

Working with Lighting

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The information in this article applies to:



QUESTION

I know that I can use lighting to produce realistic 3D views of my work, but I'm not sure where to begin. Can you suggest some tips for working with lighting?



ANSWER

In Chief Architect, you can use lighting to help produce dramatic, photo-realistic 3D views of your model. To do so effectively though, takes an understanding of how light is generated in the program, the types of light, as well as a bit of practice.

The following is a list of how light can be generated in Chief Architect:







- **Default Interior Lights** - If you create a Standard interior camera in a room where no lights have been placed, the program creates a default light source within that room. This acts as a central point light source but cannot be selected or edited.
- **Light Fixtures** - An electrical symbol that represents a light fixture, of which can have one or more sources of light. For example, a fixture with 3 separate light bulbs can be defined to have 3 sources of light.
- **Added Lights** - Added lights only act as light sources in plan files that have at least one room defined. They display 2D symbols in plan view but do not display as objects in 3D views.
- **Sunlight and Moonlight** - When you create a rendered view and no Sun Angle exists, the program creates a generic sunlight source that can be adjusted to your liking. In addition to sunlight, representations of the moon and stars can be seen in the sky when the Generated Sky feature has been enabled within a Camera Specification.
- **Ambient Lighting and Occlusion** - Ambient lighting simulates the way light bounces around a scene, producing a basic level of uniform illumination on all surfaces. It is used in camera views and overviews using the Standard, Duotone, and Watercolor rendering techniques and in ray trace views.
- **Emissive Materials that Simulate Light** - Materials can be given emissivity, allowing surfaces to appear to glow with their own light. This property can be very effective when applied to a TV or projection screen.

There are also two types of light source, each of which generates light in a different way:

- **Point Lights** - Emit light equally in all directions.
- **Spot Lights** - Emit a cone of light in a particular direction only.


For most interior lighting needs, Point Lights are recommended because they are the most similar to electric light bulbs.


To add lighting


- Select **Build> Electrical> Light**  from the menu, then click at a location where you would like to place an electrical light fixture.
 - If you click on a wall, a wall fixture will be created.
 - If you click away from a wall, a ceiling mounted fixture will be placed.
 - The default electrical objects that will be placed using this tool can be specified in the Electrical Defaults.
- Select **Build> Electrical> Rope Light**  from the menu, then click and drag where you would like to have rope lighting.
 - This is a great tool for under cabinet or pathway lighting.
 - This tool is only available in a 2D floor plan view.
- Navigate to **Chief Architect Core Catalogs> Architectural> Lighting** within the **Library Browser**  and select an electrical light fixture.
 - When you move your cursor into the drawing area, it will display the Electrical  icon.
 - Click to place the selected library symbol in your plan.
 - Several additional light fixtures can be located in bonus and manufacturer catalogs, of which can be accessed from the [3D Library](https://www.chiefarchitect.com/3d-library/index.php?r=site/library&reset=true) (<https://www.chiefarchitect.com/3d-library/index.php?r=site/library&reset=true>). Please see the [Related Articles](#) section to learn more about obtaining additional catalogs.
- Select **3D> Lighting > Add Lights**  from the menu, then click once to place a Spot light or click-and-drag to place a Point light without an associated 3D object.
 - **Add Lights**  allows you to customize the lighting in a space without adding electrical light fixtures.

- This tool is only available in a 2D floor plan view.

To adjust lighting

1. Select **3D> Lighting> Adjust Lights** . Alternatively, double-clicking on a light or an electrical light fixture within a floor plan or camera view will also open its specification dialog.

To edit sunlight, navigate to **3D> Lighting> Adjust Sunlight**  while in a rendered view.

To adjust ambient light, navigate to **3D> Rendering Techniques> Technique Options**  while in a rendered view.

2. In the **Adjust Lights** dialog, select the light or electrical light fixture that you want to modify and click on the **Adjust** button.

In the **Adjust Sunlight** dialog, adjust properties such as the **Intensity**, **Color**, **Tilt**, and **Direction Angle** of the sunlight to your liking, then click **OK**. To learn more about Sun Angles, please see the [Related Articles](#) section below.

In the **Rendering Technique Options** dialog, adjust the **Interior**, **Daytime**, and **Nighttime Ambient** setting(s) for a supported technique, then click **OK**. For more information on each of the ambient settings, please refer to your program's Help documentation.

3. In the **Electrical Service** or **Light Specification** dialog:

Electrical Service Specification

General

Light Data

3D

2D Block

Options

Advanced Sizing

Layer

Materials

Label

Components

Object Information

Schedule

Specify As Light

Name	On	Source Type	Intensity	Color	Used In	Casts Shadows	Show Position
Light 1	<input checked="" type="checkbox"/>	Point	1200.0		All Views	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Add Light Copy Light Delete Light

Light Characteristics

Source Type: Point

Intensity: 1200 Lumens 1200.0

Color: [Color Picker]

Tilt Angle: -90.0°

Direction Angle: 0.0°

Cut Off Angle: 60.0°

Drop Off Rate: 7.5

Soft Shadows (CPU Ray Tracing)

Light Diameter: 2"

Offset

X Position: 0"

Y Position: -3"

Z Position: 3"

Options

Used In: All Views

On in Default Light Set

Casts Shadows

Show Position in Camera View

- On the **GENERAL/LOCATION** panel, specify position and size properties for electrical light fixtures, display properties for lights, as well as the quantity and spacing if using rope lights.
- On the **LIGHT DATA** panel:
 - Each light source that is part of a light fixture will be listed within the table at the top of the dialog. Electrical light fixtures that have 2 or more light bulbs may have a separate light source that corresponds to each bulb. A track or rope light is a great example where multiple light sources are used.

Click the **Add Light**, **Copy Light**, or **Delete Light** buttons to add or delete light sources from an electrical light fixture.

In X14 and prior versions, a light source table was not available. Instead, use the **Light Source** drop-down to choose a source for editing.

- Adjust the **Light Characteristics** for each light source, such as the type of light (Spot or Point), intensity, color of light, as well as other properties.

Selecting a distinct light color, such as red or blue, can help make changes to a lights settings more apparent in camera views.

- Each light source can have its own unique settings and can be used in camera views, CPU Ray Trace views, or all views. Toggling the display of each source (On/Off), along with whether or not it casts shadows can also be specified.
- Make any other desired adjustments and then click **OK** to close the dialog and apply your changes.

Lets now take look at how adjusting some of these values affect the light in a basic 20' x 30' structure.

Here is an example of a Bermuda Wall Mounted Sconce placed from the library. This electrical light fixture has 1 light source with a Point source type.

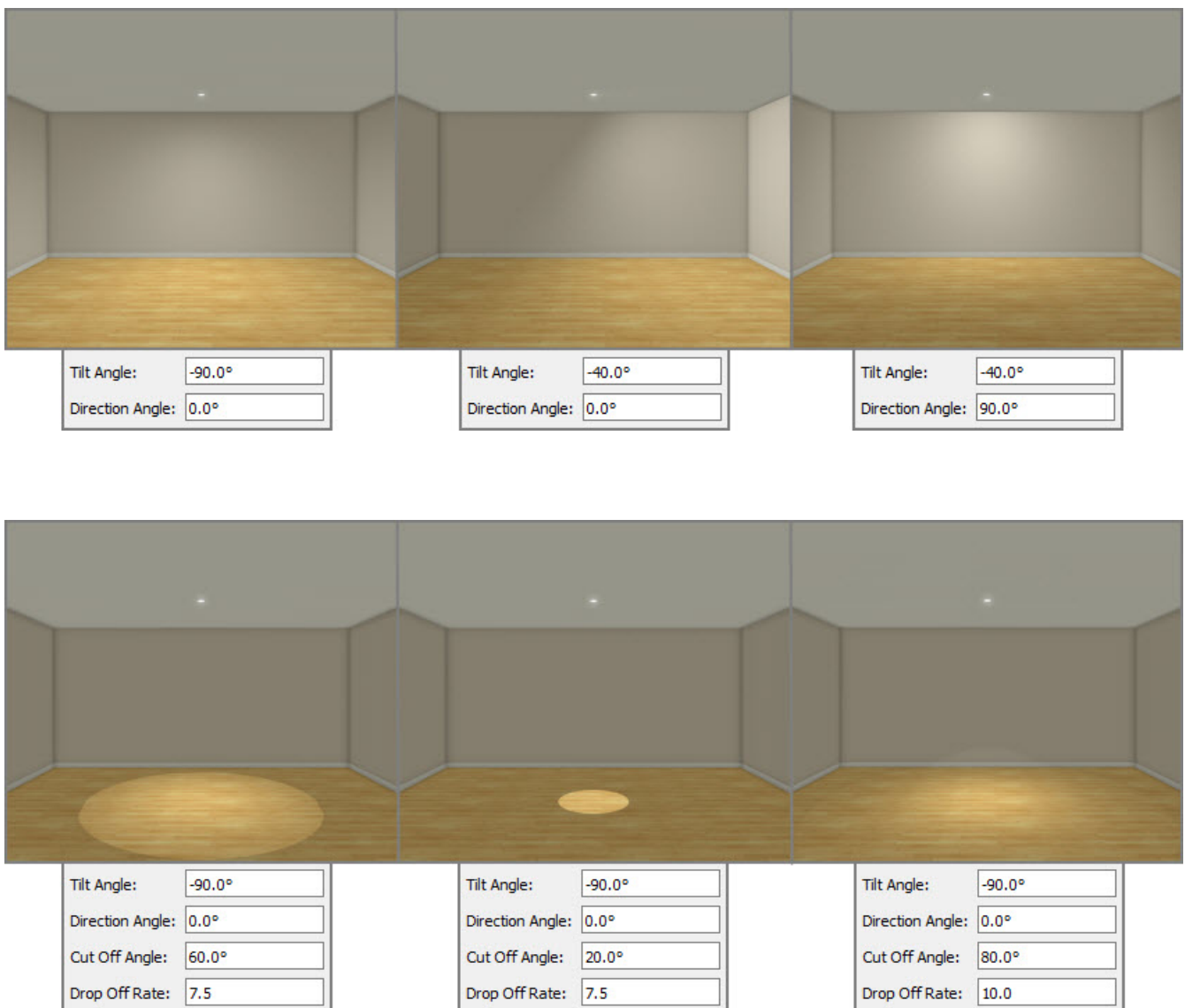
Notice how changing the light's Intensity value affects the 3D camera view.



Now, lets place a Recessed Down Light 4 light in the ceiling and specify it to use the Spot source type. Again, this fixture only has 1 light source specified.

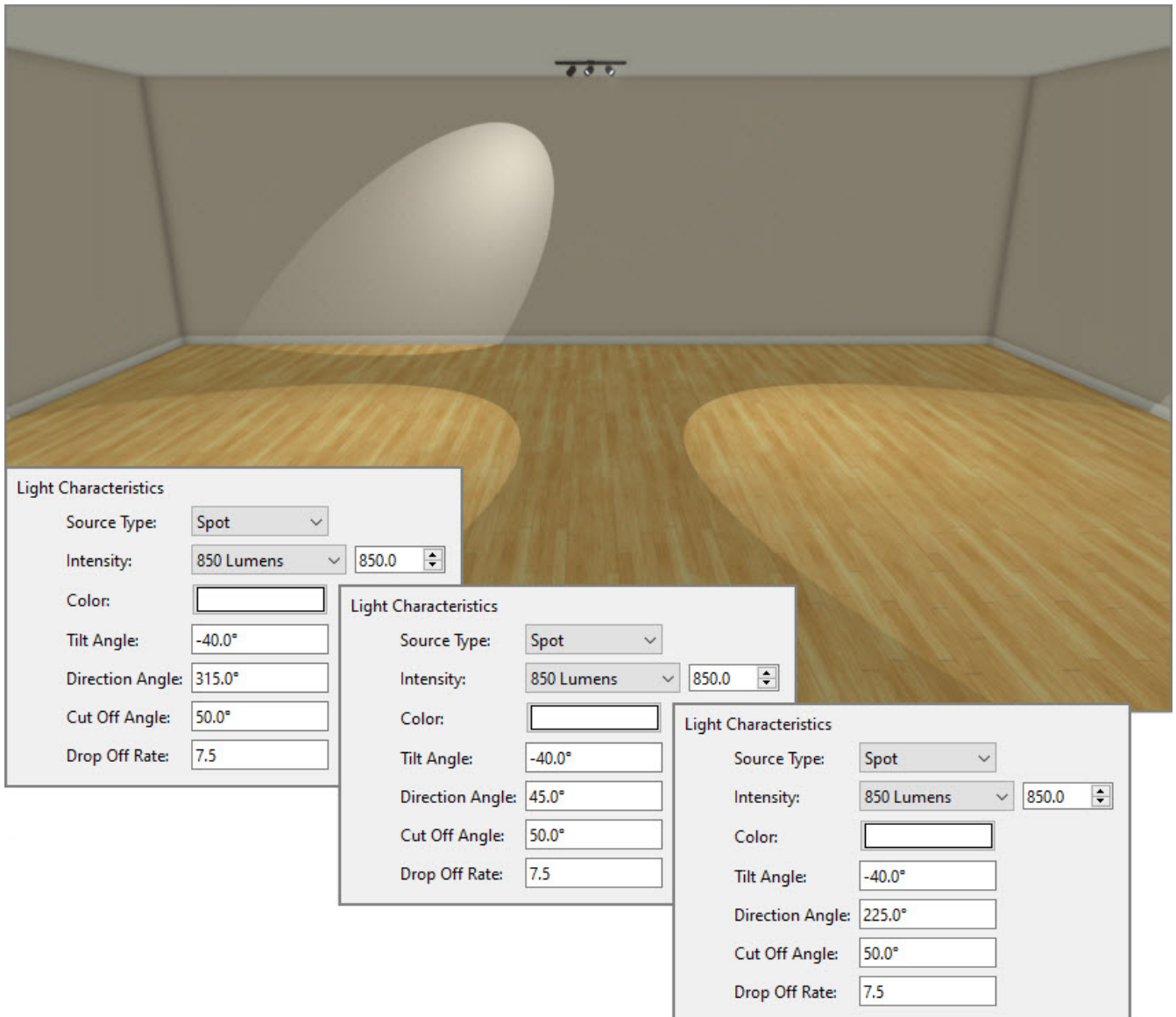
As this is using the Spot source type, we have the ability to adjust additional characteristics such as Tilt, Direction, and Cut Off Angles, as well as the Drop Off Rate. A Tilt Angle with a value of -90° points the light straight down and a value of 90° points it straight up, while a Direction Angle of 0° points to the right horizontally in floor plan view. A value of 0° is parallel to the horizon. The Cut Off Angle defines the angle of the cone of light and can be between 0 and 180 degrees, while the Drop Off Rate describes the rate at which the light intensity within the cone of light decreases. When the Cut Off Angle is decreased, it's often a good idea to increase the Drop Off Rate.

For more information on these properties, click on the **Help** button while the light or electrical fixture is open to specification.

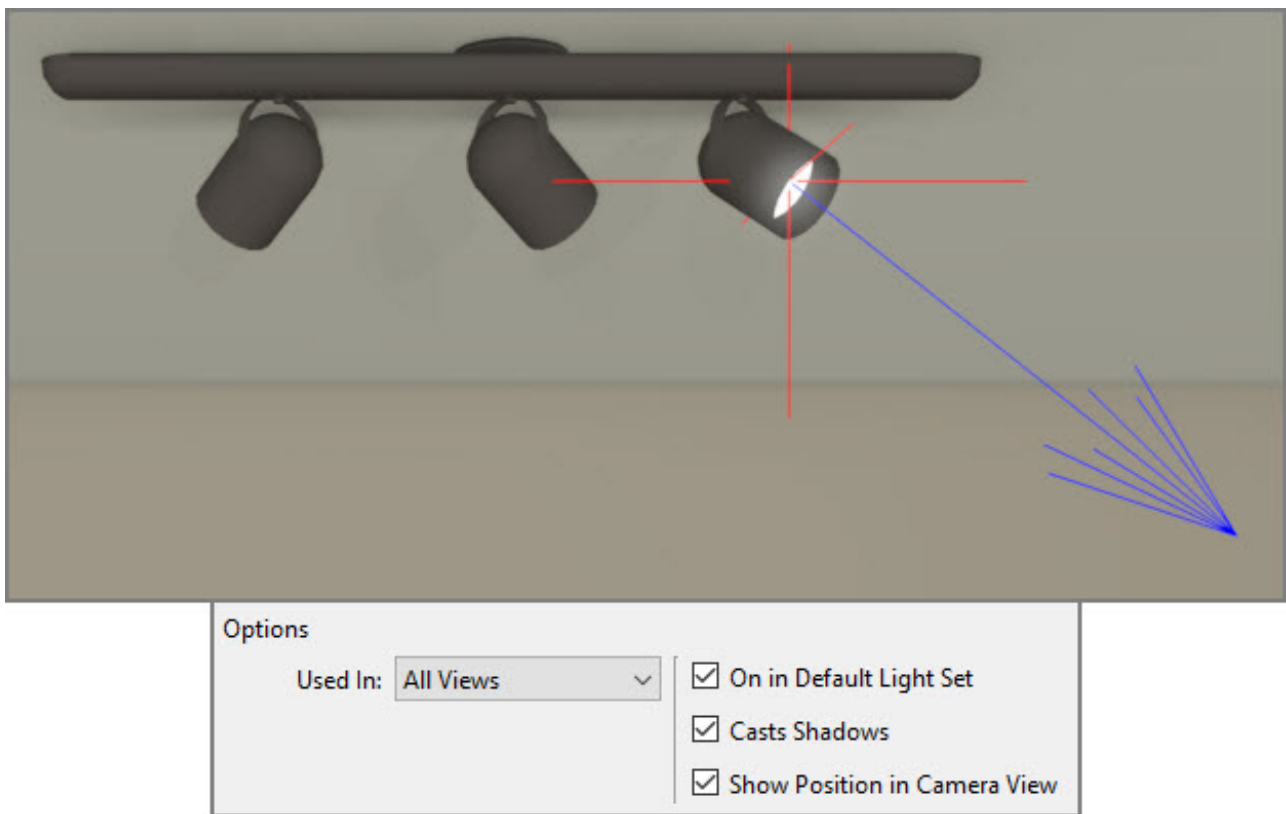



Lets now experiment with a single electrical light fixture with multiple light sources that all use the Spot source type. Here, we will use the Track Light 3 Head fixture placed from the library. This electrical light fixture has 3 light sources by default. You can


change the Tilt, Direction, and Cut Off Angle values of each light source to your liking if you wish, along with the Drop Off rate. In this example, the values are unchanged. Do keep in mind that the lighting heads that are part of the 3D Track Light symbol will not adjust with any changes that are made to the lighting characteristics.



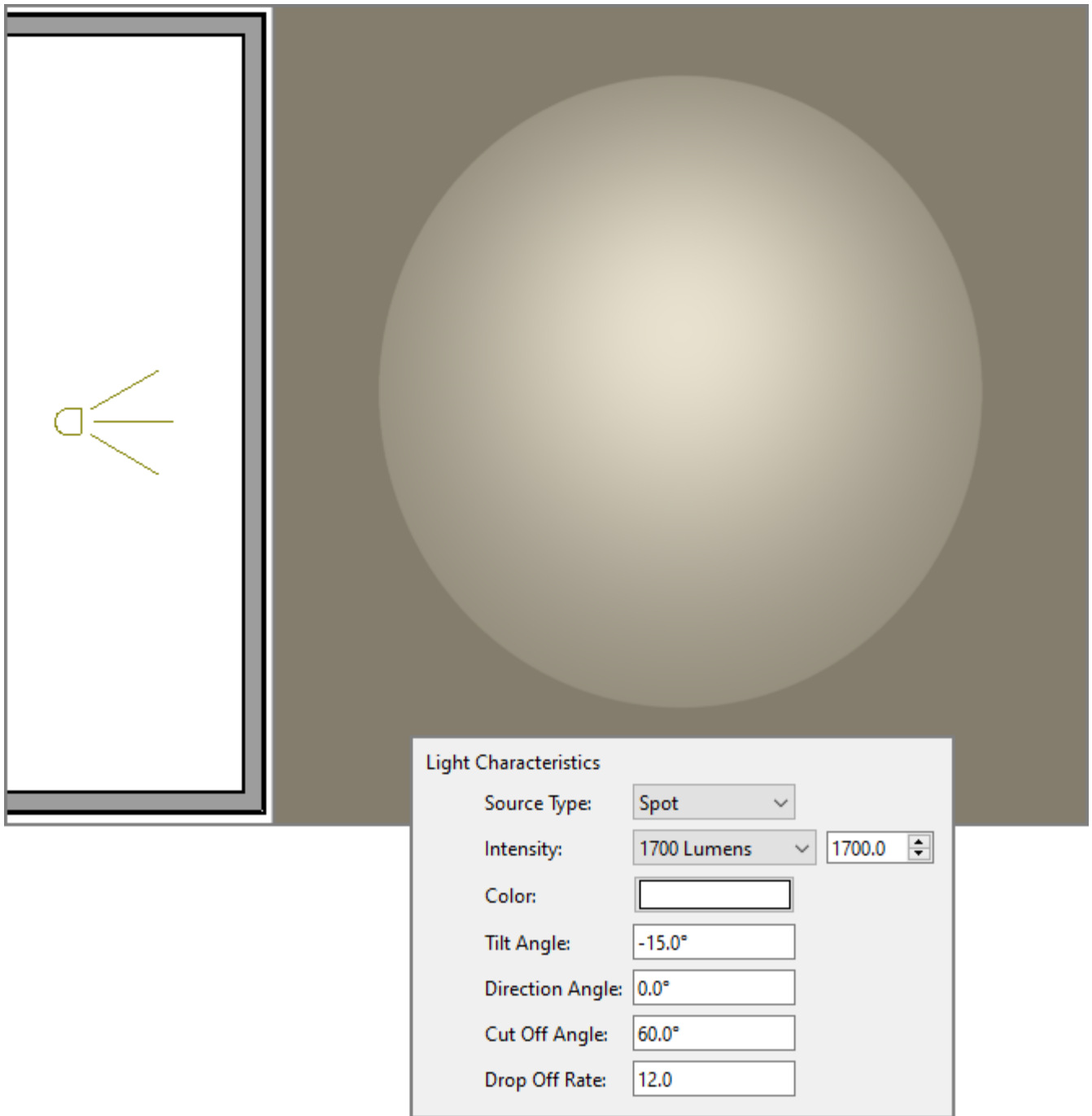
When working with an electrical light fixture that has multiple light sources, you may want to check the **Show Position in Camera View** option for a given light source while in the specification dialog. This will display helpful markers while in a 3D Camera view. If the light source is a Spot light, a directional arrow will display as well.




Lastly, let's go ahead and modify lights that are placed without a 3D electrical light fixture associated with it. This is especially helpful if you're wanting to brighten a scene or add light to a particular area, but don't want to add an additional 3D symbol to the view. If you recall from the beginning of this article, it was mentioned that this can be done by navigating to **3D> Lighting> Add Lights**  and then either clicking to place a Point light or clicking-and-dragging to create a Spot light. If you notice that this tool is grayed out, you're likely in a 3D Camera or other unsupported view as this tool is only available in a 2D floor plan view.

Once a light is placed, you can open the light up to specification and modify the properties further. You may notice that multiple light sources cannot be added to a light such as this. If more light sources are needed, simply select the **Add Lights**  tool once again and place as many lights as desired, each with their own properties. In the example below, you can see a floor plan view showing a single Point light aimed at a wall, a 3D Camera view showing the rendered results, along with the light

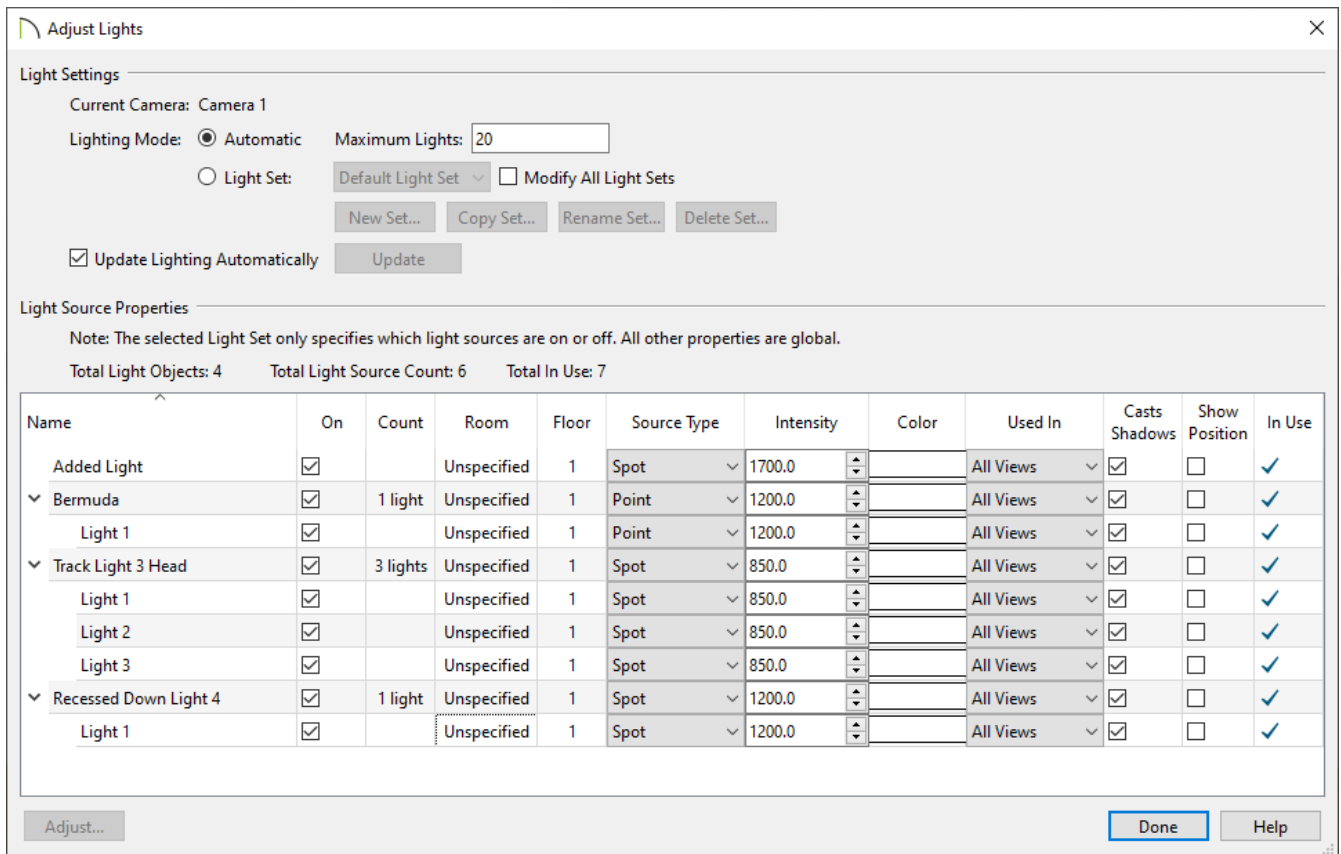
characteristics that are used.



To manage lighting

As a plan file becomes larger and more detailed, you will likely want to be able to manage or adjust properties of certain lights without much effort. This can be done by navigating **3D> Lighting> Adjust Lights** . In the **Adjust Lights** dialog, you can see the properties of each electrical light fixture in a file, each added light, along with each light source. Lights and shadows can be turned ON/OFF, view options can be changed, and lights can be accessed and opened to specification if further modifications are needed.

For more information on the various properties in this dialog, click on the **Help** button.




To use an emissive material to simulate light


One of the advanced properties of a material is emissivity, which refers to its ability to emit light. This property can be used to create a realistic image such as for a television or projection screen.

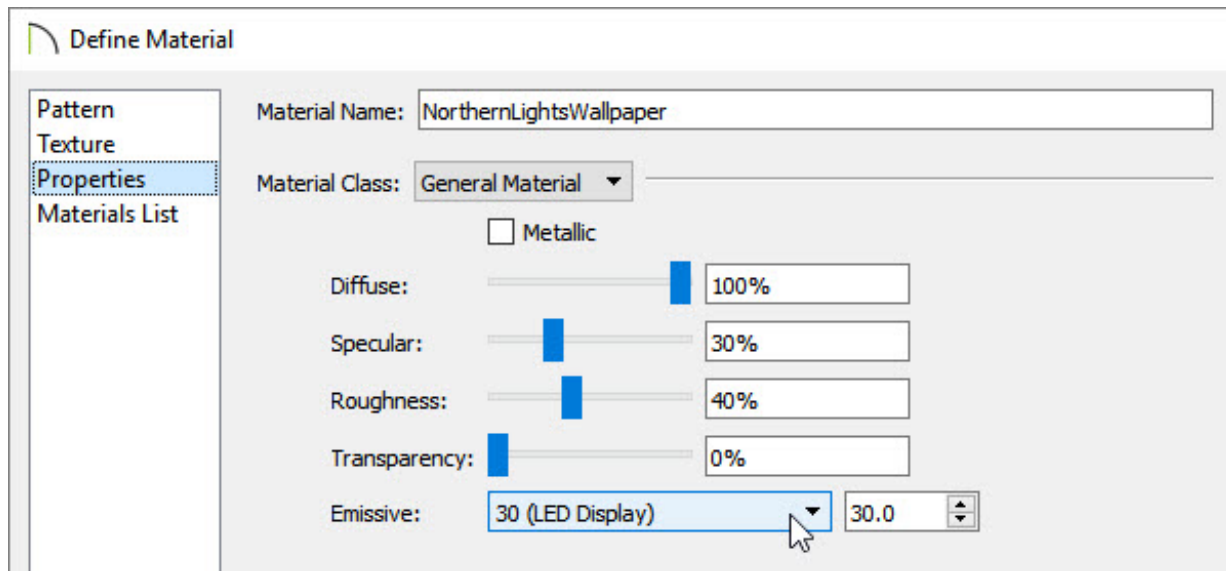
1. Use a digital image to create a custom material for display on a TV screen.

For more information on importing a custom picture, see the [Related Articles](#) section below.

2. Select **3D> Create Perspective View> Full Camera** , then click and drag a camera towards the TV or projection screen.

3. In the 3D view, use the **Material Painter**  tool to apply the custom material to the screen surface.

4. Select **3D> Materials> Adjust Material Definition**  and click on the screen containing your custom image.
5. On the **PROPERTIES** panel of the **Define Material** dialog, adjust the **Emissive** value to your liking.



Note: Emissive controls how bright a material appears independent of the lighting in the scene. It can be used to simulate surfaces that are glowing with their own light, such as the glass on a light fixture. This option is only available for General and Reflective materials.

6. When the desired value is set, click **OK** to apply this change.

Related Articles

- [🔗 Creating a New Material \(/support/article/KB-00767/creating-a-new-material.html\)](/support/article/KB-00767/creating-a-new-material.html)
- [🔗 Creating Realistic Lighting Effects for a Fireplace \(/support/article/KB-01234/creating-realistic-lighting-effects-for-a-fireplace.html\)](/support/article/KB-01234/creating-realistic-lighting-effects-for-a-fireplace.html)
- [🔗 Importing and Applying a Custom Picture to a Frame, Computer, or TV Screen \(/support/article/KB-00007/importing-and-applying-a-custom-picture-to-a-frame-computer-or-tv-screen.html\)](/support/article/KB-00007/importing-and-applying-a-custom-picture-to-a-frame-computer-or-tv-screen.html)
- [🔗 Using the Sun Angle Tool \(/support/article/KB-01001/using-the-sun-angle-tool.html\)](/support/article/KB-01001/using-the-sun-angle-tool.html)



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