Lighting for Layouts

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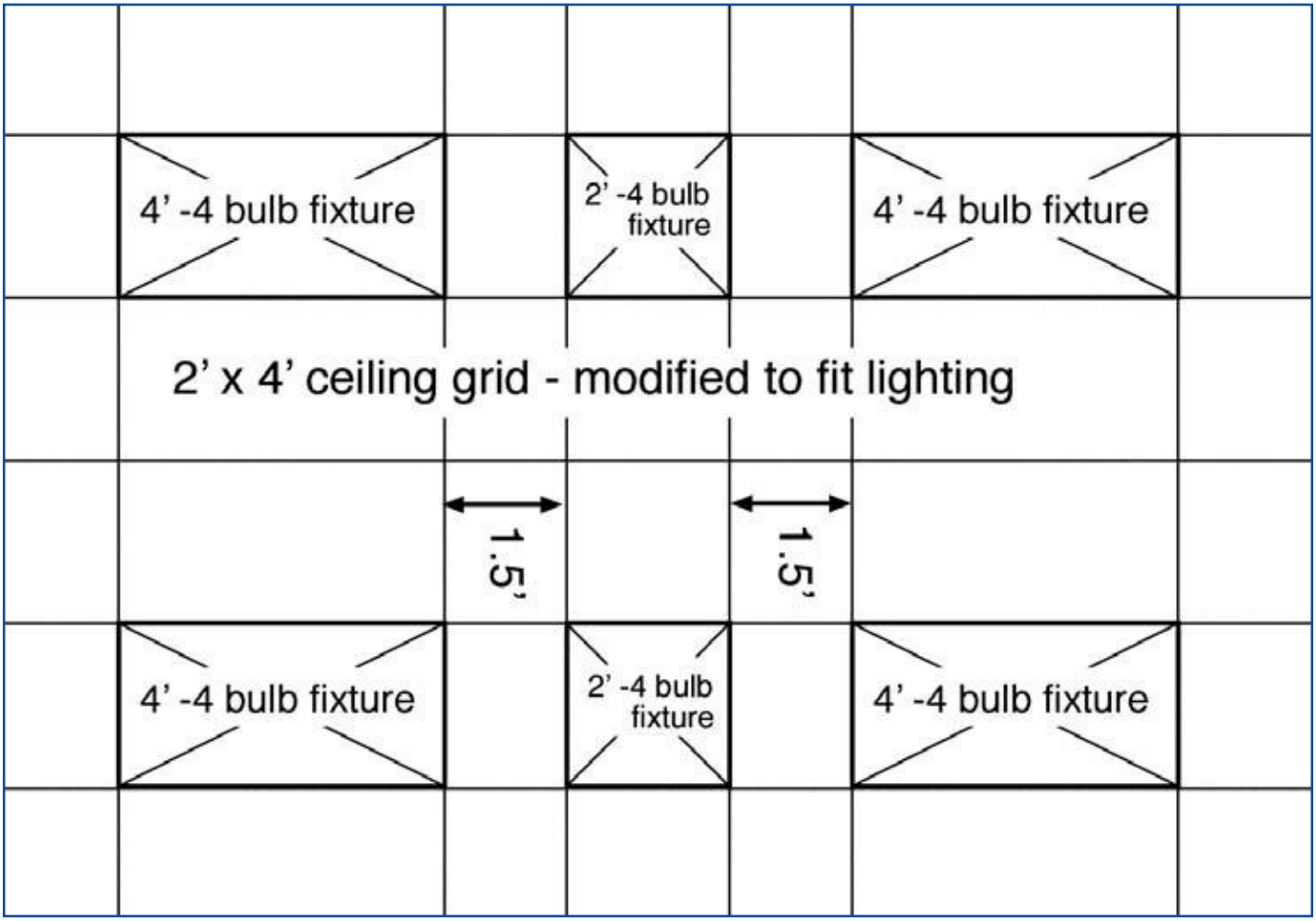
Lighting, lighting, lighting. Just like location, it cannot be said enough. We spend so much of our time, energy, and resources (money) on our hobby. There are books on benchwork, bridges, layout plans, operations, scenery, etc. Where is the lighting book? What good is a detailed and realistic scene if it looks like a solar eclipse is taking place all the time. Not enough is said about layout lighting. I have started building my layout and before the first rail could be put down, I knew I had to get more light. A basement is usually dark with no source of outside light. A spare room could have a window, but it and a 100 watt bulb cannot light a whole layout. Many of us would just put up some florescent lights because they put out a bright enough light. That is a good idea, but how many fixtures will it take? How do you know which bulbs to buy? Are all florescent bulbs the same? A trip to the local mega home store will cause more questions than answers when you see the stacks of bulbs. If you add fixtures to a room do you need to add another circuit for wiring? I hope to "shed some light on the subject" for you.

Recently, a few articles have appeared on the subject of lighting your layout for pictures. Never has an article dealt directly with whole layout lighting. I cannot do that here either, but I hope to get you thinking about your lighting. Most of us are not lighting gurus. Nor do we consider how different aspects of the light itself effects color, mood, and feel of the railroad. Light can create a visual atmosphere. When was the last time you sat down and watched a scene or your railroad as the train went by? Did it feel like summer? Were you thinking of what it is like to walk into the general store to buy a soda while the train clicks and clacks down the line? Or was there a cool breeze from the north and the red and orange foliage of the trees appeared muted and dingy? Check your lighting.

The NMRA has no standard for lighting. So creative freedom and the budget are the limiting factors. A small railroad, say



12' x 17' could be lit by fluorescent lights with good results: few dark spots, overall coverage, and near true color. What's the problem? Florescent lighting is not true light. It casts a blue tint to everything. However, depending on the bulb and wattage, you can achieve good color representation on your trains. It can help in photography to have true color florescent bulbs, however, tungsten lighting is the best, true light for great photos.

So how many of us are professional photographers anyway? As a general rule, the higher a lamp's Color Rendering Index (CRI) number, the better color will appear to the human eye. GE type SP florescent lamps with CRI's at 70+ have better color rendering than older standard florescent style bulbs. SPX type bulbs have a CRI of 80+ for higher rendering at the same efficiency. SPX style lamps do cost more. You could spend $75 or more per fixture! Ouch! An incandescent light generally has an excellent CRI of 100 as does sunlight.

Is it cold in here? Check the color temperature. This is good to know if trying to light the garage or family room of your house. Most of us would choose incandescent lighting for a family room because of the warm feel it gives, but that is a completely different story. Color temperature is measured in Kelvins (K). A lamp with a temp of 3000°K is a warm light. It makes people and furnishings look good in low light levels. Temps at 4100°K are cool white. They are useful for higher light levels when people and furnishings must look good. Very cool or Chroma is near sun tone at 6500°K to 7500°K respectively. It will simulate colors of sunlight. It renders all colors well, but emphasizes cool or blue tones. The lower the K number the warmer or more golden a light will appear. A four-light fixture of Chroma lights can light a scene approaching that of true sunlight without the UV. Using a wide dispersion clear cover on the fixture can spread the light evenly around the room.

How would you light the *O Scale Trains* layout contest room if you built it? Let's get back to the 12' x 17' room. It could really use four 2' x 4' fixtures and two 2' x 2' fixtures arranged in a drop ceiling. Space the fixtures at least two feet off any wall. This calls for some cutting of ceiling tiles but avoids the stark light from the fixture on the wall and disperses the shadow between fixtures. This does give a lot of light. I chose to light my first railroad with ceiling fixtures. You can see an example at www.bsrroscale.com. If you use six fixtures to light a room and then need a 10 amp power source for 3 trains are you near to exceeding the wiring amperage limits on that circuit? Maybe not, a four-light fixture with 32 watt bulbs uses just .98 amps. By contrast, a single 65 watt incandescent uses 0.59 amp with only 65 watts of output, not 128 watts as on the florescent. Usually a room will have a 15 to 20 amp breaker. Please call an electrician if you are even remotely unsure about house wiring. Never go prying into electrical boxes without knowledge of such things. Always shut off power to the room at the breaker box before working on wiring.

How much light is light? Look to the Lumens, as in luminescence. It can be similar to candle power. A Lumen is a measure of output for florescent lighting and lighting in general. A single 65 watt incandescent bulb has a Lumen of 865. A 48 inch, 32 watt single florescent tube has a Lumen of 2320+! Then there is life expectancy. A florescent bulb has a average life span of 20,000 hours or 2.2 years! A florescent bulb glows light. In short, it puts out light without excessive heat. You can touch a florescent light while on, but you will quickly turn loose of an incandescent and have a nice burn to boot. You can see why florescent lights tend to be the light of choice. (An interesting side note: the life expectancy of a florescent bulb is inversely proportional to how many times the fixture is turned on and off - Ed.)

Lighting for a layout is as important to me as choosing code 148 or 125 rail for the mainline. A poorly lit railroad can be a disappointment to view. Lighting can make the layout vibrantly true to life or cause unnecessary melancholy woes. Remember your visual atmosphere. What about incandescent lighting? High Kelvin temp incandescent bulbs are available now and there are many incandescent bulbs out there that can be used for natural sunlight lighting effects. Lighting a layout is as unique as the layout itself. There are many styles, shapes and costs of fixtures. I only pointed out a few things to consider. Choosing the right light for you is, well, up to you. ◆