

Amerlux Square LED Pendant and Aesthetics - Amerlux's Rook 3.5" Square Pendant is a versatile solution for open ceilings as a surface-mount pendant or a pendant with a remote driver. The Rook 3.5" Square Pendant re-imagines the popular Hornet HP Downlight in a new square pendant form. The Hornet family of LED downlights is a lighting system with a variety of different options, including square and round trim, beam spreads that range from a very narrow flood to a very wide flood and adjustable accent. Designed for retail, commercial, hotel and residential applications, the Hornet HP family of downlights provides design flexibility, energy efficiency and comfortable lighting together. With the Dim-To-Warm feature, the lights shift to lower kelvin temperatures as you dim them, emulating the familiar effect in incandescent light bulbs. http://www.amerlux.com/content/products/ies-spec/files/lit-2216_rk350_square_pendants_022519.pdf



LED Energy Market Observer:

- 1. Networked Lighting Controls & Rebates by BriteSwitch** - Since the addition of a networked lighting controls category to the Design Lighting Consortium (DLC) list in 2016, it has been seen by many as the next big thing in lighting. According to DLC, these controls can save 35% or more of lighting energy use in commercial buildings. They estimate that less than 10% of new construction projects and 1% of lighting retrofit projects currently use this technology. Seeing the opportunity to gain additional energy savings from commercial buildings, rebate programs have been trying to decide how to incorporate networked lighting controls into their offerings. It has proven difficult since these projects are usually complex and it's hard to establish a deemed energy savings for each project. <https://briteswitch.com/news/>
- 2. Cree Announces Financial Report for Its Fiscal 3Q19 with Focus on Wolfspeed Business** - Revenue from continuing operations for the third quarter of fiscal 2019 was US\$274 million, which represents a 22% on-year increase. The company announced on March 14, 2019 a definitive agreement to sell the Lighting Products business to IDEAL Industries. As a result, the results of the Lighting Products business have been classified as discontinued operations in the consolidated statements of (loss) income for all periods presented. The transaction is expected to close by the end of Cree's fiscal year 2019. On the other hand, Cree continues its focus on Wolfspeed business with products consists of SiC, GaN materials and power devices and RF devices based on Si and other semiconductor materials. For Cree's fiscal 3Q19, Wolfspeed revenue grew by 72 percent, accounting for more than half of the company's total revenue of the quarter. https://www.ledinside.com/news/2019/5/cree_financial_report_fiscal_3q19_wolfspeed_business
- 3. Signify's Q1 Profits Jump Amid Limp Sales and Layoffs** - Financial results continued to brighten at Signify, where net income for the first quarter ending Mar. 31 more than doubled to \$49M on the strength of ongoing cost cutting, as sales slipped slightly to \$1.65B from \$1.67B, compared to the same quarter a year earlier. The 119% surge in income from \$22.3M marked the second consecutive quarter in which earnings jumped against a decline in sales, following a fourth quarter in which net income leapt 216% to \$136M while sales fell 8.8% to \$1.98B. On both occasions, Signify CEO Eric Rondolat pointed to ongoing restructuring as a big contributor to the profits. The measures have included layoffs. The company's headcount has declined from 31,615 in the first quarter last year to 28,689 at the end of this year's first quarter. <https://www.ledsmagazine.com/articles/2019/04/signify-s-q1-profits-jump-amid-limp-sales-and-layoffs.html>

4. CIE Position Statement on the Blue Light Hazard - There have been a number of reports in the media about the risk to human health following exposure to light from sources such as light emitting diodes (LEDs), referring to the term “blue light hazard” (BLH). This term has been inaccurately used to represent the risk of actual eye damage and the influence on general well-being. The term “blue light hazard” should only be used when considering the photochemical risk to the retinal tissues of the eye (technically referred to as “photomaculopathy”), usually associated with staring into bright sources, such as the sun or welding arcs. “Blue” is included in the term because the risk of photochemical injury is wavelength-dependent, peaking in the blue part of the optical radiation spectrum around 435 nm to 440 nm. There is no evidence in humans of any adverse health effects from occasional exposure to optical radiation at the exposure limits. <http://www.cie.co.at/publications/position-statement-blue-light-hazard-april-23-2019>

5. Detroit Sues Lighting Manufacturer Over Failed Street Lights - The City of Detroit filed a lawsuit against Leotek Electronics USA, an LED lighting manufacturer based in California, claiming more than 20,000 LED street lights purchased less than 5 years ago are failing. The lawsuit, filed in United States District Court in Eastern Michigan, claims Detroit’s Public Lighting Authority bought 25,320 E-Cobra Luminaires from Leotek at a cost of \$3,962,988 in 2014 and 2015. The suit says the LED streetlights were purchased with a 10-year warranty. However, the city claims about 20,000 of the Leotek luminaires are prematurely dimming and burning out, leaving neighborhoods in the dark. The suit goes on to say that the PLA purchased lighting from other manufacturers, and there are no problems. <http://lightedmag.com/detroit-sues-lighting-manufacturer-over-failed-street-lights/>

6. Jobs Surge in April, Unemployment Rate Falls to the Lowest Since 1969 - The U.S. jobs machine kept humming along in April, adding a robust 263,000 new hires while the unemployment rate fell to 3.6%, the lowest in a generation, according to a Labor Department report Friday. The American economy “easily beat Wall Street expectations of 190,000 and a 3.8% jobless rate.” President Donald Trump hits a new high on his economic approval ratings in a new CNN Poll conducted by SSRS, reaching 56% of Americans saying he’s doing a good job on the economy. <https://www.cnn.com/2019/05/02/politics/cnn-poll-trump-economy-2020/index.html>

7. What Will the Utility of the Future Look Like? by Kevin Joy - From interconnected smart devices to employees with new skill sets, these trends are poised to shape business and customer service models. Once considered predictable and even stodgy, the power and utilities sector is rapidly transforming — and the future is digital. The Deloitte report, “Digital Innovation: Creating the Utility of the Future,” outlines the challenges and opportunities of a changing landscape. Energy sector leaders identified forces that impact their business models — with changes in fuel prices and availability at the top of the list. Technological advances are driving rapid cost declines for building blocks such as computing power, data storage and internet bandwidth, the report notes. Utilities are looking to leverage sensors, robotics, cloud computing, artificial intelligence and Internet of Things sensors. But they’re not the only ones doing so. These shifts have prompted outside players to explore and enter the market, causing competitive disruption. That, however, presents an opportunity for savvy utilities to take advantage of these developments and outperform status quo competitors. <https://biztechmagazine.com/article/2019/05/what-will-utility-future-look>

8. New Scientific Device Creates Electricity from Snowfall - UCLA researchers and colleagues have designed a new device that creates electricity from falling snow. The first of its kind, this device is inexpensive, small, thin and flexible like a sheet of plastic. The researchers call it a snow-based triboelectric nanogenerator, or snow TENG. A triboelectric nanogenerator, which generates charge through static electricity, produces energy from the exchange of electrons. Snow is positively charged and gives up electrons. Silicone -- a synthetic rubber-like material that is composed of silicon atoms and oxygen atoms, combined with carbon, hydrogen and other elements -- is negatively charged. When falling snow contacts the surface of silicone, that produces a charge that the device captures, creating electricity. About 30 percent of the Earth’s surface is covered by snow each winter, during which time solar panels often fail to operate. The new device could be integrated into solar panels to provide a continuous power supply when it snows. https://www.eurekalert.org/pub_releases/2019-04/uoc--bis041519.php

9. **Orion Lighting and BC Energy Solutions Complete LED Lighting Upgrade Project** - Orion Energy Systems (Orion Lighting), LED lighting and energy project solutions provider, and Arizona based energy solutions firm BC Energy Solutions, announced that they have completed US\$4.9 million in LED lighting upgrade projects across nine states in the U.S. funded in part by helping clients secure nearly US\$1.3 million in electric utility rebates from October 2018 to March 2019. The rebates provide added financial incentives for companies to prioritize their investment in converting to LED lighting systems and controls. In aggregate, the utility rebates amounted to over 26% of the total installation costs of the projects. Customers included a diverse base of businesses including manufacturing, paper production, grocery distribution, aircraft maintenance, auto parts, medical supplies, trucking and logistics. <https://www.ledinside.com/>

10. **H.E. Williams, Inc. Acquires Platformatics, Inc.** - H.E. Williams, Inc. is pleased to announce the acquisition of Platformatics, Inc., a provider of network-based systems for the smart building Internet of Things (IoT) industry. The Platformatics solutions improve end-user comfort, productivity and safety through Power over Ethernet (PoE) connectivity. PoE provides a standardized infrastructure for LED lighting, HVAC, security and other building systems. This acquisition further supports Williams's leadership in the growing low-voltage PoE lighting market and positions Platformatics to drive innovation for intelligent buildings. Platformatics, Inc. will continue to operate as an independent division of H.E. Williams, Inc. <https://www.hew.com/news>

11. **DOE Evaluates Handheld Meter Effectiveness for Characterizing SSL Flicker** - The US Department of Energy (DOE) has published research evaluating handheld flicker measurement devices and discerning how well such systems perform. The testing was performed by the agency's Pacific Northwest National Laboratory (PNNL) in which dedicated handheld meters and add-on subsystems for smart phones were compared with a laboratory, scientific-grade meter. Not surprisingly, the results varied significantly, and of course the SSL sector still lacks a perfect metric and methodology for characterizing flicker. <https://www.energy.gov/about-us/web-policies>

12. **Osram, FSG Form Partnership for Smart Building IoT Solutions** - Osram is a global high-tech lighting company, and FSG provides building technology system design, integration, installation, and managed services. As part of the collaborative partnership, FSG will offer the Encelium® Light Management System and fixture-integrated sensors, controls, and components by Osram to end customers including national accounts. Smart building IoT solutions leverage networked lighting systems as the technology infrastructure for smart lighting and applications beyond illumination that improve operational efficiencies, building sustainability profiles, occupant comfort and the bottom line. The strategic collaboration with FSG further demonstrates Osram's commitment to a growing ecosystem that is embracing the digitalization of commercial space that creates smarter buildings. <https://facilityexecutive.com/2019/05/osram-fsg-form-partnership-smart-building-iot-solutions/>

13. **Signify to Acquire Two Livestock Lighting Companies** - The deal to acquire Once Inc. (Plymouth, MN) and iLOX (Vechta, Germany) should close this quarter. Between them, the companies make lighting systems geared toward raising poultry, pigs, fish, and other animals so that they fatten up well. Signify's pending pickup of the two animal-centric lighting echoes the lighting industry's expansion into tunable lighting systems geared around human circadian rhythms, and at systems geared to growing plants and crops. <https://www.ledsmagazine.com/>

14. **Apple Wins Patents for Micro LED** - Apple reported that the US Patent and Trademark Office have published several new patents for Apple recently including two patents of Micro LED chip transferring and structure and one related to a head-mounted system with a holographic element. The two patents explained the structure of Micro LED incorporating the metal layer enables further transferring and assembling onto targeted receiving substrate. These patents demonstrated a technology breakthrough for one of the most challenging production process of Micro LED display. Apple has been accelerating its progress in AR (Augmented Reality) technology including software and devices development. The adopting of Micro LED display might also be integrated with Apple's AR development. <https://www.ledinside.com/>

15. **Self-driving Startup Aurora to Acquire LiDAR Company Blackmore** - In Aurora's announcement, the company noted that on top of its prior knowledge of self-driving technology, it is now focusing on the next generation LiDAR technology called Frequency Modulated Continuous Wave (FMCW). Blackmore, with its expertise in FMCW, will provide Aurora advantages of high dynamic range, single photon sensitivity, and interference immunity, which advance safety and reliability in different environment conditions. Aurora believes that the acquisition will enable it to offer "a safer, more efficient, and more cost-effective Driver." Established by former engineers from Waymo / Google, Tesla and Uber, Aurora has been working with automobile manufacturers including Volkswagen and Hyundai. The company's decision of buying a LiDAR company marks its support of LiDAR in the development of self-driving technology, which is opposite to Elon Musk, who considered the component unnecessary. <https://www.ledinside.com/>

16. **The Best Cheap Smart LEDs by CNET** - Smart lights that you can automate and control with your voice make lots of sense, and if you're looking to make the upgrade you'll find plenty of options. That includes a growing number of LED smart bulbs from reputable brands that cost \$20 apiece or less -- roughly the same price you'd pay for a plain old dumb LED just five or six years ago. <https://www.cnet.com/news/the-best-cheap-smart-leds-does-it-even-matter-which-one-you-buy/>

BEST CHEAP SMART BULBS WE'VE TESTED

Best overall	Philips Hue White LED	\$15 on Amazon
Best for cheapskates	Sengled Element Classic LED	\$10 on Amazon
Best for Google Home users	C by GE Life LED	\$20 for a two-pack at Best Buy
Best if you don't want a hub	Lifx Mini White LED	\$20 at Best Buy
Brightest of the bunch	Cree Connected LED	\$12 at Home Depot

17. **City Upgrades to LED Street Lights at No Cost** - The city of Montgomery, Ala., has begun an upgrade to its streetlights, thanks to a project with Alabama Power Company. According to the city, 22,462 streetlights will be upgraded to energy-efficient LED systems. The project with Alabama Power Company began February 2018 when the company agreed to transition the lights from mercury-based to LED at no cost to the city, according to WSFA 12 News. <https://www.facilitiesnet.com/lighting/tip/City-Upgrades-to-LED-Street-Lights-At-No-Cost--43972>

18. **DiiA Announces D4i Extension to DALI for Intra-Luminaire Smart SSL Interface** - Smart and connected luminaire architectures will benefit from a standardized version of DALI deployed internally between LED drivers and connectivity/sensor modules, and such a modular architecture offers flexibility in network options. <https://www.leds-magazine.com/>

19. **2019 LFI Innovation Awards** - LIGHTFAIR Innovation Awards showcased the industry's most innovative products introduced during the last 12 months. Entries spanned 14 categories, with each submission judged by an independent panel of lighting professionals. Check all product submissions: <https://www.lightfair.com/lfi-innovation-awards>

20. **Five Trends Spotted at Lightfair 2019 by Jim Lucy** - As attendees scurry around the miles of aisles of Lightfair to stop by the remaining booth visits on their list, it's time to summarize the key trends that emerged at America's largest lighting show of the year, which one attendee aptly described as "Disneyland for lighting nerds." <https://www.ewweb.com/lighting/five-trends-spotted-lightfair-2019>

- #1. Multi-tasking is a big theme in new product development.
- #2. Connected lighting is big, but it still accounts for a small percentage of all lighting products sold and installed.
- #3. LED lighting for horticulture applications and the disinfection of medical and food preparation facilities are two super-interesting product categories.
- #4. The old "Big Three" are still standing, but in dramatically different forms.
- #5. Philadelphia has become a popular venue for lighting and electrical industry events.

21. **Lightfair 2019: Mike Eby's Product Picks** - Whether you're experiencing the 2019 Lightfair International show live and in person in Philadelphia or from the comfort of your favorite spot at home, EC&M magazine has all the coverage you need. Our editorial team is exploring the Pennsylvania Convention Center to track down this year's latest and greatest product offerings. This photo gallery showcases the first 10 Lightfair product offerings that caught our attention. Be sure to check back tomorrow and Thursday for Parts 2 and 3 of Mike Eby's Lightfair Product Picks. <https://www.ecmweb.com/>

22. **Lighting Controls Lead LED Conversation by Naomi Millán** - Lightfair International is where the entire lighting industry gets together to debut innovations and showcase future concepts. It's an enormous show, but meeting with a dozen or so manufacturers of products geared at commercial facilities, some themes start to emerge. Here are three observations from LFI2019 facility managers should keep on their radar:

1. Performance: LED fixtures, while numerous, do not have a staggering amount of differentiation between them. How manufacturers are seeking to differentiate their product is through a performance arms race.
2. Controls: Lighting controls are the biggest area of growth in lighting. LED luminaires with onboard sensors have reached a point of maturity where they are highly capable and increasingly affordable. But without controls, it's like having a smart phone with no apps.
3. Data: Smart LED luminaires with on board sensors and robust controls can do everything from track assets to analyze space utilization. But beyond gathering data with the lights, facilities can now transmit data WITH the lights.

<https://www.facilitiesnet.com/lighting/tip/Lighting-Controls-Lead-LED-Conversation--43973>

23. **Healthe's Circadian Bulb Changes Spectral Output in Response to the Sun's Position** - Healthe Inc. has added an LED bulb to its line of circadian lighting products that can dynamically change spectral output over the course of the day, delivering what it says are invigorating blues in the morning and minimizing the blues in the evening for relaxation. The new SunTrac A19 serves as an all-in-one combination of Healthe's existing GoodDay and GoodNight bulbs geared, respectively, for the morning and nighttime. It also includes a third "afternoon" setting in between GoodDay and GoodNight. Cocoa Beach, FL-based Healthe is positioning SunTrac both for the home and commercial LED lighting markets, initially in North America. <https://healthelighting.com/pages/suntrac-ecosystem>

24. **Learn About Emergency Lighting at Eaton's UK Tech Tour** - Visitors can learn about the latest in emergency lighting technology, including the company's Lux Award-winning adaptive evacuation lighting which directs building occupants to safety in an incident. Also on display in Eaton's Mobile Tech truck will be many of its electrical innovations. <https://luxreview.com/>

25. **EC&M's 2019 Top 10 Electrical Design Firms** - EC&M's Top 40 electrical design firms list for 2019, ranked specifically by electrical design revenue earned in 2018. The photo gallery offers a sneak peek at the companies making it into the top 10 spots. To find out more about the driving forces behind these firms' successes, details on what solidifies their position as leaders in the industry, hot and cold market trends, and what's shaping the business climate this year, read the full 2019 Top 40 Electrical Design Firms Special Report, coming soon to: www.ecmweb.com

No. 1 — Burns & McDonnell

No. 2 — Stantec, Inc.

No. 3 — Mott MacDonald

No. 4 — Tetra Tech, Inc.

No. 5 — Mesa Associates, Inc.

No. 6 — Henderson Engineers, Inc.

No. 7 — Stanley Consultants

No. 8 — Carollo Engineers

No. 9 — Syska Hennessy Group

No. 10 — Commonwealth

Global LED Market Observer:

26. **China LED Inventory Piles Up to Record Level** - Six major China-based LED chip makers saw combined inventory value rise from US\$943 million at year-end 2018 to a record high of US\$1 billion at the end of March 2019, thanks to oversupply arising from weak demand and production capacity expansions. The six are listed companies: Sanan Optoelectronics, Huaian Aucksun Optoelectronics Technology, Elec-Tech International, HC SemiTek, Xiamen Changelight and Focus Lightings Tech. The over-capacity will remain with demand unlikely to grow substantially, and smaller China-based LED chip makers will be forced out of market in 2019, the sources indicated, adding some of the major makers may continue expanding capacity despite the oversupply. <https://www.digitimes.com/news/a20190502PD210.html>

27. **Tech Firms Team Up to Drive Smart City Lighting** - Samsung SDS, the digital arm of Samsung, and Telensa, the British smart street lighting specialist, have announced that they are working together on smart city projects. The two companies are collaborating on smart street lighting, in which Telensa has more than 1.7 million lights deployed, and the Urban Data Project – a cloud platform that creates a trust infrastructure for urban data, that enables cities to collect, protect and use their data for the benefit of all citizens. The first collaboration will be in city projects in Korea, with wider deployments following across Asia Pacific and in the United States. By combining the Telensa PLANet streetlight control application with Samsung SDS's Brightics IoT platform, cities will be able to drive energy savings and can access a growing number of sensor applications. <https://luxreview.com/article/2019/05/tech-firms-team-up-to-drive-smart-city-lighting>

28. London Rivers Light Project Passes Major Milestone - Engineers have completed the pre-commissioning – the testing and programming of all connected lighting points for London Bridge – which is a key stage of phase one. Just under 2,000 light points on the bridge have now been programmed. The light points give an enormous range of possibilities: they're capable of displaying over 16.9 million different light colours and can be combined to create stunning lighting effects across London's bridges using Signify's sophisticated Interact Landmark's lighting control system. The company now finished the pre-commissioning process for all four bridges associated with phase one of the project: Southwark, Cannon, Millennium and London bridges. <https://luxreview.com/article/2019/05/london-rivers-light-project-passes-major-milestone>

29. Semiconductor Stalwart Arm Launches a Smart Building Initiative - "Co-opetition" between the lighting and IT industries for IoT business is ratcheting up. Sometimes it will be outright competition. In a reminder that the lighting industry will have to compete against the information technology industry in its bid to win smart building business, semiconductor design stalwart Arm Holdings has launched an Internet of Things (IoT) initiative to gather data about facility use. Arm's new Space Analytics program collects data from sensors in devices — including lights but also other things — and sends the data off for analysis and insights that help facilities managers determine how to make better use of offices, conference rooms, lounges, lobbies, and the like. Cambridge, England-based Arm, a subsidiary of Japanese IT giant Softbank, is adding Space Analytics to Arm's existing IoT platform called Pelion, which Arm introduced last August in a step up from its earlier IoT platform dabbling. <https://www.ledsmagazine.com/>

30. Osram Reports \$101.9M Loss in Second Quarter - Financial results at Osram continued their downbeat trend. The world's second-largest lighting company reported that revenue on a comparable basis fell 13.5% to \$965.4M as EBITDA before special items plunged 92% for the second quarter ending Mar. 31, compared to the same period last year. On a net income basis (profit after tax) the company reported a loss of \$101.9M, compared with a profit of \$62.7M in Q2 2018, as restructuring costs including layoffs added to the toll of difficult markets. The numbers were in line with a couple of financial warnings that Osram has already issued this calendar year, including a caution in March that both income and revenue for 2019 will fall. Osram's fiscal year ends on Sept. 30. <https://www.ledsmagazine.com/articles/2019/05/osram-reports-91m-loss-in-second-quarter.html>

31. Osram Pilots Smart Building IoT Solution at Canadian University - Advancement of IoT technology enables integration of lighting and other application to improve efficiency of energy usage and save electricity cost. Commercial real estate owners are therefore actively seeking the benefits of data-driven, real-time applications that will modernize a business or learning space. Osram continues to deepen its involvement in smart application development with several strategic partners. The company has recently completed a pilot program with a Canadian university for space optimization. Osram Digital Systems and its growing ecosystem of partners are delivering smart building IoT solutions. They test the functionality and connectivity of smart building SaaS solutions in several of places in the U.S. and Canada that are equipped with the ENCELIUM® Extend Light Management System and fixture-integrated sensors. <https://www.ledinside.com/>

Monthly Feature:

What's in store for the lighting industry in 2019?

<https://luxreview.com/article/2019/01/the-10-big-lighting-trends-for-2019>

The big mega trends of recent years will continue of course, as digital disruption will challenge some business models and create opportunities for others, especially those who can make digital experiences a seamless and positive customer experience. Here's our take on 10 trends we expect to see in 2019:

1. **The supply chain will breakdown** - The client-specifier-manufacturer-wholesaler-contractor supply chain used to be understood by everybody. But with FMs buying from Amazon and margin-chasing contractors bullying manufacturers for rebates, the supply chain is getting more twisted out of shape than a Labour spokesperson explaining the party's policy on Brexit.
2. **Power Line Communication will go mainstream** - Power line communication – a sophisticated reprisal of the 'mains borne' signalling of the 1970s – has been the unexpected tech trend in lighting control in recent years. It beats wireless on many levels and is getting adopted by big players such as shopping mall giant Intu and automotive manufacturer Volvo.
3. **Consolidation will accelerate** - After the companies jump a few pesky regulatory hurdles this month, iGuzzini will join the Fagerhult Group as the jewel in the crown of its recent acquisitions. While it's certainly one of the most eye-catching takeovers in the industry it won't be the last. Driven by falling luminaire prices, consolidation will accelerate this year.
4. **Bluetooth Mesh will gain traction** - Bluetooth is the new big beast in the lighting controls world and its mesh technology brings simple wireless control to large installations. The familiarity of Bluetooth, the marketing muscle behind the brand and the open protocol nature of the technology will mean its entry into the mainstream lighting is a smooth one.
5. **VR will arrive as a design tool** - Virtual reality games may have enlivened your Christmas break but expect 2019 to be the year that they have a serious impact in lighting design. The big architectural practices are already using the tool to get clients excited and Signify - formerly Philips – is investing heavily in the technology as a design and marketing tool.
6. **Visual comfort will move up the agenda** - The right to experience artificial lighting without nasties such as glare and flicker has taken a back seat in recent years as we've embraced the stunning energy saving possibilities of LEDs. But expect visual comfort to make a comeback with increasing demand for warm colour temperatures and high CRIs.
7. **Smart hubs will be cut out** - The tangle of twinkling 'smart hubs' and 'intelligent bridges' you need to get your lamps connected to the internet will become a thing of the past. Led by GE's release of its C by GE light bulbs and C-Start switches this year, lighting will increasingly connect directly to Alexa, Google Assistant, Apple's HomeKit and even Siri.
8. **Self-learning control will arrive** - Led by the stunning success of Nest's digital thermostats which learn about a user's habits over time and anticipate changes, intuitive control will begin to arrive in the lighting world. Helvar is first out of the blocks with its Active+ system, but a flurry of patent applications in recent months show entrepreneurs are betting its the next big thing in lighting.
9. **1970s design will return** - The feminine palette of chalky pinks, brass and er, flamingos is so over, the interior fashionistas tell us. The big trend in interiors is a return to the 1970s but this time with better materiality and softer colours. Expect product designers to blow the dust off Concord and iGuzzini catalogues from the era in the search for inspiration.
10. **Modular design will spread** - LED luminaire makers can't believe their luck. They've got away with integral products where extracting a failed driver or light source is harder than getting compensation from Ryanair. But European chiefs are on their tail. Expect Eco Design legislation to tighten and put pressure on manufacturers to have deconstruct-able luminaires.