

LIGHTING EQUIPMENT NEWS

NOVEMBER 1993

THE ONLY PUBLICATION DEVOTED TO ALL ASPECTS OF LIGHTING

Firms to crash after recession

The supposed recovery from recession may have come too late for some of the big names in construction, according to a new report from Construction Intelligence Data (CID).

The report stems from analysis of the financial results of the 76 companies making up the Building Employers' Confederation's National Contractors' Group.

Across the group over the last four years there has been a steep decline in the three key profitability measures of: Return on Capital Employed, Trading Profit and Profit After Interest and Before Tax.

CID states: "This demonstrates the erosion in capital within the construction industry as a whole and begs the question that even if the recession were to be declared over and conditions to magically improve overnight, how many of these large market-leader companies could survive?"

Reader Service No. 150

Medallion men

John Roberts of Cornwall County Council has won the Institution of Lighting Engineers' 1993 Bronze Medal Award for a paper entitled: Application of Performance Management in Street Lighting.

The Bronze Medal is awarded annually for the best paper presented by a member to an ILE regional meeting. Mr Roberts' paper describes how Cornwall County Council stated objectives, set targets and monitored the performance of various departments, including specifically highways, and used this to assess performance against the Citizen's Charter.

The Stevens Award, named in honour of MR WR Stevens OBE, is given for the best paper presented to an ILE regional meeting by a non-member. This year's award went to Philip Duddridge, South Western Electricity plc, for a paper entitled: The Highway

Double tops

This year two people have won the Institution of Lighting Engineers' Student of the Year Award. Judges were unable to decide between Robert Pilcher of Penarth, South Glamorgan and Lindsay McGregor of Dundee.

Both gained distinctions for

INSIDE THIS ISSUE

News	1, 3, 24
Letters	2
Diary	2
New Products	4, 5
Case Studies	6
Exterior Lighting	7-15
Buyers' Guide	8-11
Lighting for Industry	16, 17
Lightex Review	18, 23
Where to buy directory	18-22
Catalogue directory	22
Classified advertising	23



Victorious viaduct

The Hawthorne Boyle Partnership has won first prize in the Urbis Environmental Lighting Awards for its scheme to relight Kilnarnock viaduct for Scotrail. The scheme was overall winner as well as winner in the road lighting category.

Ramsgate's versatile lighting scheme for its newly pedestrianised town centre won the town centre category. The scheme was

submitted by IMPACT, the joint environmental improvement initiative of Kent County Council and Thanet District Council.

The design is described as environmentally conscious in terms of light pollution and visual intrusion, while still reflecting Ramsgate's rich historical heritage.

The judges highly commended two other schemes. Castle Mead

car park in Gloucester was praised for its crime-detering design and Sainsbury's car park at Corey Mill, Stevenage was thought to be very economic in both capital and running costs.

Certificates were presented at the Lightex 1993 exhibition in Bournemouth in September by the president of the Institution of Lighting Engineers, Gareth Pritchard.

Britain to shine in Paris

Britain will have its first ever lighting pavillion at France's foremost lighting exhibition - Salon du Luminaire in Paris from January 13 to 17 1994.

The Lighting Association, with full grant aid support from the DTI, is organising the British Pavillion and so far 24 UK lighting manufacturers have expressed interest in booking exhibition space.

The British Pavillion will occupy 350m² of island space and its Business Support Centre will offer telephone, fax, and translation services along with a hospitality area.

Organiser Graham Samuel said that it was the first joint overseas trade mission by members and the response to the export initiative had been "extremely encouraging".

Reader Service No. 152

Supporting sculpture

Thorn Lighting recently floodlit work by 59 eminent sculptors at a prestigious exhibition in and around Chelsea Harbour, London.

Organised by the Royal Society of British Sculptors (RBS), the

exhibition comprised the work of living British sculptors including RBS president Philomena Davidson Davies.

Thorn sponsored the event and set about floodlighting each exhibit in the weeks preceding the opening, taking care to prevent glare and ensuring that the lighting blended in with the surroundings.

Swedish style in London

Swedish lighting company ateljé Lyktan has opened an office and showroom in London, allowing the company to display and supply products directly to the British market.

The company produces ranges of domestic, office and park and garden lighting, examples of which are on display in the new showroom shared with office furniture company Bolte UK.

Lyktan concentrates on careful and original design, and the ranges on show highlight its strength in this area. Luminaires are not only stylish and elegant in appearance, but are flexible in fulfilling their function.

For instance, the Skarabé table or floorstanding lamp has two mirrors which can be adjusted to reflect the light from a low-voltage tungsten halogen lamp to wherever is wanted.

Also on show are Lyktan's SuperTubes - cylindrical fittings which house fluorescent tubes and can be rotated through 360°. The range gives either down or uplighting with both symmetrical or asymmetrical light diffusion.

Various examples of the company's products are installed in the showroom, and benefit from being coupled with Bolte's swish office furniture. The company will continue to use its existing distributors as well as the showroom to market its products.

Reader Service No. 153



Guildford lights

Hundreds of architects, specifiers and consultants came along to the Guildford Lights Show recently organised by electrical distributor OLC Ltd.

Over 30 companies exhibited over the two days and in addition to the exhibition, four speakers gave lectures on fibre optics, controls, computers and CIBSE LG3.

Amongst the manufacturers present were Thorn, showing the

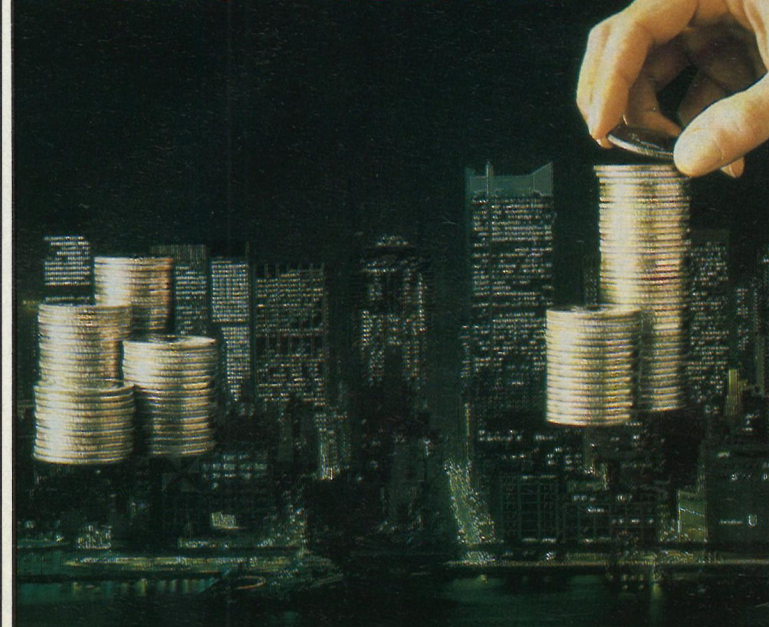
Catalume - a simple device for determining which category of louvre should be used in an office lighting installation; Concord, showing its Control Spot range; and iGuzzini, displaying its new product Lingotto originally developed to light the old Fiat works in Turin.

OLC also launched Guildford Lights, a name under which many of the company's lighting products will be sold, all of which will be available off the shelf.

Among the seminars, managing director of Crescent Lighting Mike Morrison, gave his audience an update on fibre optics. As the technology becomes cheaper, more applications become suited to fibre optics - such as lighting freezer cabinets, where the right lighting can be provided with no heat. In micro-surgery, some 70,000 lux can be provided for the surgeon with no risk of cooking the patient

Reader Service No. 154

ENERGY EFFICIENT ?



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Reader Service No. 1

LETTERS

Lamp life accuracy

Dear sir
I was very interested to read the article in September's LEN which wrested manfully with the awkward subject of discharge lamp life. I believe the article successfully highlighted the difficulties in arriving at a universally acceptable system of lamp life rating which is readily useable by the most important element in the supply chain - the end user.

Survival and lumen maintenance curves do, of course, give the most complete picture of how a group of lamps will perform through life. GE Lighting makes a particular point of making this data widely available in publicity material.

However, interpreting this information for an individual installation involves some fairly complex calculations. When making a choice between alternative products the user may not always have the time to assess each product in detail before making a purchase decision, particularly when buying a small number of lamps.

'Economic Service' curves do not really provide an answer. The basic assumption with such curves is that the site can operate with failed lamps. For interior applications where one lamp can be lighting a sizeable area even one failed lamp could not be tolerated for any length of time.

In GE Lighting's Leicester factory a single discharge lamp can be the sole light source for a high speed machine. To operate such machinery without replacing a failed lamp could be potentially fatal. When the lamp is replaced how is the improved average per-

formance of the scheme resulting from the injection of a product giving maximum output accounted for?

Rated Average Life gives the 'quick and simple' guide to lamp reliability that most users are looking for. It is a one number summary of product performance. Contrary to the assertion made, this system has been used wisely in the UK for many years.

The concept of summarising a large amount of data in an average has immediate appeal and is universally understood. Lumen depreciation is dependent on so many factors in the installation outside the lamp, such as the cleanliness of the environment and the frequency of luminaire cleaning, that the lamp manufacturer can give very limited help assessing the system performance.

At present there are no perfect solutions. The answer must lie in performance models which enable the end-user to assess individual site requirements simply and quickly. Surely this is the

direction in which we should head.

Harry D Siggs
Product Manager - HID Lamps
GE Lighting Ltd.

Scotland ahead

Dear sir

With reference to LEN September's LIF Line - Wiring for life, I would draw your attention to the matter of the legislation of the IEE regulations in respect of Scotland, where they are incorporated as part of the Building Standards (Scotland) 1990 (and previous editions) which are prepared by the Secretary of State for Scotland and approved by Parliament.

The IEE regulations are therefore a legal requirement for all installations undertaken in this part of the British Isles.

Gordon Downie
on behalf of
Davie & McCulloch
consulting engineers

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DIARY

NOVEMBER

16

Lighting of London Underground Stations. CIBSE organised meeting given by MJ Reading, electrical services engineer, London Underground. Details from CIBSE Member Services Department 081-675 5211.

17

The CIBSE Lighting Code. Seminar organised by the LIF in London, on the implication of the new proposals. Details from David Pritchard 06285 22669.

DECEMBER

2

Light and Architecture. The 1993 Waldram lecture in Liverpool, given by German lighting consultant Dr Heinrich Kramer. Details from the ILE 0788 576492.

7

Lighting in the Future. ILE regional meeting in London covering control gear, photocells and light sources. Details from the ILE 0788 576492.

14

Museum and Art Gallery Lighting. CIBSE organised meeting presented by David Loe, University College, London. Details from 081-675 5211.

16

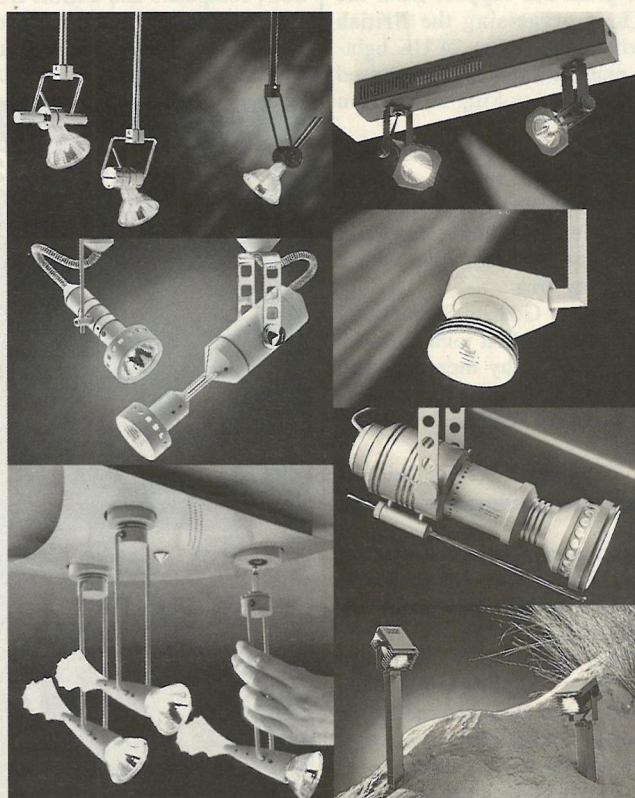
Lighting Induction Course. Seminar in London for people new to lighting, organised by LIF. Details from David Pritchard 06285 22669.

JANUARY

13-17

SIL 94 International Lighting Exhibition in Paris. Details from (33-1) 40 76 45 00.

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Reader Service No. 3

CIBSE

The Chartered Institution of Building Services Engineers

Lighting in the home

Users of lighting rely, quite rightly, on the professionals to advise them on the optimum solution for their needs. Commercial and industrial establishments can get all the help they want but the domestic user, meaning the entire population, is in the wilderness without ready access to advice. This enormous but fragmented market is served by retailers ranging from the big DIY sheds, through furniture stores, down to specialist lighting shops.

The retailer will sell the fittings and parts but rarely can advise how to use them, or even if they are suitable for the job. The ideal time to have lighting points added or moved is before decorating, but how does the householder even find out what questions to ask? The retailers hold the key, and the advent of the neat electronic compact fluorescent lamps as plug-in replacements for filament lamps has been well publicised. The success of the recent Blue Peter programme ensures that the nation's children will not perpetuate the prejudice that tungsten and fluorescent lighting are mutually exclusive. They now know that if every home in the land replaced just one bulb with a CFL the electricity saved would equal the entire output of a power station.

The interest may be energy and not design led, but the important point is that an interest in lighting has been aroused. Commercial applications demand general illumination plus specific task lighting - why should domestic lighting be thought different?

The same chair in which you doze in front of the TV will be used at another time for reading or sewing. The lighting variations are not difficult to achieve, but the average householder does not know how, nor where to start.

Light fittings which are chosen purely for their appearance add decoration to a room, but will not necessarily light it well. What they look like during the day is regarded as more important than what they do at night. Table lamps try to be objects d'art because their decorative effect is at least as important as any contribution to an overall illumination pattern. A crystal chandelier over a grand staircase makes a beautiful marriage, but the same thing in an average living room gives glare in the middle and gloom round the edges.

The search for fashion and flair in luminaire design alone is myopic. There is an equal need for lighting design, the imagination to change static decoration into dynamic application. See what it does, not just what it looks like!

The average living room has money lavished on its curtains, carpets, furnishing, wall-coverings. What advice can householders obtain if they do not want the room to change character and appear to shrink in size when the curtains are drawn? The full beauty of the curtains themselves is only available when they are drawn, so why don't they light them?

Will retailers who sell them a lampshade, dimmer switch and spotlight also advise on distributing the light around the room, levels required for different tasks, multiple switching, pelmet or other concealed lighting? Will they even mention the use of some fluorescent tubes? If so, even today, will it only be to agree that they are cold, harsh or colour distorting merely because they carry only 'white', or worse still 'daylight', in stock and have never heard of triphosphor?

The retail trade must rid itself of the 'fancy goods and gimmicks' approach. The biggest gimmick of the last 20 years is the dimmer switch, not even made up by the lighting manufacturers! What is the point of a dimmer? The average home needs a brightener! So a 100W bulb is put into a 60W fitting and . . . oh, dear!

Another fashionable gimmick is spot lighting or track. The length of track in the kitchen with several PAR38 spots has now given way to low voltage downlighters. At least there is less heat and less of a trap for grime, but it is still a lunatic way to light this room. By all means use a few spotlights in some rooms to highlight a feature, to provide sparkle or a puddle of light to add interest to the decor. That is what display lighting is for. But who wants puddles of light in a kitchen?

A kitchen is not an art gallery needing highlights. It is a workroom needing shadow-free, glare-free, high level and uniform illumination. If every home in the land were adequately lit the reduction in accidents would equal the effect of any "Don't drink and drive" campaign.

Display lighting, extending its use from purely commercial applications, has made a strong and welcome impact. It has awakened interest in what can be achieved with lighting, but that is no excuse for its widespread misuse.

Low voltage tungsten-halogen light sources in various formats are another brilliant development and have inspired many exquisitely designed luminaires, rapidly displacing mains voltage spotlights. I would not say they solve every lighting requirement, but how many interior designers do you know who are so besotted by them that they will consider nothing else. whatever the application? Yes, they are flexible, yes they are versatile, yes, they direct and control the light, yes, they produce a dramatic effect. That's fine for a retail shop or gallery, but do you really want headlights in your living room ceiling?

How can we inform and benefit that enormous market of householders? Welcome to the bold retailer who offers a service and not just a product - a real opportunity for specialist lighting shops to score.

Hugh Ogus, chairman, CIBSE Lighting Division.

Lighting Equipment News, November 1993

NEWS

Switching not sensing

According to Schlumberger Industries, an energy conservation problem has been solved for Edinburgh District Council by a UK-produced time switch. Based on an established electro-mechanical technology, the specially modified Sangamo Solar Dial switches are expected to save the Council money by automatically compensating for outside lighting conditions without relying on photo-sensing devices and their attendant installation and maintenance problems.

The Council took on the responsibility for the lighting in Edinburgh's 15,500 common stairways in 1975, at a time when energy saving programmes and campaigns were intensifying. An early energy saving measure was to standardise on frugal 8W fluorescent tubes for lighting typically with two tubes per stairway controlled by electro-mechanical twin-circuit time switches, allowing continuity of lighting in the event of outage of one circuit. The switches continued to be installed until 1990 when the supplier withdrew them from production.

The team at Edinburgh's Housing Department, therefore, faced an unexpected quest for a new lighting control system. "We scoured the market for alternatives and looked initially at introducing digital time switch technology," said senior services manager Pete Skelligan. Since time switches are maintained by our contractors, semi-skilled operatives, the complexity of setting these switches – some with 12 buttons on the face – would inevitably have led to problems."

PIR rejected

Passive infra-red (PIR) body-actuated devices were also considered but again rejected on the grounds of complexity.

As an interim measure it was decided to install externally mounted light-sensing photocells in combination with Sangamo round pattern time switches. The advantage, in theory, was that stair lighting was activated according to the outside lighting conditions registered by the photocells for minimum wastage. At the same time one of the two fluorescent tubes was automatically switched off at midnight, effectively halving night-time electric-

ity consumption – potentially equivalent to a saving of £150,000 per annum if the system were applied city-wide.

The seeming benefits of photocell-based technology, says Schlumberger, failed to outshine the disadvantages, which became apparent after 400 such systems were installed in Edinburgh during 1992.

"As dust and grime built up on the glass dome of the photocells outdoors, this meant that the indoor lighting remained on for longer periods than intended and maintenance became a problem," explained Pete Skelligan.

Problem photocells

The installation of photocells also proved problematic, adding at least three hours to the time for installing time switches alone and using anything between 2-5 metres of galvanised metal conduit and wiring, not to mention the actual cost of the devices themselves.

"If there were problems of access to daylight, the photocells would sometimes have to be mounted higher up or, worse still, at the back of the building, using even more materials and labour," continued Mr Skelligan.

Eventually, a twin-circuit version of the Sangamo Solar Dial was developed and a trial was mounted in February of this year. This led to a commitment to installing the switches over the next five years, with an initial order for 500 units.

Solar Dial time switches track the known times of sunrise and sunset throughout the year to provide automatic switching operations at dawn and dusk each year. Since they are not dependent on light-sensing there is no need to fit external photocells. The twin-circuit version allows the second fluorescent tube in each fitting to be switched off at midnight, allowing the energy savings to be maintained.

A further money-saving benefit claimed for the Solar Dial switch is that it allows the Council to negotiate electricity tariffs with the electricity company based on exact operating times, whereas the electricity supplier might overcompensate in its own favour for the unpredictability of the photocells.

Reader Service No 155

Five star scene setting

As part of a programme to update all of its existing lighting control systems, the Dorchester Hotel is using Electrosonic's Imagine ESR 12 system in the Dorchester Bar.

The bar is open from late morning until late at night, every day of the week and needs to provide appropriate lighting scenes for different occasions. This is provided by Imagine, which controls 12 channels of lighting and replaces Electrosonic ES6090 dimmers which were installed 20 years ago.

Reader Service No 156



Arguing for safety

The Electrical Contractors' Association (ECA) has issued a four page brochure arguing strongly for including electrical safety in the statutory Building Regulations.

At present there is no legal requirement for the qualification of installers of the standards to which they should work, unlike in other European countries.

The electrical installation industry has now asked Tony Baldry, Under Secretary of State to reconsider the decision and it is under review.

The ECA recommends that, pending legislation, clients should ensure that their electrical contractor:

- Works to British Standards
- Employs qualified electricians graded by the Joint Industry Board for the Electrical Contracting Industry
- Provides free performance/completion guarantees
- Provides and works to a written code of fair trading
- Provides a completion certificate confirming that the work is to the relevant British Standards.

Reader Service No 157

In brief...

● This year's Plasa Light & Sound Show surpassed all previous attendance figures with a final number of 9,465 visitors.

● Thorn Lighting was runner-up for an award for the export achievements of its UK operations. The award, for achieving outstanding excellence in the electrotechnical industry, was given by the Electrical Review magazine.

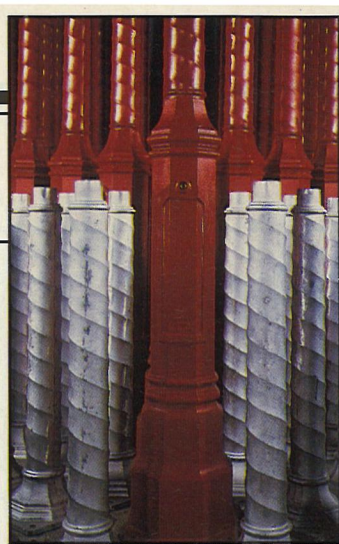
● The Lighting & Furnishing Accessories event which was introduced last year to run alongside The Furniture Show at Birmingham's NEC will next year be in Hall 3, due to an expected increase in exhibitors.

● The British Standards Institute has published BS EN 61048 : 1993 – Specification for capaci-

Corrections

● September's *LEN* carried a brief story stating that Novalight (International) Ltd had become the exclusive agent in the UK for Dedo Weigert Film GmbH.

The Graylands Trading Company has pointed out that it is the UK agent for Dedo Weigert Film GmbH for the architectural and display lighting market. The only other UK agent is Cirro Lite,



Palatial posts

Candela Traditional Lighting has won a six figure order to supply lighting for the gardens and walkways around a Middle Eastern palace. The fittings to be supplied consist of traditional lanterns fitted with high performance lighting units mounted on cast lamp-posts, pedestals and wall brackets.

The lamp-pots and pedestals, in a classic spiral effect, are finished in a paint based on a fluoropolymer resin system to protect them against extreme climatic conditions. The coating was subjected to 2000 hours UV exposure and is thought by the company to be the ultimate in UV protection. It is the first time that Candela has used this unusual colour (RAL.3003) on its lamp-posts and fittings.

Reader Service No 158

tors for use in tubular fluorescent and other discharge lamp circuits – General and safety requirements. It is available from BSI Customer Services, Publications, Linford Wood, Milton Keynes, MK14 6LE.

● Econolight is introducing a new lamp replacement service intended to save users up to 50% on conventional lamp replacement costs.

Reader Service No. 159

● The light fitting manufacturing company AE Clutterbuck of Solihull has welcomed a young Slovakian entrepreneur as a trainee for one month, as part of an initiative from the British charity Enterprise Europe.

● Rada Lighting Ltd has appointed Vince Hill to the post of sales director, responsible for sales and marketing. He joins Rada from Marlin Lighting.

serving the television and film lighting market.

● September's *LEN* also ran a story stating that GE Lighting Ltd had begun legal proceedings against EWS Ltd claiming injunctions and damages for infringement of GE's patent and registered design for the low energy 2D lamp.

The EWS named is not affiliated with or does not have any connection with Electrical Wholesale Supply Co Ltd of Leicester.

LIGS scrambling

The Lighting Industry Golf Society's met recently at Highgate Golf Club. The morning saw a Texas scramble for the Wilson Cup, won by B Ship, B Watts and B Van Hamme. Tridonic donated the supporting prizes.

In the afternoon B Harvey took the GE Thorn Cup and supporting prizes from Lightyears went to J Butler and B Ship. The guest prize was presented by John Butler of Staff Lighting to Tony Morris.

The LIGS christmas venue will be Camberley Heath on December 8th.

COMMENT

Head out of the sand

The news that the Government has abolished its 'pay when paid' policy is welcome indeed. It is, perhaps, an indication that the Government has at last removed its head from the sand and is beginning to blink the obscuring grains away. If this is the case, then it needs to get blinking a bit blinking faster.

For far too long nothing more than lip service has been paid to this extremely damaging phenomenon of late payments. Many companies have gone to the wall as a direct result of restricted cash flow. And very often that company has not been at fault at all, merely the victim of some parasitic main contractor which does not realise that a healthy construction industry is of benefit to us all.

One problem with the Government's latest move is that it only relates to work being carried out for government departments – and as more of these are privatised, fewer projects will be classified as government projects.

Another problem is that any chasing of late payments will not be carried out by the Government, it will still be up to the aggrieved party to take legal action – and all the expense that goes with it.

It is clear, surely, that every company has a right to be paid for the work it has done, assuming it was done correctly. What we need, then, is something to back up this basic right, something more than just a few meaningless and insincere phrases from politicians. Other European countries already have such safeguards built into their contract laws, but then they believe in supporting their industries rather than kicking them when they're down. In France, for example, payment within a set time is assured before the contract is accepted. Failure to comply with these rules can lead to bank accounts being frozen and even to a ban on that company holding a bank account.

Other governments, then, take positive action to keep their industries healthy and competitive. Our Government seems to lack either the will or the gumption to offer such support. Many of the worst late payers are the large companies which also make big contributions to Conservative party funds. I'm sure that's not at all significant though.

Paul Haddlesey

PAUL HADDLESEY, EDITOR

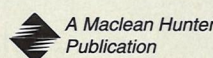
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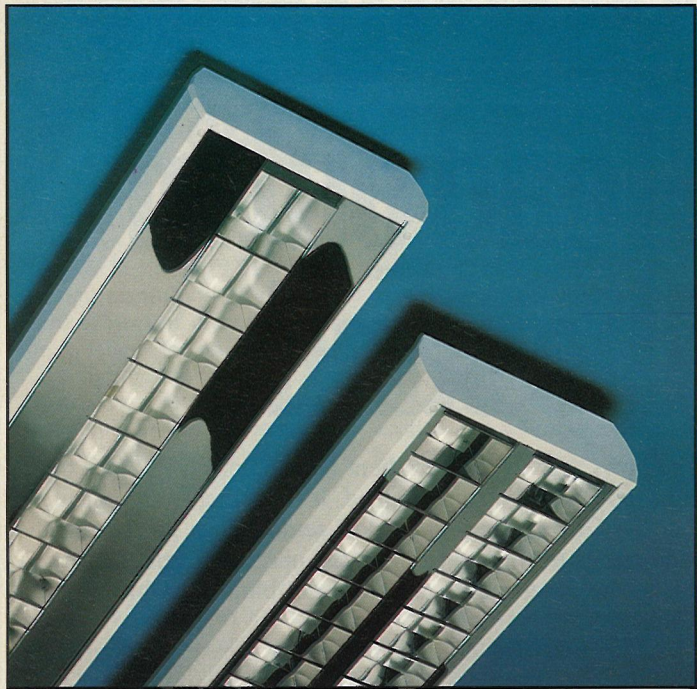
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NEW PRODUCTS



Surface mounted with VDT louvre

Crompton Lighting has launched a surface mounted luminaire with VDT louvre, the Chevin LG3.

Designed to meet the requirements of Categories 2 and 3 as defined in the CIBSE Lighting Guide No 3 (LG3), the Chevin LG3 luminaires provide low-cost but stylish, low-glare lighting. A surface-mounted luminaire, it is designed for a variety of lighting applications in both commerce and industry, including the refurbishment market which might involve projects with restricted

ceiling heights.

The range is available in 1.2, 1.5 and 1.8m single or twin lamp 36, 58 and 70W versions and specifiers may be interested to note that the Chevin has a shallow profile which is achieved by the slight curvature of the housing sides and edges of the ABS plastic end caps. The steel housing unit is anti-rust treated prior to receiving the Crompton Perma-white powder coated stove enamel finish.

Reader Service No170

In brief ...

● CP Electronics has designed a keyswitch-operated emergency lighting test switch to meet the requirements of BS5266. The timing selected is indicated by three LEDs on the front plate. Output is via change-over contacts, enabling alternative lighting to come on automatically during the test period if required.

Reader Service No 171

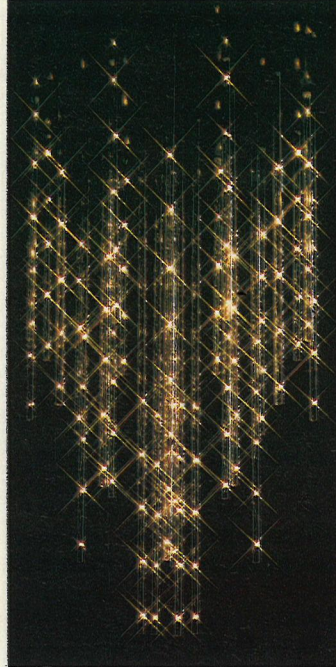
● Pulseline 45 is a new high voltage cable developed by Formwood that is claimed to overcome the ignition voltage problems encountered when metal halide and other discharge lamps are installed using a remote control gear supply. According to Formwood, Pulseline's design enables the conductor to support 5000 volts continuously without any breakdown of the insulation, so lamp ignition voltage is constantly maintained.

Reader Service No 172

● DEM has introduced the latest of its Type CG controller for energy management of lighting on petrol station forecourts and other small retail establishments.

The latest version includes the DEM high grade system of photo-electric control, time programming, restricted self resetting override controls together with maintenance facilities. It is also provided as standard with direct switching capability of up to eight lighting circuits thus avoiding the need to provide extra switching contactors.

Reader Service No173



Chandeliers

Design Line Lighting has added the Chandeliers range to its tube-light collection. The range is intended to create a special focal point in many situations, from company reception areas to night-clubs or even swimming pools.

Made from glass with up to 1.2 metre drop and incorporating low voltage lamps inside the tubes, they can be custom-manufactured to suit exact requirements. A chandelier with 56 drops, including base and transformer costs from £390 plus VAT.

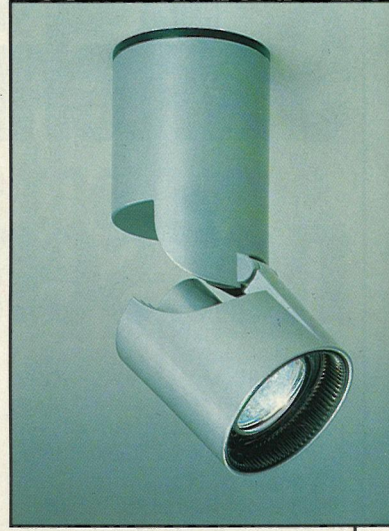
Reader Service No 174

Luminaire projectors

Sunnylight is the latest addition to the Sunlight range of projectors. Constructed of heat dissipating cast aluminium, it utilises a built-in toroidal transformer for and a 50W dichroic lamp which is regressed to provide visual comfort. While fully adjustable (0-90° on the vertical plane and 345° on the horizontal), it can also be used as a surface-mounted down-lighter.

Sunnylight is suitable for mounting on all makes of track currently on the market.

Reader Service No 175



Lighting for public areas

The Se'lux SX505 range of lighting is specifically designed to meet the functional requirements of public areas that are totally dependent on artificial lighting. The configuration of the upper reflector and prismatic lens provides general light distribution for areas where

good uniform illumination is essential for public safety.

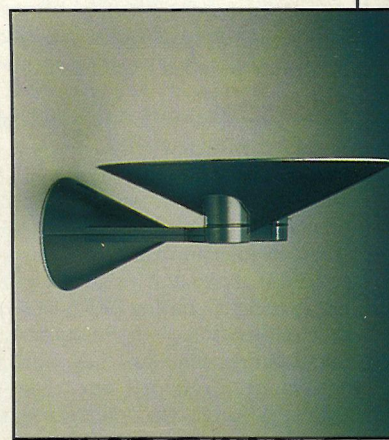
The fitting is extruded in a partly circular form, making its low profile well suited to areas with low ceilings, such as railway and metro stations, pedestrian underpasses, or stairways, according to the company. It is vandal and tamper-resistant, and needs minimum maintenance, claims Se'lux. Reader Service No 176

Wall uplighter

Lumiance has introduced its Tallo wall uplighter for use with a 300W double-ended halogen lamp for general use in domestic and commercial areas such as receptions, restaurants, offices, living and dining rooms.

It is available in three colours; white, black and matt silver, and fitted with safety glass. The fitting has an integral fuse so that only the one lamp will switch off in the event of a short circuit at the end of the lamp's life.

Reader Service No 177



Emergency lighting

The new Emlite emergency lighting range from Simplex is designed to meet the requirements of European legislation. Products include:

● Emlite Exit Signs, available in single and double-sided options;

● Six fittings developed for a cross-section of standard applications. Maintained and non-maintained versions are available. All fittings operate for three hours in emergency mode and are covered by a three-year guarantee.

● The Emlite TS, available for high-bay industrial uses. It also operates for three hours in emergency mode and is non-maintained.

To complement the new range, Simplex has also launched a free emergency conversion service for



fluorescent luminaires. A conversion kit adapts mains fluorescent luminaires into dual mains/emergency luminaires and can be incorporated into the luminaire itself or supplied as a remote pack.

Reader Service No 179

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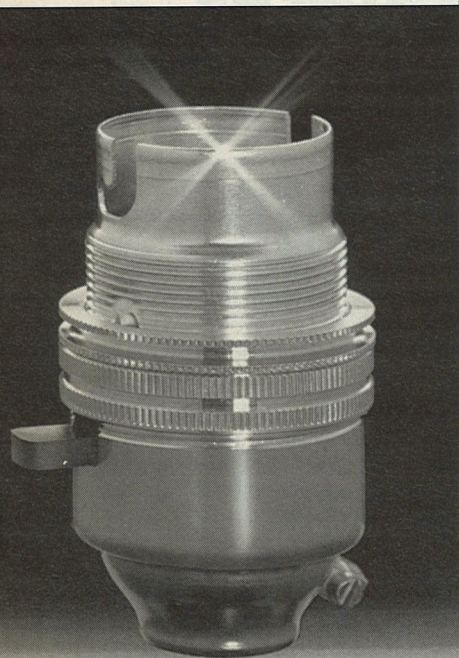
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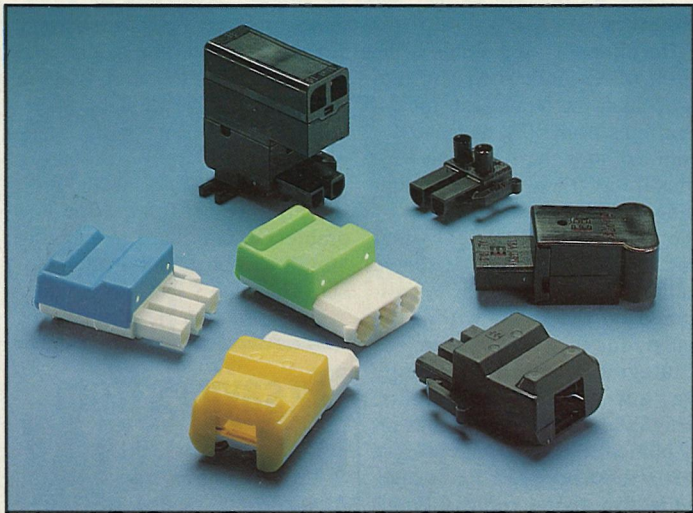
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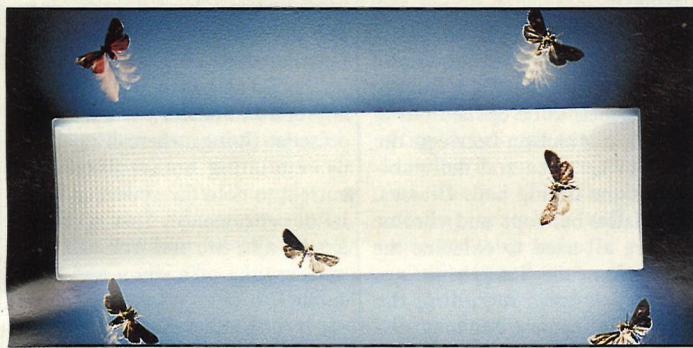
Temporary fixing

Prime Light has introduced multiple plugs and distribution blocks, designed for installations where permanently fixed wiring is impractical and where there is a requirement for a rapid method of connection and disconnection. The system is said to facilitate later changes and alterations.

These are available in 2 pole, 3 pole and 5 pole versions and are

suitable for a range of applications, including lighting systems and lighting suspension rails.

The multiple plugs are constructed with a strain relief unit and are also available with fixed strain relief. The safety latch is said to ensure good contact, while preventing the connection from opening if the cable is under strain. **Reader Service No 180**



Self-contained emergency luminaires

Chloride Bardic has launched Surelite, described as a competitively priced range of compact 8W luminaires. It comprises self-contained emergency luminaires which provide a minimum three hours illumination in the event of mains failure.

Available in either maintained or non-maintained format, the range is claimed to offer a value-for-money solution for applications where low capital and installation costs are of overriding concern.

Surelite's housing is manufactured in ivory ABS to which is fixed an impact resistant polycarbonate diffuser. Facility for central or side mains cable entry is provided to simplify the task of installation.

Designed for a wide range of interior emergency lighting applications, it is claimed that Surelite can also be used as a directional exit sign, together with an appropriate pictogram from Chloride Bardic.

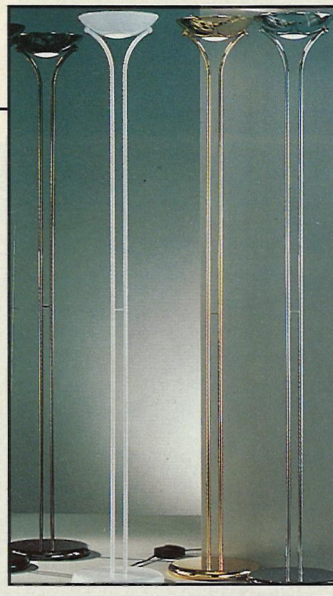
Reader Service No 183

Twin stem uplighters

Tally Ho Lighting has introduced a new range of twin stem uplighters. Designed to create ambient lighting, the 300W lamps diffuse light downwards as well as upwards making them suitable for offices and hotels. The vertical twin stems are 180cm high.

Dimmer switches are available for each model. Finishes include polished brass, chrome/black, black and white.

Reader Service No 181



Buried uplighters

VeeLite offers a range of low profile buried uplighters. All fittings are claimed to withstand impact, moisture and harsh soil conditions and are certified to IP66.

Basic models include:

- Groundlite 2000, a small compact fitting for 70W metal halide or low voltage lamps.

With spot reflector, it can deliver punch to 15m.

- Groundlite 4000, designed for lamps such as 150W SON or 250W metal halide and with a variety of reflectors.

- Groundlite 9000, designed for larger applications where lamps up to 400W SON/MH are required.

- Groundlite 6000. Lamp sizes from 70W to 250W metal halide or SON and capable of withstanding vehicles driving over.

A variety of reflectors is offered, adjustable on site, to provide maximum flexibility for designers. Several spot reflectors offer pinpoint lighting control and optimum light illumination at heights for flagpoles, trees and facade features.

Reader Service No 182

Lighting control system

A new lighting control system that is claimed to cut energy bills by up to 25% has been developed by Ex-Or. LightSave is an auto-transformer which reduces lighting load voltage to produce energy cost savings, according to the company.

It has been designed specifically for use in retail and warehouse sites where lights cannot be switched off during opening hours, but energy saving is still required.

In a typical installation, LightSave is claimed to reduce voltage by 14%.

Reader Service No 184



In Brief ...

- A fully electronic recessed-mounted luminaire for zone 1 use has been launched by Glamox Electric. The IP54-rated luminaire's fully enclosed construction means there is no need for external wiring or components. Its electronic control gear is claimed to be more efficient than traditional types as it generates less heat and uses less energy. **Reader Service No 185**

- LightGraphix offers four new additions to its range of IP54 rated recessed lighting - the Barbara, Nicole, Kathy and Julie. The round shaped units have white painted aluminium bodies, with brass bezels finished in either polished chrome or polished brass, and aluminium bezels powder coated in black or white. The units are claimed to be water resistant. **Reader Service No 186**

- PowerBreaker has launched a range of home security products under the brand name Kingshield. Kingshield products include a range of security lighting and a re-branded range of timers. **Reader Service No 187**

- Regiolux' Quantar downlights are designed for many purposes by using different types of lamps and reflectors. The range comprises series for compact fluorescent lamps (TC and TC-D), metal halide (HIT), high-pressure sodium vapour lamps (HST), low voltage tungsten halogen lamps (QT 12), and incandescent lamps. The Quantar reflectors are either of aluminium or highly polished, evaporated and sealed polycarbonate. **Reader Service No 188**

- Revolute's new range of rotating nursery pendant light fittings features dinosaur, alphabet, farmyard and Postman Pat models. All are BS approved. **Reader Service No 189**

- Display 280's Caraglas polyester sheeting is available in thicknesses from 0.8mm to 6mm, and in clear, tint, translucent and opaque colours. The company claims that the material has excellent impact strength and rigidity which is comparable to polycarbonate. Caraglas has attained Class 1 Flammability rating and M2 Fire Rating (France) and is claimed not to support combustion or give off toxic emissions. It is fully recyclable. **Reader Service No 190**

LIF LINE

Lighting tops list of driver's priorities

In March 1992 the Department of Transport carried out a survey whose objectives included evaluating how users rated the level of facilities provided on motorways in England. Among the principal conclusions it will come as little surprise that motorways with better lighting are perceived to be better than those with poor or no lighting.

The conclusion that lighting provision is of great importance to motorway drivers was also corroborated by the results of a stated preference exercise where, out of all possible aspects or levels of provision, lighting at all junctions, roadworks accident blackspots and on sections with a heavy flow of vehicles attracted the strongest positive preference.

There are an estimated 24.6 million regular car drivers in Britain driving at least once a month, representing 58% of the adult population aged 17 and over, of which the majority is male (59%). Drivers included in the survey were familiar with some of the most heavily used and least frequently used motorways in England while over two thirds were most familiar with inter-urban or inter-regional motorways and upgraded trunk roads. Nearly a third had additional experience of driving on orbital or intra-urban motorways.

Research aimed to establish drivers' priorities and the relative weight of their preferences through their participation in a 'bag of money' or priority evaluation game. Each driver in the survey was given a set budget and asked to allocate resources to aspects of motorway provision.

Participants were provided with a game board and a set of counters representing units of money. Each element of provision included was related to current levels and costs to provide a context for respondents and the game was designed to compare very expensive elements of provision (such as increasing motorway capacity) with less expensive elements (such as increasing the frequency of emergency telephones on the motorway).

Each 'motorway planner' had to trade off factors contributing to motorway safety to achieve a satisfactory mix for motorway provision. Options for expenditure with identified unit costs were:

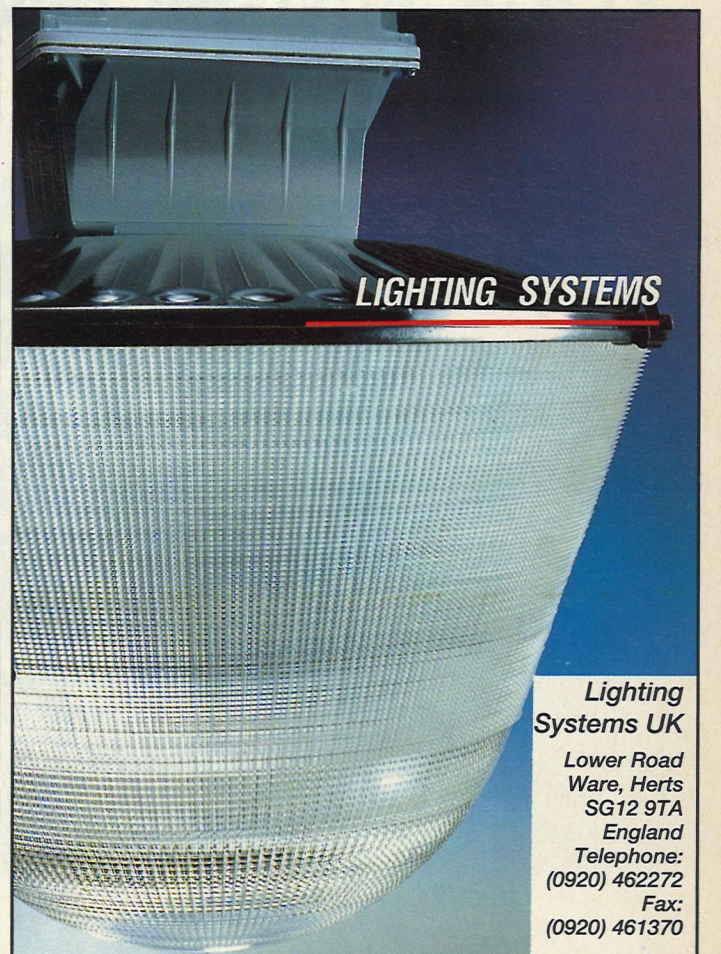
- Lighting provision
- Motorway capacity, ie, upgrading from three to four lanes, with accompanying infrastructure
- Provision of emergency telephones, ie, increased frequency from 1 mile to quarter-mile intervals
- Provision of enhanced message signs at every mile interval.

The game's results showed that drivers chose to allocate the highest proportion of limited funds to extend the provision of lighting to approximately 50% of the motorway network.

At the closing stages of the interview respondents were asked if there were any changes they would like to see in the provision of motorway services. Although just over a third had no comments to make at this point, the majority did express a view. The types of responses are listed in descending order:

- Lighting improvements
- An increase in the number of police patrols and higher levels of video surveillance to enforce speed limits
- Better driver education and training
- Changes in maximum and minimum speed limits
- More motorways and more lanes
- Provision of special lanes for caravans and heavy goods vehicles.

The main advantage of full lighting on the motorway when driving at night was held to be better visibility followed by less fatigue, improved distance-judging, and greater feelings of safety and less isolation. In group discussions while there is an awareness that lighting is an expensive measure, both in terms of capital expenditure and maintenance costs, many drivers expressed a view that motorways in England should be lit throughout.

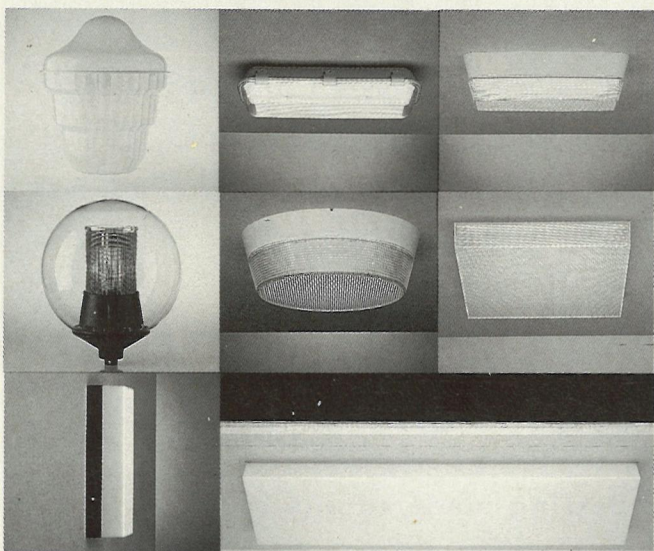


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CASE STUDIES

The quest for pleasure

Quaglino's restaurant in London is situated under a car park with no access to daylight, yet achieves a light and spacious atmosphere that leads most diners to soon forget their subterranean location. The lighting, therefore, is a key feature of the restaurant.

Quaglino's has been a well known restaurant in London for many years, plying its wares to celebrities and aristocrats alike. Recently purchased by Sir Terence Conran, it has undergone extensive refurbishment while retaining the philosophy of its founder.

Day and night

The lighting design brief, by Keith Hobbs and Linzi Coppick of the Hobbessian Trust, was to light the central eating area by means of a skylight that had a 'day' and 'night' mode – but it had to be done right. "It was essential to keep the overall design concept in mind – we didn't want to end up with a gimmick that would downgrade the overall design," recalls Keith Hobbs.

It fell to Marlin Lighting to

come up with a solution and the company first experimented with a canopy that would respond to changes in the external lighting environment. Research was carried out using photocells to assimilate information on natural daylight levels and then send this information through fibre optic cables to a control system which adjusted the output of various different light sources. In this way the canopy could emulate all daylight condition, so that the transition from the street to the interior would be matched.

At the end of the day, however, this complex system proved unsuitable, as complications in the building structure and interior design delayed the time framework for the lighting components. Ultimately, a simpler system was developed. A specially constructed canopy provides the central architectural feature and runs the length of the main eating area. As day turns to night, so the lighting changes from daylight to an illusion of evening – giving diners the feel of natural light.

The canopy houses four rows of specially designed luminaires



Quaglino's subterranean restaurant bathed in simulated daylight

positioned end to end along its length. Each consists of a reflector which mixes and reflects light from two 40W T38 lamps (Northlight from GE and Blue from Sylva). The reflector, designed by Marlin, is in two parts bridged by an opalised acrylic spill diffuser, which allows light to the apex of the 'V' and avoids dark shadows where lamps are shielded by the reflector.

Scattered images

A further image diffuser, hung from the ceiling, dissipates the bright spot above the luminaire

and prevents direct viewing of the upper lamp. The diffusers scatter the images to create an even distribution and a realistic skylight effect through etched glass panels.

The canopy has four basic seasonal programmes which control the length of time for 'day' to 'evening' mode; 75 minutes for Spring, 115 minutes for Summer, 90 minutes for Autumn and 55 minutes for Winter. Start times for the seasonal programmes change 52 times throughout the year and are based on astronomical data from the Greenwich

Observatory.

The dimming programme is the result of research at Marlin into sky colour; the Northlight fluorescent dims from 50% down to 1% from day to night, while the Blue dims from 50% to 25%. The dimming control system was built by Prolite Systems and uses electronic high frequency dimmable ballasts. The control gear is positioned on the soffit within the canopy for easy maintenance.

Integrated within the canopy are low voltage downlights, designed to enhance the illusion of natural light by providing a colour reference point for the eye, while also giving vertical illumination to create contrast between walkways and tables. They can also be angled to highlight tables and decorative features. "With a ceiling height of 5.2 metres, we never envisaged when we started that we would spotlight each individual table," said Keith Hobbs. "But positioning these narrow beamed spotlights onto the white tablecloths brought the place to life." These downlights will also provide general open plan escape lighting in the event of mains failure.

Pleasure

The theme of the restaurant is pleasure. The bar area required a very glamorous approach and the space needed to be opened out to create a distinction between the transient bar area and the ambience of the dining hall. Glasses, zinc-plated bar tops and chrome bars are all used to enhance the sparkle from the Starlight fittings used. Each area, including the bar, is on a separate dimming sys-

tem which can be independently controlled to alter the mood.

The attention to detail given to the design of Quaglino's has created a bustling atmosphere, reminiscent of the popular eating houses of European capitals. With the mixture of, food, wine and ambience, it is hard to imagine any diner not attaining the pleasure Quaglino's seeks to provide.

Reader Service No 191

Big savings from Edison

According to Seeboard Energy Systems Ltd, its Edison 21 fluorescent controller is providing energy savings of 44% at the Bristol Royal Infirmary.

Over 200 of the units were fitted on a trial basis in the Accident and Emergency department and electricity consumption was monitored before and after installation. "The Edison 21 controller is simple to understand and our contractor found them easy to fit," said senior estates officer Andy House. "We use them in areas, such as corridors, that are lit on a 24 hour basis and they are useful even where there is only one fitting such as in stair wells," he continued.

The Edison 21 can be fitted to any conventional switch start fluorescent fitting, where it operates by regulating both voltage and current to hold the system at optimum performance. This is said to extend tube life and well as maintaining tube efficiency and light output.

Reader Service No 192

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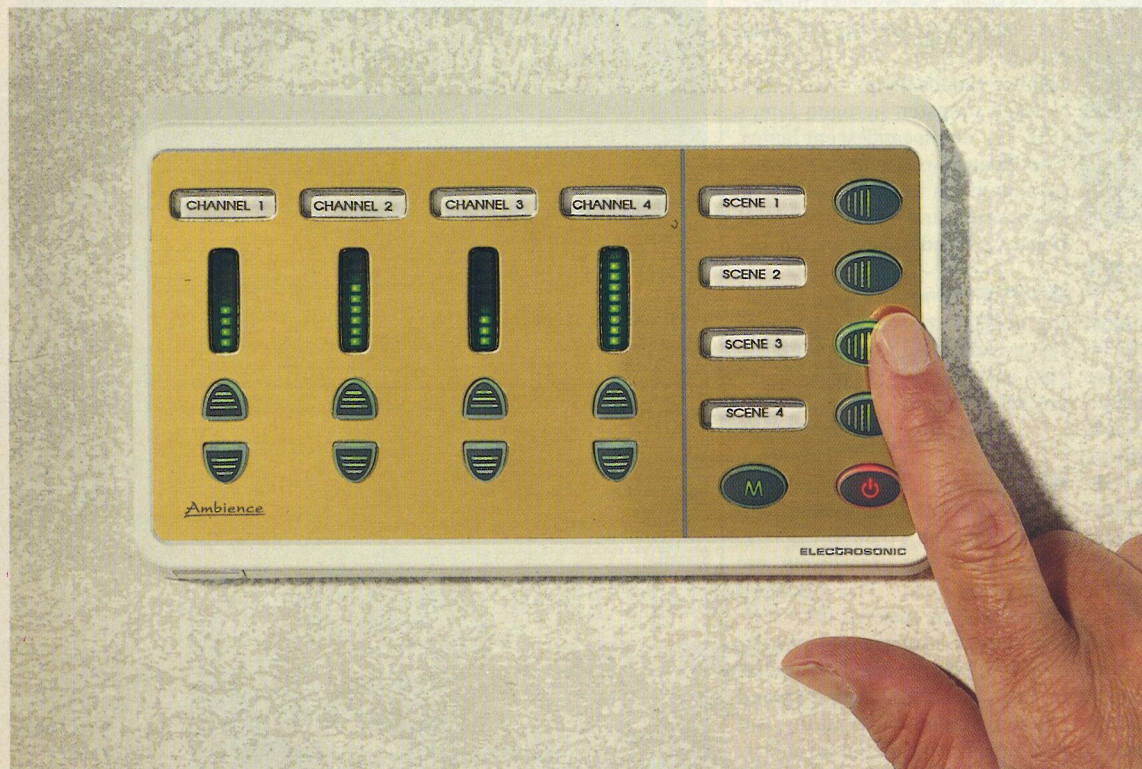
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Into the next century

***Mike Simpson argues for better planning in the lighting of our towns and cities.**

We have in this country a fine heritage of buildings in our towns and cities which disappears as night falls. This is when a cacophony of lighting for all manner of uses comes alive to create a night-scape that is confusing and unco-ordinated.

What is needed now is to bring together in one co-ordinated approach all the different elements that currently exist. In order to understand what has happened and how it can be improved we should first consider the various users of the space and their needs.

Motorists will need light to ensure a clear view of the road and the objects on it. The principle used here is for the object to be seen in silhouette against a bright road surface. In a built up area these objects are likely to be both pedestrians and vehicles. Whilst in theory the luminance design method will apply, in practice the traffic density, speed, and distance between objects may well cause other design considerations to apply. (It is difficult to see an object in silhouette if you are stuck behind a tanker!).

Company promotion

Building owners will want to make their buildings stand out at night as a means of promoting their organisation. The main tool used is brightness to ensure that it is more eye catching than anything else in the vista. Only on rare occasions will an organisation take the view that the benefit of conforming to an overall plan

comes before the individual need, and these areas tend to be of civic importance like London's Trafalgar Square.

Pedestrians will need lighting that performs yet another task, primarily to ensure the footway can be seen. It should also promote a feeling of well being amongst the night-time users. The lighting should deter crime and also make the space feel safe. And in city centres the social nature of life at night should not be forgotten with its influence on the type of installation and light source used.

Advertising space

In most cases we see lighting that has been installed for one of these users of the space with little regard for the others. This is particularly true with the architectural lighting of buildings. A new office development will be lit to advertise its presence to prospective clients. To compete, the building next door will light to twice the level and so it goes on.

Similarly styles of lighting differ. For years we have seen the 'Bucket of Light' technique which works on the principle that if you throw enough light at a subject some of it will stick! We are only now realising that many of the fine features that exist in our building heritage are lost with such techniques. With today's equipment more subtle yet dramatic effects are possible without compromising the energy cost.

The tendency to light everything with high pressure sodium lamps is vanishing with the reali-

sation that a colour contrast can emphasise more than just an increase in brightness. But we need to get away from the idea that buildings have to compete with each other. Each will have its own place in the ranking of a

The highlights of Lyon's city lighting plan with different elements shown in different colours



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Abacus Municipal Ltd	200	●	●	●	●	●	●	●	●	●		●	●			●	●	●			●	●	●		
Acorn Lighting Products Ltd	201	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●			●	●	●		
Absolute Action Ltd	202												●	●		●								●	
Atrium Ltd	203	●	●	●	●	●	●	●	●	●	●	●	●	●				●					●		
Axis Lighting Ltd	204	●											●												
BCP Lighting Ltd	205				●	●	●	●	●	●		●	●			●		●			●	●	●		
Bernlite Ltd	206																						●		
Beta Lighting	207										●	●	●			●		●	●				●		
Briticent International	208	●						●			●	●						●	●					●	
British Electric Lamps Ltd	209	●	●					●	●			●													
Buchanan Lighting Services	210										●	●	●										●		
C U Phosco Lighting	211	●	●	●	●	●	●	●	●	●	●	●					●	●			●	●	●	●	
Andrew Chalmers & Mitchell Ltd	212	●		●	●		●	●	●	●	●	●		●		●				●	●	●	●		
Chalmor Limited	213																							●	
Concord Lighting Ltd	214	●		●	●		●	●		●	●	●	●	●		●	●	●			●	●	●		
Connect Lighting Systems (UK) Ltd	215				●			●								●									
J & G Coughtrie Ltd	216											●													
Crescent Lighting	217	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						●	
D&F Lighting	218	●					●	●	●	●		●	●			●		●			●	●	●		
D.W. Windsor Ltd	219															●		●			●	●	●		
Danlers Ltd	220																								●
Designplan Lighting Ltd	221				●			●				●	●			●						●		●	
Deta Electrical Company Ltd	222	●									●	●	●										●		●
Edison Halo Lighting	223							●	●		●		●			●							●	●	●
Electrosonic Ltd	224																							●	
Elkay Electrical	225										●	●													●
Erco Lighting Ltd	226	●	●		●	●		●	●		●		●			●						●	●		

vista. The higher their ranking the greater the emphasis. It might even be that a decision is taken not to light certain buildings in order to preserve this hierarchy.

So the first step in creating order out of disorder in our urban centres is to have a plan. A plan that everyone 'buys into' and that takes into account the needs of all users of the space alike. This plan should cover aspects like building hierarchy, road structure etc, and lay down a policy on light sources and levels.

This is not to inhibit design but to ensure it will co-ordinate the

scene into an overall picture. With such a plan it is likely that there will be more light control with the consequent reduction in levels for the decorative elements, an argument that is bound to please the astronomers at least.

Cohesive solution

Consider the needs of the users separately and design accordingly. It might even be that a particular space has three or four separate elements to the design. Then co-ordinate, see how these separate elements can be brought together into one cohesive solu-



An aerial view of Lyons with principal routes using different light sources to the side roads.

tion. A column lighting the footway can easily be used to support a floodlight for buildings. Similarly a lighting column for traffic can branch at a lower level to provide a mounting for footway lighting.

Light sources can provide a key to the road structure of a town with the main through routes delineated for the stranger by a different light source.

And let's go further than just SON and more SON. The choice is now much wider, and whilst the wide scale use of less efficient sources is to be denigrated, a lit-

tle halogen on some decorative feature, or white SON by the street cafe's will not cause the accountant's eyebrows to raise. Why? Because as part of the plan everything is under control and a balance is achieved which avoids over-lighting. At night a little light goes a long way.

Dream or reality

So is this a dream or can it be reality? Well, provided everyone 'buys into' the idea it can happen. In Lyons such a plan is gradually developing. Priorities were set, design standards defined and the

overall plan can now be seen developing.

Similar stories can be found in Edinburgh, Leeds, Londonderry and St Andrews who are all working on an overall lighting strategy.

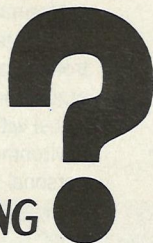
The key to the development of such plans is the role of the lighting engineer, who will understand the local issues and translate them into a practical solution that will last. It is the role of the authority to have the vision to facilitate such a plan.

The problem is always dealing with the number of interested par-

ties such as the owners of private buildings, local authorities, developers, and government agencies. There is also little by way of planning guidelines or legislation in this area. Consequently existing lighting will take some time to mould into such an overall plan. If we start now we should just be able to recognise the results by the year 2000 and that would be something to celebrate.

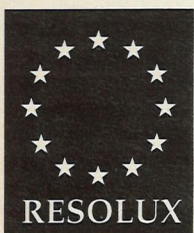
**Mike Simpson is vice-president of the Institution of Lighting Engineers.*

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Felton Electric Lighting Ltd	227															•										•	•		
Fitzgerald Lighting	228	•				•	•				•	•			•	•	•			•		•							•
Floodlight Services	239																				•	•							
Forest City Signs Ltd, The	230																					•						•	
Franklite	231															•													
Futimis Ltd	232	•	•			•	•				•	•			•	•	•			•		•							
GAASH Lighting Industries	233					•	•				•	•				•									•	•	•		
Gewiss UK Ltd	234		•			•					•	•	•		•										•	•	•		•
Glamox Electric (UK) Ltd	235														•	•	•			•					•	•	•		•
Graylands Trading Company Ltd	236	•			•	•		•	•				•		•	•										•	•		•
Griffin Lighting	237														•	•													
Hagner Photometric Instruments Ltd	238																												•
Holophane	239					•	•	•	•	•	•	•	•		•	•		•	•	•	•				•	•	•		
Hubbell	240	•	•	•		•	•		•	•	•	•	•		•	•	•			•		•				•	•		
i Guzzini Illuminazione UK Ltd	241	•	•	•		•	•	•	•	•	•	•	•		•	•			•		•	•			•	•	•		
Illuma Lighting Ltd	242														•	•													
Impex (Glassware) Ltd	243														•		•												
Industria Technical Lighting	244	•				•			•	•	•	•	•		•	•		•	•						•	•	•		•
Industrial Lighting Components Ltd	245					•	•	•	•	•	•	•	•		•	•				•	•				•	•			•
Inotec	246	•	•	•		•	•	•	•	•	•	•	•					•				•							•
Kandelaber	247																		•			•					•		
Keylighting Ltd	248																					•					•		
L B Lighting	249																		•								•		
LDMS Lighting Ltd	250	•	•	•		•	•	•	•	•	•	•	•		•	•	•				•				•	•	•		•
Lightgraphix Limited	251														•	•	•		•										
Light Years	252	•	•	•		•	•	•	•	•	•	•	•		•	•	•		•		•						•		
Luckswitch Lighting Ltd	253	•	•	•		•	•	•	•	•	•	•	•		•	•			•						•	•	•		

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SUPPLIER	RE/	Wide dist.	Asy dist.	Nar dist.	Wide dist.	Asy dist.	Nar dist.	Wide dist.	Asy dist.	Nar dist.	Wet and dry	Bulb glass	Decor	Under	Adv	Cus	Rais	Tow	Port (with)	Port (non)	Mai	Min	Decor	Light and	Tim
Marlin Lighting	254	●	●	●	●	●	●	●	●	●	●	●	●			●		●				●	●		
Micromark	255	●									●	●	●												
Mini Specialists Ltd	256																								●
Moorlite Electrical Ltd	257				●	●	●	●	●	●		●				●					●	●	●	●	●
Noral Ltd	258										●	●	●					●				●	●		
Oy Ensto Hövik Ab	259											●	●									●	●	●	
Park Products Ltd	260																●		●						
Philips Lighting Ltd	261	●	●	●	●	●	●	●	●	●	●	●	●			●				●	●	●	●		●
Poselco Ltd	262				●		●	●		●		●													
Powerlite Electrical Products Ltd	263	●			●			●				●	●									●	●		
Rada Lighting Ltd	264											●				●								●	
Regiani Ltd	265	●		●							●	●	●												
C. Sandberg & Son Ltd	266												●										●		
Searchlight Electric Ltd	267	●									●	●	●										●		
Siemens Lighting Ltd	268				●	●	●	●	●	●		●	●			●	●	●			●	●	●	●	
Sill Lighting UK	269	●	●	●	●	●	●	●	●	●															
Simplex Lighting	270							●	●	●		●				●						●		●	
Son et Lumiere Ltd	271																								●
Staff Lighting	272	●			●			●				●	●			●						●	●		
Sugg Lighting Ltd	273												●			●		●					●		
Taison Lighting Ltd	274				●	●	●	●	●	●		●	●			●		●			●	●	●		
Tebulon Equipment Ltd	275														●	●									
Teklite UK Ltd	276	●						●			●						●	●	●	●				●	
Thorn Lighting Ltd	277	●	●	●		●		●	●	●		●	●		●	●		●			●	●	●	●	
Trilux Lighting Ltd	278																				●	●	●		
Urbis Lighting Ltd	279	●	●	●	●	●	●	●	●	●			●				●	●			●	●	●		
Veelite Ltd	280				●	●	●	●	●	●		●	●					●	●					●	●

Repair concrete columns? No way – rip ‘em out! This is a very understandable reaction, and in a number of instances the right one to take. But there are occasions when it becomes questionable to spend anything from £300 to £900 replacing a concrete lighting column when low cost refurbishment could be a viable alternative.

Since the early eighties Total Protection has specialised in building refurbishment and concrete renovation. It was against that background that we were asked by our local lighting authority to investigate the problems being experienced with concrete lighting columns.

The faults we found were usually the effects of carbonation or frost damage causing delamina-

Rip ‘em out or do ‘em up

tion around the brackets and door panels.

Carbonation is the effect of acidic substances being transmitted through the porous concrete. This causes the alkaline nature of

***Barrie Hesling and George Purdy put forward the case for refurbishing concrete lighting columns, rather than replacing them**

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Before:
a typical post
due for
demolition ...



the concrete to become acid and attack the metal reinforcements. These corrode and expand resulting in damage to the surrounding concrete.

Normally, treating these areas

is easy. Damaged and friable concrete is cut away, the exposed metal is cleaned and the area primed and replacement material applied.

Although concrete lighting

Exterior Lighting Buyer's Guide

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H. Vesshoff & Co. GmbH	281	●		●	●			●			●	●												
NEI Victor	282	●	●	●	●	●	●	●	●	●	●												●	
WF Electrical Distributors	283	●	●	●	●	●	●	●	●	●	●		●		●						●		●	●
Wever & Ducre	284											●												
The Woodhouse Co	285										●	●	●	●	●		●			●	●	●		
Christopher Wray Lighting	286										●	●	●		●	●		●				●		
Zumtobel Lighting Systems Ltd	287														●								●	



After: the post is back in working order

columns suffer in the same way as other concrete structures, the small scale repair involved required us to develop a system that could be applied within one hour at one site visit. It also had to be easy to use and in kit form for lighting maintenance contractors to use on a regular basis.

In just over three years the T P concrete lighting column refurbishment system has been tried and tested and is now being specified by many local authorities for both brackets and doors.

In these times of economy drives there is a need for all of us to make savings. A recent survey

revealed that one Local Authority, by refurbishing concrete lighting columns, could make enormous savings. For example, if it was intended to replace 400 columns in one year at £700 each, it could

be that 350 of these could be refurbished. The difference between replacement and refurbishment could be as much as £655 per column, so the total savings would be £229,000.

Even if we are wrong – there's nothing to lose. Think of the interest charges to fund replacement of a concrete lighting column; then even if the repair lasts for only one year it has cost

nothing.

**Barrie Hesling is the director of Total Protection and George Purdy is the company's sales and marketing consultant.*

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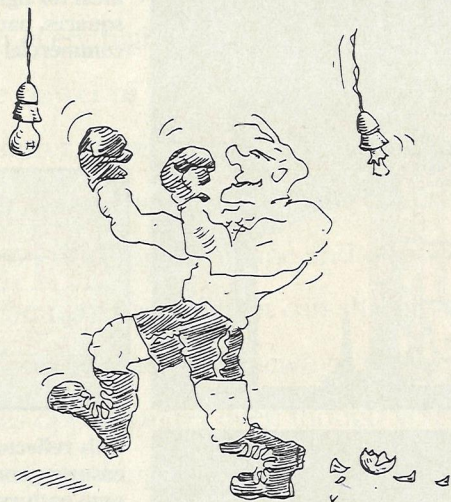
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Reader Service No. 12
Lighting Equipment News, November 1993

TBA
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Making light work

*Ian Stanton discusses the problems of light pollution and suggests some solutions

Seeking the right cut-off

For years manufacturers have concentrated on giving the internal lighting designer a myriad of varying optics and control devices to ensure that the optimum scheme can be achieved.

On the external side, manufacturers are having to do some serious thinking and radical re-design of optics to combat the surge of awareness relating to light pollution. This is a subject that is gaining great inertia in its awareness through various sectors linked, and now that such people as astronomers are linked to it, it is a subject that the general media is involved with and therefore strengthening the cause.

Lighting pollution can come in many formats, and therefore affects us all in different ways. The astronomers' complaint is that of sky glow, which reduces the clarity and intensity of stars at night. Planners are now aware of the issue illustrated by the now frequent imposition of stringent constraints on proposed lighting schemes. A common problem is caused by excessive column heights causing direct vision of the lamp source by an independent third party such as a house backing onto a car forecourt. The other issue the planners are tackling more closely is the problem of yellow sky glow caused by the extensive use of low pressure sodium lamps (SOX). On certain out-of-town projects like motorway service stations, shopping centres, retail warehouses there is more of a tendency to use high pressure mercury (MBF) and metal halide (HQI) lamps. These



An actual Cut-Off reflector illustrating the complexity and difference over a standard reflector.

than the intended subject. A classical case of this can be found when a luminaire is positioned on the periphery of a major car park. The utilisation of a standard symmetrical reflector will distribute the light in equal amounts onto the car park but also onto the area meeting the perimeter, such as a housing estate. Figure 1 depicts an efficient asymmetric optic distributing the light onto the required area, the car park, whilst keeping the building in relative darkness. By using this type of luminaire, light pollution is eradicated

asymmetrical reflector within the range will not suffice. Normally a credible manufacturer will have four different reflector characteristics. The diagrams illustrate the differing optics available and where they should be utilised.

The light distribution of the optic in Figure 3 is ideal for residential areas as it is able to illuminate both paths and roadways without disturbing the surrounding buildings. The decided asymmetry produces a high luminance on the road surface and pathway to provide safe illumination. By

what we call real environmental lighting. The light sources are screened to reduce glare, thus totally eradicating any form of localised light pollution. The housing can be mounted on walls, different surfaces, under the eaves of buildings or even column mounted. This simple design permits the integration of modern luminaires in an environment with historical buildings.

iGuzzini has differing shaped lantern bodies that incorporate all the varying reflectors. This enables the designer to choose a shape that is most acceptable in the designated environment, and then achieve an aesthetically uniform scheme by changing the optics to suit various independent locations.

Cut-off requirement

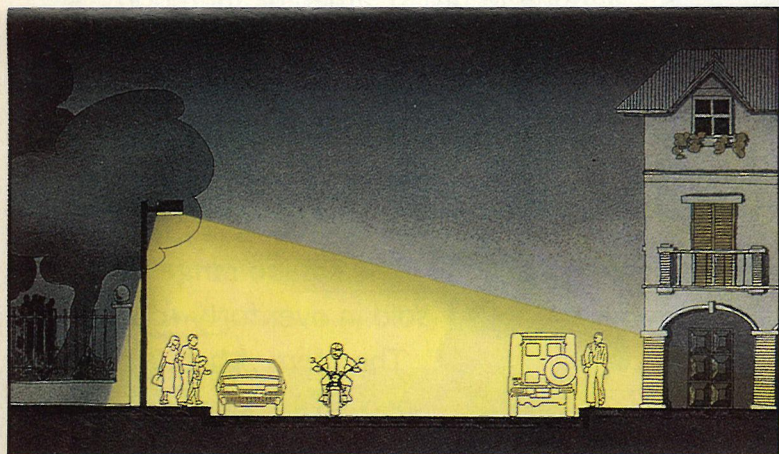
All cut-off fittings have only direct vertical lighting distribution and are the most effective way to combat all forms of light pollution. The designer must ensure that the luminaires he is specifying for volatile installations complies with the cut-off requirement. Many luminaires on the market look similar to those that comply with IES and CIE cut-off standards but may only come under the classification of semi-cut-off and non-cut-off. So when designing especially critical schemes in the future, it is important to ensure that the specified luminaire has an actual cut-off classification.

*Ian Stanton is sales and marketing manager at iGuzzini Illuminazione (UK) Ltd

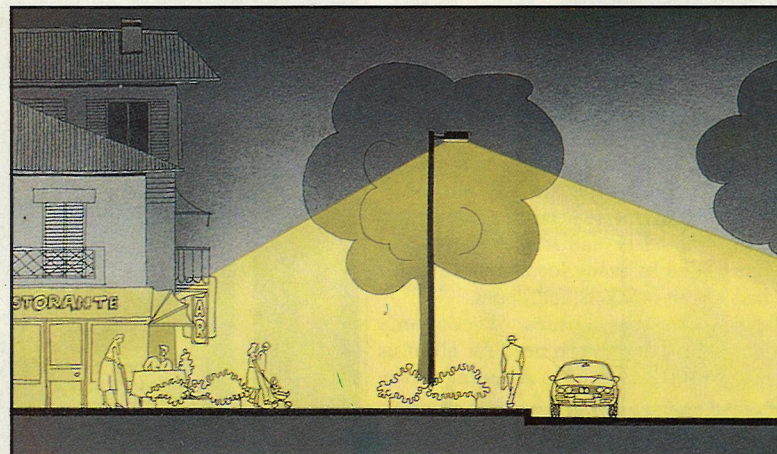
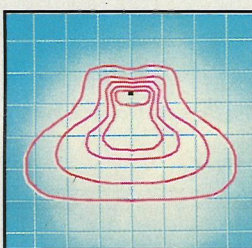
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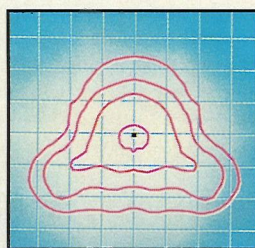
A typical Asymmetric Cut-Off Luminaire in use. Note that the light is being thrown on to the car park as required and not the building.



The light distribution of this optic (fig 3) is ideal for residential areas.



With the distribution of this reflector (fig 4) the light is directed more towards the pathway than the roadway.



are utilised because of their white appearance, and therefore the sky glow turns from yellow to white, giving the impression of moonlight to the local community.

Localised pollution is an aspect mainly caused by unwanted glare, and is usually attributable to a lack of lighting control on the luminaire, or accurate lighting design. Typical examples of these are car sales forecourts, sports clubs, pubs etc.

To summarise - light pollution is caused by luminaires directing illumination onto an area that either does not want it or require it. One of the major contributing factors equating to sky glow is the utilisation of luminaires that have indirect vertical light emission, such as the standard globes without any control baffle, refractor or diffuser. In certain cases up to 30% of the illumination generated by the lamp is thrown skywards. This also leads us onto the sector of efficiency, or lack of it in this case. Pollution can be caused by the use of luminaires that although only achieving a direct light distribution, have only a very basic integral aluminium reflector, resulting in light being emitted in all directions, rather

cated because control and efficiency is achieved due to all light generated being thrown onto the subject of concern.

There are only a relatively small number of manufacturers who produce precise optics for external luminaires that allow accurate light control. These luminaires are referred to as 'Cut Off' and figure two shows an

"Up to 30% of the illumination generated by a lamp is thrown skywards"

actual reflector which has accurate computer design, and hydraulically formed to exacting tolerances.

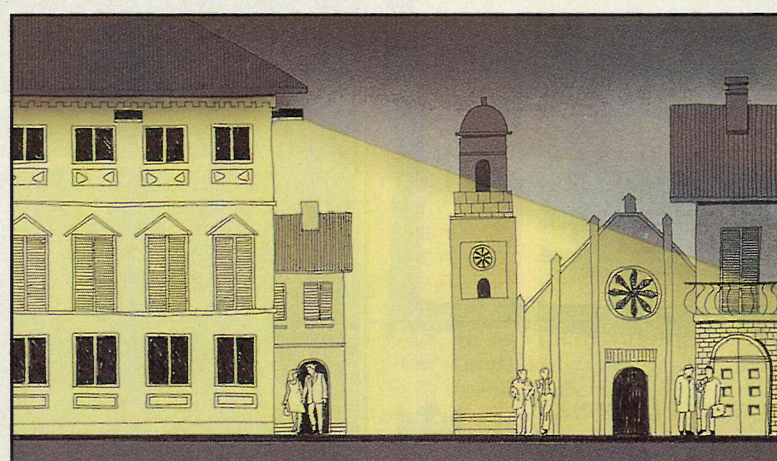
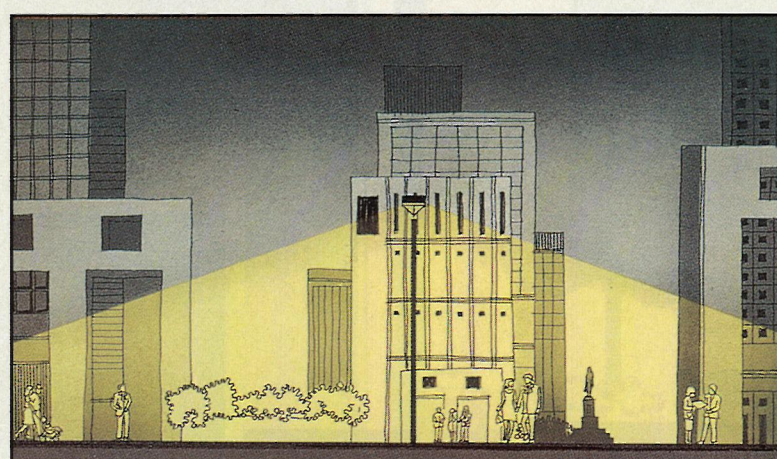
Obviously there is a multitude of differing design criteria for external locations and therefore just a standard symmetrical and

using this reflector the light distribution allows the column spacing to be greater, therefore reducing installation and maintenance costs whilst also conserving energy. The optic in figure one utilises this optic, and illustrates an actual example.

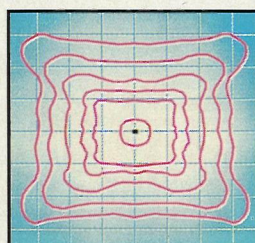
With the distribution of the reflector in Figure 4 the light is directed more towards the pathway than the roadway. This ensures safe traffic flow but also provides a comfortable urban environment at night. Architectural features are highlighted whilst traffic signs, signboards, furnishing can be seen clearly. This system allows more practical visibility in urban areas while improving the environment.

The reflector in Figure 5 is ideal for lighting squares, parks, commercial centres, etc. The light distribution offers many advantages such as increased column spacing due to the distribution being rational and uniform. The cut-off optic also ensures glare control which is contrary to traditional fixtures such as floodlights.

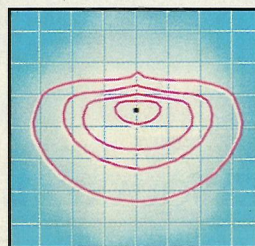
Figure 6 shows a reflector which ensures good lighting onto pathways while also giving soft illumination to buildings. This is



This reflector (fig 5) is ideal for lighting squares, parks, commercial centres etc.



This reflector (fig 6) ensures good lighting onto pathways while also giving soft illumination to buildings.





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Shrinking from the light

The trend is for business premises to be smaller. In marketing lighting to industrial customers, it is helpful to understand why this is, and how it is affecting the demand for roadlighting and exterior lighting. **Stanley Lyons reports.*



Except for a few works concerned with heavy manufacturing and the metals industries, traditional massive factory buildings will soon be a thing of the past. The typical modern industrial company tends either to assemble bought-in parts, or to be a specialist manufacturer or processor of parts for assembly by others. Many relocations of existing businesses to smaller premises follow the introduction of computerised systems of management, computer-aided design (CAD), or numerically controlled (NC) machine tools and manufacturing processes, all of which enable the employment of a smaller workforce. When established industrial companies respond to these radical changes in how industry operates, they may modernise their methods of operation, abandon their large old factories, and move to modern compact units on industrial estates and science parks.

As the recession eases, there

Above: changes are creating opportunities for exterior lighting

are also large numbers of new small businesses currently starting up in one or other of the new roles, many of them establishing themselves in recently-built units no bigger than 1000m².

We are used to thinking of warehouses as vast echoing buildings, but these are changing too. There are now many examples of new types of warehousing or distributing organisations which hold stocks of other companies' products, and either carry out distribution on their behalf or act as an independent marketing and distribution organisations. Because they operate on the BS5750 'just in time' philosophy (which enables the holding of minimum stocks without ever being out of stock), and because their ordering procedures are by computer links, stock dwell-time in the warehouse is minimal and there is hardly ever an empty shelf. Therefore,

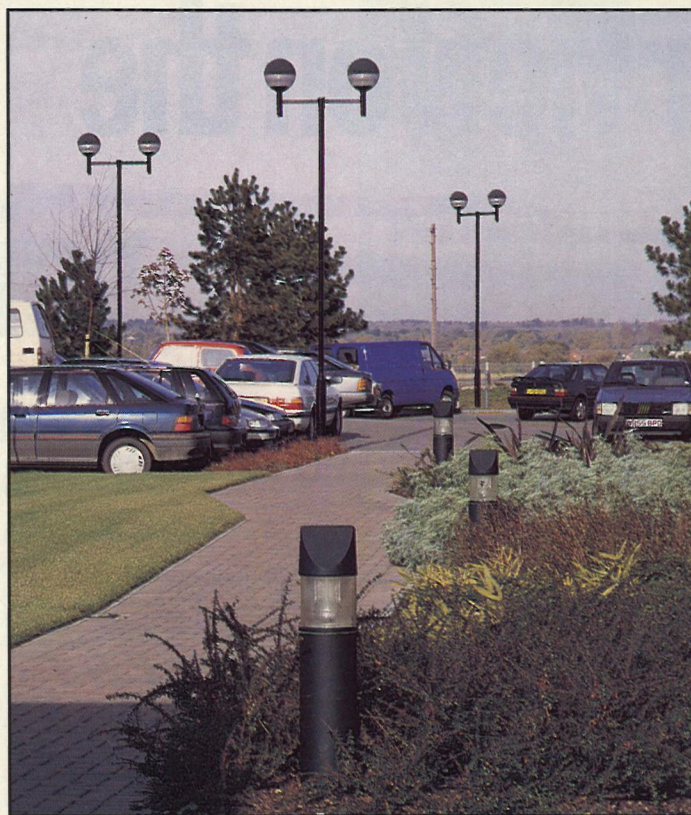
high turnover can be achieved with minimum shelf space, so that a multi-million pound turnover can be through-putted in premises of less than 2000m².

We thus see that all kinds of modern industrial premises tend to be small, clean and well-lit, and differ little in appearance - internally and externally - from open-plan offices. The rising standards of employee care, and the demand for better visual conditions for the performance of tasks, are creating some excellent opportunities for lighting suppliers.

In some areas, large old industrial buildings are being divided into smaller units for occupation by many separate small businesses; but the main trend is for new smaller units to be offered by developers and local authorities. These tend to be located in the new industrial parks which are being created by local authorities all over the country, and in science parks where high-tech research and development work may be performed in association with a local university or research association.

Road lighting on industrial estates

Not all industrial parks have adequate roadlighting and footpath lighting. The lighting of the footpaths across open spaces is vital for the personal safety of those that use them after dark. The tendency seems to be for local authorities to assume that, because there are no shops or crowds on the pavement, industrial roads may be provided with a minimal level of roadlighting. This is a foolish policy, for a high standard of public lighting is needed on these estates to provide an adequate measure of night security. In those little buildings on a modern industrial estate, there may be many millions of pounds-worth of equipment and



Above: modern premises tend to be small, clean and well-lit

stock; yet, after dark there may be hardly anybody about on the estate. With poor roadlighting - or none - many estates are a burglar's paradise. Policing is generally minimal, and usually fairly ineffective if there is not an adequate level of public lighting.

Many local authorities still operate 'half night lighting', i.e. the roadlighting is switched off at midnight or 1 am, perhaps leaving just a few lights on at estate entrances and important cross-roads. (When some occupiers of premises on an industrial estate were questioned on this, none of them knew that the roadlighting was switched off at midnight - they were never about at such times!)

In some parts of the country, occupiers of business premises

have approached their local authorities to ask for improved roadlighting or for the lights to be kept on all night, to be met with refusal on the grounds of economy. But some councils will accept payments from tenants and owners of property towards the cost of improved public lighting near their premises. Some, like Somerset County, actively seek contributions from frontagers.

Exterior lighting

Many industrial occupiers are installing area lighting around their premises. Whereas in past times it had been usual to mount a few floodlights on the faces of the buildings, it is now the mode

to use some strategically sited columns upon which are mounted area-lighting luminaires or floodlights (which flood back towards the building). Such installations are provided mainly as a security measure, particularly if lorries and other vehicles are parked on the land. In many cases such lighting must be installed by the occupier for pedestrian and vehicle safety to make good the poor level of adjacent public lighting provided by the local authority.

Lighting provided around industrial premises is justified by its contribution to the serious purpose of defending the premises from night attack, and discouraging vandalism and interference with vehicles. The provision of lighting also enables the use of CCTV camera surveillance. CCTV monitoring these days often performed by a remote central monitoring station. Visible-light cameras are cheaper to install and maintain than low-light-level or infra-red cameras, and the lighting itself is a deterrent to wrongdoers who know that they may be seen by occupants, security patrols or police.

Floodlighting and amenity lighting

Exterior lighting around industrial premises is a much appreciated and humanising amenity, often extending to tasteful and attractive lighting of open spaces and gardens adjacent to the premises.

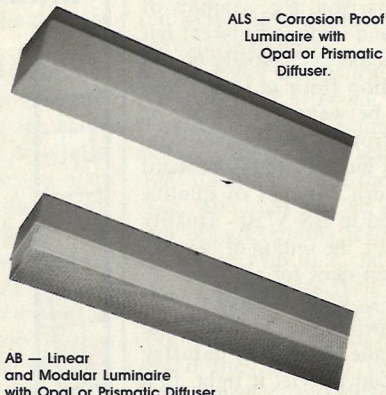
Another justification for the provision of a good standard of external lighting (including building floodlighting and lighting of adjacent open spaces and gardens) is the advertising value, and the enhancement of the image or prestige of the organisation occupying the premises.

**Stanley Lyons is a freelance writer specialising in lighting*

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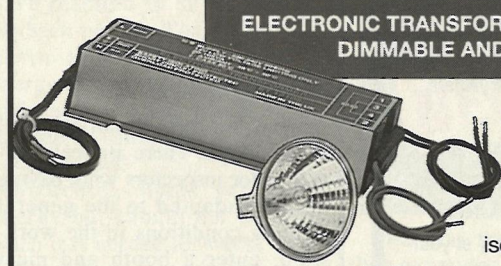
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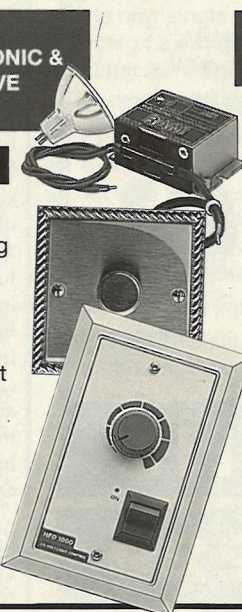
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A better view on the shopfloor

***Stanley Lyons looks at how lighting in production areas has changed and how this has improved productivity and quality control**

A few decades ago, when lighting was a comparatively costly industrial overhead, very poor illuminances were employed in the majority of UK factories. Many had general lighting barely complying with the old Factories Act minimum requirement of 6 footcandles (65 lux). Parliament specified the 6-fc standard to ensure that there would be suffi-

cient illuminance to enable persons to walk about safely in factory premises; it was never intended that 6-fc should become the normal lighting level. The poor general lighting level used then necessitated the provision of task lights at points where visually difficult tasks were performed, and the practice of local lighting on machine tools became standard.

It was formerly the practice for batches of machined parts to be moved at intervals to the stores in tote-bins or trolleys, and from thence to an inspection department. After inspection the goods would be returned to the stores, to be issued yet again to the next machining or assembly process, and so on until all processes had been completed. Each batch might typically pass through the stores four times, necessitating up to 20 stores transactions (Fig.1).

Movement of parts to an inspection department causes delay between their manufacture and the determination of their pass/reject status. There could be several days – or even a week – between a part being made and it being inspected and declared scrap; meanwhile the operator continued making faulty parts which in time would be inspected and scrapped.

One reason for this inefficient procedure was that the visual tasks of inspection necessitated better lighting than could be economically provided then over the whole shop floor. The results of delay between manufacture and inspection prompted the first attempts to introduce in-line inspection to reduce scrap rates by reducing the delay between manufacture and inspection.

In-line inspection was widely adopted in the post-war years. Commonly, small inspection huts or booths were erected on the shop floor, sited where the parts could be checked before being moved to the next process. By the 1960's quite sophisticated inspection stations in the form of enclosed booths or head-and-shoulder booths, were in general use in factories. These excluded daylight and ambient light, and provided suitable miniature visual environments for precision inspection and the inspection of colour(1).

Adapting to light

ntages, but they do not solve all the problems. There are real difficulties for inspectors who, having become adapted to the general lighting conditions in the workshop, enter a booth and must allow sufficient time for their eyes to adapt the illuminance and to the colour of the lighting provided within it before starting their inspection task.

A sufficient degree of adaptation to a significant difference in illuminance and colour of illuminant can take as long as 15 minutes. Moving frequently between an illuminance of a few hundred lux of poor quality general lighting to one of several thousands of lux of high colour quality lighting induces stress in the inspectors (sometimes causing headaches) and leads to inconsistent performance of their work – particularly in tasks involving fine colour discrimination.

Nonetheless, in-line inspection has been widely adopted, and clearly leads to an enormous reduction in labour cost in the

handling of piece-parts. It also reduces considerably the floor and shelf area of stores required, as well as eliminating all the paperwork associated with multiple stores transactions (see Fig.2).

It has long been realised that the ideal solution would be for every production operator to be his own inspector, an aim that could only be realised if the lighting at each workstation was of suitable quantity and quality to enable critical visual tasks to be performed accurately and without strain. The factors against this ideal solution were the then high cost of lighting a production area to inspection department standards, and an uncooperative attitude on the part of many workers.

Labour relations in Britain's factories have improved to such an extent that there are now few disputes about demarcation. With increased automation, and with the relaxation of rules about division of labour, there is less conflict between the roles of production workers and inspectors. A factor which has helped in this has been the phasing out of piece-work payments and their replacement with quality and production bonuses above the standard rate. The imposition of 'negative pay' on workers for output that has failed inspection – sometimes months after the work was performed – is no longer practised.

"Zero rejection rate is a rational objective"

The shop-floor attitude of ten or fifteen years ago may be summed up by the operator who at that time said, "I just make 'em, mate! It's someone else's job to inspect 'em. If I'm going to have to inspect 'em, I want to be paid inspectors' rates!" But, as the cost of good lighting has come down in relation to the other overheads and expenses of industry, self-inspection has become routine – perhaps with very small samples of production being cross-checked by roving inspectors who might also double as tool-setters.

Computer-stored 'track-back' records, generated during the acquisition of parts and by the processes being performed, now enable any complaint to be investigated, including 'Who made this?', so that staff performing self-inspection on the shop floor are fully responsible for their acts and can be identified in the case of a fault being found.

As demanded by the nature of the products and the visual tasks performed, even if self-inspection is introduced, it may still be necessary to retain an inspection department, the function of which is to maintain calibration standards and keep perfect samples for comparison, e.g. samples of colours and surface finishes; but the inspectors will mostly be out on the shop floor at inspection stations between processes, or acting as roving inspectors/setters.

Before industry took on board the modern concept of quality (enshrined in BS 5750:- Quality Assurance), the setting of 'acceptable' reject rates for all manufacturing tasks was a normal part of factory operation. It is only in the past decade or so that industry has decided to 'Get it right, first time', and has accepted that zero rejection rate is a rational objective. Companies like Fiat in Italy led the way by setting attainable tolerance zones for the dimensions of their engine parts; and, by their 'FIRE' program virtually

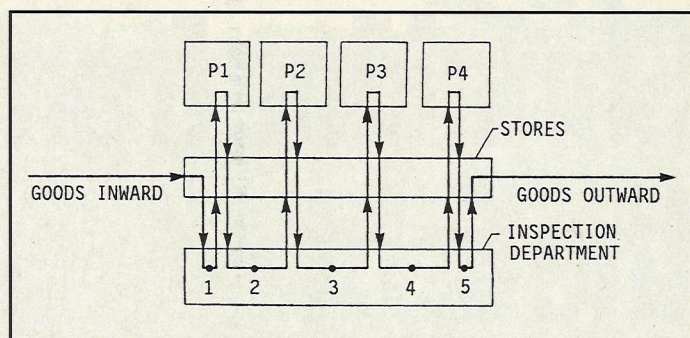


Figure 1: Central factory inspection. The four manufacturing processes (P1, P2 etc) and five inspection processes (1, 2 etc) require twenty stores transactions per batch.

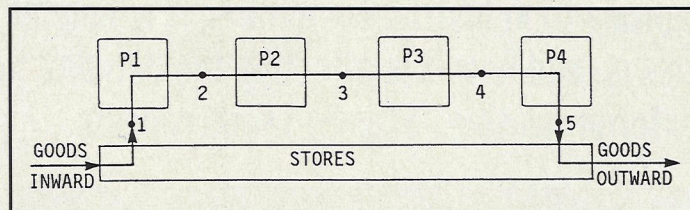
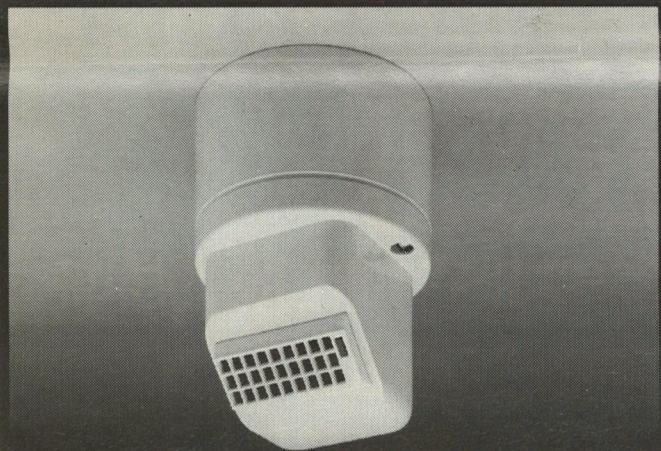


Figure 2: Linear factory inspection. For the same production, only four stores transactions are required (shown by arrowheads). This system requires lighting in the production area to be good enough to permit inspection processes.

eliminating scrapping of parts by dimensions at the extremes of – providing a computer-led system or even beyond – their permitted of matching items which have tolerance zones.

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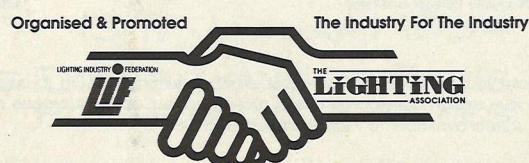
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Good efficient industrial lighting

Good lighting makes good business sense and is a positive contribution to productivity, writes ***Alan Wilson**.

Successful energy efficient industrial lighting aids quick and accurate work by making tasks easier to see, contributes to the health and safety of the workers by reducing stress and revealing dangers, and also helps to create a pleasant working environment.

Saving energy by reducing lighting standards is not the way forward. Clearly poor lighting cannot be regarded as efficient no matter how little energy is used.

Light is synonymous with goodness, 'All things bright and beautiful' is a hymn many of us have sung as children, and it is often argued that there is no such thing as bad lighting but it is just as real as good and bad food, with the possibility of greater consequences. Poor lighting can affect quality of work, resulting in a high proportion of rejects. Workers' health can be affected by stress through working in poorly lit factories and at worst poor lighting can be a contributing factor to the occurrence of accidents, even involving the loss of life. Insufficient and unsuitable lighting in workplaces is a contravention of the Health and Safety at Work Act, etc.

But how do industrialists know

and other loads added. But if energy cannot be measured then it should be possible to calculate the lighting load. Illuminance and loading can then be compared with best practice. The CIBSE Interior Lighting Code gives recommended illuminance values and lighting load targets.

While illuminance is an important factor it is possible to meet recommended illuminances and still not have good lighting.

The best instruments for evaluating lighting are set at each side of our nose and can be used to appraise the effectiveness of all existing lighting installations.

Some things to look out for which should be avoided are:

- excessive variations in brightness to the point of causing glare - usually from window, lamps and luminaires, viewed directly or reflected in work tops or the work itself
- poor task contrast
- confusing shadow patterns
- poor colour rendering
- people and objects which do not look natural
- flicker, especially noticeable in the corner of one's eyes, and stroboscopic effects in rotating machinery
- gloomy workplaces.



Tulip International (Danepak) bacon joints hall

if their factory is badly lit and inefficient? Industrialists could employ an independent lighting consultant to carry out a lighting energy audit. The Chartered Institution of Building Services Engineers (CIBSE) or the Lighting Industry Federation (LIF) can supply names of suitably qualified people. Obvious warning flags are complaints that workers cannot see well, in which case they must receive immediate attention.

Although light is sometimes used for other purposes, in industry its principal use is to enable people to see. It would be ideal if we could express lighting efficiency in terms of vision quality during the working hours, set against the electricity used.

Unfortunately there isn't a meter we can take into a room to tell us how well workers will be able to see, but we can measure both illuminance (the amount of light) which is a major factor, and also the energy used. However anyone who has tried to measure the energy use for lighting in a particular area will tell you it is not easy, because most existing lighting circuits have had alter-

This list is by no means exhaustive but includes many of the defects in lighting installations which cause dissatisfaction.

Energy used by a lighting installation is the product of both the installed load and the hours of use.

Therefore, efficient lighting installations are those which:

- achieve the desired result with the lowest load by good design and by using the most efficient lighting equipment
- ensure that the electric lighting is switched off when not required
- ensure that the lighting equipment is maintained to achieve the right illuminance for the energy used. This may not be self-evident but all lighting installations deteriorate with time and can fall well below the designed figure if not maintained. As a result, many people are paying for lighting which they are not receiving through neglecting maintenance.

When considering energy savings, it is important to identify where these can best be achieved.

Where lighting is, of necessity, in use for long period, load reduction will give the most benefit. A number of options exist for reduc-

ing the load, for instance changing from a general to a localised or local lighting system and to using more efficient lighting equipment.

Designing for the task reduces load. In most manufacturing there are many tasks which are more or less difficult to see. With a general lighting system the level of illuminance throughout is set by the most demanding task, but it is not necessary to light all tasks to the same degree.

Dairy Crest Ltd, near Wrexham, Clwyd changed from a general to a localised lighting scheme by modifying the existing luminaires to provide the recommended illuminance on the working spaces and lower illuminance in the non-working spaces between.

The load was cut from 5.1kW to 2.7kW which has saved 47% energy and running costs, resulting in a payback within 2.5 years.

At Muirhead Vatric Components Limited, Penge, London bench lights and magnifying lenses have enabled energy savings to be made in a precision electromechanical components factory, and modern fluorescent lamps and high frequency control gear have made further improvements.

The general lighting load has been reduced from 44.16kW to 21.76kW resulting in 89600kWh per annum energy savings with a payback of the investment in just over three years.

Bacon savings

At Tulip International (Danepak), Thetford, Norfolk the existing luminaires in a bacon factory's packing hall have been modified to reduce the installed load from 37.4kW to 21.5kW by fitting modern triphosphor fluorescent lamps and high frequency control gear. Energy savings of 57% and maintenance costs savings of 25% have resulted in an 18 months payback period. Planned maintenance plays a major part in energy saving, by optimising the maintenance period to achieve the designed illuminance for the installed load.

Switching lights off saves energy but should not be done when it is needed for work.

For safety's sake one has to be extremely careful to make sure that nobody is plunged into darkness, especially with automatic control systems. Automatic control systems can be very effective but can be equally frustrating if complicated to adjust. On the other hand, manual switching is user-friendly but people are likely to switch lights on when needed and are less likely to switch them off.

In many factories, daylight can be used to provide the whole or part of the necessary lighting for some of the time and energy can be saved by simply switching lights off or by dimming.

L'Oreal Golden Ltd, Llantrisant, South Wales has saved 37% of the electricity used for lighting per year through photocell switches and by regulating the electric lighting to compen-



Powergen Fiddlers Ferry Power Station Stores

sate the variations in daylight. Many areas are not continuously occupied and lights left on when not required are a most conspicuous waste of energy.

At Powergen, Fiddlers Ferry Power Station in the Heavy Stores has saved a massive 80% through timed push-buttons and an even greater 90% through presence detectors. The cost of fitting the controls was recovered

within six months.

The Case Studies mentioned above are part of a series of Best Practice programme case studies being prepared by BRECSU for the Energy Efficiency Office.

*Alan Wilson is director of Engineering Design and Procurement. This article was first published in *Energy Management*, the journal of the Energy Efficiency office.

Reader Service No 199

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Reader Service No. 20
Page 17

With the handicap of poor lighting at the point of production removed, it is possible to set up systems in which the manufacturing operators are their own inspectors. This may necessitate introducing routine 'vision screening' to ensure that the eyesight of the operatives (wearing normal corrective spectacles) is adequate for the visual tasks they have to undertake.

Because of the trend to product miniaturisation, and use of numerically controlled (NC) machines, the modern production area is much smaller than typical earlier factory spaces. Modern high-efficacy lamps, and luminaires which distribute light efficiently with limitation of direct glare, now make it feasible and economic to provide 'inspection-standard lighting' - at illuminances of 1000/3000 lux - over whole productive areas. This eliminates problems of adapting to brighter local lighting, each operator enjoying such illuminance and quality of light that his visual tasks in production and inspection can be performed swiftly, accurately and without strain. Of course, for things that are difficult to see or difficult to light (eg, interiors of cavities), local augmentation of illuminance may be provided by fibre-optic light-guides or mirrors.

Dark satanic mills

Luminaire soiling is a problem likely to be eased in future. In those factories which we may still regard as 'dark satanic mills', employers are now beginning to ask: 'If the atmosphere in our machine shop is filthy enough to produce a significant drop in lighting level within seven days of cleaning the luminaires, what are those airborne pollutants doing to the lungs of our workers?' It can be predicted that there will be more installations of air-conditioning systems for production areas, and that greater use will be made of electrostatic precipitators to extract minute 'aerosols' of oils, printing ink haze, and metallic dusts and other pollutants from the atmosphere. By such means, the luminaires and the decor will keep cleaner, significantly reducing lighting and maintenance costs, and making more feasible the provision of inspection-standard lighting throughout whole departments.

Perhaps future lighting specifications will routinely include recommendations for the colours and reflectances of decor (and of the floor). In colour-matching areas, white, grey, or colours not stronger than Munsell Chroma No1 should be used to prevent colour-degradation of the lighting by reflection from surfaces having strong colours. However, it must be remembered that if an interior is decorated throughout with very pale colours, it can produce an uncomfortable 'bland field effect'.

There is a rearguard defending the provision of windows in workspaces, but doubtless more premises in which careful control of lighting is required will be built without provision for natural lighting. We may expect that environments in factories will become ever more similar to those in modern open-plan offices. Better lighting can be shown to improve the visual acuity and accuracy of task performance of workers, and reduce fatigue; working in a visually pleasing environment also benefits their morale and productivity.

*Stanley Lyons is a freelance writer specialising in lighting

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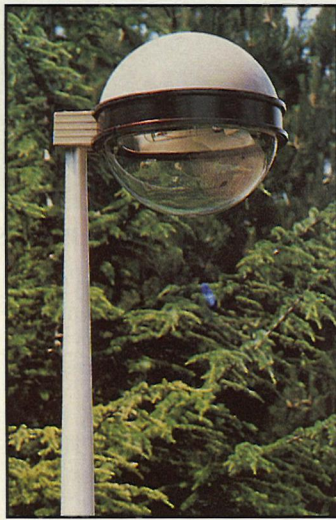
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LEN reviews some of the new products at this year's Lightex conference and exhibition in Bournemouth

Lighting the way

'A nice little exhibition' was the view of many visitors to this year's Lightex exhibition in Bournemouth. Certainly, *afficionados* of public and amenity lighting had plenty to see and the route march between the two exhibition halls was but a minor inconvenience. Many exhibitors had new products to display, while also providing conference delegates with the opportunity to see existing products at close hand.

Generating a great deal of interest on the **Abacus Municipal** stand was the spring assisted Raising and Lowering column which allows the column to be lowered to ground level for easier maintenance.



Thorn's Visage, a high performance street lantern

Over 50 products were featured on the **C U Phosco** stand. These included the Kamax Refractor, said to have high heat performance (150°C), optical clarity and high rigidity.

Flexible Directional Indicators Ltd (FDI) was exhibiting its Flexibol 'bounce back' bollard, which now has a five year guarantee against graphics fading. The company has also introduced the Multi Flex bollard and baselight.

Hagner International introduced a newly developed illuminated lane indicator system for road tunnels and underpasses. It uses plastic modules of 220mm length, each inset with six high-intensity 3mm diameter LEDs on one side and some 200 reflector beads on the other.

Thorn's Rocades, a road lantern for motorways

Holophane has launched the new Grosvenor range of architectural luminaires, said to provide superb prismatic performance and low upward light output.

Lighting Systems UK, a division of Phosco Ltd, was exhibiting a range of products for exterior lighting, all backed by a five year warranty.

Visitors to the show were also able to see the new **Lumisphere** Electronic Conversion Kit for Belisha Beacons (ECUB). This is an electronic integrated unit with a controlled voltage output of 11.8V and with a soft start characteristic. It has a porcelain lampholder to take a 50W tungsten

halogen traffic signal lamp, which is mounted at the top of the unit.

Osram was majoring on the new life guarantee on its SOX and SON lamps. The company guarantees to replace SOX and SOX Economy, SOX Plus and SON Plus lamps on a 1:1 basis up to 8000 hours.

A new lighting scheme at the Bournemouth International Convention Centre uses the new Traficvision street lanterns from **Philips**. Using a variable optic, the fittings allow the use 150W SON/T lamps, rather than the 250W SON/T lamps used previously. It also launched a new low-pressure sodium lamp, SOX Plus, as a direct retrofit for existing SOX lamps, but with a claimed life expectancy of 12,000 hours.

New to the **Siemens** range is Euroflood Asymmetric, an asymmetric floodlight, rated to IP65 and said to be suitable for a range of exterior applications.

Also on show on the Siemens stand was a pre-production model of a new decorative post-top lantern. In the form of a polycarbonate funnel with a black finished spun aluminium canopy, this design comes with a top diamond optic and takes a 70W or 150W SON-TS lamp.

Mike Smith Designs introduced three new products at the show. The Authority Modular range is a family of luminaires based around a die-cast aluminium body and ring, which complies with BS4533, IP66 protection. The company has also incorporated the Philips QL lamp into its Authority range of luminaires. The third development is the Aluminium Modular Bollard System, a range of multi-functional bollards, said to combine design flexibility with cost-effectiveness.

The new Rocade lantern from **Thorn Lighting** is designed to take either single or twin 250W or 400W SON lamps. The units are said to give controlled light distribution, with low glare, almost no upward light, minimum spill light outside the roads and to allow wider spacings between lanterns. The twin optical version for wide roads allows the lamps to be switched one at a time - increasing the interval between re-lamping and providing back-up where two lamps are needed.

Bendy bollards were the major showpiece of the **Trafflex** stand. Described as indestructible, the

new bollards are made of toughened translucent polymer and are designed to bounce back into an upright position when hit by a vehicle. The shielded light unit continues to work even after impact.

Lightex saw several new developments from **Truesigns Ltd**. These include a new robust cast aluminium sign light, the T8A; the addition of a remote control option for the Twin Amber flasher unit; new translucent reflective panels for bollards and a new subway light.

The new **Sintra** range of lanterns from **Urbis** is designed for residential roads. Optics available for these fittings include the new Type 1423 reflector designed for 50W to 70W SON-T light sources.

David Webster Ltd used the show to announce the launch of Release 2.0 of its LoGistics lighting management geographic information system. The new release brings LoGistics to the market in ArcCAD format to complement the existing GEO/SQL version.

D W Windsor made Lightex the venue for the launch of its Optima Series, designed for the contemporary styled exterior lighting market. The series was developed after research showed a gap in this market for a modern style luminaire with a range of profile shapes, sophisticated photometric performance and low maintenance requirements - for less than £200.

Optima uses a cast aluminium ring to form the core of the luminaire shell and support the optical controller and lamp control circuit components. Sealed to the top face of this ring is the canopy, available in seven different shapes. In addition, there are five different glazing bowl shapes on a gasket recessed into the lower face of the ring, giving a total of 35 luminaire profiles across the range.

Bowls, optical assemblies and gear trays are all interchangeable. Each style has four fixing methods - side entry, direct post-top, pendant mount and mid-post mounting. The principle light system in the Optima is the company's Diamond optic reflector system, which can be adjusted to give variable light distribution to suit the application. The optic is mounted on a tray fixed to the ring, to which it is hinged for ease of access.

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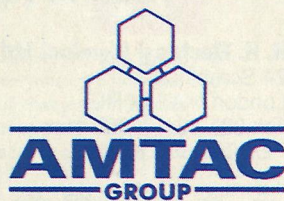
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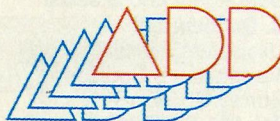
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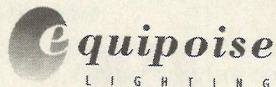


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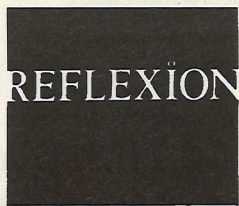
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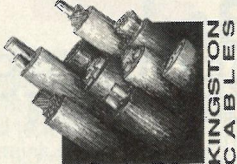


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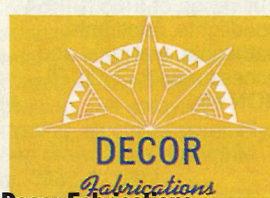


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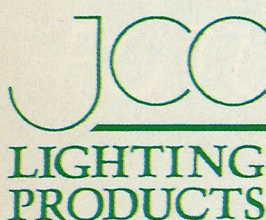


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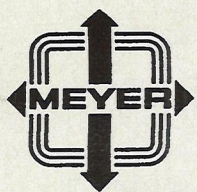


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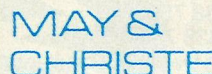
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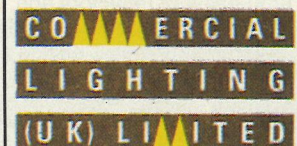
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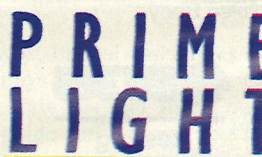
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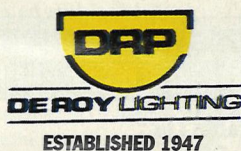
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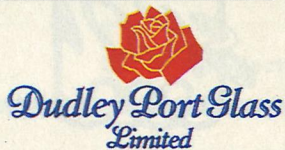
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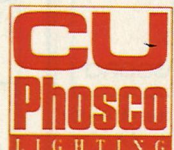


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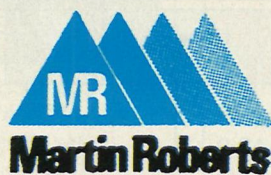
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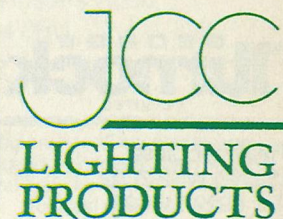
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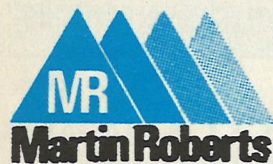
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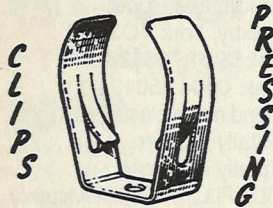


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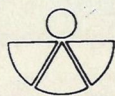
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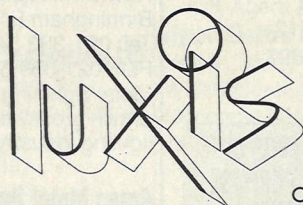
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Applicants should in the first instance send a CV to **Mike Hill, Personnel Manager, Gent Limited, 140 Waterside Road, Hamilton Industrial Park, Leicester LE5 1TN. Telephone 0533 462221.**



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Applicants should be members of the ILE or CIBSE and should live within commuting distance of Croydon.

**Please send your CV stating present salary to
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Alternatively, telephone her on 081 781 8045
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Philips Lighting



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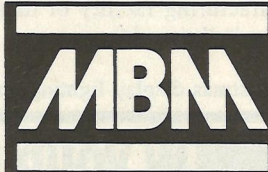
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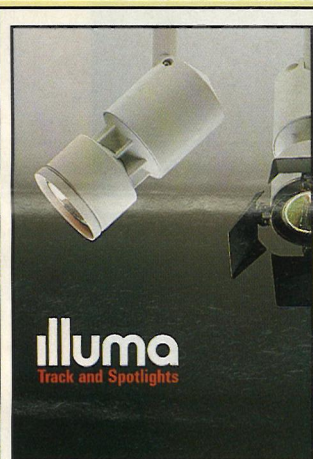
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MBM Plastics Limited
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West Bromwich
West Midlands
B70 9DE
Tel: 021-553 7551**



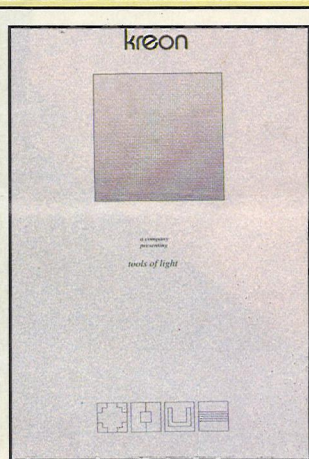
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COPY DATE FOR DECEMBER ISSUE 19th NOV

CATALOGUE DIRECTORY



ILLUMA LIGHTING have just released their new Track & Spotlight Catalogue which illustrates their 1994 collection of PAR 30, HQI, 12V spotlights and track. The Electrospot range shown on the cover above has been enlarged and Marktrack II is available with an integral electronic transformer and a variety of new 12V miniature Eurostar spotlights. A matching Downlight Catalogue is also available which includes new PL, PLC, HQI and white SON recessed luminaires: circle 91



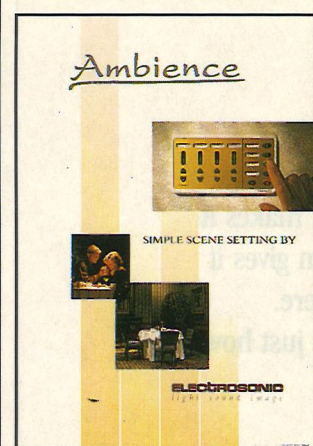
The new comprehensive Tools of Light Colour Catalogue by Kreon N.V. of Belgium, solely distributed in the UK by Kreon UK Ltd is now available. New product families, FM Series and Diapson have been added to the existing ranges of Upside Down, Inside Out and Upstream which are clearly illustrated with technical information: circle 92



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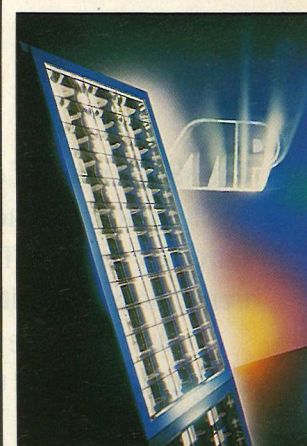
New from the number one in SCENE SET lighting comes AMBIENCE, a new stylish 4 channel 4 scene lighting control system, specifically designed for the smaller installation. AMBIENCE provides sophisticated yet simple to use control for a wide range of modern light sources for both domestic and the smaller commercial application. State of the art technology and all at a totally affordable price: circle 95



Industria Technical Lighting have released two new brochures. These combined brochures are aimed to illustrate to specifiers the range of Industria's programme for Public and Amenity lighting. Also detailing 'High Performance' lanterns of the functional as well as decorative styles they also include an overview of specialist products such as Tunnel lighting and Heritage equipment: circle 96



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M&P Lighting introduce their new fluorescent lighting catalogue, featuring the new Louvre Sealed IP54 louvred luminaire, fully developed to meet the new CIBSE LG3 requirements, whilst maintaining protection to IP54. The catalogue also features recessed surface and continuous fluorescent lighting solutions: circle 98

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Reader Service No. 24

Lighting Henry Moore

Staff Lighting has supplied 150 UNO low voltage spotlights to the new Henry Moore Institute in Leeds. These are designed to provide unobtrusive lighting which is flexible enough to meet the different needs of individual exhibitions.

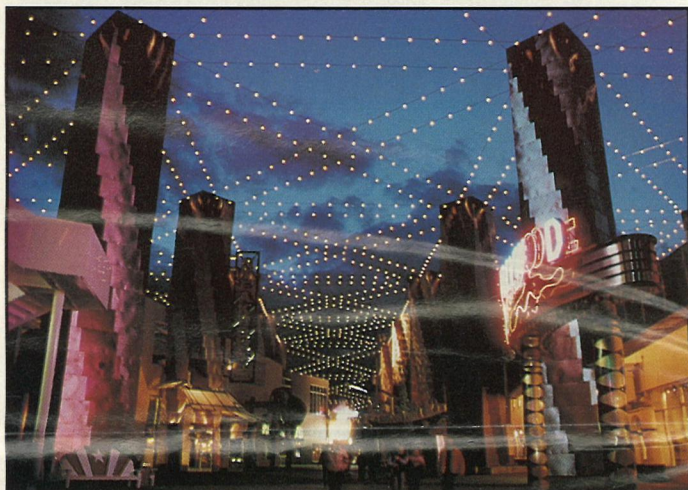
The use of low voltage spotlights was dictated by the need to provide accurately positioned lighting without glare, and the museum wanted a system which allowed for unskilled staff to move and reposition spotlights when required. The UNO system was suggested by Bob Locker of the Steensen Varming Mulcahy Partnership. According to Staff this was because the spotlights fit into discreet plug-in sockets and point outlets in the ceiling, thus removing the need for track

around the ceiling.

A great deal of flexibility is required of the system as the building uses a variety of schemes. One sculpture exhibition, for example, uses UNO 140 spotlights with a 50W 5° beam so

the statues are covered in a dappling light, mimicking the effects of sunlight. In other display areas, UNO 55 spotlights are used with UV filters to reduce the potential for UV damage to exhibits.

Reader Service No 160



A ceiling of light

Festival Disney, the evening entertainment centre at Euro-Disney, houses a range of American themed shops, restaurants and nightclubs. It is dominated by glittering 20m high reflective aluminium pylons which support a grid of Lumisphere light units, each incorporating Osram Halostar 5W low voltage tungsten halogen lamps.

This 'ceiling of light' uses about 6000m of festoon lighting and some 5000 Lumisphere units. "With such a high level of visitors throughout the year, it is essential that Festival Disney uses

a reliable lighting system with a low lamp failure rate," said Lumisphere director Robert Myson. "The lamps used in the system have an average life expectancy of over 4000 hours when running at the design voltage of 11.5 volts."

The modified Halostar lamps are multi-positional and protected within the Lumisphere globe. According to Osram, this means the lamps do not deteriorate as 240V incandescent lamps do when subjected to exterior conditions. The company also says that energy cost savings are more than 60% compared with 15W 240V incandescent lamps.

Reader Service No 161

In brief...

● Hagner photometers, including lux and luminance meters, radiometers and tunnel photometers, developed and manufactured by Swedish Company B Hagner AB are now to be exclusively distributed in the UK by Hagner Photometric Instruments Ltd.

Reader Service No. 162

● Philips Lighting has moved production of its SGR140 and SGR200 horticultural lighting fittings from Holland to its factory in Hamilton, Scotland. The factory is now the sole remaining manufacturing facility of these fittings in the world.

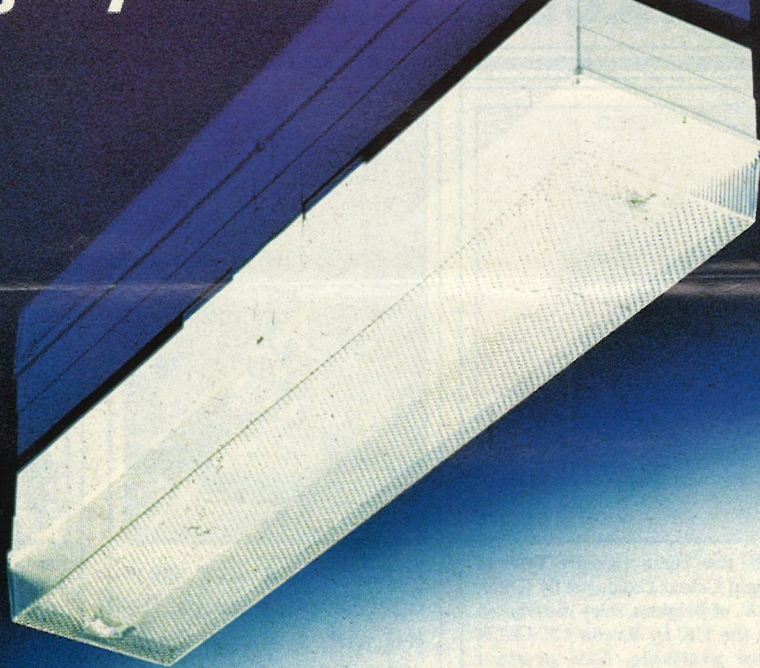
● Christmas display lighting and

decorations distributor Dann Zwart Display (DZD) has moved to a new showroom and warehouse at 145 Tottenham Court Road, London.

● An all-expenses-paid holiday for two in Barbados is up for grabs in Newey & Eyre's autumn lighting promotion. Until the end of the month, customers spending £200 or more on selected battens will receive a cinema ticket and a chance to win one of three luxury holidays.

● Light Years has been appointed sole UK distributors for Kreon NV of Belgium. It will be marketing the products through a newly formed company, Kreon UK Ltd, with its own showroom.

The most competitively priced emergency luminaire in the UK



The Master range from OVA

The Master range of emergency luminaires is popular for many good reasons. Its wide range of configurations and accessories, such as flush mounting plates and protective grilles, makes it extremely versatile. The quality of materials and components used in its construction gives it tremendous reliability. Quickfix fitting means it's a favourite with installers everywhere.

But surely the main reason for the Master's popularity is its price. To find out just how competitively priced the Master range is, call Simon Fox on 0685 371222.

OVA

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IN YOUR NEXT ISSUE

The December issue of *LEN* will be featuring the ways in which lighting can complement the exhibits in

museums and galleries, with the use of fibre optics as well as more conventional means of lighting.