

# Standard Viewing Conditions for the Graphic Arts

by Richard W. Harold and David Q. McDowell

**B**efore you blame your proofing device or your pressroom or somebody or something because the color on that last job wasn't right—again—take a look at where you and your customers are making those color judgments. It might just be that you're seeing things "in a different light." In this article, authors Richard Harold and David McDowell explain why using consistent and standard viewing conditions, a practice sometimes ignored or handled a bit too casually, is essential to the color reproduction chain. They also introduce a new standard for graphic technology and photography viewing conditions, ISO 3664, that has received ISO approval and is in final preparation for publication in 1999.

## Why Are They Important?

Color and density measurements play important roles in the process control of color reproduction, but they can't replace the human observer for final assessment of the color quality of complex images. In the color reproduction process, we commonly compare different kinds of originals and reproductions with one another for fidelity of color matching; e.g., color reflection artwork, photographic transparencies, photographic prints, off-press and on-press proofs, and press sheets—all are commonly visually evaluated for their image and color quality or compared critically with one another for fidelity of color matching.

There is no doubt that the best viewing condition for visually assessing the color of a printed product, is the environment in which it will be finally seen. Where we know what this environment will be, and where it is practical to do so, the people in the production chain may sensibly agree to use this viewing condition to evaluate the final printed product. Unfortunately, this is usually not practical.

More importantly, though, such end-use viewing conditions don't allow us to make valid comparisons between the original artwork, photography, off-press proofs, etc., and the final printed sheet. This is because the color appearance of each of these materials is affected, often differently, by the light source and viewing conditions. To avoid mis-communication about color reproduction and processing, consistent viewing conditions must be used throughout the production chain.

The color and brightness of other objects and surfaces in the observer's field of view can also significantly influence his/her perception of the tone scale and color of a print or transparency. For this reason, ambient conditions, and the immediate surround conditions, of the viewing location also need to be controlled. In many situations, this is the role of the viewing booth. However, a viewing booth is not always required—there are many situations in graphic arts where a portion of a room or an open area can be established as a viewing area that meets the requirements.

The only way to ensure consistent viewing conditions, among all the play-

ers in the reproduction process, is to have a single recommendation everyone can aim toward. The current proposal for that single recommendation is ISO 3664, *Viewing conditions—for Graphic Technology and Photography*. This international standard has received ISO approval and is in final preparation for publication in 1999.

*The characteristics of the light source affect what we see.*

## Where Did We Get This Standard?

Prior to this new standard, viewing conditions were defined in a 1975 version of ISO 3664 called *Photography—Illumination conditions for viewing color transparencies and their reproductions* and an ANSI standard called PH2.30-1989 *For Graphic Arts and Photography—Color Prints, Transparencies, and Photomechanical Reproductions—Viewing Conditions*. These standards were similar but were not the same as each other.

In late 1994, under the auspices of ISO/TC42, a joint task force was created to revise the ISO standard. The task force, chaired by Tony Johnson of the U.K., was composed of members of ISO Committees TC42 (Photography), TC130 (Graphic technology) and TC6 (Paper, board and pulps). There was tacit agreement from members of the