Linear lighting in design

by Randal Wahl, Regent Lighting

With the evolution of lighting from HID to LED sources over the past number of years, many manufacturers have had to make comprehensive modifications to their product ranges in order to accommodate this development in the industry. For lighting companies, the advance has required a radical shift in investment to include design facilities and the industrial designers to manage them, as design capability is now the only true differentiator for lighting manufacturers in South Africa.

The changes brought about by LEDs have caused further disruption in that previous barriers to entry into the lighting market have evaporated, allowing pioneering newcomers to enter markets that they would never have been able break into in the past.

With a concomitant growing emphasis on corporate identity and workplace environments, LED lighting can play a vitally important role in complementing innovative interior design, and it is in this regard that the linear light source has come to the fore. The days of lighting being a purely functional element of a building to ensure that the required lux levels are achieved, are diminishing rapidly as designers are beginning to understand the benefit of using linear lighting as part of the overall design theme.

Standard recessed lighting will be available on our continent for years to come and it continues to play an important role in certain types of commercial office lighting installations, but it is linear lighting that has opened up new possibilities. Examples here include the entrance halls of buildings such Empire Place and 8 Melville Road, where vertical and horizontal linear fittings have been used to define the space, creating – in the case of 8 Melville Road where the fittings are reflected off the glass doors – the illusion of lines of light.

Exposed concrete ceilings have, historically, posed problems for lighting designers and it is here that light selection becomes important. The designer does not have the luxury of hiding services in the ceiling so more planning and design is required to ensure that the space is well illuminated. All fixing details are exposed and electrical fixing points cannot be moved easily, or at all. In this application, linear light sources offer flexibility since they can run as continuous sources, reducing the amount of electrical connections.

Also, loop connections within the light source allow the light fitting to run to many metres. The longest single linear light source Regent Lighting has manufactured was that for the University of Johannesburg where the company manufactured a fitting of over 90 m long with only two supply feeds. The light source was used to link two buildings, creating improved uniform lighting levels and a consistent light source.

On a more functional level, up/down linear light sources installed at the parking entrances of the recently upgraded Rosebank Mall create a greater sense of space in the void and supply sufficient lighting onto the floor. It is in this type of installation that it is possible to see the different effects achievable by linear systems, which offer the flexibility of suspending the fittings off a ceiling or surface mounting the fittings onto lower concrete ceilings. At the lift areas of this particular installation, the plaster ceilings are even lower and supply recessed linear light, allowing the designers to maintain the consistency of light fitting while increasing the light levels where required.

The flexibility of application created by linear light sources means they offer a vast number of opportunities for the design of internal areas. No other light source can be mounted in four different ways and at different angles following the internal lines of the building: suspended up or up/down light; surface mounted; recessed, with frame or without; and semi-recessed.

Auditoriums are notoriously difficult to light and unappealing installations in any number of such venues across the country are testament to this. A common sight in many such venues is sections

of light from the ceiling onto specific areas below, creating zones of high light intensity with segments that are not sufficiently illuminated and certainly not conducive to a learning environment. In projects where linear lighting has been used, the resultant effect is a great improvement on the previous high intensity directional lighting. Combine this with LED high output linear PC boards and integrated DALI control protocols that allow the lecturers to control lighting levels for different visual presentations, and you have a winner.

Whether subtle or exposed, light should be designed into a structure - that way it caters for function, energy efficiency and aesthetic impact. Linear light offers task lighting, effect lighting – to transform spaces or illuminate vertical and horizontal elements – and, when combined with a suitable control system, maximum energy efficiency. LiD