

Criteria for Museum Light Sources

Why do you need to compare light sources? Because different light sources have different rates of damage depending upon what they are lighting. Because different light sources also have different abilities to show presentation which is directly tied to the enjoyment of the artifacts. Because a light source that is acceptable for a specific object can accelerate damage and destroy a different type of object.

What are you light? Then pick the light sources that best match that specific collection. You specify your lighting. You are the one that loves your collections.

A contractor, a lighting rep or an electrician hasn't a clue about photochemical and photomechanical damage. Do they even know about your collection? Do not let them play Russian roulette with your valuable things.

Museum lighting needs to be evaluated on several different criteria.

1. First and foremost you should consider the amount of radiation outside the visible spectrum, the light energy that causes damage but does not help with vision. In this aspect the IES guidelines are correct. Museum lighting should have no UV and no IR.

2. Next you should consider the quality of the visible light. It should closely match the visible solar spectrum with very low (under 15%) correlated color imbalance (coefficient of u_gly). That means perfect color balance and perfect color rendition. Museum lighting should be adjustable in intensity without shifting color temperature or color balance.

3. Lastly, wherever possible, museum lighting should be filtered to match the reflected spectral distribution of the artifacts illuminated. In practice this means the lighting system must have very tight control over aim and focus. Beams must have clean edges without spill or scatter. And each individual fixture must be able to accept a color filter.

The above criteria reflect the ideal museum lighting system. They also are vital to private collectors. Remember that the museum artifacts of tomorrow are in the hands of the individuals of today. They are the ones with the passion and the foresight to care for the objects that feeds the museum collections of the future.

All of these criteria are technically possible and available on the market today. The cost of such systems is roughly equivalent to that of good quality track lighting. The best of these systems provide energy and maintenance savings that by themselves justify installation.

Today, there are thousands upon thousands of existing museum lighting installations and millions of dollars of impractical or obsolete lighting. Budget

constraints are just one of the issues that slows the change to effective preservation lighting systems in museums.

Unfortunately, protecting collections is sometimes a complicated muddle of conservation, economics, politics, practicality and compromise. Things cannot change overnight. But with the knowledge available here, it isn't that hard.

Lighting has to change. There is too much data, too widely disseminated and the solutions are too readily available *to justify damaging artifacts with poor lighting*. To know where you are and to evaluate the possible light dangers to your collection, look at the complete spectral output of light sources. Find out what you are using. Find out what you should be using instead. NoUVIR provides a brief review of most of the common lighting sources in use in museums today.