ASSIST *recommends...*

Specifying Light Source Color for Retail

Lighting plays an important role in supporting retail operations, from attracting customers, to influencing product appearance, to corporate branding. A recent survey of lighting designers and specifiers by the National Lighting Product Information Program showed that for retail applications, light source color properties are considered more important than any other criterion, including energy efficiency.

To define light source color properties, the lighting industry predominantly relies on two metrics, correlated color temperature (CCT), commonly used as an indication of the apparent "warmth" or "coolness" of the light emitted by a source, and color rendering index (CRI), theoretically representing a light source's ability to make illuminated objects appear natural. However, these two metrics, developed in the last century, are facing increased challenges and criticisms as new types of light sources, particularly LEDs, become more prevalent in the market.

To help retail lighting designers better understand CCT and CRI and choose the best lighting product for specific retail applications, ASSIST has published a new volume in its *ASSIST recommends* series.

Guides Provide Background, Methods for Specifying Color

The first issue, "Guide to Light and Color in Retail Merchandising," provides a background on CCT and CRI, including their advantages and drawbacks, and discusses how they may be augmented for better use in retail merchandising. The second issue, "Recommendations for Specifying Color Properties of Light Sources for Retail Merchandising," recommends two-metric approaches for specifying light sources to achieve desired color appearance of the illumination as well as good color rendering in retail applications.

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Two-metric Approach

To meet the expectations for good color rendering in retail applications, ASSIST advises using the well-established CRI along with another metric called gamut area index (GAI). GAI represents the relative separation of object colors illuminated by a light source; the greater the GAI, the greater the apparent saturation or vividness of the object colors. LRC experiments have shown that light sources which balance both CRI and GAI are generally preferred over ones that have only high CRI or only high GAI.

To achieve satisfactory, consistent color appearance from light sources, for retail lighting applications ASSIST recommends reducing the number of CCT designations to the four most common used in practice—3000 K, 3500 K, 4000/4100 K, and 5000 K—and proposes more restrictive CCT tolerance zones, approximately equal to 4-step MacAdam ellipses, to maximize consistency among products.

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