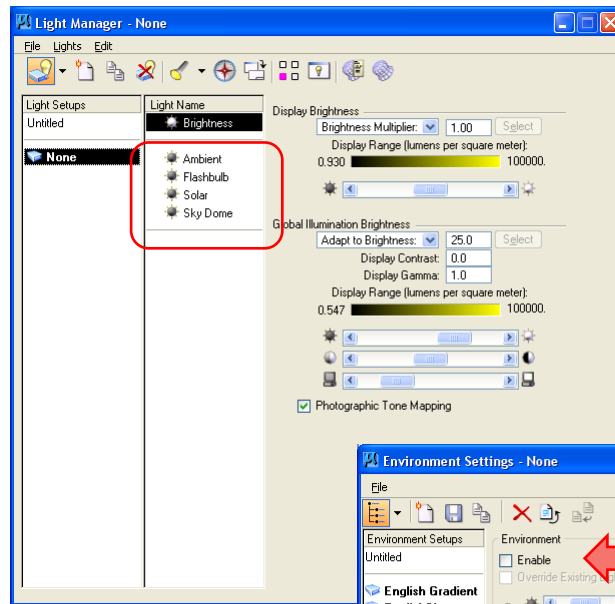# Glow Material Lighting

If you're not particular about photometric accuracy,
and just want soft lighting,
glowing materials can be used
as a quick and effective alternative
to otherwise expensive source lighting.

First turn off the lights

1. In the Light Manager:
   - Save a light setup called "None"
   - Turn off Ambient, Flashbulb, Solar, & Sky Dome

   This pre-set is used to store default Brightness, Contrast and Gamma settings during renders.

2. In the Environmental Settings:
   - Save an environment setup called "None"
   - Un-tick "Enable"

   These setups will prevent direct and environmental lighting interfering with render output while creating or testing glow material options.
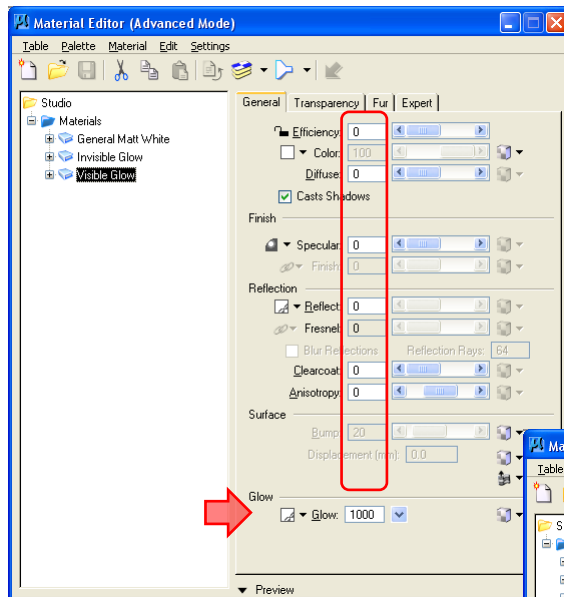

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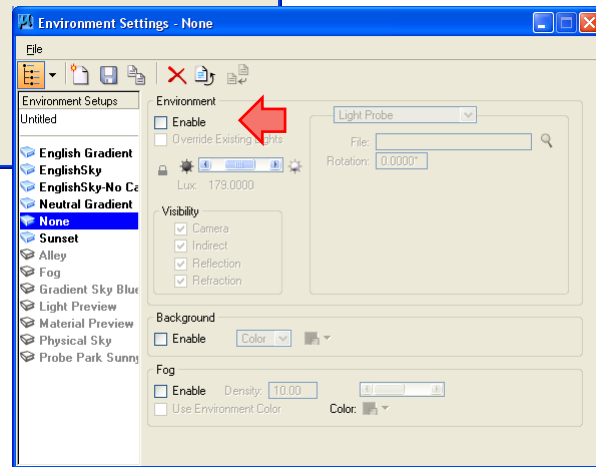
Creating Visible Glow Material

In a Material Palette:

1. Create a new material called "Visible Glow"

    The only tweaks to the default settings are to:
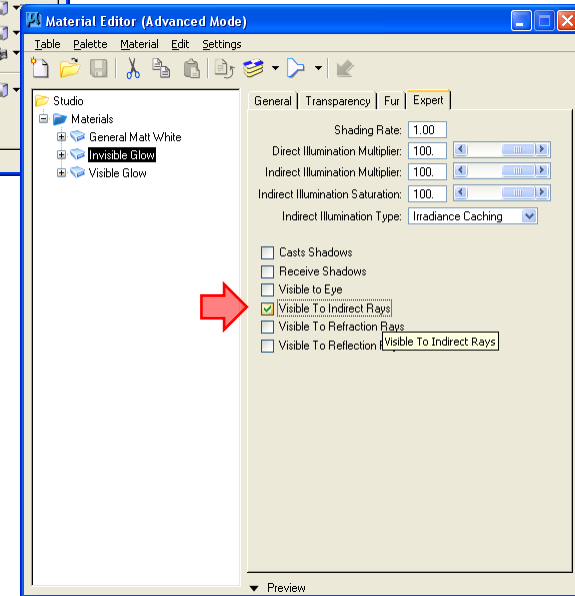   - Zero all the sliders on the "General" tab
    - Set the Glow lumens/sqm(lux) value to 1000

2. Create a new material called "Invisible Glow"

    The only tweaks to the default settings are to:
    - Zero all the sliders on the "General" tab
    - Set the Glow lumens/sqm(lux) value to 500
    - Un-tick all the options except for "Visible to Indirect Rays" on the "Expert" tab

Using just these two Glow Materials we can illuminate an interior scene.

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Render Settings

In the Luxology Render Dialog:

Before rendering:

1. Choose the "None" lighting pre-set
2. Choose the "None" environmental pre-set
3. Choose one of the Rendering Settings pre-sets
   - The settings that most effect the quality of the light from glow materials, Indirect Bounces and Irradiance Rays, can be found on the "Global Illumination" tab.
   - There is a good explanation video on the Luxology website that explains how these settings work. Search for "Indirect Illumination Discussion" http://www.luxology.com/tv/training/view.aspx?id=78
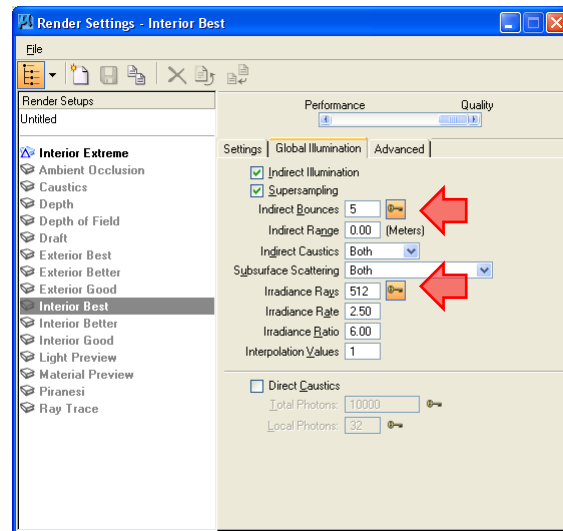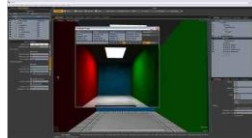

After Rendering:

1. Any adjusted Image Settings should be saved back to the "None" Lighting pre-set.
   - Use "Adapt to Brightness" for consistency, this gives you a fixed value to test renders against.

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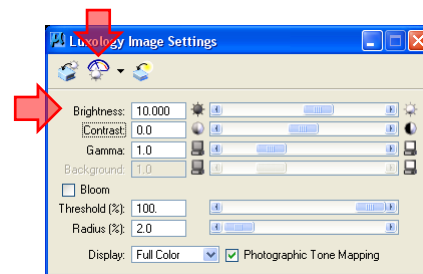
Applying to Geometry

Assign the "Visible Glow" to any geometry which you want to see glowing in your scene. (in this case the blue shape) e.g. Spot lights and bulbs, fluorescent tubes, TV & computer screens etc.

These items will start to light the scene but their surface areas are generally too small to do the job alone.
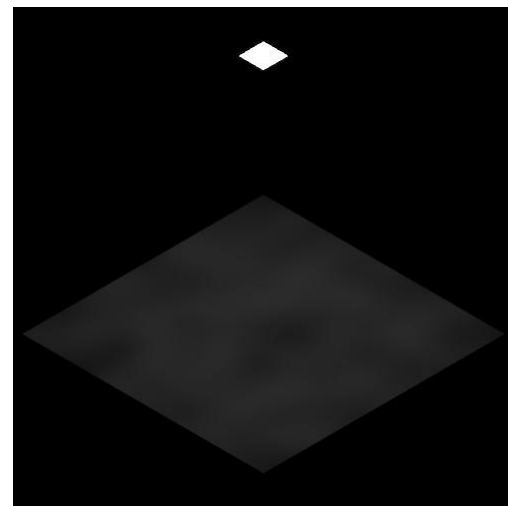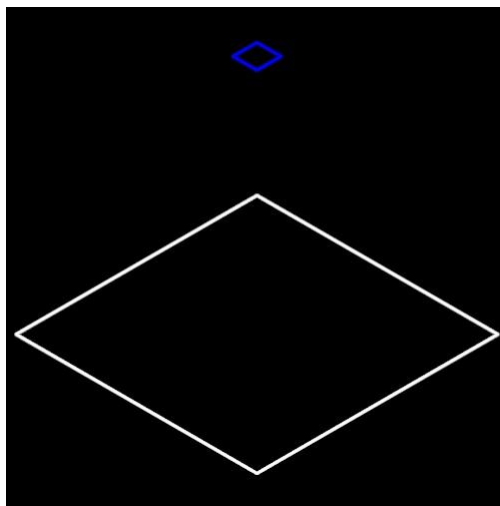
Simply add additional low polygon geometry where you need the lighting to be supplemented and assign "Invisible Glow". (in this case the green shape)

Generally this Invisible geometry is large compared the visible elements but has a lower lux value. The larger the area the more diffused the shadows.

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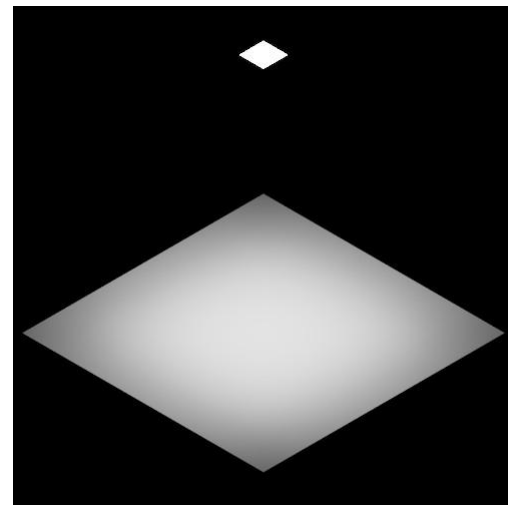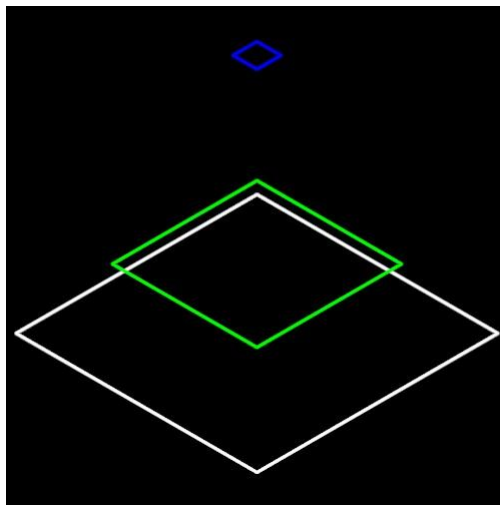
An Example:

Starting with a simple internal space, with an opening window in one wall.

In this case the white geometry has a simple 50% diffuse white matt material assigned.

Create and place a simple shared cell, modelling a light.

In this case the red geometry is the visible part of the light fitting, with "Visible Glow" assigned.
The green low polygon bulb has the "Invisible Glow" material assigned.

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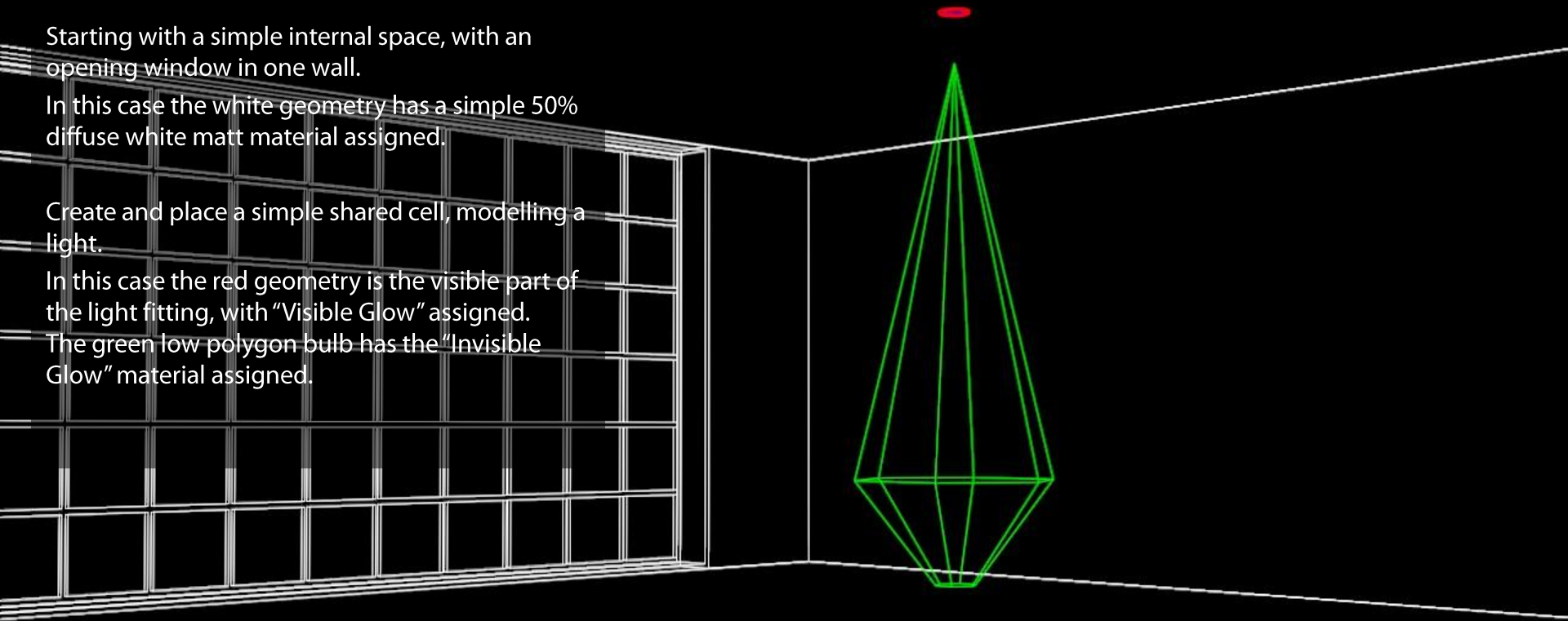
The result simulates a spotlight with very diffuse properties.

The way the light is distributed depends on the shape and size of the low polygon bulb.

The simple shared light cell can be placed many
times in the scene to produce a lighting grid.

Be careful not to let the invisible bulbs intersect
your scene geometry. You will get a halo of light
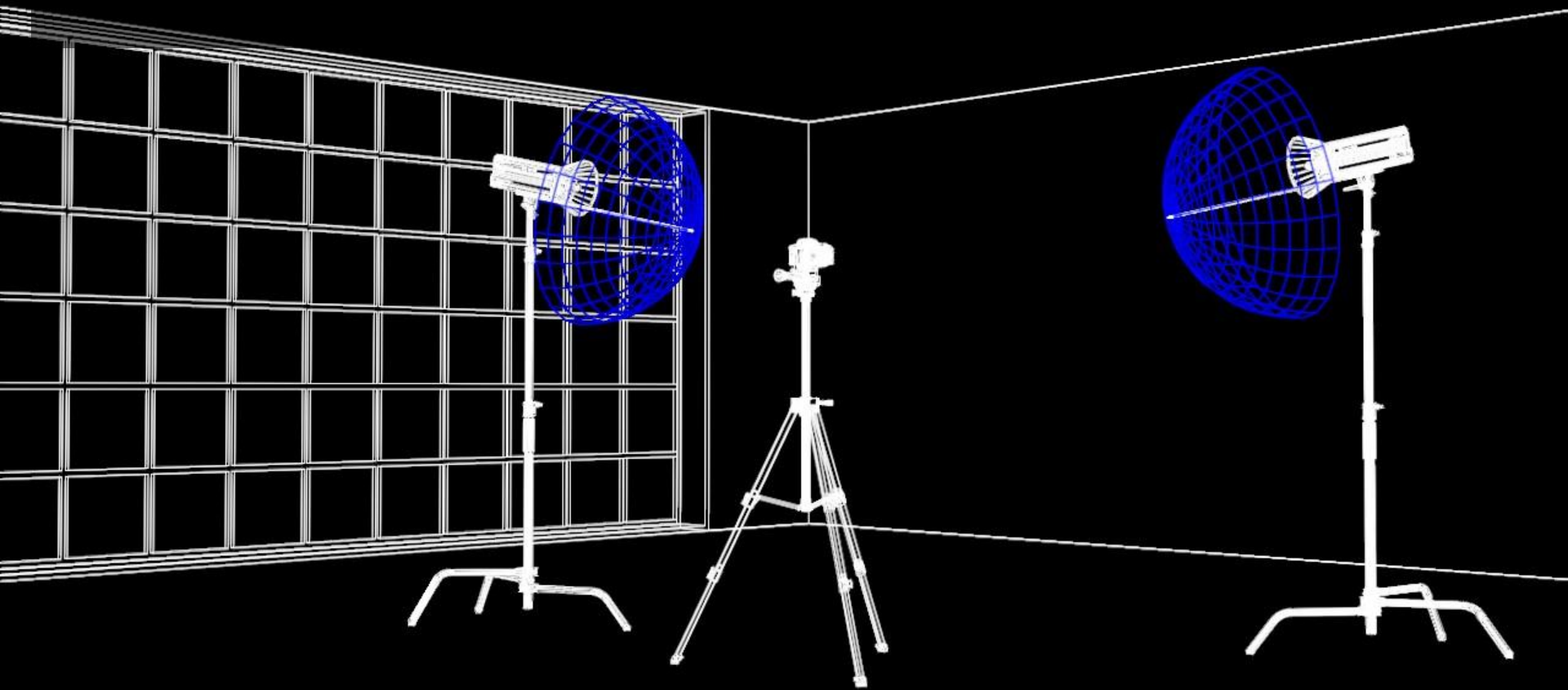around a dark centre.

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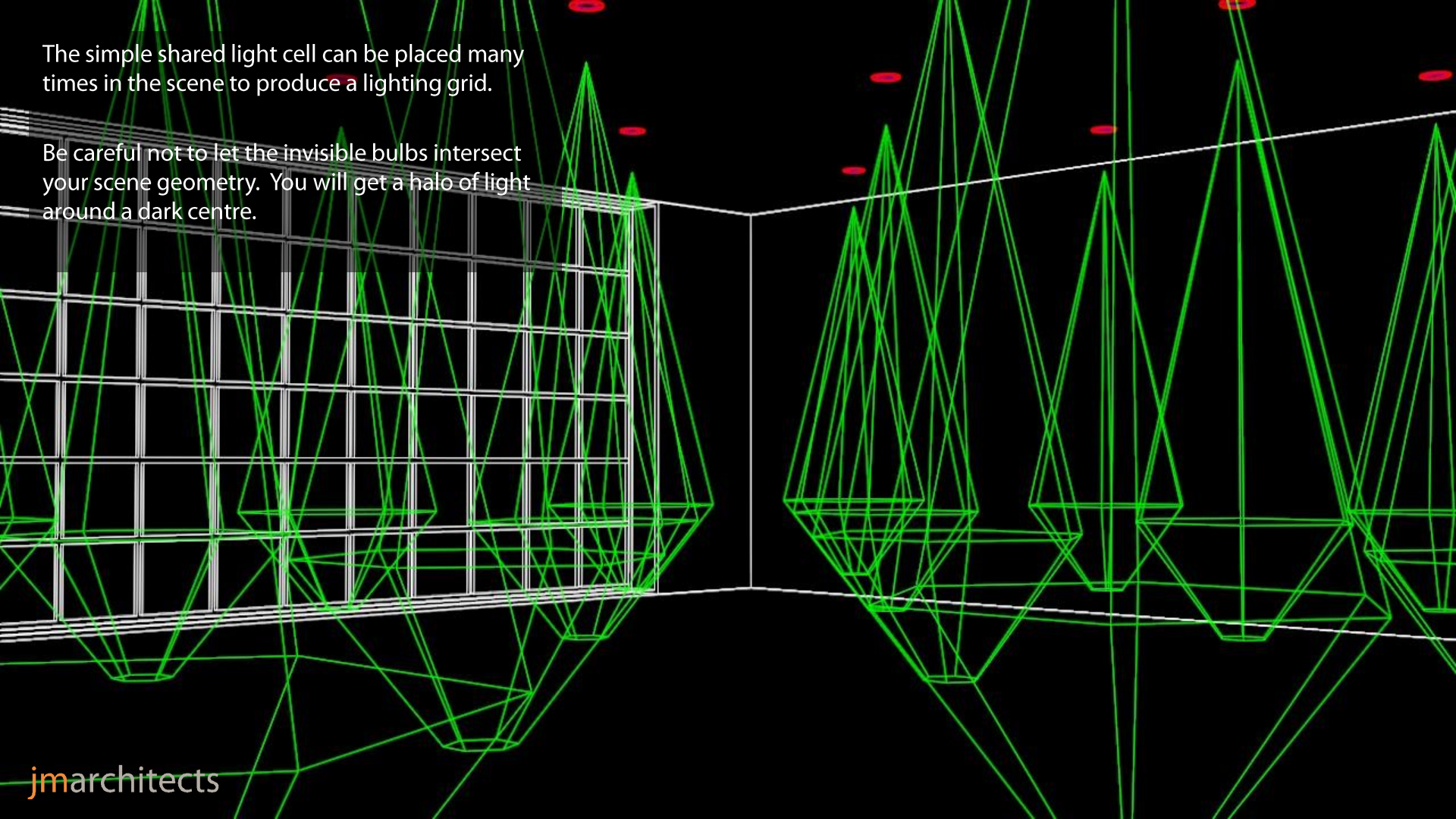
As expected, the result is a brightly lit scene, with lots of ambient light.

At this point just a few conventional direct lights can be added to the scene, where the required, to produce sharp shadows, ies profiles, etc.
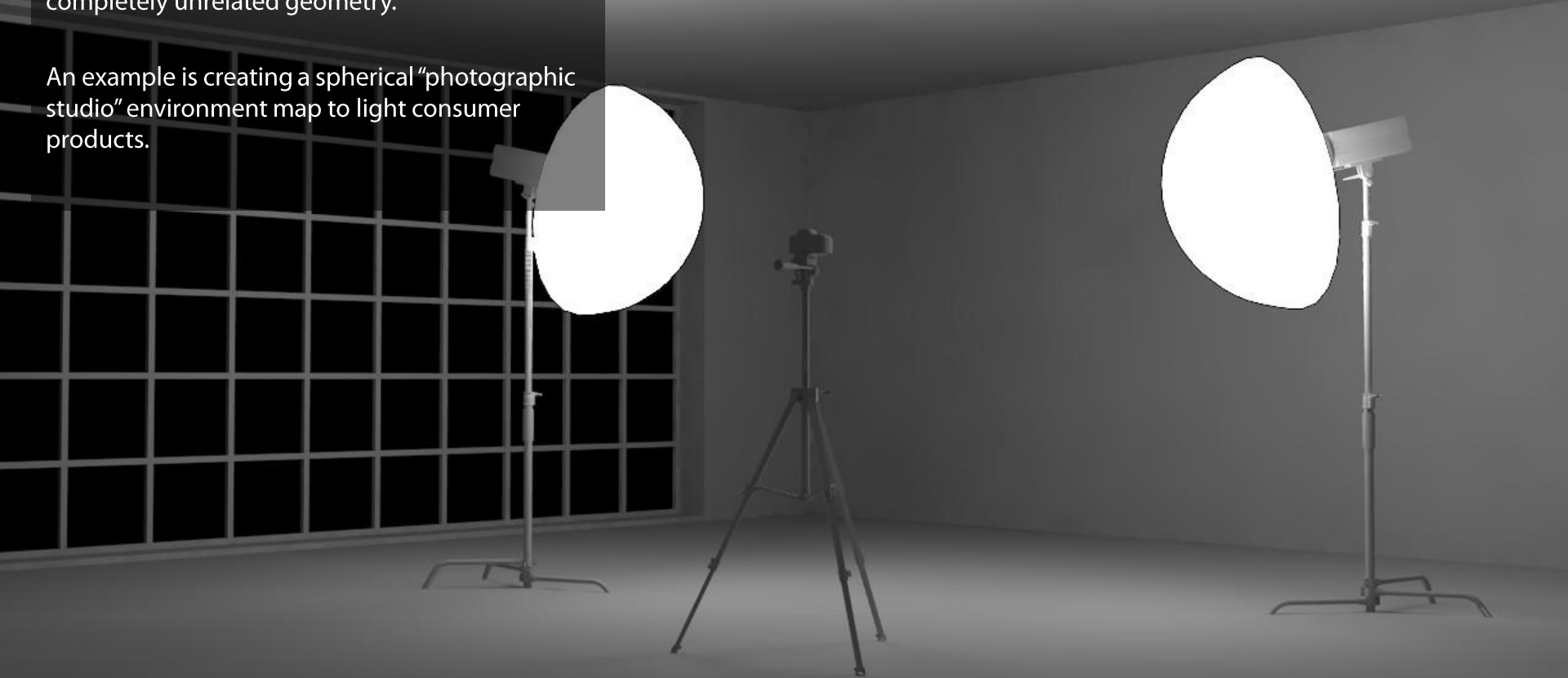
Where light sources have enough surface area the
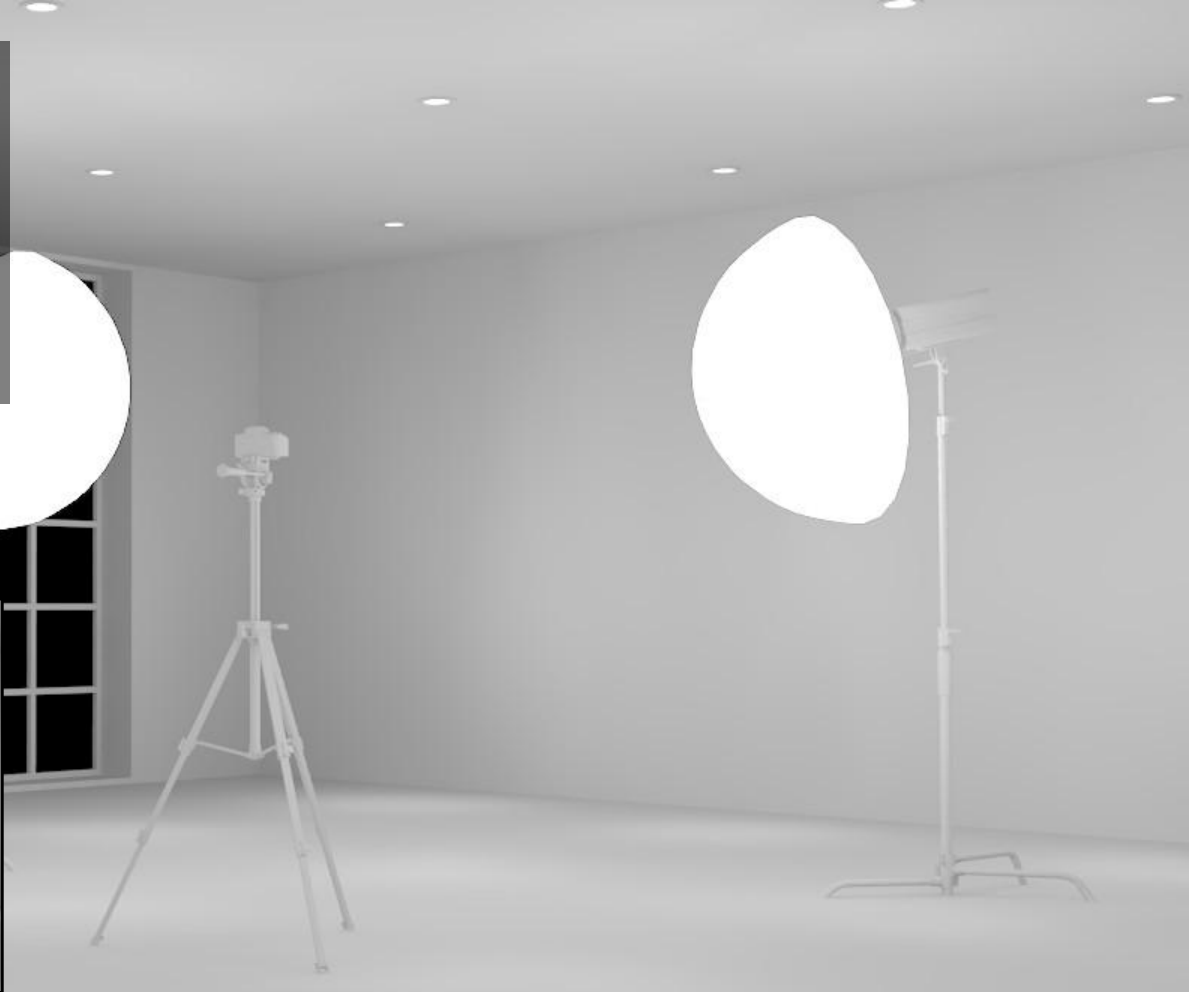"invisible glow" geometry may not be required.

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The result can be used to generate spherical hdr environments that can be used to light completely unrelated geometry.

An example is creating a spherical "photographic studio" environment map to light consumer products.

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When ever you add more light to a scene you will need to adjust the Adapt o Brightness slider to prevent the highlights blowing out.

By using an all white scene, you will more easily see where you are over or under lighting, without the materials compounding the situation.

Luxology Image Settings

Brightness:	10.000
Contrast:	0.0
Gamma:	1.0
Background:	1.0

☐ Bloom

Threshold (%): 100.
Radius (%): 2.0

Display: Full Color   ☑ Photographic Tone Mapping
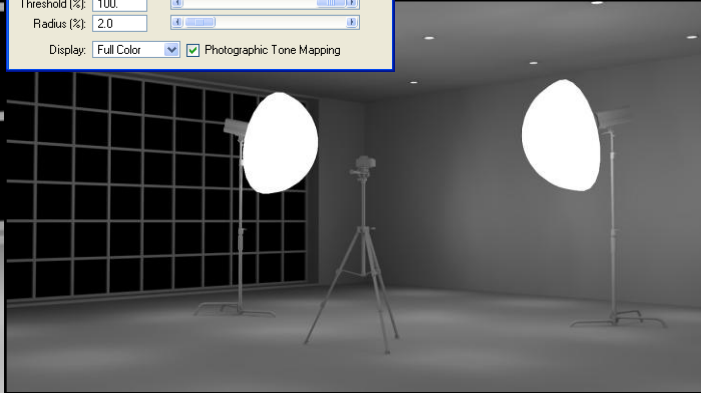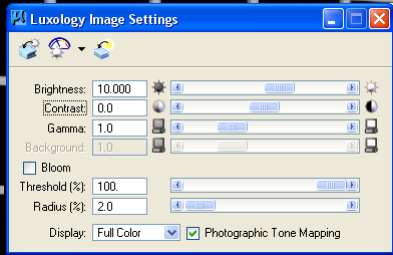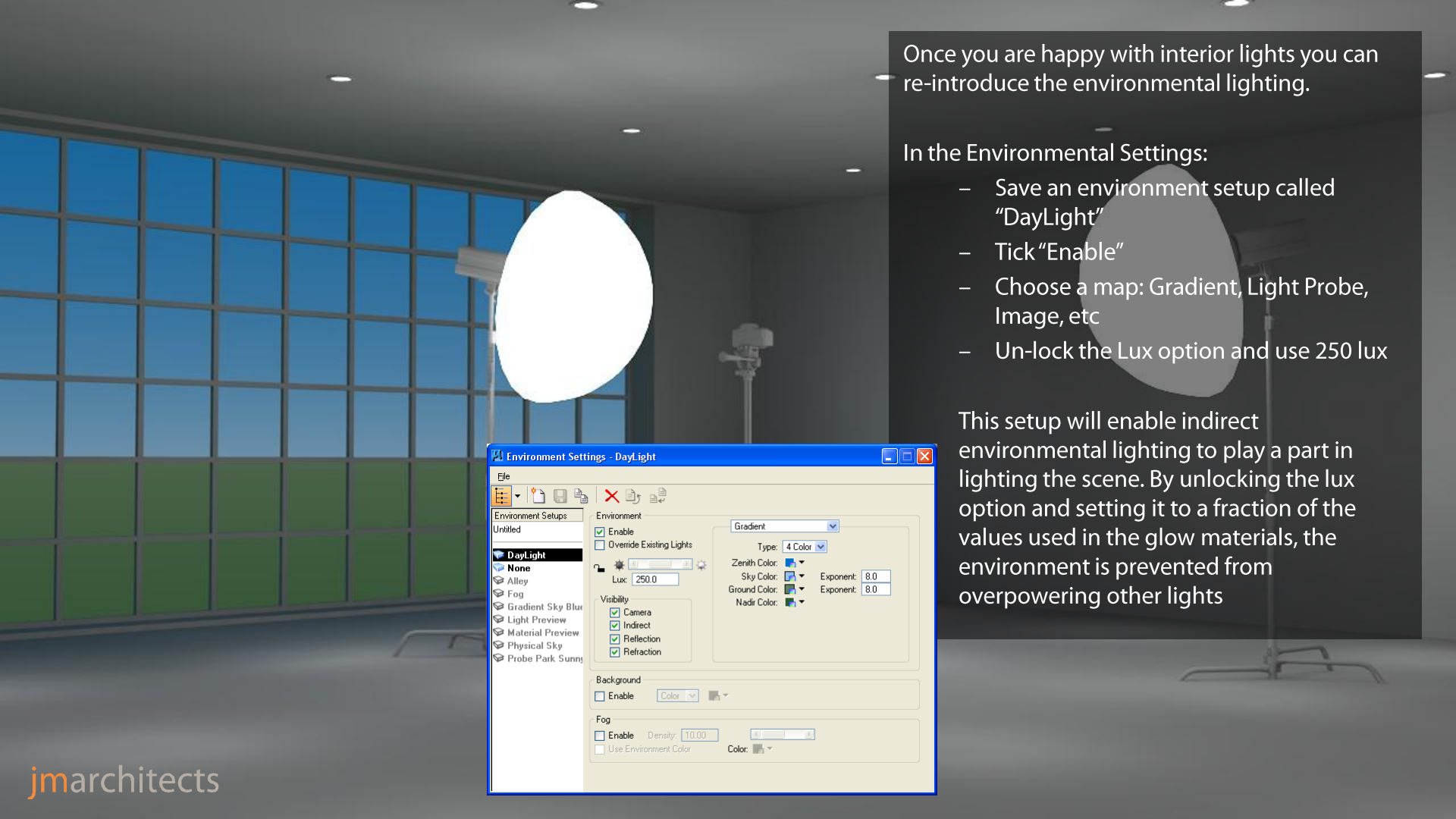
Once you are happy with interior lights you can re-introduce the environmental lighting.

In the Environmental Settings:
- – Save an environment setup called "DayLight"
- – Tick "Enable"
- – Choose a map: Gradient, Light Probe, Image, etc
- – Un-lock the Lux option and use 250 lux

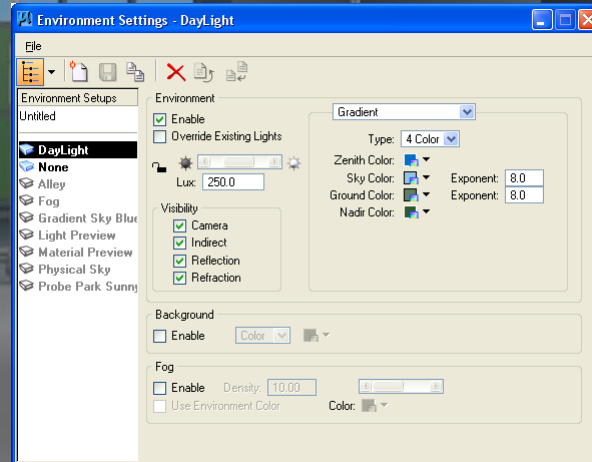This setup will enable indirect environmental lighting to play a part in lighting the scene. By unlocking the lux option and setting it to a fraction of the values used in the glow materials, the environment is prevented from overpowering other lights

Environment Settings - DayLight

File

Environment Setups
Untitled
DayLight
None
Alley
Fog
Gradient Sky Blue
Light Preview
Material Preview
Physical Sky
Probe Park Sunny

Environment
☑ Enable
☐ Override Existing Lights

Gradient

Type: 4 Color
Lux: 250.0
Zenith Color:
Sky Color: Exponent: 8.0
Ground Color: Exponent: 8.0
Nadir Color:

Visibility
☑ Camera
☑ Indirect
☑ Reflection
☑ Refraction

Background
☐ Enable   Color

Fog
☐ Enable   Density: 10.00
☐ Use Environment Color   Color:

Similarly you can re-introduce direct sun light.

In the Light Manager:
- Save a light setup called "LowPowerSun"
- Turn Solar Light on
- Turn the intensity down
- Set the sun up as you would normally e.g. azimuth, altitude, Cloudiness, etc.

The intensity is a percentage of the solar lux value which is displayed just above the intensity slider.

It needs to balance the power of solar light in the same way the environment lighting was balanced relative to the glow materials. E.g. 5% of 110000 lux = 5500 lux
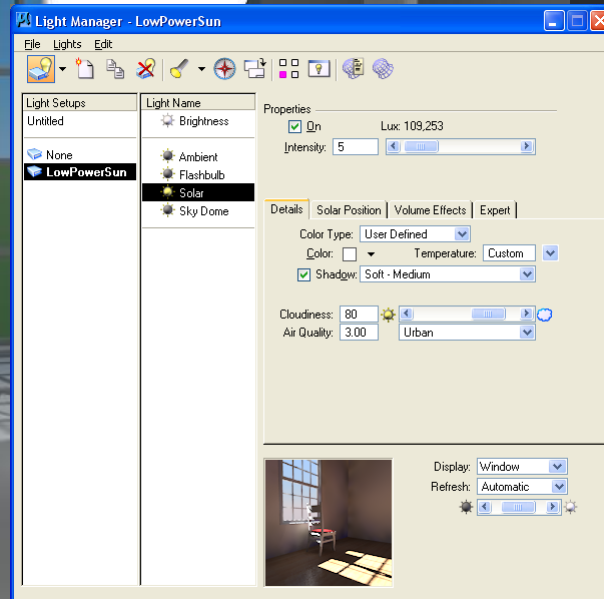
By starting in this way all the light lux levels can be tweaked and balanced to create night or sunset/sunrise solutions.

This scene is only lit with glow materials, environmental lighting and a very small amount of sun light.
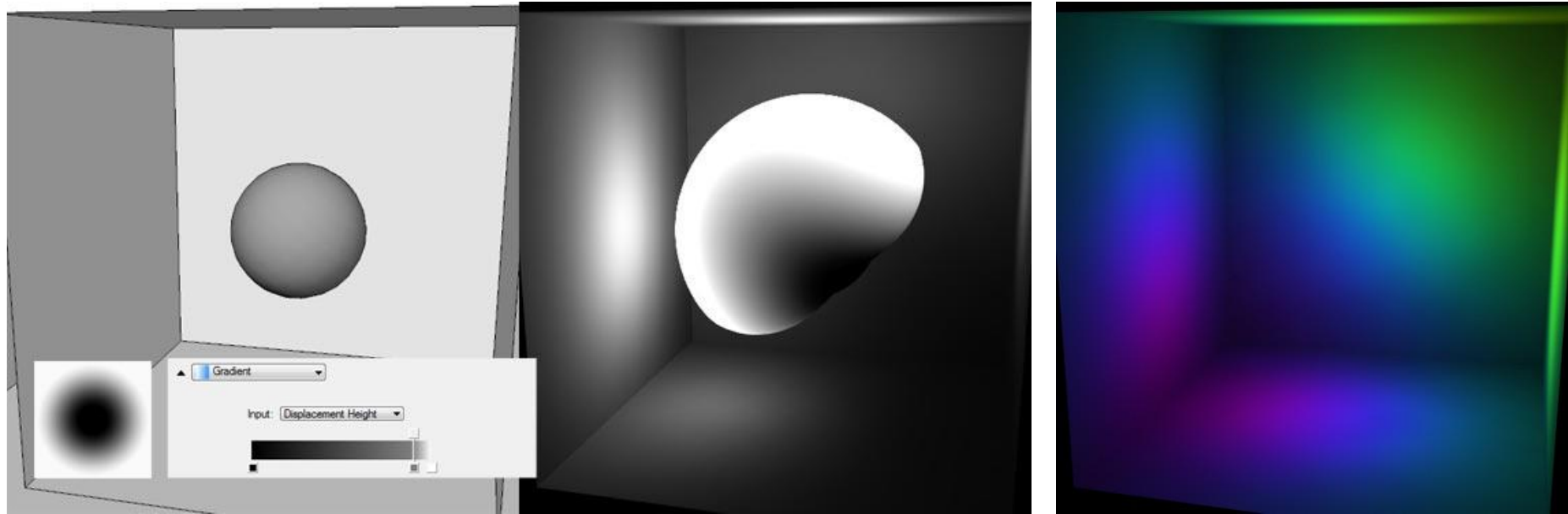
Rooms that are dark simply do not have any "Invisible Glow" geometry.
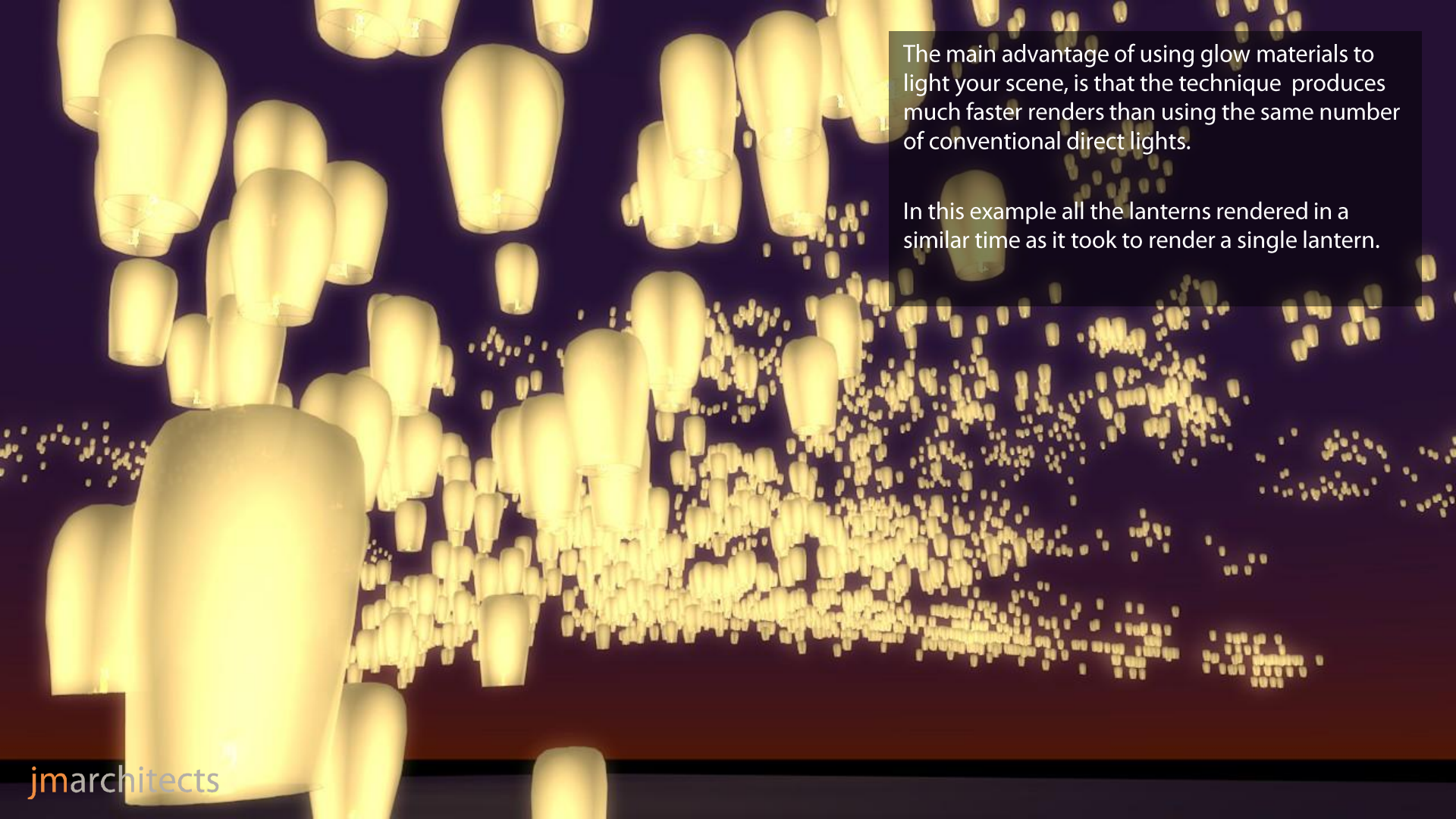
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Masks and Maps

Glow materials projected light colour can be driven by
texture maps.
They can also be masked with black & white alpha maps to
create more interesting detail over the glow surface.

Gradient

Input: Displacement Height

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The main advantage of using glow materials to light your scene, is that the technique produces much faster renders than using the same number of conventional direct lights.

In this example all the lanterns rendered in a similar time as it took to render a single lantern.

It's all about balance

Any lighting technique requires an degree of balance, and that balance will depend on the geometry, the position of the camera and the lighting itself.

Generally you need three kinds of lighting in your scene.

– Ambient light:

  to generally light the scene and add tone and mood.

– Focused light:

  to highlight specific items in the scene

– Sparkle:

  to emphasis light sources

However a balance of shadow and contrast are important too. In an image where everything is bright, nothing is perceived as bright.

Regards

Robert

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