

## TECHNOLOGY

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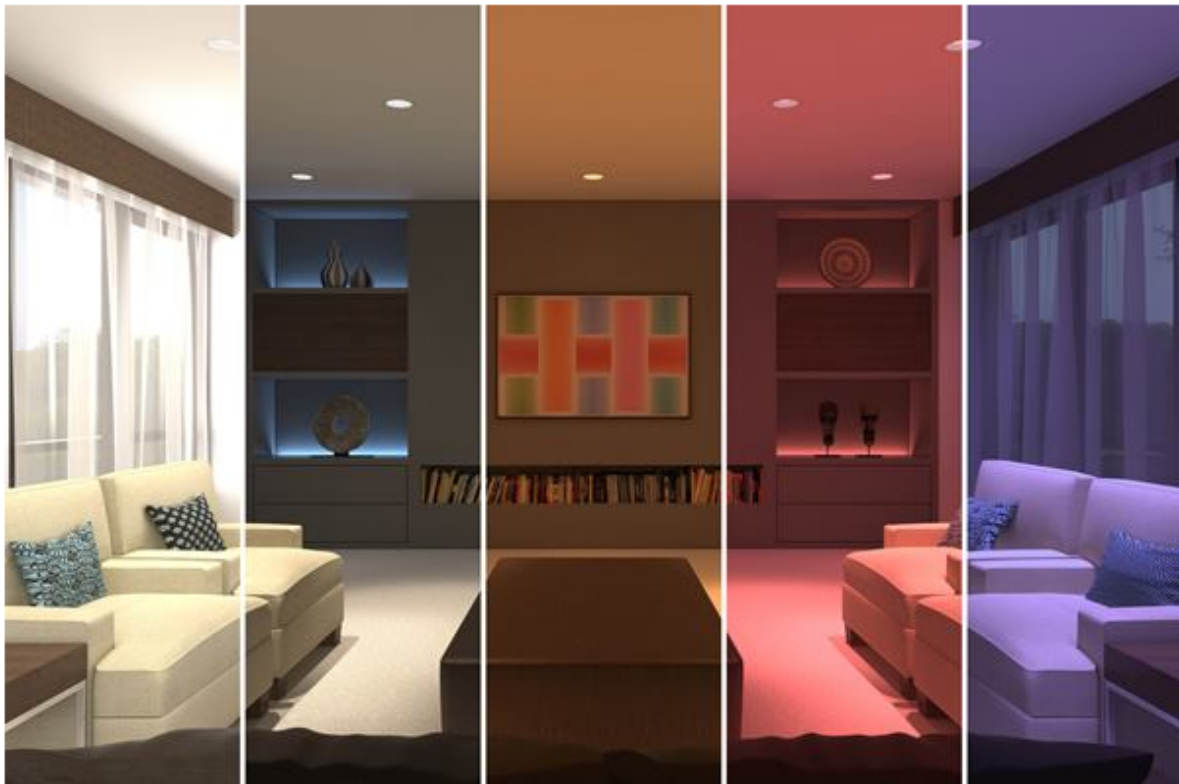
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TECHNOLOGY TRENDS

# Color Tuning

Manufacturers are investing in tunable white and color technology to give designers and end-users more control over a space.

By Hallie Busta



A rendering of USAI Lighting's Infinite Color+ technology in application.

Credit: USAI Lighting

The goal for interior LED lighting has long been to emulate incandescents in color performance—particularly the warm, steady glow they offer when dimmed. But solid-state lighting's potential remains its

ability to be adjusted, post-installation, to meet a space's changing needs. Manufacturers are now developing color-tunable fixtures, giving specifiers greater control over their lighting choices.

"With traditional technology, white was defined for us by the source ... [which] all had very distinctive and very different tones and that's not necessarily what people perceive as white," says **Bonnie Littman, president of USAI Lighting** in New Windsor, N.Y. The company's new Infinite Color+ joins its **portfolio of color-tuning technology** deployed in the form of an architectural downlight that provides tunable white light in addition to a full color spectrum, Littman says. The challenge, however, was making sure the luminaire didn't behave like a typical theatrical fixture, which combines white, red, green, and blue LEDs and doesn't deliver a pure white light. "We actually started with white and then added the RGB later," she says. "We took a reversed approach to what most of the industry has done."

This isn't the first time USAI has pushed itself on the research and development front to make new technology work with its existing product portfolio. For its **Color Select** control platform, USAI developed its own circuitry and algorithms that would allow the system to work with everything from a simple wall control to a complex dimming system. "All this while fixture-to-fixture color consistency had to be perfect and two-step," Littman says, adding that the technology also needed to be made available across product types.



New York lighting design studio **ZeroLux** collaborated with architectural interiors firm **Pavarini Design** on the lighting design of the Ronald McDonald House in New Hyde Park, N.Y., for which Juno Lighting Group donated fixtures.

*Credit: Pavarini Design*

Tunable color must be available across an application, says Jeff Spencer, product management and market development director at **Juno Lighting Group**, in order for the technology to meet its value proposition of helping to improve end-users' attention and productivity in offices and classrooms, aiding in health care patients' recovery, and generally improving the visual comfort in a space throughout the day.

Juno's **Indy ChromaControl LED technology** can integrate with luminaires such as downlights, wallwashers, and adjustable accent lights to provide black body dimming and white- and color-tunability.

The company donated downlights from that series to a recent re-design of patient rooms at the Ronald McDonald House in New Hyde Park, N.Y., helping to create a healing environment for children who are hospitalized long-term due to illness.

"While researchers continue to develop a deeper understanding of the link between light and health, it is clear that architects and lighting designers are starting to consider properly timed exposure and avoidance of specific wavelengths of light," Spencer says. "They are also more sensitive to the effect of differing light levels and color temperatures as a normal part of the lighting design process."

Littman says USAI has been contributing to such research, working with the **Light and Health Alliance at the Lighting Research Center** at the Rensselaer Polytechnic Institute in Troy, N.Y., to explore the effect of light on melatonin suppression in humans through its Color Select platform. "Architectural design is moving toward flexible spaces," she says. "We believe that lighting design for non-visual effects will continue to be a very important development for the future and will absolutely continue to drive our industry."

Spencer also sees a staying opportunity for color tuning. "If the price and performance is right, there may certainly come a time when specifying a light fixture that does not have tunable white or color-tuning capabilities may be as unusual as buying a car without electronic windows," he says. "It used to be considered a luxury, but now it's a standard feature."



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