

# Seeing Colors in a New Light

TEXT BY  
**DAVID MILLER**  
CHIEF CONSERVATOR AND SENIOR  
CONSERVATOR OF PAINTINGS



Colors, details, and textures are just some of the ways artists communicate ideas. Therefore, how we at the IMA light an artwork is crucial to how you, the guest, experiences the artist's intent. Whether its daylight coming from skylights and windows, or artificial illumination coming from ceiling and display cases, lighting affects the ability to fully appreciate the artworks on view. To present them in the best light possible, the IMA is undertaking an 18-month-long project to replace the existing gallery and art storage lighting with LED (light emitting diode) lamps thanks to a generous grant from the National Endowment for the Humanities.

LED lighting has made its way into our homes, appliances, and vehicles to provide light using less energy. But only recently has LED technology and quality reached the standards of color rendering required for museum use.

The IMA first experimented with LED lighting to replace the aging fluorescent lights behind Louis Comfort Tiffany's *Angel of the Resurrection* stained glass window in 2015. The new LED lighting far better revealed the window's brilliant colors, used fewer lamps, and significantly less energy than before. As LEDs do not emit the harmful ultraviolet (UV) radiation found in other types of lighting, they also meet a preservation goal of eliminating UV without the need for expensive and short-lived filters. The Tiffany window project provided the confidence that we could have equal success throughout other areas of the Museum.

## Below:

Frederick Wilson (American, 1858–1932), Tiffany Studios (American), manufacturer, *Angel of the Resurrection* (detail), 1903–1904, stained glass, lead, 348 × 168 × 4 in. Indianapolis Museum of Art, Gift of the First Meridian Heights Presbyterian Church, Indianapolis, 72.75.



How did we decide which LED lamps to use in the galleries? Using studies by the U.S. Department of Energy and our own internal investigations, an exhibition gallery with neutral walls was hung with six groupings of test materials, which represented the artworks. Using five different LEDs and one IMA standard halogen lamp, each "artwork" was illuminated by a different lamp. The five LED lamps, each by a different manufacturer, were selected for testing based on narrow criteria. These criteria included a desired range of color temperature, lumen output, beam spread, high color rendering index (CRI), efficacy, warranty, and availability. The study was conducted as a blind test, with only the lighting designer knowing which lamp was which.

A questionnaire was developed and distributed to the conservation, curatorial, design, and installation departments as well as to senior staff to assess their response to each of the lamps. The results were tabulated, and the winning LED lights were installed in the American Modernist gallery on Floor 2 for a "live" test. Conversion of the lighting in this gallery not only made Georgia O'Keeffe's paintings glow with her intended colors, but led to an energy savings of \$300 per month. Additional savings benefits will be realized as LED lamps last far longer and will not have to be changed as often. Come see the difference for yourself!



This project has been made possible in part by a major grant from the National Endowment for the Humanities: Exploring the human endeavor. Any view, findings, conclusions, or recommendations expressed in this article, do not necessarily represent those of the National Endowment for the Humanities.