the Face Style tool bar, we can see which faces are blue or back side.
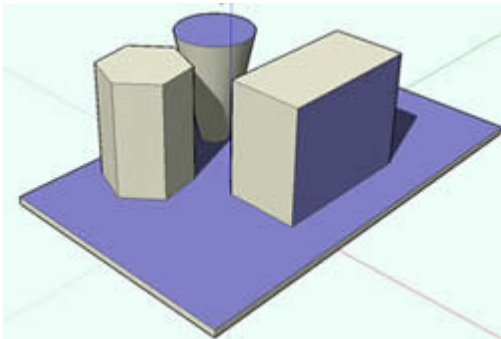
We reverse each of these back side faces, reapply the colors to the front side faces and render again. Much better.
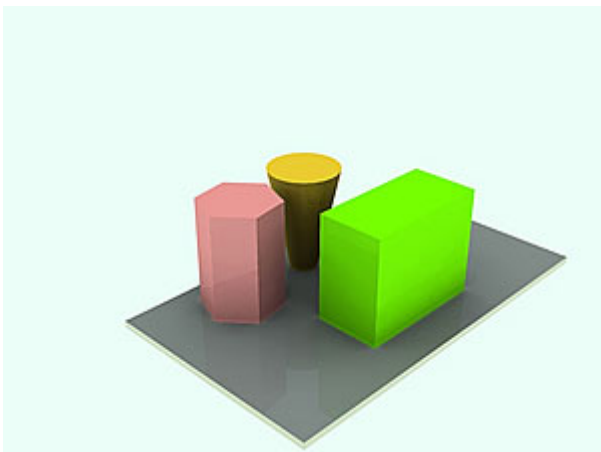
Podium Lighting Tutorial

A Step by Step Guide to creating Light Fittings and Setting Up Lights.

One of the subjects that attracts the most comments and questions is lighting. This tutorial deals specifically with artificial lighting and will explain how lights work, how to use them efficiently, and how to create your own fittings.

Before we start, we'll assume that you are familiar with the Podium dialog box, and what the controls do. I have set the jaggy and quality settings to around 60%. This gives a reasonable balance between speed and quality. I would suggest setting you use these settings for the moment.

There are 2 basic types of lights in Podium. The first and simplest type is a light emitting material usually called a LEM. This is simply a surface which emits light evenly across its area.

The advantage with this type of light is that it is easy to create. This is illustrated in figure 1.
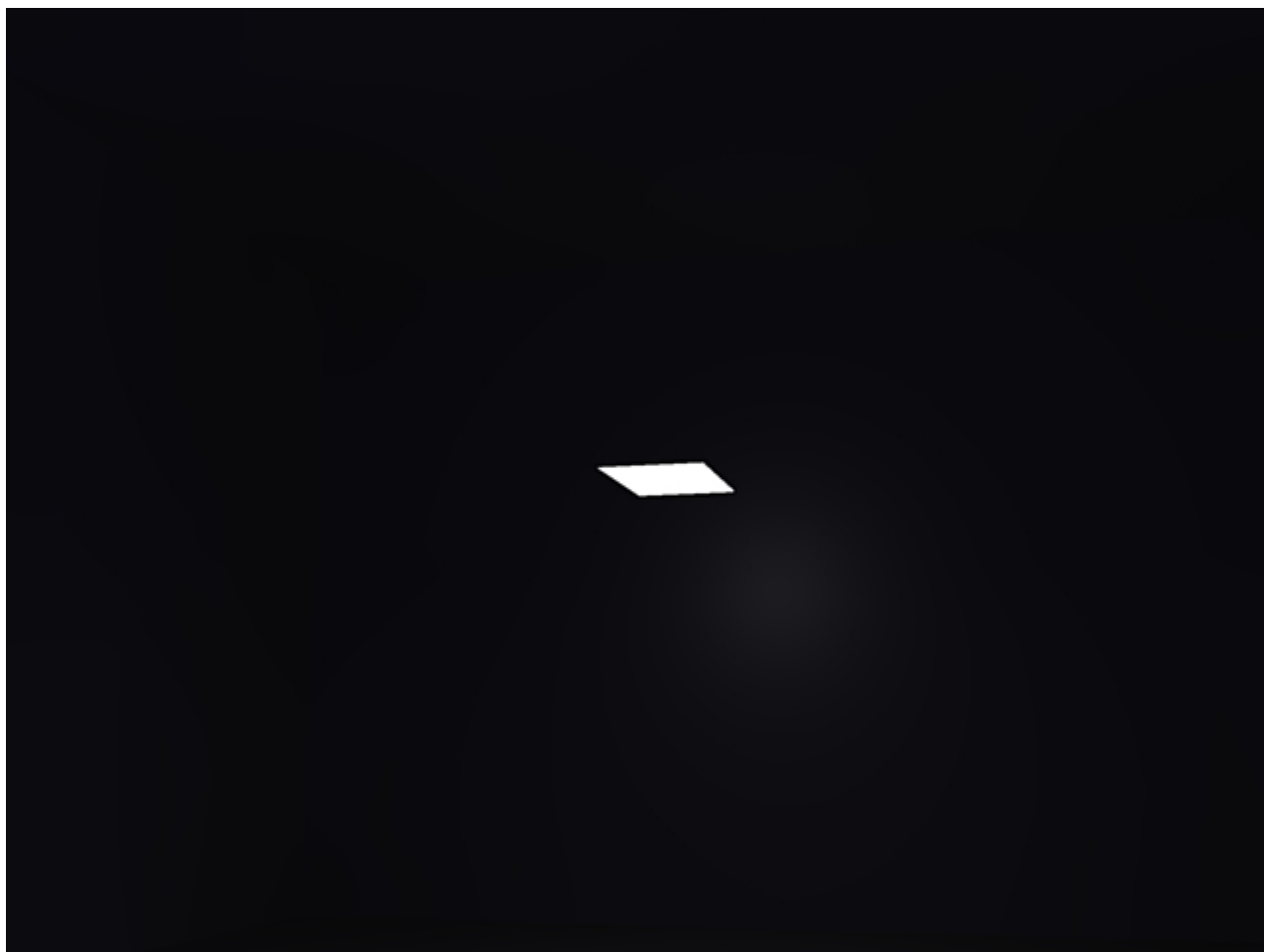

Figure 1 - Basic rectangular LEM

We have a created a simple rectangular surface in the centre of the scene. I have assigned a light strength of 20 to this surface by using the Podium slider and rendered the scene. You can try this yourself by downloading the test scene.

You can create any shape of light you want. LEMs are particularly good for creating linear lighting effects like pelmet lighting.

In Figure 2 below, I have taken the ceiling surface, offset and extruded it to create the lowered ceiling. I have then assigned a light strength to the ceiling plane. The result is indicated in figure 3.
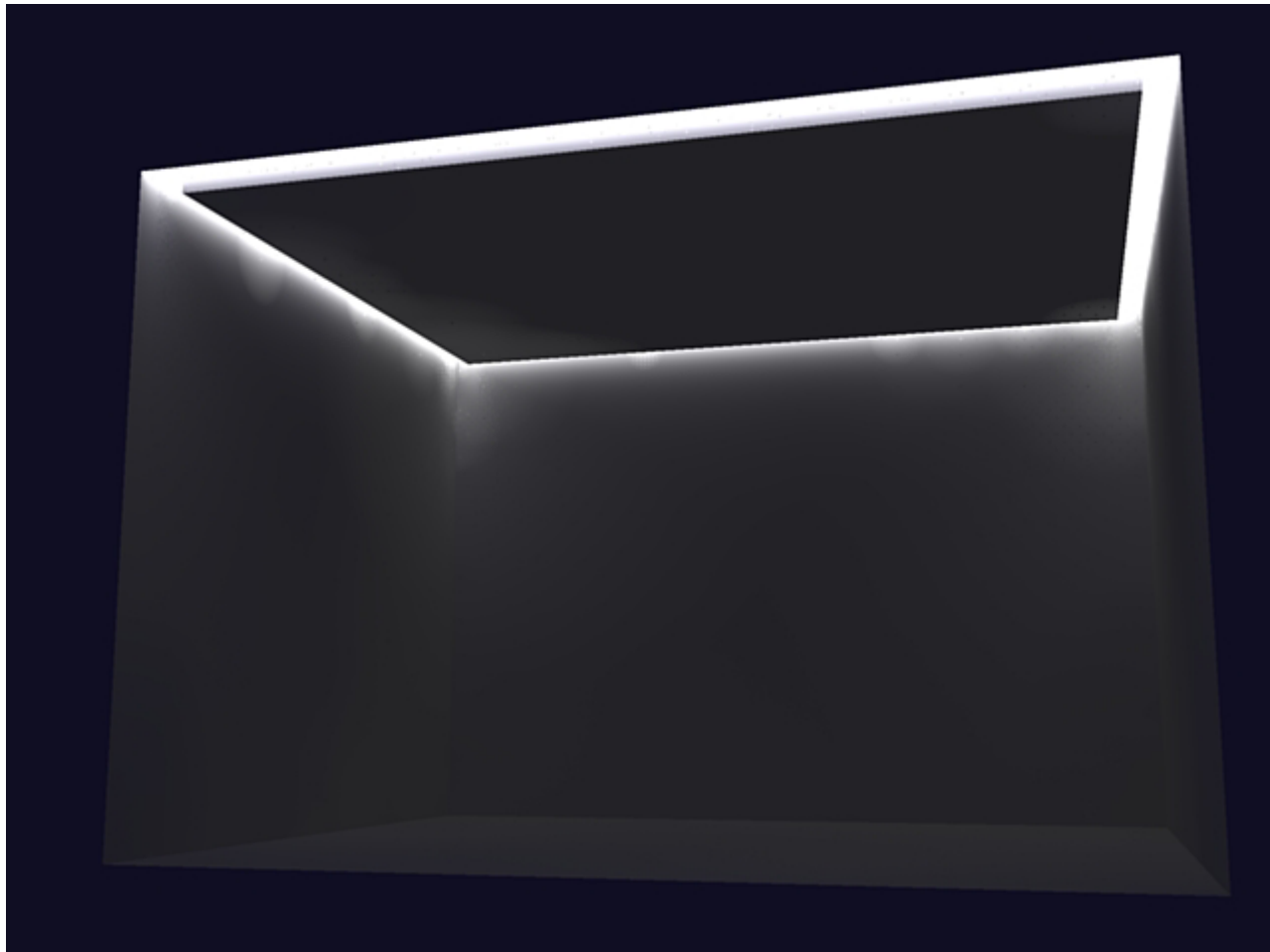

Figure 2 - Using an LEM to create a linear 'pelmet' type light

So far, everything has been very straightforward. Next we'll make the light a colour. Create a new material in the materials editor, and paint the light-emitting ceiling with it. I have chosen a nice blue colour which is illustrated in figure 3.
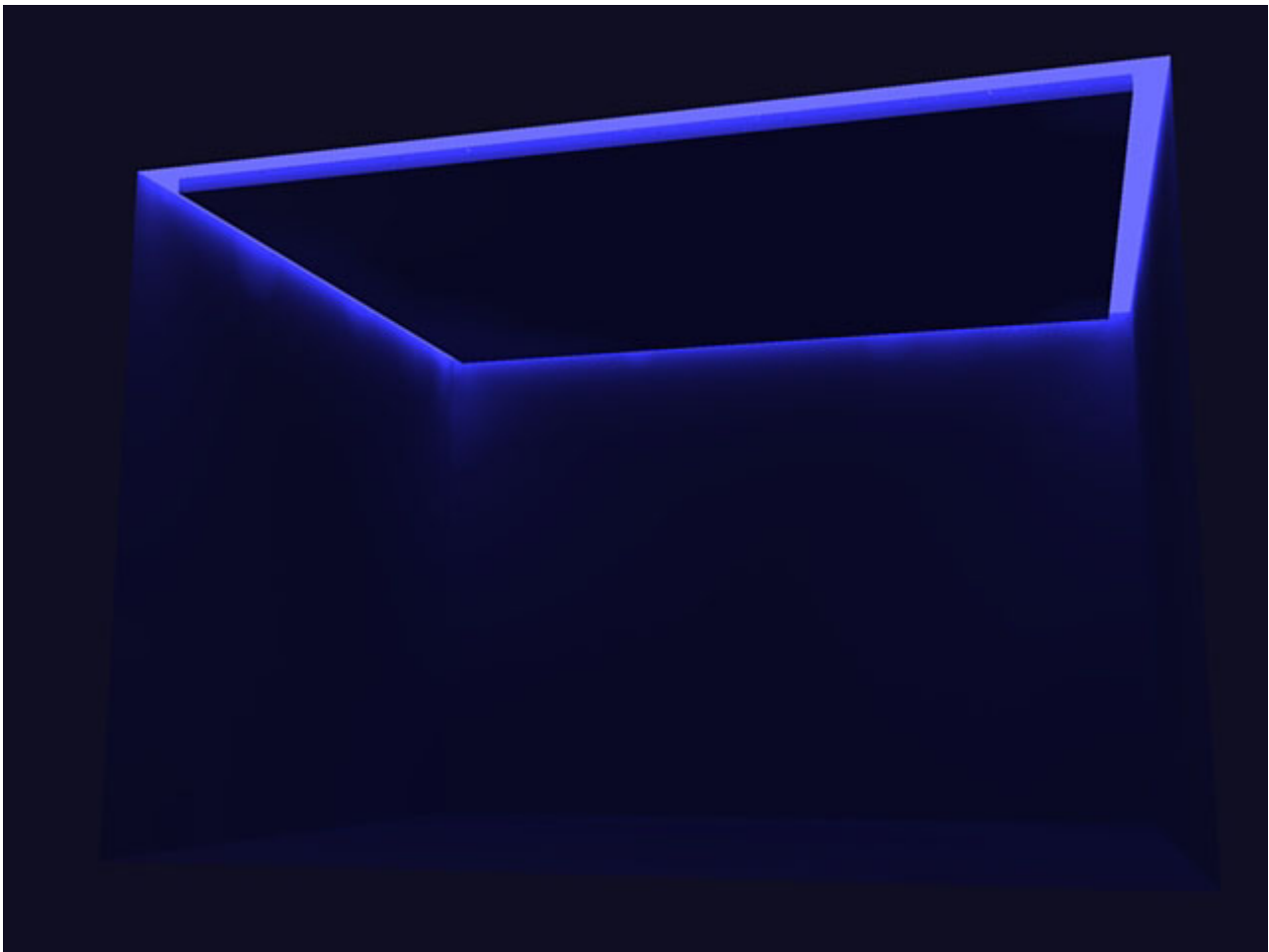
Figure 3 - An example of coloured lighting

By now you may have noticed that the render takes a long time, and this is with just a plain rectangular room with nothing in it! This illustrates the big drawback of LEMs. They render very slowly indeed, and currently we are only using 60% quality!   You will probably also wonder what the blotches are around the corners where the walls join the ceiling. These are there because quality is only set at 60%, and should disappear/reduce at the maximum setting, although render time will increase noticeably.

It should be noted that square LEMs render more quickly than other shapes. This is just the way the renderer is coded.

So, easy to set up, but hardly convenient for fast and efficient renders. This is where omni lights are useful. The term 'omni light' is used to describe a light which shines evenly in all directions and comes from the Latin omni meaning 'all'. Some render programs call this a 'point' light. These aren't 'added' or 'inserted', but are created by making a group and assigning a light strength to the group.

Let's go back to the Tutorial scene and create one. The easiest way of doing this is to simply make a group of the square LEM. Figure 4 shows the Tutorial Scene in SketchUp with a small square in the centre of the scene. I have assigned light strength of 6 to the group. Note that you can change the colour of omni lights the same
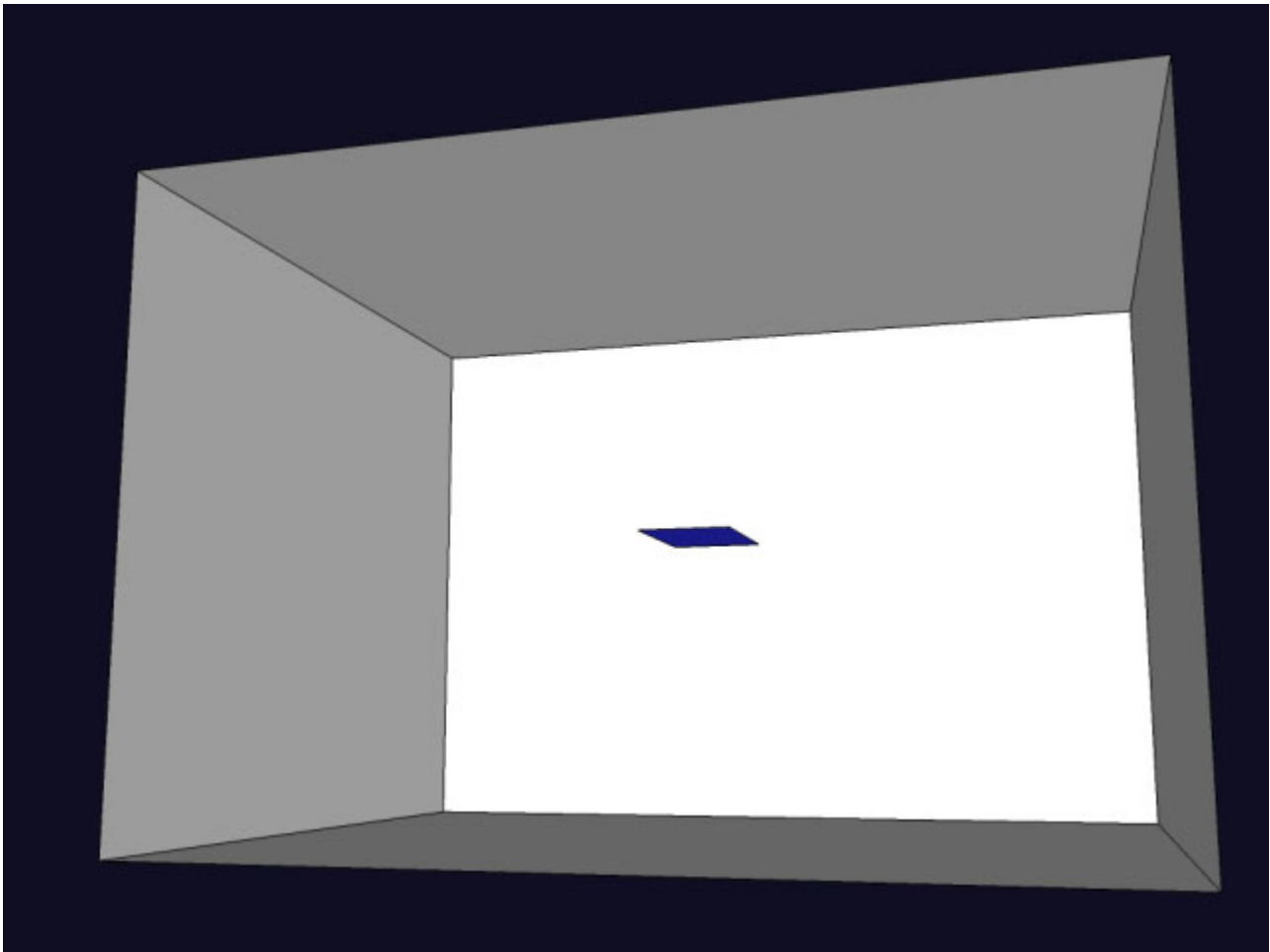
way as you assign colour to LEMs.

Figure 4 - Setup of omni light group

There are a number of important things to bear in mind here. We'll start with the most basic considerations.

1. It is the assigning of the light strength to the group not the actual geometry that creates an omni light.

2. The shape of the group has no effect at all on the light. The reason we create geometry is to position the light in the model.

3. The size of the light geometry multiplies the light strength. If you want a very faint light, you need to use really tiny geometry to create the omni group.

4. The light originates from the centre of the group, and the intensity is greatest there.

5. Omni lights generally don't need to be as powerful as LEMs to emit the same amount of light.

6. To make an omni light coloured, as with light strength, you assign the colour to the group, not the surface geometry. In fact if you try to assign a bright yellow colour the the faces in the omni light, and a blue colour to the group, the light will render blue. To make it render yellow, you have to make the group yellow. To check your omni colour, select the group and look at the colour in the entity info box.

Figure 5 shows how this scene renders.

Figure 5 - Basic omni light, strength 6, located in the centre of the room

You can see that there is no geometry visible at all. If you have created the omni light as described, this is what you should see. Even if you have a light strength assigned to the geometry as well, just assigning light strength to the group will make the geometry invisible and turn it into an omni light. Straight away you should be able to see how quickly this type of light renders compared with the original LEM.

Notice that there are faint pools of light on the walls, floor and ceiling. So far, so good. To increase lighting levels we can increase the size of the group. Figures 6 and 7 show the effect of just making the group larger.
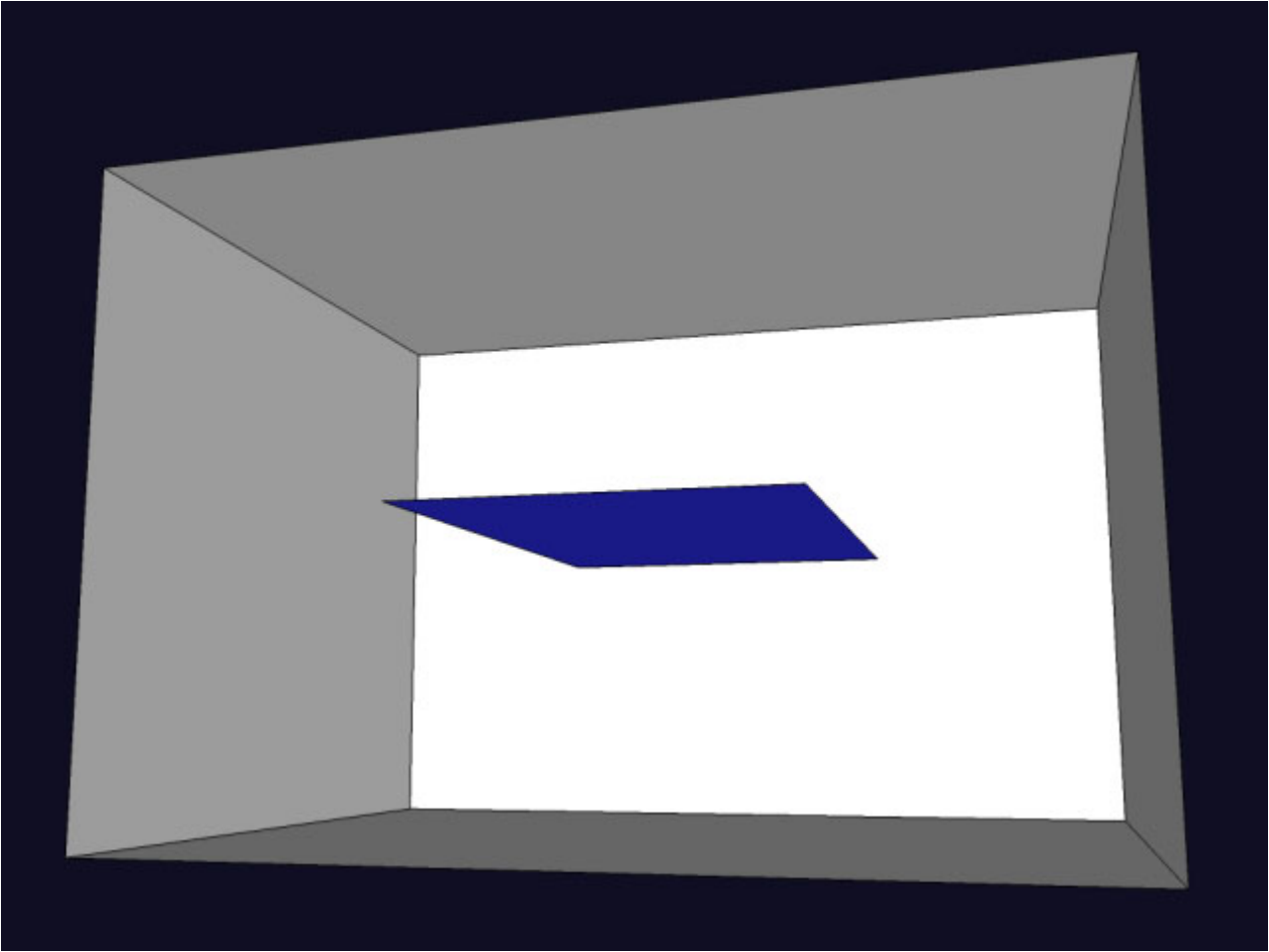
Figure 6 - Basic omni light enlarged, strength 6, located in the centre of the room

Figure 7 - Enlarged strength 6 omni light

Let's go into a bit more detail now. So far these lights have been in the very centre of the room. Let's go back to the original omni light size, move it towards the rear wall and see what happens. Figure 8 shows the omni light moved to within 200mm (8") of the rear wall, and Figure 9 shows the effect of this when rendered.
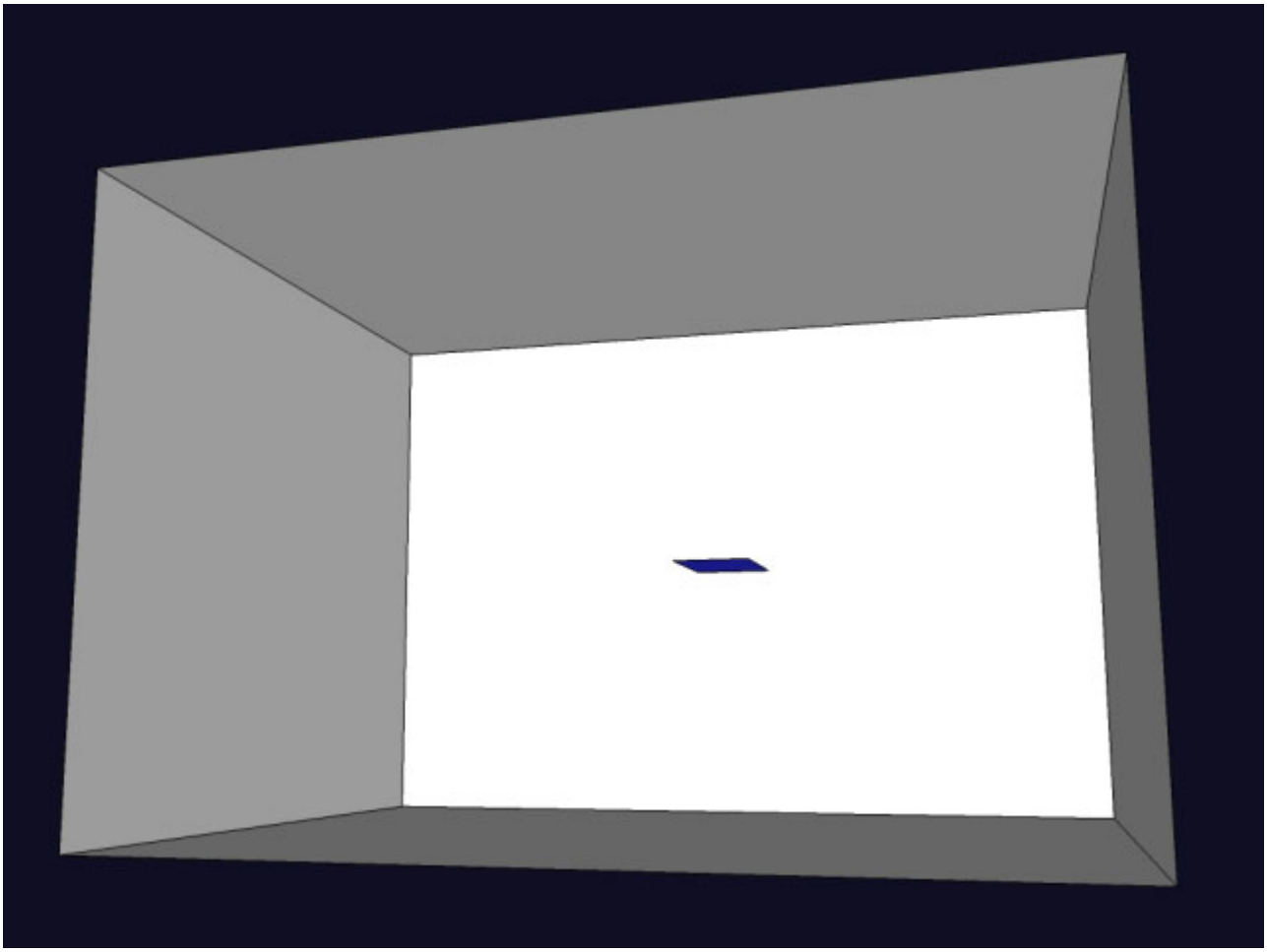
Figure 8 - Basic omni light from figure 3, moved towards the rear wall of the room
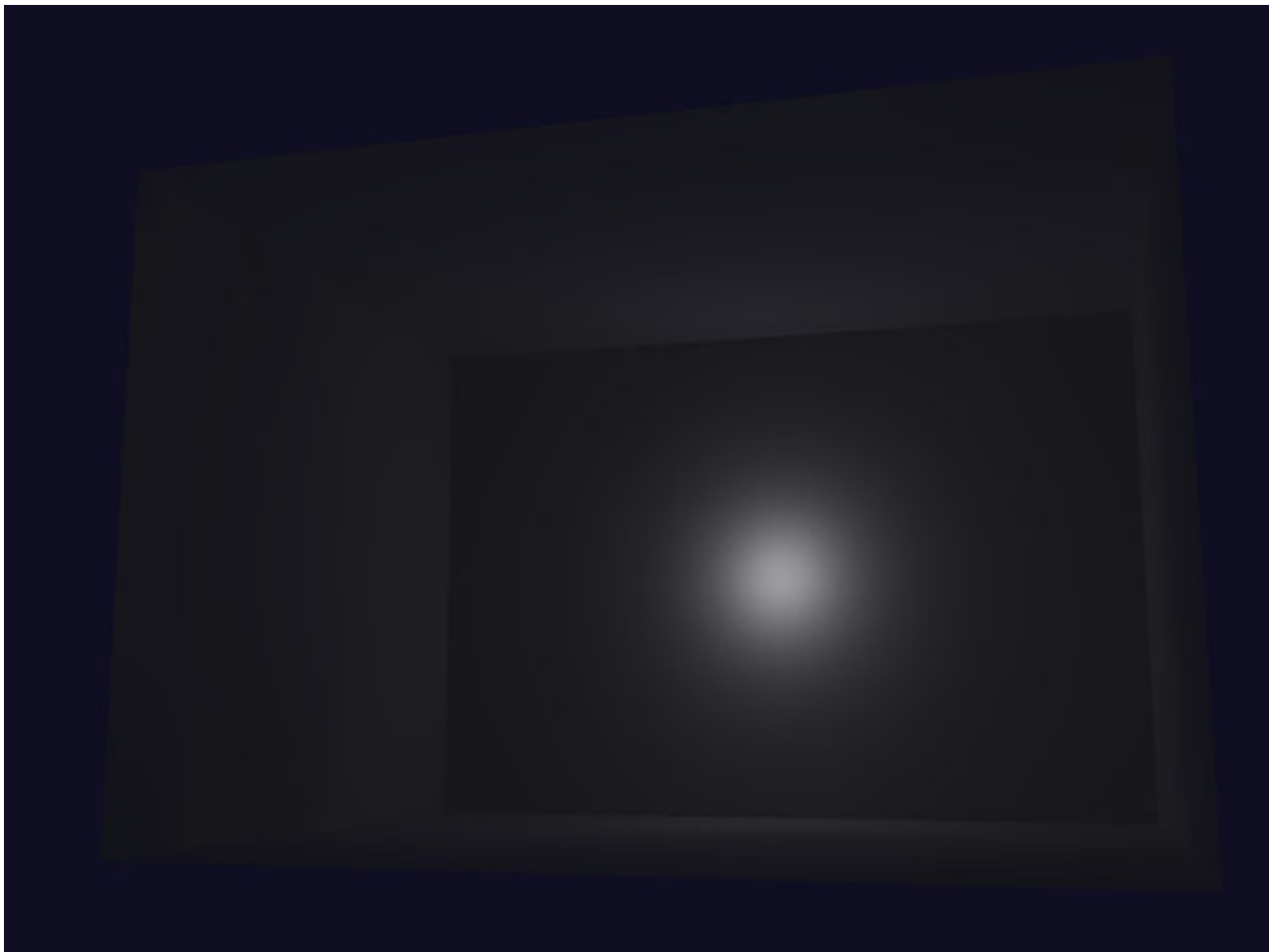
Figure 9 - Rendered view of the scene above

Now there is a noticeable bright pool of light on the closest surface. Let's try to minimize this a little by scaling the omni down and see exactly how much control we can get over the amount of light emitted.

We'll scale down the omni group even more and make it really tiny, and adjust the strength slider ever so slightly above 0. Although the strength may still read as 0 the light will still have an actual value. Figure 10 shows that the omni is so small you can't even see it in the screen shot, and figure 11 shows the effect when rendered.
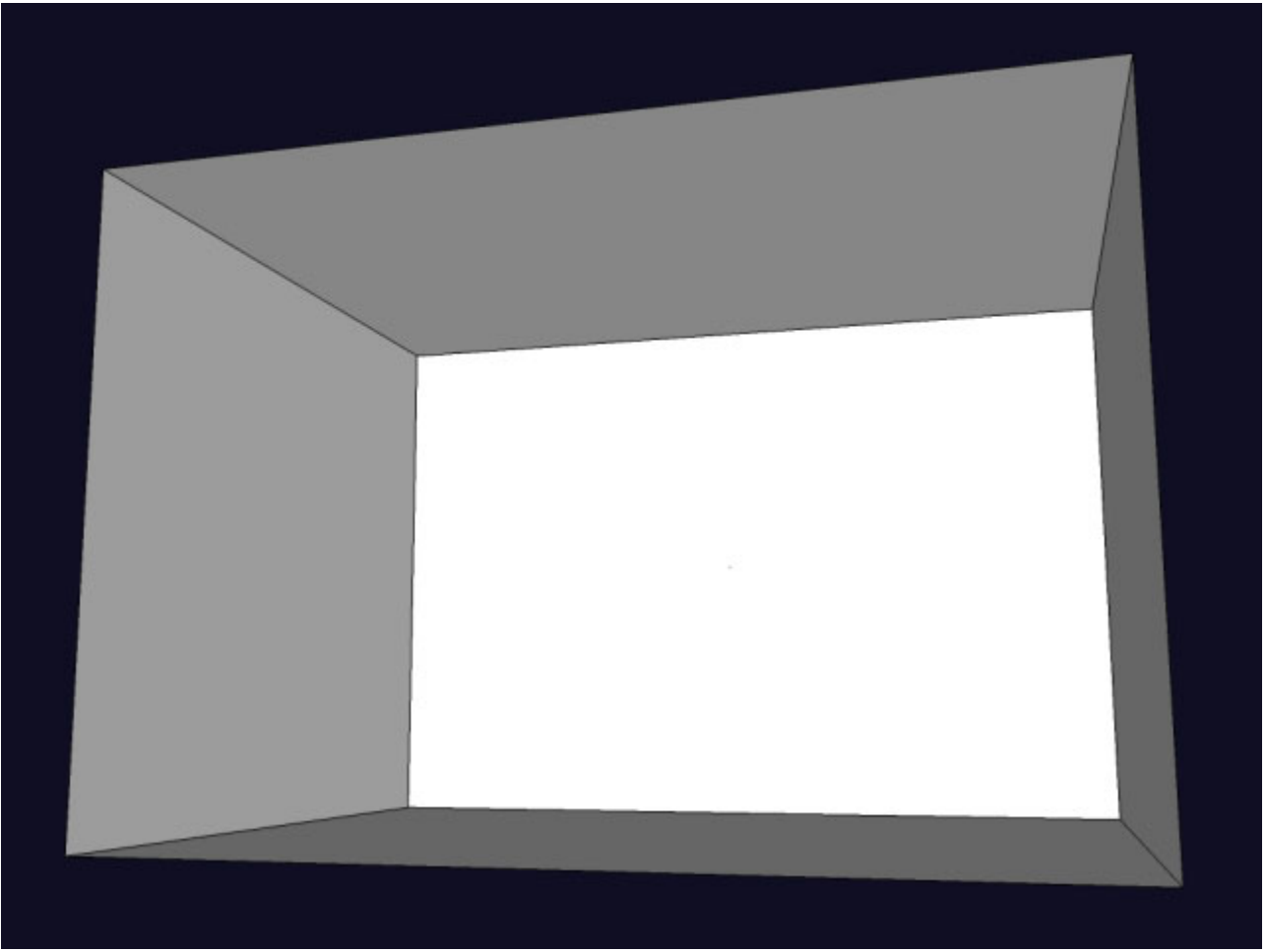
Figure 10 - Omni light above reduced in scale so as to be invisible unless zoomed in close
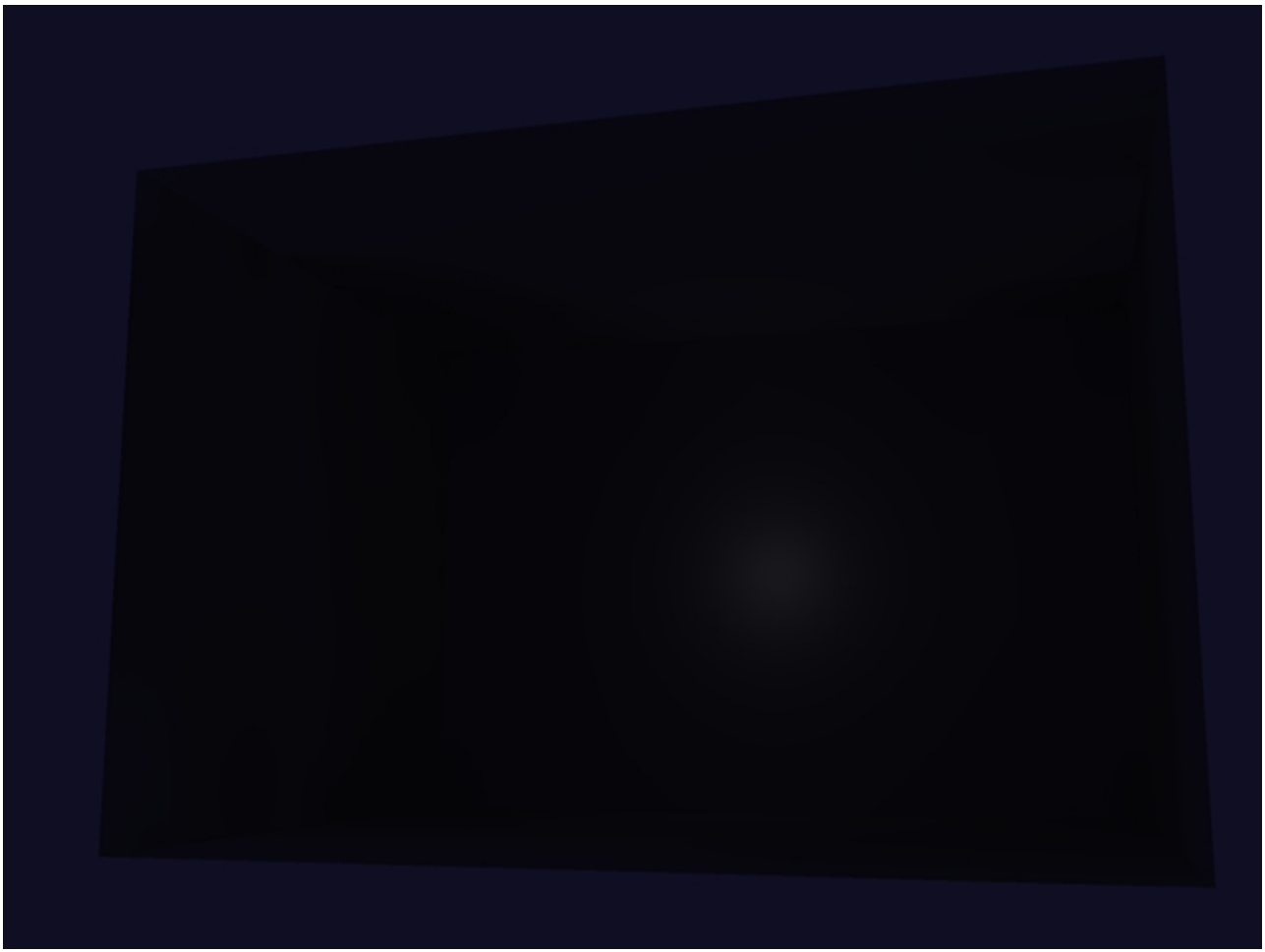
Figure 11 - Render of the above scene

Okay, now we know exactly how much control we have, we can start to use this information to make an actual light fitting. Let's start with a simple ceiling-mounted pendant light. You can download a simple tutorial light I have already modeled, shown in Figure 12 or model your own and follow the procedure outlined below to set it

up.

Figure 12 - Basic ceiling-mounted suspended fitting

We need to insert an omni light source into the fitting now. Figure 13 shows I have inserted a small pale yellow omni, which I have set as strength 6.
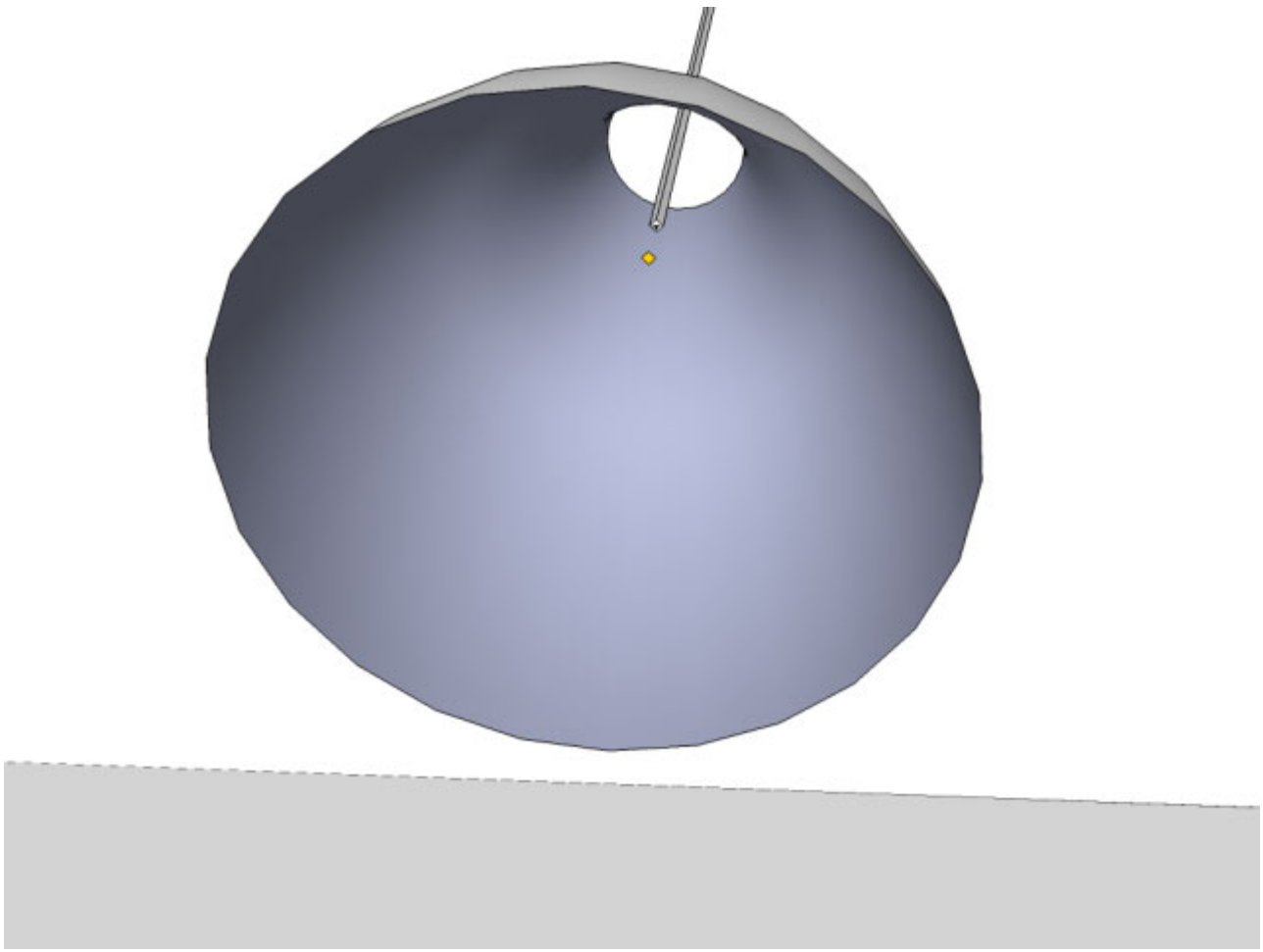
Figure 13 - Above fitting showing size & colour of omni group

We'll use the original tutorial scene again and insert the fitting into it to render. This is shown in Figure 14.

Figure 14 - Render of the above fitting at strength 6, inserted into the tutorial room scene.

This obviously isn't strong enough, so I have increased strength to 25 and re-rendered. This is shown in figure 15. (Hint - you can use SketchUp's Outliner to quickly locate the Omni group within the light fixture.)

Figure 15 - Render of the above fitting at strength 25

That looks pretty good, but it would look even better with a scalloped effect on the wall. This is actually really easy. As you saw in Figure 13 the omni light is positioned so that it is quite deep within the fitting. This is one of the keys to getting a good scalloped effect. The second thing is to make the body of the fitting reflective so that the shape acts as a reflector. Finally, in order to see the effect, you really need a light fitting to cast light onto a surface which is fairly close so we'll move the fitting closer to the wall. Figure 16 shows how I have modified the size and position of the omni figure 17 shows how it renders.

Figure 16 - The fitting showing an enlarged and repositioned omni

Figure 17 - Rendered view of the modified fitting showing the scalloped pattern on the wall

Just as in real life, the shape of the scalloped effect depends on the strength of the light, shape of the fitting, how deep within the fitting the light source is positioned, and how close to a wall the light is. You will need to experiment with this by trial and error until you get the effect you want. The same principle applies to all types of lighting, including recessed ceiling lights.

So far, so good. However this is a fairly simple type of fitting. Let's make it a bit more subtle by making the shade frosted glass. First of all, we'll go back to the original tutorial fitting, before we adjusted it to create the pattern on the wall. I have created a fairly light gray material for my shade, assigned a transparency of 90 and reflectivity of just 6. Figure 18 shows how this renders.

Figure 18 - Initial rendered view of the fitting with a translucent glass shade

Light distribution is fine, but the effect is hardly subtle, we haven't exactly got that nice soft glow we were hoping for. Let's reduce light strength and try again. Figure 19 shows what happens when we set the strength back to 6.

Figure 19 - Rendered view of the fitting with reduced light strength

This is much better, but the scene is too dark. We need to find a way to increase the overall lighting level without affecting how the fitting looks. The easiest way of doing this is to add another omni light sufficiently bright to light the room, but far enough away that it doesn't wash out the effect we have tried to carefully achieve with the fitting. Figure 20 shows that I have copied the original omni light below the fitting. Because they are tiny, you might not see them at first, they may look like specks of dirt on your monitor!

Figure 20 - View of the fitting with the original omni copied below to boost light output

I haven't adjusted anything, just copied the original. Figure 21 shows how much better this looks.

Figure 21 -Rendered of the modified fitting with the extra omni light

If you want the scene brighter you can increase the strength of the second omni light, but you need to make sure that you adjust the location of the omni group so you don't affect the fitting or get a noticeable bright 'ring' on the floor or indeed any other surface which may be too near to it. Figure 22 shows what happens when you move the fitting too close to an adjacent surface.

Figure 22 -Rendered example of omni light 'burnout' when the light is too close to a neighbouring surface

You can play around with materials for this fitting to get different effects. Spun aluminium or opaque reflective glass can make a noticeable difference.

Now that we have made a fairly nice fitting, let's get a bit more ambitious again and try modelling a more complicated fitting.

I have created a very simple spot light component from the pendant fitting. If you open Light Tutorial fitting 2.skp shown below, you will see that I have kept the same basic shape, but rescaled it so the diameter of the spotlight body is just 75mm or 3". Small fittings are much harder to get right than larger ones. When you

simply insert a tiny omni at the minimum strength into the fitting, you get results like those in figure 23 below.

(In this figure, I have imported Light Tutorial fitting 2.skp into the original Light tutorial model.)

Figure 23 - The effect of locating omni lights inside small fittings close to neighbouring surfaces ant minimum strength

Although we have inserted the omni light well inside the body of the fitting, you can clearly see that the pool of light on the ceiling looks like the omni isn't inside the fitting at all. This is the way that omnis work. At their lowest power, they cause burnout when they are placed close to any surface. The minimum distance that you can place any omni at in order to avoid this burnout effect is between 200-300mm. Fortunately we can overcome this to an extent by working around the problem. What we are going to do here is move the omni far enough from the fitting to avoid burnout, and make it as faint as possible. We will simulate the bulb glow with an LEM. This will take a little longer to render, but it really is the only way we can render small fittings at the moment. Figure 24 below shows how I have set up the spotlight. The omni group is approximately 400mm (1'4") away from the fitting with strength set at 2, the circular LEM has a light strength of 12. Figure 25 shows how the fitting renders.
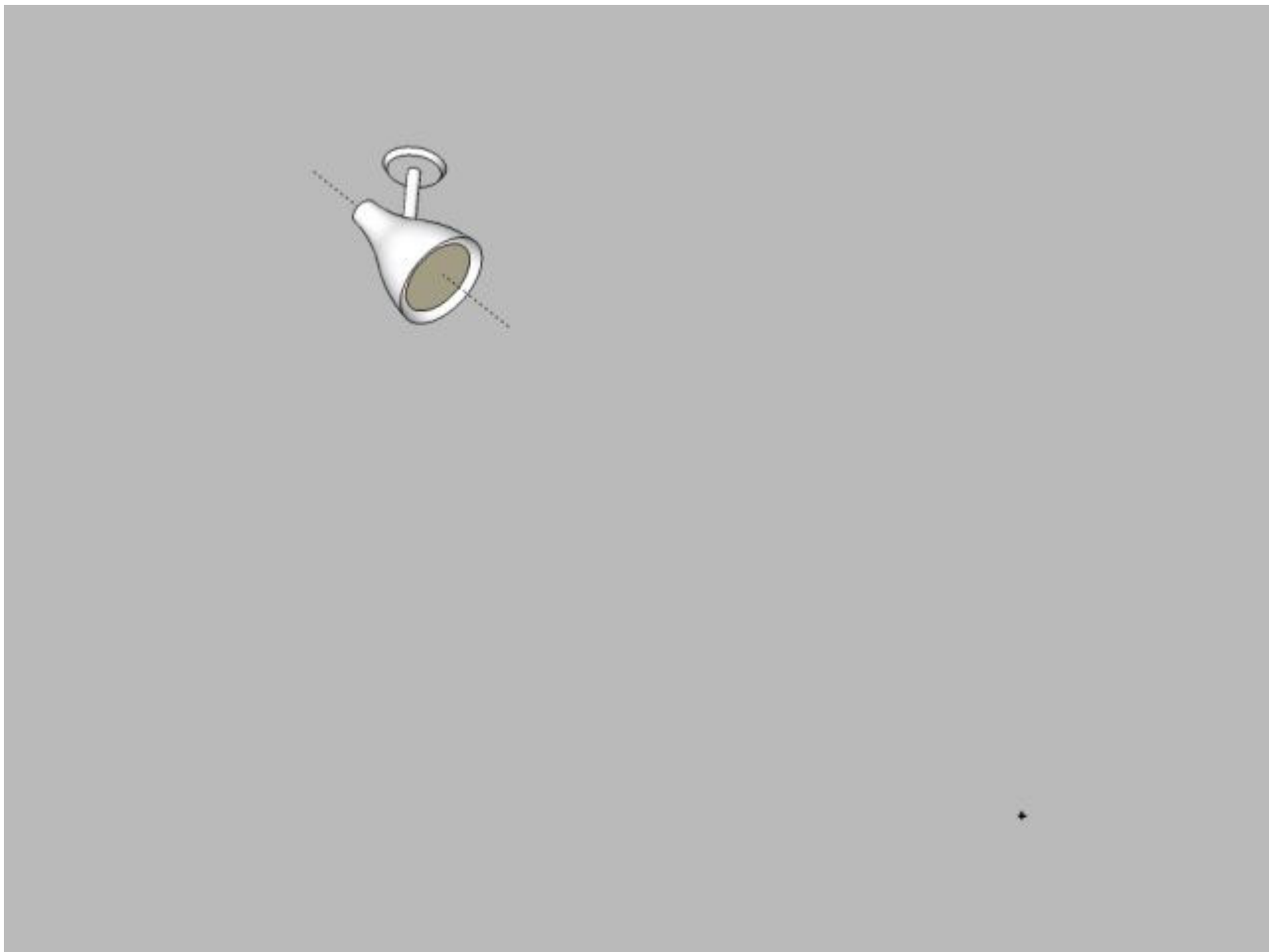
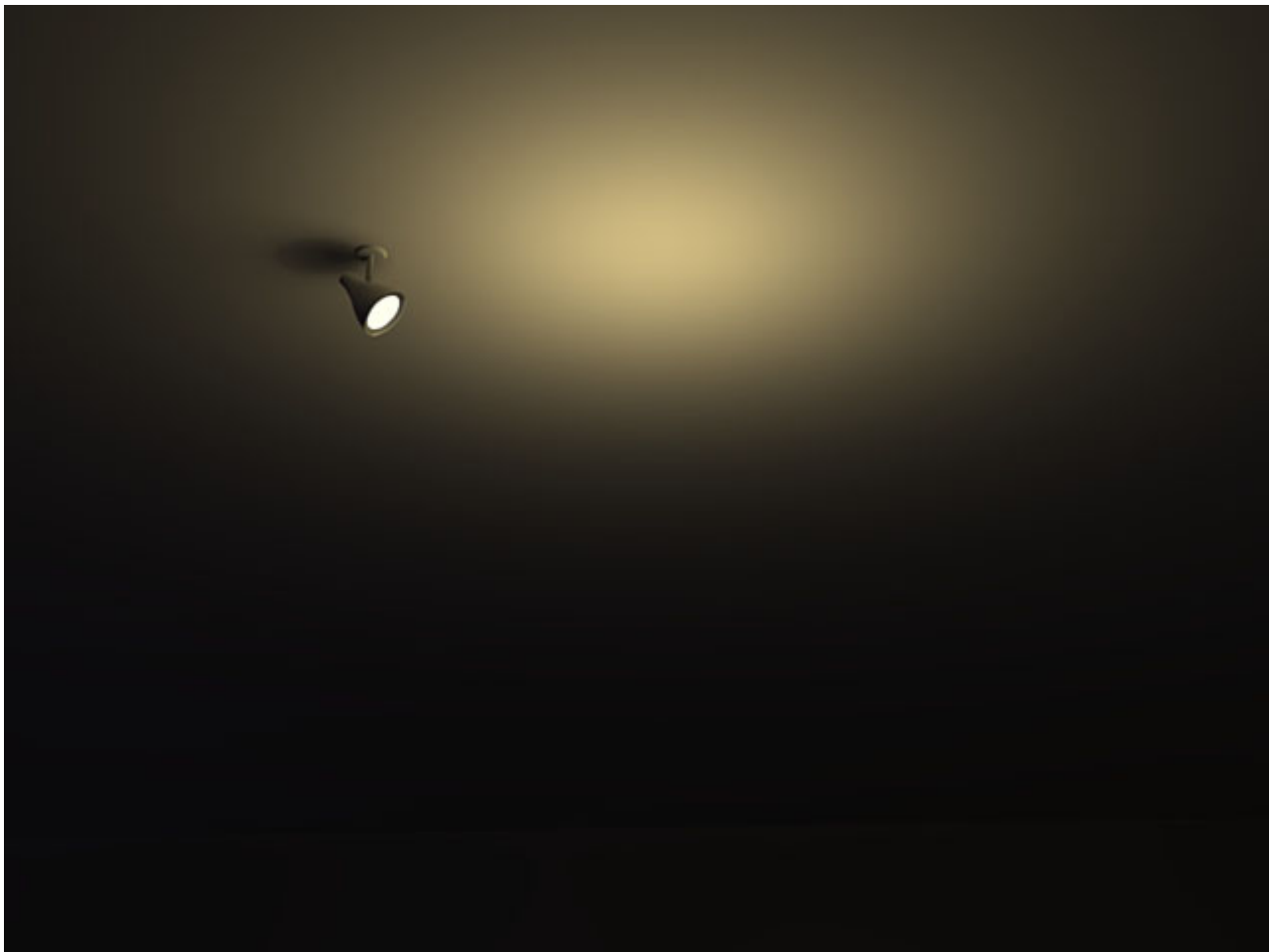Figure 24 - Revised spotlight setup to avoid burnout

Figure 25 - Rendered view of the completed fitting

This isn't quite perfect, but it does look a lot better than the fitting in Figure 22.

You will notice how the omni casts a shadow on the ceiling because it is located in front of the fitting. Currently there is no way around this directly. However for most buildings unless you want a really dark, moody scene, it is likely that you will have other lighting as well, which should illuminate the ceiling and hide this shadow to an extent.

Where to get support

1. Check out the Forum
2. Send e-mail to support@cadalog-inc.com. We will respond and we will be happy to take a look at your model and make suggestions.

Other Information

1. How to convert JPG images to SketchUp material libraries. As a customer of Podium, you can register on this site and receive hundreds of high resolution texture images in JPG format. You can import each JPG image as a texture into SketchUp and use it as a new material. You can also conver each JPG file to a SketchUp material library so it can be used over and over.