

SMART

Lighting

Technology brings down costs and gives users control over the ambiance of their lives

By Sharon Jayson

Light helps us see, but more and more, studies show it affects how we feel. Think how dimmed restaurant lights create a romantic mood. Researchers found that exposure to bright blue light left more lab animals depressed but reddish tones significantly reduced those moods.

With new smart light features that let homeowners control all lights remotely using wired or wireless technologies, the connected home offers new opportunities to light up your life for just the atmosphere you want.

Although indoor and outdoor security lights may ward off break-ins, newer lighting options provide extras. Warning lights can alert you to a water leak on your property. You can now adjust intensity and color of home lighting according to time of day. GE calls its version the C by GE. By setting indoor lighting to blue tones for a wake

up during daylight hours and shifting to dimmer and warmer tones in the evening, your home lighting can mimic iPhone's Night Shift, a feature included in the iOS 9.3 update this spring that does the same thing for your device's screen. Night Shift allows owners of iPhone 5S and newer models to set dimmer and brighter screens if they wish.

While there are vast changes in the lighting industry, not all are because of connected home capabilities. Light bulbs and lighting controls are also in the midst of huge change, as LED bulbs slowly replace traditional

incandescent bulbs and lighting controls have gone way beyond the light switch. "We're part way down the road of a really revolutionary change in lighting that's strongly driven by energy and energy efficiency," said Terry McGowan, director of engineering and technology for the American Lighting Association, a Dallas-based trade association for the residential lighting and ceiling fan industries in the U.S. and Canada.

The major change is from the traditional incandescent light bulb to LED, he said, with LED bulb production increasing as prices drop.

The incandescent light bulb phase-out began in the wake of a 2007 federal law that required light bulbs to consume less electricity for the amount of light produced. Those new efficiency standards reflect the number of lumens (brightness level) per watt a bulb provides. The term "watts" (units of measurement of the energy a bulb consumes) is no longer used.

The phase-in of the new law began in 2012; however, traditional incandescent bulbs are still widely used. Their replacements include compact fluorescent

lamps (CFLs), light-emitting diode (LED) bulbs, and higher-efficiency halogen versions of the incandescent.

"There are more than 4 billion existing light bulb sockets out there in the U.S.," McGowan said. "Most were originally installed with incandescent bulbs and about 20 percent were converted to CFL bulbs when they appeared a few years ago."

"Now those sockets are being converted to LED bulbs. It's as simple as unscrewing the existing bulb and screwing in an LED bulb — no rewiring or changes to the fixture are required."

But LED isn't necessarily the answer for everyone. Consumers have lots of questions. Will swapping out all my light bulbs reduce energy costs? Should I continue using any traditional incandescent bulbs I have on hand? Is the curly CFL a good option?

The answers aren't so clear-cut. There's no cookie-cutter approach to home lighting, design or energy use, so lighting experts don't have any universal recommendations other than to look for Energy Star labels on fixtures and light bulbs

(they save energy and increase life span). For more information on energy savings, visit energystar.gov.

Also, the American Lighting Association offers resources at its website americanlightingassoc.com. A tab called Lighting Fundamentals explains the basics and many of the options. Additionally, consumers can learn more from the organization's magazine *Lighting*, which is online. Consumers can request a free print edition as well.

One example of how the industry is changing is a new approach from Sylvania. Its bulbs are produced by LEDVANCE (a global company whose U.S. products are branded Sylvania). Now bulbs are only one part of a much larger smart lighting environment the company has dubbed LIGHTIFY.

"We see automation as becoming the next major emphasis," said Aaron Ganick, Head of Smart Home Americas, LEDVANCE.

His Wilmington, Mass.-based company has expanded its products into lighting controls and sensors to automate the lighting experience.

"The only thing slowing down adoption is confusion in the market-

place," Ganick said.

Among those producing lighting controls is Austin-based Plum, whose Plum Lightpad Wi-Fi Dimmer is finding a customer base in high-end homes, according to co-founder Glen Burchers.

Customers are buying 10 to 20 lightpads at \$100 each, he said.

"That kind of clientele is looking for amenities to improve their home and they have the disposable income to spend on luxuries like this," he said. "This is still early-adopter technology."

And as in all aspects of the connected home, security concerns continue to play an ever-important role.

"If it's connected lighting, it means information in your home is transmitted over the Wi-Fi system. It's digital data. That means it could be hacked," said McGowan, of the American Lighting Association. His association is one of many such groups working on standards with UL, a worldwide safety consulting and certification company headquartered in Northbrook, Ill. UL, which stands for Underwriters Laboratories, works with manu-

facturers, regulators, retailers and consumers and its "UL" certification brand is ubiquitous on a wide range of consumer products.

"There's a lot to be sorted out for interoperability and compatibility," Tom Blewitt, UL's director of principal engineers, said. "There's a lot of players in this space."

But with smart home technology, safety also means safety from a cybersecurity standpoint, which is why Blewitt, of Melville, N.Y., says his company this spring published a set of standards for network connected products dubbed UL 2900-1, which will be updated on an ongoing basis as experts review the document.

"UL's cybersecurity standards effort is intended to serve as a catalyst to define a set of criteria that could be used to certify a product or software," he said.

McGowan, of the trade association, said enlightening consumers about lighting is critical but not easy.

"Residential lighting is moving toward systems," he said. "The consumer is thinking 'What bulb shall I buy off the shelf?' There's a mismatch." ■

Light Bulb 101

Three types for home lighting:

- **HALOGEN INCANDESCENT:** Similar to the traditional household incandescent bulb but about 30 percent more energy-efficient; can last up to three times longer.
- **CFL (COMPACT FLUORESCENT LAMP):** Curly versions of the long tube fluorescent light, but the bulb is three to four times more efficient than traditional incandescent; can last six to 10 times longer than traditional incandescent.
- **LED (LIGHT-EMITTING DIODE):** More than five times more energy-efficient than traditional incandescent; can last up to 25 times longer than traditional incandescent.

What happened to watts?

Bulbs are now labeled in "lumens" rather than "watts" to reflect a more accurate measurement of light output. Lumens measure how much light a bulb emits while watts measure the amount of power a bulb draws. More lumens equal brighter light; fewer lumens produces dimmer light.

Why do light bulbs have a color?

"Warm" light has a rating of 2700 to 3000K (K stands for Kelvins, which measures hues) and closely matches the color of a standard incandescent bulb. Bulbs with higher Kelvin ratings, such as 4000 or 5000K, appear blue-white and are considered "cool."

Long live the light bulb!

Energy-efficient light bulbs save money because they use less energy. The U.S. Department of Energy suggests that replacing 15 traditional incandescent bulbs in your home with more energy-efficient bulbs could save you \$50 per year. And, because the new bulbs have longer life spans, you'll be buying fewer and replacing burned out bulbs less often. The typical life of standard incandescent bulbs was 1,000 hours; the life of CFLs is typically 9,000 hours; LEDs are rated for 25,000 hours or more.

Source: American Lighting Association



SYLVANIA LIGHTIFY LED A19 RGBW: A smart light bulb controlled via the free LIGHTIFY app for your phone or tablet offering a myriad of color options.