



White Paper

The Rebirth of Linear Lighting

Observations on promising recent developments in linear lighting

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Cover Architecture: Bohlin Cywinski Jackson
Lighting Design: Banks | Ramos
Photo: Matthew Millman

The Rebirth of Linear Lighting

Introduction

IF YOU'RE LIKE MANY ARCHITECTS AND LIGHTING DESIGNERS, you don't find linear lighting to be very inspiring. You've likely associated it with bulky, fluorescent sectional lighting used in commercial and institutional settings where cost was a wildly more important consideration than aesthetics or the occupiers' comfort. If you're old enough you might even associate it with out-of-date classrooms and grocery stores. The recession is now mostly over (so lighting deals are harder to come by), yet people still want thoughtful and beautiful design. Fortunately, you're resourceful and can solve the problem.

However, now there's also increased pressure on you and your colleagues to save time, money and energy usage, making these recent developments quite the combo-conundrum. Fortunately, there's good news. Low profile linear LED lighting is presenting fresh solutions to these new, more complex lighting problems, and the growing interest the lighting type has seen in recent months is a clear indication. Yet, linear lighting in particular has more to prove to the architectural old guard than other technologies thanks to the broadly (but insensitively deployed) linear fluorescent fixturing of the past.

Due to rapidly developing solid-state lighting technology, there are many energy-saving linear lighting options that are financially smart, look beautiful and, when used correctly, can boost worker comfort and productivity.

According to Lux Magazine, there is no better time than now to fully embrace the linear lighting bandwagon. An October 2013 review that surveyed European buyers across the continent indicated that not only are businesses commissioning new lighting projects on a massive scale, they expect a short payback within as little as three years—so if your business is looking to invest in linear lighting reborn, the time is now.

Compared to other energy saving alternatives, lighting is by far the most efficient, according to business owners, but it isn't just about function—with fixtures, great form is just as important. According to the McKinsey Report,

a survey of the best and brightest authorities from seven different countries on the leading edge of lighting technology, the global demand for lighting resources is expected to generate approximately 110 billion Euros (or about 148 billion US dollars) of business in 2020, and architectural lighting is a major part of that total.

“Architectural lighting is the early adopter due to LED’s technological edge in color control, with 39 percent penetration as of today,” the report stated.

Small-Scale Lighting: A Perfect Option for Businesses

Today, linear lighting doesn’t have to look big or institutional. Manufacturers like Vode have taken a scalpel to the linear lighting systems from yesteryear. The result: slim and trim lighting systems that can deliver beautiful, even washes of light while virtually hiding the fixtures in plain sight. If your clients want lighting systems that reflect their progressive thinking without breaking the bank—linear lighting can be the ideal solution.

Clients can also save more money in energy costs with LED linear lighting in the long run, and with advancements in this rapidly changing industry, could completely alter the look and feel of your work surroundings. LEDs are also highly energy efficient, providing another reason for companies to save money while reducing their carbon footprint as a side benefit. Also, LED components typically use only trace amounts of toxic material, making them a much healthier and more responsible option compared to alternative technologies such as fluorescent lighting.

Slim and trim lighting systems that can deliver beautiful, even washes of light while virtually hiding the fixtures in plain sight.

Architecture:
Bohlin Cywinski
Jackson
Lighting Design:
Banks | Ramos



Matthew Millman

Small-scale linear lighting can outlast other types of fixtures by up to 2-times, saving on maintenance and replacement costs. It can now be 5 to 10 years, before LED boards or fixtures need to be replaced. Energy bills will plummet significantly, as LED linear lighting systems don't require the greater amounts of electricity that even newer fluorescent bulbs require.

It isn't just about saving money with linear fixtures, either. Modular lighting systems allow different mounting options, so architects and lighting professionals can "mix and match" parts and configurations to more easily fit into virtually any space. Less really is more. The fixtures' hide from the spotlight and let the interior design and architecture shine.

Open Offices Embracing Low Profile Linear Lighting



Hangar Design
Group Offices,
New York, NY

Architecture:
Hangar Design
Group

Paul Warchol Photography

For businesses that are focused on long-term performance, efficiency and profitability, office spaces are typically getting smaller, and they need lighting systems that are optimized for both form and function. This applies to both companies that are moving into older spaces and those retrofitting current ones.

Today, it's more common for management and staff to work side-by-side in open office spaces with close proximity. What does this mean for lighting designers and architects? While it's difficult to predict what the next few decades will bring, one trend

is becoming clear. The convergence of energy efficiency requirements and solid-state lighting is moving the lighting sources closer to where the light is actually needed. For instance, in more progressive countries and several US states, lighting designers are specifying lighting plans that move more of the lighting away from ceilings and walls where general flood lighting was the norm and replacing it with lowered lighting that provides a minimal level of ambient light and direct light targeted to spaces where it's really needed such as in far corners and the tables and walls of windowless board rooms. Low profile LED lighting systems have made this movement of lighting

“to-the-task” so much simpler to execute, whether the lighting is ceiling suspended, mounted to walls or ceilings, or supported by office fixturing and furniture.

Moving lighting closer to where the light is wanted requires a greater level of flexibility in the design of a comprehensive lighting solution. A small set of manufacturers, Vode being one of the pioneers, have created entire systems that are designed to be extremely adaptive with modular parts. Mounting and powering components that include features like fully rotating rails, multiple light diffusion options, baffles and reflectors to control glare, multiple LED board and optics combinations are all components that bring technological balance to attractive, streamlined design.

Systems like Vode’s allow the same fixtures to be used for direct or indirect light distribution that’s bounced off ceilings or walls as ambient lighting, and it can do so with only thin lines of fixtures visible in an office space.

Ambient lighting isn’t just beautiful—it can make the whole office feel more comfortable if indirect and “pinker” color temperatures and diffusers are used to create warm, even light with soft shadows and no glare. According to research findings, this type of lighting can also prompt an increase in productivity and feelings of safety—better lighting may even allow a company to get by on fewer employees!

For task lighting, where brighter, direct lighting is often preferred, low profile linear fixtures can be mounted directly above workers’ desks, under shelving, to their desktops or to portable bases, allowing them to be mobile while “spotlighting” work spaces without being obtrusive.

Clark Realty
Headquarters,
Arlington, VA

Architecture:
HOK



Ron Solomon Photography

Project Spotlight

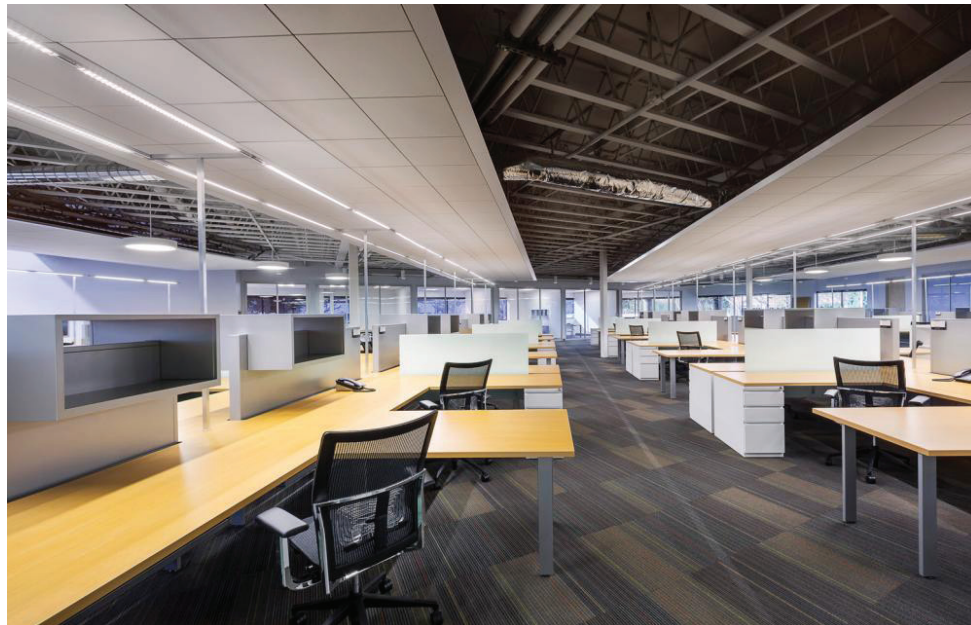
Even the biggest of bigwigs can find their workspaces optimized by linear lighting. A project for a major player in global investment banking led by architect Greg Mottola of Bohlin Cywinski Jackson needed good lighting nearly around the clock. Although budgeting issues and structural challenges dealt him a tough hand, Mottola used extremely thin linear lighting fixtures to highlight or downplay aesthetic and functional features of the spaces that were being lit based on their purpose, whether it was in the trading room, conference rooms, break areas or executive offices.

“We like fixtures that are doing something for us architecturally, we like movement. The Vode fixtures that we specified are almost like light sabers —really pure lines of light, they help set up cadence through the space,” Mottola explained.

Having these fixtures compared to a futuristic theme isn’t out of the ordinary. The streamlined design of low and extremely low profile linear lighting does indeed have a style that echoes the advancements of the future, and it’s clear that progressive thinking clients wouldn’t have it any other way.

Southland Industries,
Garden Grove, CA

Architecture:
LPA

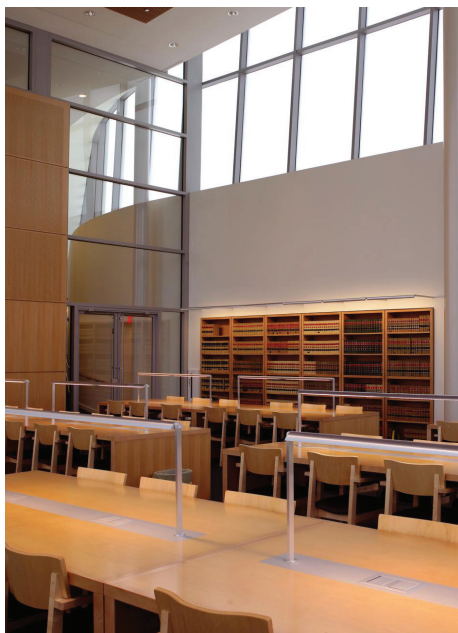


Costea Photography

Libraries and Large-Scale Projects Shine

Penn State
University, Dickinson
School of Law
Library, University
Park, PA

Lighting Design:
Brandston
Partnership Inc.
Architecture:
Polshek Partnership
Architects



George Brown Studio

It isn't just offices that can benefit from the positive aspects of thin linear lighting. Libraries are another type of public space that relies on both natural day lighting and artificial architectural lighting occupants' comfort as well as learning comprehension and productivity. Whether or not you've spent time in a library since college, it's likely we've all been in an outdated and institutional-looking library space at some point lit with cheap fluorescent fixtures, delivering unnaturally colored or dim lighting.

With new LED linear lighting options, school, college, community and government libraries can have refreshing and inviting spaces that allow for better reading, a more pleasant environment and sophisticated lighting for reading printed materials as well as increasingly popular mobile and portable digital devices.

Linear fixtures were practically tailor-made for book shelving, stacks and reading tables, as the minimalist and modular designs very effectively illuminate study spaces without creating glare or uneven lighting. Instead of dark rooms, many modern libraries are opting for more open and streamlined architecture with lots of glass so that natural daylight can spread through. Coincidentally, linear lighting can deliver similar lighting when it is dark outdoors.

Project Spotlight

Tenley Friendship Library in Washington, D.C., utilizes sunlight harvesting, sun control and room sensors. Many of the rooms in the space were positioned so that the sun could naturally pass through the glass ceilings, providing the space with warmth and color consistency. There are also many open vistas that are perfect for study breaks due to "at-the-task" lighting design, and light sensors respond to weather changes to create situational lighting tailored for visitors' health, comfort and safety. This thoughtfully designed space was awarded a LEED Gold Award—pretty cool for a place filled with books.

Retail Spaces Hop on the LED Linear Lighting Bandwagon

Jason Wu Studio,
New York, NY

Architecture:
Giancarlo Valle
Lighting Design:
Giancarlo Valle



Dean Kaufman

Retail spaces are also embracing linear lighting and LEDs in a huge way. The way that a spotlight hits a product can help enhance its allure, enticing more customers to make a purchase decision—and retailers know it. Even during the worldwide recession, people still loved to shop. Shopping is enjoyed as much for the experience as for the acquisition of needed or wanted merchandise. Retailers understand that from the minute guests walk into the door until they reach the checkout line, lighting can dramatically enhance their experience in fulfilling their tangible and intangible wishes.

Although retail spaces' interior design can vary widely, linear lighting systems can easily fit into a wide variety of nooks, coves and visual styles no matter what vibe a store or brand wants to evoke. Shelving, racks of clothing, display cases and stacks of merchandise can all be highlighted and compellingly lit with linear lighting given the wide variety of optics, lenses and focusing solutions now available.

BRE Trust, a British publication that wrote a guide to retail lighting, states that new sources of light like LEDs are beginning to become much more popular with retailers, both large and small. Smart and attractive lighting that looks great while highlighting products can be one of the most critical factors for enhancing the shopping experience. It can help accentuate brand images, and, when used for way finding, lure customers into stores from the street, into the dressing room and, eventually, all the way to the checkout counter.

Although retailers may have shied away from the first generation of LED fixtures, advancements in the technology and dropping costs have resulted in greater demand as retailers are looking for more efficient, architecturally pleasing and practical ways to enhance the presentation of their products.

Many retailers maintain longer store hours now, which naturally translates into higher energy costs. Ask any store owner, and they will tell you that energy costs can definitely take a large chunk out of their budgets. With most lighting also causing interior spaces to heat up, aging lighting can also rack up a huge cooling bill during warmer seasons of the year. New LEDs run much more efficiently and cooler, helping stores to save money on both air conditioning and lighting costs. Also, socially responsible stores, which are becoming the majority, can reduce their carbon footprints (which helps us all in the long run), make their installations and product lines look outstanding and reduce their operating costs more affordably.

Although retailers may have shied away from the first generation of LED fixtures, advancements in the industry, and dropping costs have resulted in greater demand as retailers are looking for more efficient, architecturally pleasing and practical ways to enhance their products, stores and brands.

Linear Lighting Takes Hold in Museums

Ever since Edison's bulbs were switched on in the late 1800s, artists and the avant-garde have been fascinated with lighting fixtures. Naturally, good lighting is essential in a museum or art gallery.

You may not have noticed the lighting the last time you were in a museum or gallery, and there is a reason for that. To the curator, the art is supposed to get the viewer's attention, and be the hero. The lighting plays a subservient role—the less visible it is, the better. Exhibitions change frequently, making lighting flexibility mandatory. As a result, track lighting and spot lighting have been the default lighting solution for decades.

California Academy
of Sciences,
San Francisco, CA

Architecture:
Renzo Piano
Lighting Design:
First Circle Design
Exhibit Design:
Cinnabar, Inc.

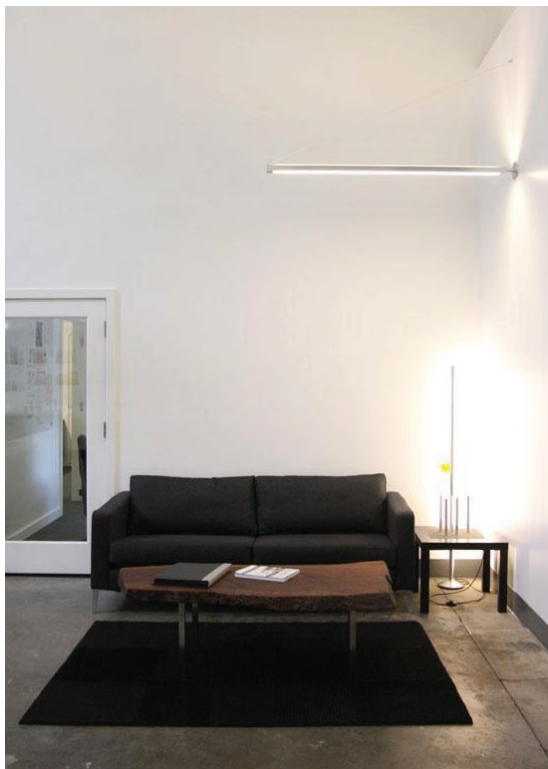


Anthony Masters Photography

Unlike other lighting technologies, such as incandescent and more specifically halogen, LED lighting and linear lighting are quite new and have only partially been embraced by the art world. While many galleries still rely on track lighting, linear lighting systems are now frequently being evaluated as they can evenly light up long walls without the “scalloped” hot spots that are so common with spot lighting. In some exhibitions and art spaces, linear lighting components have even become a key feature of some contemporary artist’s work.

One excellent example of how LED lighting can be used in a museum’s space is The Harley Davidson Museum in Milwaukee. Since this space highlights such a vibrant part of American culture, the need for great lighting to feature the evolution of the Harley brand was definitely a critical factor. Vode provided the LED linear lighting fixtures for this museum. It was one of the first extensive uses of LED lighting in a museum and the continuous run of 175” for two of the fixtures is believed to be a US, if not world, record.

Linear Lighting Has Entered a Renaissance



Vode Showroom,
Sonoma, CA

Lighting Design:
Vode Lighting

Contrary to conventional wisdom or attitudes, small scale linear lighting can do as good a job, if not better, than its much larger predecessors and current competition. Evenly distributed washes of lighting, virtually invisible fixtures, close proximity task lighting, comfortable open office ambient lighting and accent and high-power lighting for retail or hospitality, allow you to do it all with surprisingly powerful yet energy efficient low-profile LED linear lighting systems.

Laura Arnold

**Vode Lighting**

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