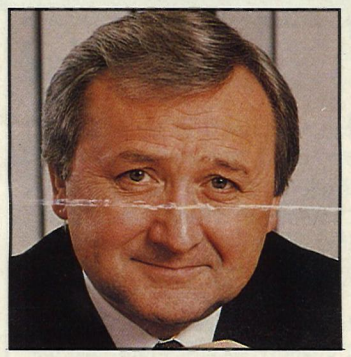
LIGHTING EQUIPMENT NEWS

SEPTEMBER 1993

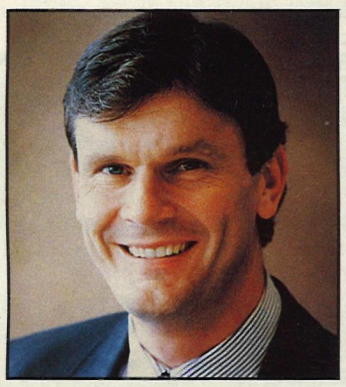
THE ONLY PUBLICATION DEVOTED TO ALL ASPECTS OF LIGHTING

All change at the top



Mike Goodwin, previously managing director of Philips Lighting UK, has been appointed as Executive Vice President Sales and Marketing at Sylvania Lighting International (SLI). Mike left Philips after 32 years at the company, looking for one last major challenge in his career. He felt that Philips could not offer him that opportunity at the time.

At SLI, Mike's responsibilities will include sales, marketing, distribution and all luminaire activities. "We are delighted that Mike Goodwin is joining the senior management team," said SLI's President and CEO Norman Scoular. "His knowledge and experience of the international lighting market will further strengthen the strong management team of Sylvania Lighing International and sustain the significant progress we have made once acquiring the business earlier this year.



Mike is succeeded at Philips by Peter Maskell, who has been with the company for 15 years, where his most recent role was general manager of OEM operations.

Floodlighting winners

The floodlighting of Victoria College, which can be seen from any quarter of St Helier, was named recently as the outright winner of the Thorn Ecliathi Jersey Award, a new annual competition for owners and lighting designers of floodlit buildings on Jersey. The awards promote excellence in floodlighting design and practice and entries can be expressions of national, civic or corporate pride in buildings of historic, architectural or municipal interest or significance.

Efficient

The famous public school is floodlit with 12 Thorn metal halide projectors aimed in such a way as to allow a flow of light across the facia and left side of the building to create depth and interest. The lighting complements the colour of the stonework and is said to be over five times more efficient than a household lamp.

In addition to the top award, three highly commended entries were announced. Midland Bank was commended for showing what commercial buildings can achieve with an effective lighting scheme. The restraint and style exercised by the designer with Hubbel metal halide floodlights is described as being entirely in keeping with its surroundings in the banking area of St Helier.

The use of Thorn golden high pressure sodium floodlights on the exterior of St Brelades Church illustrates the ability of lighting to highlight the key aspects of an historic building, while the entrance trees are picked out with whiter de lux sodium units.

The third commended entry was St Lawrence Church, where the classical features of the building are floodlit with golden white light from Phosco wide angle high pressure sodium floodlights.

Support for planetarium

Thorn Lighting has provided the finance for a teacher placement at its plant in Spennymoor, County Durham.

Tim Randal, the curriculum support teacher of Durham County Council visited the company's technology centre to produce a curriculum package for 'The Sky on the Move' planetarium project.

The aims of this initiative are to enhance the teaching of the science of lighting and the causes, concerns and methods of avoiding light pollution.

The Sky on the Move is a joint curriculum project supported by the education department of Durham County Council and Durham Business and Education Executive.

Action on counterfeit lamps

GE Lighting Ltd has begun legal proceedings against HPA Associates Ltd, LGW Electrical Distributors Ltd and EWS Ltd claiming injunctions and damages for infringement of GE's patent and registered design for the low energy 2D lamp.

Calogeru Di Gesu, GE Lighting product manager for the 2D range, said that warnings in the press had been ignored by importers of counterfeit lamps manufactured in the Far East.

All genuine lamps are marked with the 2D logo. No licences have been granted to permit the manufacture of 2D lamps in the Far East. The company stated that importers and wholesalers are "strongly advised" not to deal in counterfeit lamps under threat of further proceedings

Borne on the mains

Mains signalling equipment from Emlux has been selected to control illumination as part of the Edinburgh Lighting Vision, a long term project encompassing a comprehensive lighting strategy for the whole of Edinburgh. The Lighting Design Partnership (LDP), responsible for lighting a number of famous monuments on central Calton Hill, required a method of switching the lighting without using cabling.

LDP selected products from Emlux's Switchlink range of mains signalling equipment which gave them the ability to control separate lighting installations from a central point. Two Switchlink receiver units were use to switch the floodlighting of the National Monument and Nelson's Monument from a transmitter sited in the Royal Observatory.

"Mains signalling equipment was the right answer for this particular installation and Emlux was most helpful in providing technical support. We would certainly consider using mains signalling equipment again in the future," said LDP's Graham Phoenix.

Switchlink systems range from two basic components, a simple transmitter and receiver, to systems that integrate with energy management systems. All Switchlink products are designed to comply with BS6839 on mains signalling equipment and CENELEC Standard EN50065-1.

Reader Service No 150

INSIDE THIS ISSUE

Support for Alpa's admin order

Following discussions with its principal bankers and major creditors, Alpa Lighting has been granted an administration order. This will enable the company to carry out a restructuring plan, which is said to have become necessary as a result of changes in the building and refurbishment markets.

Alpa reports that it has received a great deal of support from customers and creditors and it hopes that its next objective, to reduce the overheads of the company with the minimum of disruption and cost, will result in full settlement of outstanding accounts and a return to the previous management.

"I am pleased that we have been able to maintain all the facets of our business on which we have built our reputation for technical expertise," said Alpa chairman Roger Stone. "During the administration period our efforts will be more focused, whilst all aspects of our business, particularly the quality and reliability of the project work that we have carried out in the past, will continue positively in every respect," he continued.

The appointed administrators are P G Mills and P J Yeldon of Smith and Williamson.

DIARY

SEPTEMBER

12-15

The Plasa Light and Sound Show at Earls Court, London. Organised by Philbeach Events. Exhibition for lighting, sound and special effects technology for live entertainment, TV and film sectors. It now also caters for theme parks and interior design etc. Details from 071 370 8215.

14-16

Lightex '93 - The Latest in Lighting Technology. Biennial exhibition organised by the Institution of Lighting Engineers. Over 180 stands catering for consultants, contractors, wholesalers, security firms, architects, specifiers etc. Details from 0788 576492.

20-24

Lighting Technology (part one). Residential couse in Birmingham organised by the Institution of Lighting Engineers. Details from Judy Park 0788 576492.

OCTOBER

5

Recent Lighting Developments and Energy Conservation – with particular reference to the intelligent building. Lecture in London organised by the Institution of Incorporated Executive Engineers and given by Pal Wilmshurst of Philips Lighting Ltd. The presentation will cover recent developments in lighting including a look at the future of lighting control systems. Details from 0483 222383.

6

Introduction to BS 5750. Half-day seminar in London organised by the IEEIE. Details from 071-836 3357.

7-10

Elenex - Turkey '93. Turkey's premier show for the electrical and electronic engineering industry. Details from Philip McKean, Overseas Exhibition Services Ltd, 071-486 1951.

18

Should Britain have an energy policy? Public lecture organised by the IEEIE with Colin Robertson, professor of economics at the University of Surrey. Details from 071-836 3357.

18-22

Lighting Technology (part two). Residential course in Wakefield organised by the Institution of Lighting Engineers. Details from Judy Park 0788 576492.

26

Total Quality Management. Seminar in London organised by the IEEIE. Details from 071-836 3357.

26-28

Electrical Products '93. London-based biennial show for the electrotechnical industry, including a sub-show, Light Fair. Details from Andrew Castle, IMI Exhibitions Ltd, 0732 359990.

NOVEMBER

1-3

Clima 2000. CIBSE-organised event with 50 papers being presented covering various building services topics. Details from CIBSE 081-675 5211.

9

Laser Safety in Entertainment and Display. Birmingham seminar by Sira Communications. Details from Isobel Smith 081-467 2636 ext 215.

JANUARY

13-17

SIL 94 International Lighting Exhibition in Paris with over 300 exhibitors. Details from (33-1) 40 76 45 00.

30-2 Feb

The European Lightshow 94 at Earls Court, London, sponsored by the LA and the LIF Details from G Samuel 0952 290905.

CIBSE

The Chartered Institution of Building Services Engineers

Towards more efficient lighting

There is no doubt that inefficient use of energy for lighting is widespread throughout industry and commerce. The problem is lack of motivation, but changes to building requirements (some through necessity imposed by legislation) present an opportunity to rectify this.

The competitive nature of building in the UK is based almost entirely on construction costs against quantity specifications, and discourages the use of energy efficient equipment. This invaribaly results in the user paying many times over in future energy costs. We therefore need to bring energy efficient building costs closer to the costs of inefficient building.

A change to lifetime costing would change perceptions and should be encouraged, but may not have the desired result where the building owner is not the occupier, and other options need to be considered. We must emphasise the fact that it is more cost effective to install the most efficient lighting in the first place than to try to improve an inefficient scheme later.

The move to include energy efficiency in British Standards is a major step forward – specific reference to lighting must be included.

Existing buildings

Many existing buildings are prodigious users of energy for lighting. Over 40W/m^2 are common loads in offices, which could easily but cut to 11W/m^2.

When the demand for energy efficient buildings becomes the norm, efficient components and practices will be demanded and economies of scale will take place. In the meantime the process would be encouraged if energy efficiency was to be subsidised. This could be in the form of a rebate for reducing the lighting load to meet targets. The subsidy would have to be given only to those who reduce energy whilst maintaining standards.

A new CIBSE Code for Interior Lighting will soon be with us, with greater emphasis on energy efficiency. This could be adopted to form the basis of a National Lighting Energy Code of Practice.

A subsidised lighting energy audit by a qualified independent lighting consultant provides a valuable service. The CIBSE has recognised high levels of competence in lighting by awarding Lighting Diplomas and the LIF has also compiled a list of consultants who could be used for such work.

Many producers and schemes are sold on the basis of price, with what at best can be described as lip service to energy. A major contribution could be from those selling lighting products and designing schemes to change the emphasis to energy efficiency.

Product labelling

The majority of lighting products sold are not used in schemes designed with energy conservation in mind. It would be helpful if the items which include control gear were required by legislation to be labelled not only with the nominal lamp watts but also with the connected load, eg

- twin switch start luminaire: nominal lamp ratings 2 x 58 watts, connected load 142 watts
- twin high frequency luminaire: nominal lamp rating 2 x 58 watts, connected load 108 watts

This would give designers and purchasers a clear indication of efficient equipment.

Raising awareness

The Energy Efficiency Office Road Shows on lighting have been successful in attracting audiences to seminars on energy efficiency lighting. But those attending are a very small proportion of those using lighting. The Best Practice Programme leaflets could reach a far greater audience if widely distributed and targeted at the identified decision makers.

It is not generally appreciated that there are several EC Directives, which affect general and emergency lighting. New regulations include:

- The Workplace Health Welfare & Safety Regulations
- The Display Screen Regulations
- Machinery Safety (Integrated Lighting)
- Construction Products Regulations
- Electromagnetic Compatibility
- Safety Signs at Work

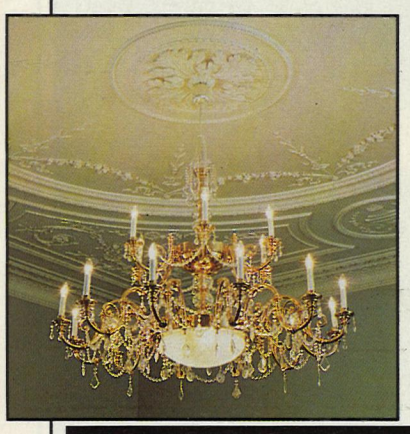
As a result of these Regulations coming into force it is likely that changes to lighting systems will be necessary.

They provide an opportunity to promote more efficient lighting practices.

Alan Wilson
Past Chairman, CIBSE Lighting Division

NEWS

Meeting Adam's needs



When it was decided to re-light No 11 St James's Square, the project architects The Thomas Saunders Partnership wanted the lighting to reflect the decor of this listed Adam building. TTSP recognised the need for a company with an established understanding of period lighting and, therefore, approached Kalmar to design and manufacture chandeliers for the project.

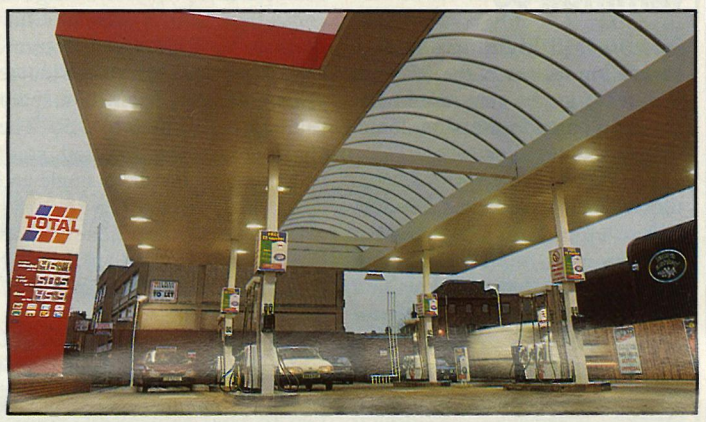
A search through illustrations and source material led eventually to the creation of chandeliers, of sizes suited to the various rooms, which provide the finishing touches to the rooms and integrate with the ceiling details.

Reader Service No 151

Salary survey

The Institution of Electronics and Electrical Incorporated Engineers (IEEIE) has published a guide to salaries, benefits, academic qualifications and general working patterns of incorporated engineers and engineering technicians. Since the last survey in 1991, average earnings for IEEIE members have increased by 9.28% overall, with the annual salary for the highest earners having risen by £5000 since that time to £39,000. The best payers are in the fields of electricity generation and distribution, and chemical and allied processing.

All IEEIE members will receive a complimentary copy of the survey. Others can obtain one, price £25, from The Secretary, IEEIE, Savoy Hill House, Savoy Hill, London WC2R 0BS.



A Total solution

At the Total service station in Watford the new, futuristic canopy features a central glazed barrel roof section and two solid canopy sections on either side. Integrated into the canopy are Canolux 30 luminaires from Parkersell. The underlining of the solid canopy sections is a 300mm plank system and the Canolux luminaires are recessed precisely into a plank width to produce a fully integrated result.

The Canolux 30 luminaire was developed specifically for such applications and will accept different reflector systems to suit different lighting requirements. It offers a semi-specular reflector as standard and can be supplied with clear or diffused toughened one-piece glass front cover.

Reader Service No 152

QL for retail

C&A has become the first UK retailer to install Philips QL induction lighting (with a claimed lamp life of 60,000 hours) at its Bromley branch in south London. Some 16 lamps and fittings have been installed beneath a large canopy at the front entrance. "I specified QL because of its near zero maintenance requirements," said C&A's senior electrical engineer Alan Patton.

According to Philips, further reasons given were the need for environmentally friendlier products and cost savings – 14 metal halide lamps would be needed to last as long as the QL lamp

Reader Service No 153

Looking after the pennies

With an annual budget approaching £10m for raw materials and utilities, a monthly saving of £100 on the electricity bill may seem small to floor covering manufacturer Bonar & Flotex. But purchasing manager Robert Morrow is a strong believer in making savings wherever thay are viable.

Early in 1992 he installed three Econolight units on the three floors of the finished goods warehouse at the company's Derbyshire factory. The area has no natural light and is lit by some 800 fluorescent tubes and a small battery of sodium lights.

At the time of the installation the load was measured at 32.4kW and the promised 20% reduction resulted in a load saving of 6.84kW. This, multiplied by the hours in use each day (16), then by the days (5) and finally by the weeks the factory operates (46) gives a 25,000kWh annual saving – equivalent to around £1200 a year.

In practice, the savings are marginally higher, at 23%, and the company is currently considering extending the use of the system to other factory areas.

Econolight uses high speed sensing to calculate the percentage difference in voltage required every half cycle to effectively reduce voltage requirements and energy costs with no apparent reduction in lighting levels or equipment performance.

Reader Service No 155

LIGS in the wildernesse

The Lighting Industry Golf Society met at Wildernesse Golf Club recently, where members and guests competed for prizes donated by Concord Lighting, Philips Lighting and Glamox Lighting.

I Cerfontyne and J Ling won the morning foursome competition, and honours in the afternoon singles competition went to: H Black (1st), T Smith (2nd) and G Sugden in the members' category and T Herbert (1st) and R Cohen (2nd) in the guests' category.

Light removal

Printers and reprographic houses can now dispose of used reprographic lamps through a new service provided by DC Lighting, sole distributor for the Sylvania range of tubular metal halide lamps.

Under current legislation, companies that generate waste products or materials which may contain any potentially hazardous substance should make special arrangements for their disposal.

"As the lamps fall into this category, we are pleased to save users the expense of taking this action," said DC Lighting's Don Campbell.

Reader Service No 154

Winning spotlight

The product design section of the Halo/Metalux lighting design competition, run by Cooper Lighting and the American Society of Interior Designers, has been won by UK designer Simon Dicks. The winning product is a metal halide spotlight, featuring adjustable beam and integral electronic control gear. The spotlight is currently in model form and is to be produced by Cooper lighting.

Simon Dicks is a graduate of Brunel University and has also received an MSc in Light and Lighting from the Bartlett College. His company, SD Design, operates as a lighting consultancy for both products and schemes.

Lights on show

The Guildford Lights Show takes place on the 16th and 17th of this month at Surrey University. The two day event consists of lectures and displays of the latest products backed by many leading manufacturers.

Thorn Lighting will present a talk on CIBSE's Lighting Guide 3, Crescent Lighting will discuss the subject of fibre optics. Lutron will cover aspects of lighting control and Erco will include a practical demonstration of 'Lucy' in its talk on computer design.

Further information is available from OLC Ltd; 0798 875312.

LETTERS

Prevention better than cure

Dear Sir

The Steve Maddox article in the June issue of LEN is yet another which proposes that burning fluorescent lamps to extinction is economically sound and energy efficient. To add weight to his argument, he plays the environmental card backed up by dubious statistics.

It is about time the counter argument was heard. One that proposes a planned approach to lighting maintenance which will reduce the installed load, thus saving energy and provide the means to safely dispose of the waste lamps.

The latest edition of the CIBSE Code on Interior Lighting is about to be published and the introduction of 'designed maintained illuminance' will focus attention on the question of maintenance. There needs to be discussion as to whether a premeditated and preventative approach is preferable to attending to failures and problems as they arise.

W J Walker
Parkersell (Lighting & Electrical) Services Ltd

In brief...

● German discharge luminaire manufacturer Franz Sill GmbH has opened a branch in the UK. Sill Lighting UK operates from Thame in Oxfordshire.

● Edison Halo Lighting has opened a new showroom in the Gulf, next door to Dubai's World Trade Centre. Managing director Alan Sutton said that the company was establishing a strong presence in the Gulf market – selling its entire product range there and already negotiating on 12 contracts.

● Lucent Lighting has announced that the Electric Light Company of Dundee has become the Scottish distributor for its products.

Reader Service No 156

● Installers and distributors of Lumiance display and accent lighting have been invited to a series of presentations taking place at major football grounds throughout this month. More details are available from David, Hogan, SLI Lighting; 0274 595921.

● Novalight (International) Ltd has become the exclusive agent in the UK for both Sarkstrom-Elektronic ag of Switzerland and Dedo Weigert Film GmbH of Germany. The company is able to offer a wide range of lighting and control systems.

Reader Service No 157

● RIDI Lighting Ltd, a subsidiary of RIDI Leuchten GmbH in Jüngingen Germany, has recently set up a sales/distribution base at Harlow, Essex. The company specialises in high efficiency luminaires for the commercial and industrial markets.

Reader Service No 158

● Marlin has won a £1 million lighting contract for the Inland Revenue's new offices in Nottingham, due to be completed in October 1994.

● Graylands Trading Company, agent for Hoffmeister Lighting in the UK, has moved to 254 Kentwood Hill, Tilehurst, Reading, Berks RG3 6DP; tel 0734 454332.

COMMENT

A period of gestation?

It's only natural that we should associate the period of nine months with birth, new events and all that sort of thing. It is now nine months since the changes at LEN that we first announced in the January 1993 issue. In this case, however, the end of the nine month period does not signal a major re-birth. On the contrary, while there have been a number of changes in the content of *LEN*, I hope these have more subtle than the drama that would accompany a born-again *LEN*.

During the last nine months, *LEN*'s editorial team has been out and about in the lighting industry and we've come across a few misconceptions about our role in the industry and the purpose of the editorial we carry.

Many people view *LEN* as the paper for the lighting industry, I've even heard it referred to as the bible of the industry - and we do love a bit of flattery. Certainly, part of our role is to report on changes in the lighting industry and at times this may look like lighting companies talking to each other. But 88% of our readers are specifiers of lighting equipment and our main purpose must be to provide these specifiers with a valuable service.

One common misconception is that the companies which advertise most will also get the most editorial coverage. Indeed, it may seem that this is a sensible way to operate when *LEN* is almost exclusively dependent on advertising revenue for its continued existence. To adopt such a policy, however, would not benefit our readers or our advertisers.

For *LEN* to be a valuable marketing tool for our advertisers it must not only go to the people those advertisers want to reach, it must also be something that those people want to open and read - otherwise nobody sees the adverts anyway. A publication that is just full of corporate puff will not fulfil this ambition, it will quickly lose its readers and, eventually, its advertisers.

It is for this reason that I can assure you, the readers, that any editorial you read in *LEN* is there because we believe it will be of interest to you. That's not to say we get it right all the time and any feedback from you as to what you think we do well and what we do badly would be gratefully received. The important thing is that what we're *trying* to do is clear to all concerned. From there, the only way is forward and up.

Paul Haddlesey

PAUL HADDLESEY, EDITOR

LIGHTING EQUIPMENT NEWS

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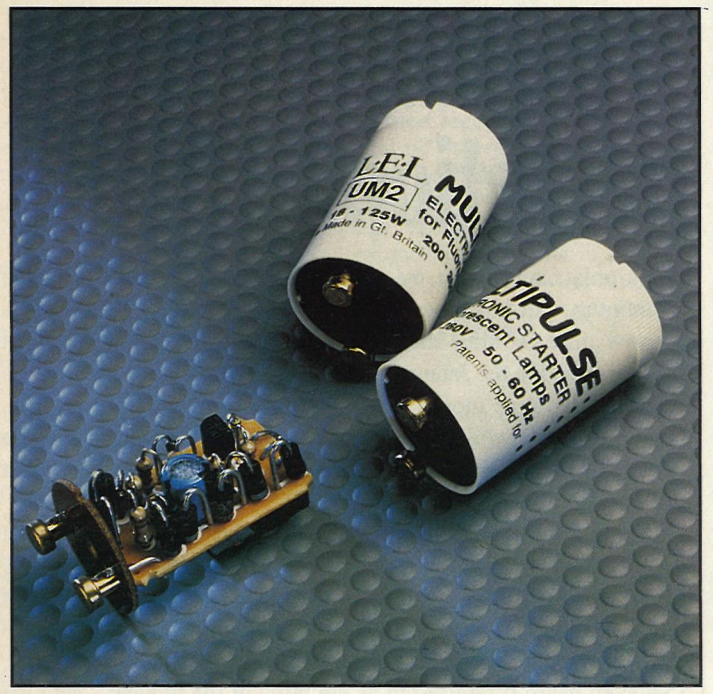
NEW PRODUCTS

Electronic starters



New to the range of starters for fluorescent tubes stocked by distributor Bernlite are the Multipulse electronic starters from Lighting Electronics.

Two versions of the starters are available and each is housed in a normal starter canister for retrofit into existing fluorescent luminaires.

The UM2 is designed for a full range of linear fluorescent lamps as well as many compacts, and the UM3 is for twin 18 or 20W 600mm fluorescent lamps operating in series from one ballast.

Both starters offer long life, soft starting for enhancing lamp life, and automatic failed tube cut-off which avoids continuous flashing and ballast overheating, claims Bernlite.

The UM2 starts many tubes including 18W models, down to -20°C. The UM3 for twin 18/20W lamps will also start from the same temperature and on low Voltage supplies down to 200V.

Reader Service No 170

Emergency lighting for hazardous areas

Simplex Lighting has launched a new emergency lighting system designed to improve safety in offshore installations and other hazardous areas where escape routes need lighting which is not dependent on the survival of power supplies.

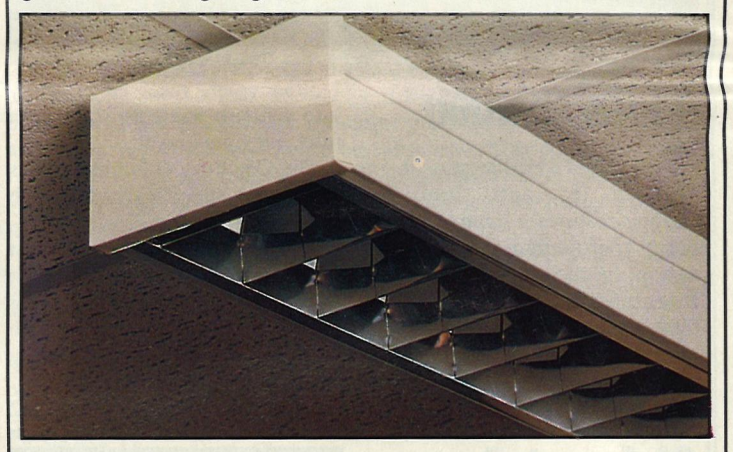
Patented worldwide, the Simplex Lumicae fittings have been developed in conjunction with Statoil and Conoco and are claimed to be capable of withstanding fire, explosion and severe vibration. Totally sealed, the product is rated IP68 in emergency mode.

Mounted safely at low level, the Simplex Lumicae is visible in dense smoke and does not emit any toxic gases in a fire. It operates in emergency mode for up to four hours in the event of a mains failure, and, it is claimed, requires zero maintenance, providing uninterrupted lighting for 10 years with no change of tubes or batteries.

The system is also energy efficient, using up to 50% less energy than traditional light sources, claims Simplex.

Reader Service No 171

Energy saving luminaires



New to IMP Lighting's energy saving luminaires is the Malvern Range of surface mounted fittings, designed to use slim 26mm diameter fluorescent tubes.

The range is fitted with a specular reflector, allowing a reduction of up to 50% in the number of tubes used, while maintaining suitable illumination levels and light distribution. It is suitable for general interior lighting installations including refurbishment projects.

The luminaires will, it is claimed, accept any of a range of controllers from a prismatic diffuser to an LG3 Cat 2 louvre. This photometrically tested louvre gives a 66% DLOR with a space to height ratio of 1 to 1.5. The shallow profile, painted steel body, will contain both single and twin tubes.

Design and manufacture of all IMP fittings is compliant with the requirements of their BS5750 certification.

Reader Service No 172

NEW PRODUCTS

Programmable fire detection range

Emergi-Lite has launched Anatec, a new range of programmable fire detection systems designed to comply with all current standards. The control panels provide a fast and accurate response to sophisticated fire, smoke and heat detector systems with a total environment monitoring facility reducing the risk of false alarms. Anatec is also programmed to determine pre-alarm, normal and alarm conditions.

The controls are located behind a locked glass panel giving the operator a clear view of the LCD information. A printer provides a full 'hard copy' of emergency situations.

Emegi-Lite offers specifiers, contractors and engineers a supply, installation and maintenance service for fire alarm and central battery systems. A range of emergency lighting systems includes the company's patented infra-red testing system.

Reader Service No 173

Display and effect HID downlighters

HID lamp recessed and surface floods and downlighters, now available from Moorlite, provide display and effect lighting as part of a balanced lighting scheme.

The Vogue series of recessed and surface floods are suitable where high illumination levels are required to emphasise colours and textures; for instance in highlighting architectural features. The series includes fixed recessed, semi-recessed and adjustable surface projector models.

The Circo series of fixed circular downlighters can utilise metal halide lamps where true colour rendition is particularly important, or white SON lamps where a warmer colour temperature and long life with good colour consistency are required.

Reader Service No 174

Light and presence detection switch

SensoSwitch from Hylec-Electro Gibi (UK) is a newly developed intelligent and microprocessor controlled lighting switch combining accurate light and presence detection.

The company claims that the switch can achieve up to 50% energy savings through switching on and off according to daylight and occupancy. No manual switching is needed, and neither is manual adjustment due to self-learning and automatic adaptation to local lighting conditions.

Maximum switching load is 16A at unity power factor.

Reader Service No 175

Footlights range extended

LightGraphix has added two new finishes to its footlights range. The high quality, low Voltage units now feature 316 stainless steel and polished brass bezels manufactured to IP65. The units are especially designed to illuminate the boarders of gardens, pathways and steps, and are widely used in Marine applications.

The footlights use 20W 12V halogen lamps as standard and can also be supplied with 5 and 10W 12V, and 20W 24V units, and can be recessed into exterior and interior pathways and walls, or even into the ground for those wishing to add a decorative touch to their garden.

Available in square or round form, the lights are die-cast aluminium body and bezel units, only available for low Voltage tungsten halogen lamps. The cover is made of toughened glass, enabling the customer to walk or drive over the footlight without fear of breakage. The rectangular footlight or wall lights are also die-cast aluminium and can have the following light sources; halogen 20W capsule, 36mm dichroic MR11, AR48 with integral transformer, and compact fluorescent 120V 60HZ - 230/240V 50HZ - AC,12V or 24VDC, 2 B15D lampholder for incandescent lamps.

Reader Service No 176

Low Voltage metal halide fittings

Edison Halo Lighting has introduced a range of low Voltage metal halide lighting fittings. Aimed at wholesalers and electrical contractors, the Dison range is suitable for lighting specialists who want off-the-shelf availability, plus ease of installation and maintenance.

The range comprises three recessed downlights (two adjustable) and four spotlights, two of which feature decorative acrylic Halo rings. Finishes are black, white and gold.

Also available, in black or white and 70 or 150W ratings, are double-ended adjustable metal halide downlights, plus surface and track-mountable, double-ended metal halide spotlights.

All Dison models conform to all current electrical regulations and standards, claims Edison Halo. **Reader Service No 177**

Interior wall/ceiling fittings

A new range of general interior wall/ceiling light fittings has been introduced by Powerlite Electrical Products. The Decorslim and Decortrim provide the specifier with a range of circular luminaires incorporating inherent design options suitable for most types of architectural applications.

This has been achieved by designing the fittings to provide the installer with a wide range of technical and aesthetic design options that will suit differing types of installation requirements and applications.

The Decorslim is available with a black or white base and a white opal diffuser (330mm diameter) while Decortrim is supplied with a finished steel flushing bezel, available in white, polished brass or chrome (440mm diameter).

Reader Service No 178

In brief...

● The Vision emergency lighting range from Lynteck includes general purpose luminaires which come complete with a versatile pictogram legend for the installer to attach, if required, and edgelit/exit signs with a choice of 15 different pre-printed pictogram facias.

Reader Service No 180

● George Turnock Ltd has introduced the T4040 range of Brightlight, a 12V 5W halogen lamp in a polycarbonate prismatic enclosure. It has a design life of 4,000 hours and can be used with existing B22 festoon lighting chains.

Reader Service No 181

● A recreation of the original Anglepoise task lamp, introduced earlier this year as a special limited edition to commemorate the 60th anniversary of its invention in 1933, comes complete with all the features of the original.

Reader Service No 182

● The PX-6 controller has 24 programmable 'scenes' and controls 16 channels. There are four 10 amp channels for dimming which operate Tungsten, low Voltage, halogen, neon and fluorescent. The extra 12 channels can be accessed using slave units, the P-5/10s. Operation is by remote control and wall-mounted switch/information panels.

Reader Service No 183

VDT luminaire category selector

Thorn has developed Catalume, a hand-held device which identifies what type of fluorescent louvre is most suitable for a particular layout or function of a workstation. Catalume enables specifers, employers and employees to select the appropriate light fitting without the need for complicated geometric measurements.

The practical value of the triangular Catalume is that it takes into account the four factors which combine to cause screen reflection, the geometry of the operator's eye, screen orientation, position and intensity distribution.

The workstation operator holds the Catalume at eye level in front of the display screen having already fixed a mirror to the screen surface. By varying the height and position of the instrument until the tip of its triangle is reflected in the mirror, the operator can easily read off a scale printed on the back of the Catalume which tells which category of light fitting is required.

Reader Service No 179

LIF LINE

Wiring For Life

BS7671 has been around since the end of the last century but will be better known as the IEE Wiring Regulations. In October 1992 these were adopted as a British Standard – the 16th Edition of them, that is. And so, to its great credit, the wiring profession has kept a keen eye on its own operations and has a code which ought to be on the Statute Book, keeping a tight rein on the cowboys who would strive to ride roughshod over it. Sadly, it is not on the Statute Book.

Under the present regime there is no legal requirement for electrical installations to comply with the Standard. Lives are at stake if an unskilled "engineer" botches a job, but registration for BS7671 – an accreditation which sets high performance levels and diminishes the risk of danger from faulty wiring – is only on a voluntary basis.

Accredited individuals and companies alike who carry out installation work now find themselves under attack from outfits who do not possess the quality standard and who are winning contracts with cheaper bids. In addition to not meeting recognised professional standards they can afford to be less expensive for a number of reasons: their work may not be backed up by guarantees, nor covered by professional indemnity insurance; their personnel may not be as qualified as they claim to be; finally, unavoidable commercial cost pressures put a further squeeze on contract bids.

Everyone would like to get something for nothing. But the price paid for choosing the cheapest contractor without scrutinising the small print is inevitably paid in invaluable human lives. Government statistics reveal that during every 10-day period at work electricity kills one person, causes major injuries for 12 more and serious injuries to 24 people. 48 people die each year as a result of fires caused by faulty electrical wiring and equipment. Around 300 electrical fires at home and at work are reported each year.

The Electricity At Work Regulations 1989 under the Health and Safety at Work Act 1974 touches on the duties of employers and the risks of injury to persons at work, and the Health and Safety Executive guidance on these regulations mentions BS6761 as a compliant standard for installations to which it is relevant. But the standard itself is not a requirement. This means that the employer is responsible for deciding whether or not an electrical system presents a danger. This in turn is no great benefit to the employer who could do without having to ascertain that the electrical system installed in his or her workplace is legally approved. Far better for the installation and installation procedure to confirm to a recognised UK-wide standard and eliminarte unnecessary risks. A mandatory requirement upon specialist installers to meet safety obligations is needed here and now.

The Electricity Supply Regulations 1988 govern the use and supply of electricity by the electricity supply companies to the consumer's premises. However, the legislation stops at the owner's front door. The supply companies do not – and cannot be expected to – examine and verify the safety and integrity of installations. Therefore the onus once more falls upon the employer.

BS7671 needs to be incorporated into the Building Regulations, themselves a statutory instrument governing design, construction and refurbishment of all buildings including domestic dwellings, public buildings, commercial and industrial premises. The Building Control Officer of local councils would ensure the regulations are adhered to. A certificate of compliance from the electrical installer to the Building Control Office would provide evidence that BS7671 had been followed. Therefore, the framework for implementing the legislation relating to BS7671 already exists. The IEE has done its bit – let's hope the Department of Environment does its.

CASE STUDIES

Round black boxes

Ashley & Rock has supplied Manweb Contracting Services with products from its new Modula range for installation in its own premises in mid-Wales.

Manweb Contracting Services was set up as a separate subsidiary to provide electrical installation services to developers and builders in the region and obviously handled the installation of the Modula equipment themselves. "Our electrician was, to say the least, surprised when he saw the round black box," said district contracting manager Graham Monks. "But when he examined the individual components and started the installation everything went smoothly. The round black box speeds up installation time because the hole can be cut with a standard 91mm core drill.

"Our visitors often comment favourably on the appearance of the Modula light switches and we are now offering them to builders and developers in the region," he continued.

In addition to light switches, Manweb has installed Modula units for cable outlets feeding a water heater and wall mounted panel heaters. **Reader Service No 184**

Banking on Connect

Downlighters from Connect Lighting are said to be contributing to the new corporate image of a refurbished branch of Lloyds Bank in Bristol. "Lighting is a critical part of our new interiors," said the Lloyds' regional architect who specified the product. "We always try to ensure that we achieve, cost-effectively, the desired atmosphere and impact for all our refurbished branches."

Design Lighting at Bristol was consulted on the project and supplied a quantity of Connect's 18W compact fluorescent recessed downlighters for the open plan public area of the bank's Horfield branch. These fittings are available with silver or gold reflectors or with centre-etched decorative glass and are suitable for plaster or suspended ceilings.

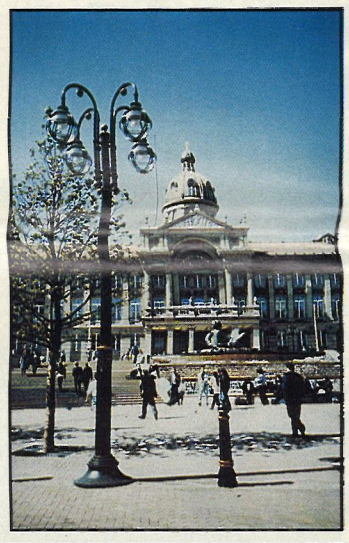
Reader Service No 185

Inspired by globes

As part of the £6.5m Victoria Square development in Birmingham, Sugg Lighting has supplied a combination of gas and electric powered lighting. To remain in keeping with the 19th century buildings surrounding the square, 17 fixtures were developed in a modern style with classsical features. The majority of these are quadruple headed, mounted from floor standing posts. Ten use electric sources while four are gas lit. Three single lanterns have been supplied on wall brackets to light steps to one side of the square, while a further column has been supplied for the mounting of security cameras.

The design takes its inspiration from the globe lanterns used widely in the Victorian period, mounted on posts reminiscent of classical columns. Each globe is 500mm in diameter, framed with twin bands and topped by an adapted version of the traditional gas lantern chimney. These are brought together by a radiussed four arm bracket which top-mounts each lantern. These are embellished with cast spheres to finalise the decoration. Each column is finished in dark green with gold highlighted detailing and the complete assembly is over 6.5m high.

Reader Service No 186



Getting in a Tate at St Ives

The Tate Gallery at St Ives uses a combination of natural light and artificial light to make the most of the exhibits from the local artists it houses. The day time light levels outside the gallery vary enormously, from 5000 lux for a 'standard overcast day' to 50,000 lux for a very bright sky (excluding direct light from the sun). The level required in the gallery is 50 lux on the walls showing water colours and 150 lux for oil paintings.

Architects Evans & Shalev and consulting engineers Max Fordham & Partners favoured roof lights because they provide better quality light and maximise wall space. They use glass with laminated integral ultra violet filter and blinds to reduce the amount of light.

The positioning of the blinds was all-important and algorithms were used to ensure that natural light levels on the walls are maintained while direct sunlight is geometrically obscured. Fluorescent tube lights were specially designed and installed inside the roof lights, then set in front of reflectors for even illumination when natural light levels are low.

A particular problem faced by Evans & Shalev was to accommodate the dramatic views of Porthmeor Bay into the design of the sculpture gallery by fitting a sweeping glass wall, while at the same time preventing too much light entering the space. Therefore, the geometry of the roof overhang, the side walls and the sill of the glass wall are set like the aperture of a camera, controlling the light levels.

Reader Service No 187

The customer is always in the light

Anna Newnham casts an eye over the world of retail lighting.

We all like to think we are unaffected by advertising, packaging and marketing – but we are. I was reminded of this recently in a supermarket, where I saw a man exchange a pizza box for a similar one on the shelf, explaining to his friend, "that one looks a bit off".

Taking a closer look (as one does) I saw that the colours on the box were a little faded compared to the other boxes but the sell-by-date was the same. So the leap had been made in the shopper's mind, faded colours – faded food.

Retailers know this, which is why they spend an enormous amount on packaging. Colour psychology comes into play, so our natural preferences are not offended. For example have you ever seen white sugar sold in green bags? That's because green and sugar don't go, according to colour psychologists.

The art of display

The same sort of thought and money goes into displaying and lighting goods. The psychology of the art of display is firmly embedded in our subconscious minds. When shopping for clothes, we know that the cost of clothes in a shop is in inverse proportion to the number of items on display. If we want to avoid re-mortaging the house we veer away from shops with six items of clothing on show, polished wood floors, and subtle lighting.

We all instinctively know by the 'image' of a shop, which price, style and quality categories the goods within will fall into. And lighting is an integral part of the subconscious message.

If the general level of lighting is high, the fittings inexpensive and the colour tone cold – you're in a supermarket or bargain shop. If the general level of lighting is low but accent lighting is everywhere – you're in a high class boutique.

Shops know their target customer and it is important that the lighting both projects the right image and attracts the customer. And the importance of getting it right should not be underestimated.

The Saxone shoe shop in Oxford Street recently changed its lighting and decor – resulting in a staggering 77% increase in sales.

Previously the shop had a high level of background lighting provided by 1200 x 600mm recessed fluorescent lights. In addition products, set against a background of light grey panelling, were highlighted with 12v, 50W dichroic lamps. The overall effect was very bland and uninviting.

The central lighting was reduced by about 60% by using a number of recessed luminaires with four 18W Col 83 lamps in each. The grey panels were changed to 'beech' and 'mahogany' colours and the products are now highlighted by 48 adjustable semi-recessed downlighters with 50W white SON lamps.

This illustrates the importance of restricting the ambient lighting so as not to "wash out" the accent lighting.

In general, lighting levels around the shop should not vary beyond a ratio of 3:1 but within a single display area greater variations in lighting levels are needed to create a dramatic effect.

Lighting should also produce interesting modelling of the products to reveal their form and texture. Directional lighting, such as spotlighting, reveals form and texture, creates 'sparkle' and tends to increase the contrast of displayed objects by forming shadows.

Another general principle is that older customers are thought to prefer a warm and cosy atmosphere, while younger customers tend to prefer a brighter environment.

Products in colour

The choice of lighting scheme also depends very much on the type of merchandise, fridges look better under cool colour lamps, whereas wooly jumpers look better under warm coloured lamps.

Supermarkets tend to go for a high level of brightness, to enable customers to read food labels and prices, but even here a certain

Downlights from Staff fit the bill at Leadenhall Street Marks and Spencer

amount of 'light enhancement' takes place. Red meat is not as naturally red as it appears in shops. The red is due partly to dyes and partly to the use of warm colour lamps. It's colour psychology again – 'natural' meat looks like its going off. Similarly the fish counter is lit with cool colour lamps to give it an icy 'just plucked from the sea' look.

The Pleissencenter in Zwickau, eastern Germany is a newly opened shopping complex comprising a supermarket, DIY shed, furniture shop, special liquor shop and other retail outlets.

The 35,000m² Pleissencenter is lit with nearly 4,000 fluorescent fittings worth DM1.2 million, manufactured at Thorn Licht's factory in Neheim. The general grocery area of the supermarket is lit with 3100 batten fittings from the Primat II range.

At the checkouts and at the delicatessen, butchery and other special counters a suspended ceiling has been installed where 750 high performance Modulight luminaires with low brightness louvres create a 'high quality' appearance.

The luminaires also provide a good, low glare working environment for employees. This holds true for any store – whatever the lighting arrangement elsewhere, good lighting must be provided around the cash tills. Apart from the obvious practicality of employees needing to be able to see what they're doing, low lighting around tills creates suspicion in the minds of customers – are they to be short changed or deceived in the dark?

Total cost

Another major factor in retail lighting design is the cost of the scheme. Retailers must be made aware of all the costs involved – capital, maintenance, life-cycle and the pay-back period. Too often capital costs are considered more important than getting the right lighting for the installation, with scant attention paid to running costs.

But the running costs can be kept down, even at the higher end of the retail lighting market.

Just over two years ago Light Years finished a commission to design the interior lighting scheme for Lakha in Wembley, London's largest retailer of exclusive Indian jewellry and accessories. The brief was to provide a highly stylised and alluring lighting scheme which would display the expensive merchandise in the best possible light.

The scheme chosen used 250 50W and 75W low-voltage dichroic lamps and the LampConserver device from Multiload Technology. The device helps to prolong the life of the lamps by eliminating surge currents and allowingthe lamps to be underrun at 4%.

The results are said to be "more than satisfactory, with lamp-life extended beyond the manufacturers ratings."

Aside from running costs, practical restrictions also come into play. At Marks and Spencer's menswear shop in Leadenhall Street, London the floor to ceiling height was restricted and the chosen lighting had to be fitted at carefully calculated centres to achieve the desired lighting level.

The luminaires specified were Staff Lighting Downlight 2000s. These luminaires give good colour rendition, and as compact fluorescents, are long lasting and energy saving. Fewer fittings than normal are said to be needed to achieve a desired lighting level and re-lamping is necessary only every 8,000 hours. The range is designed to be recessed into suspended ceilings up to 50mm depth.

Above: Better lighting and decor at Saxone, Oxford Street led to a 77% increase in sales. Below: the Pleissencenter in Zwickau has basic but bright lighting provided by 4,000 fluorescent battens.

Follow the rules

The scope for imaginative design in retail lighting is enormous, and will be successful as long as it observes 'the rules', ie it helps to attract customers, allows them to become visually intrigued by products, and provides sufficient light by which to write cheques or inspect change when buying goods.

And just as importantly, the design needs to take into account the customer's unconscious 'shopping psychology' and fit into prevailing expectations of how shops should look and goods be presented. No 'natural looking' meat or green sugar bags please.

A new energy efficient light source, suitable for the retail display market, is said to offer significant improvements in light output, life and reduced energy consumption when compare to standard halogen display lamps. *Brian Haywood discusses the advantages

The next generation?

Infra-red reflecting coatings are being used by GE Lighting to increase the efficacy of tungsten halogen lamps. The improvement in performance represents a major technical advance on a scale similar to the introduction of tungsten halogen lamps 30 years ago. A range of PAR and linear lamps is now available with improved life which will enable existing lamps to be replaced by IR reflecting lamps of equivalent luminous performance using 25-50% less power. This is because IR reflective coating directs IR radiation back onto the filament so less input power is required to achieve the correct filament temperature.

Incandescent lamp efficacy

The conventional tungsten filament GLS lamp only radiates approximately 8% of the input power in the visible region. This is expressed typically as 12-15 lumens/watt. Halogen lamps enable filaments to operate at higher temperatures without a reduction in life and this slightly increases the visible content of the radiated energy, up to 18-19 lumens/watt, which is approximately 10% of input power.

Normally the IR losses which are about 80% of the incandescent lamp input are simply wasted or at best deflected by a dichroic coating to minimise the unwanted heating of the illuminated objects.

IR lamp design factors

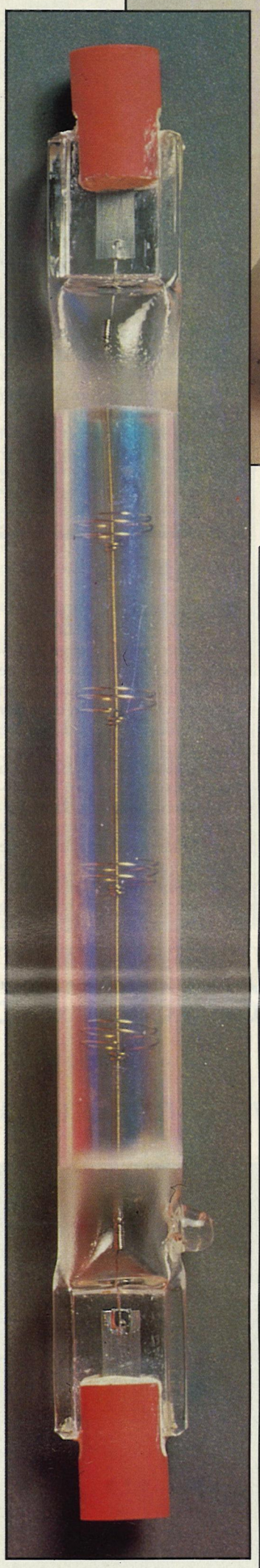
The IR lamps are halogen lamps coated with an interference filter made of alternating layers of materials with high and low optical indices. Typically, tantalum oxide or titanium oxide is the high index material and silicon oxide the low index material. The thickness of each layer is designed so the filter reflects IR radiation while transmitting visible radiation.

It is not possible to use all the IR radiation for several reasons. the filters are not 100% reflecting, the optical coupling of the filter on the lamp envelope and the filament is not perfect and the filament absorption is low. Tungsten has high reflectivity of IR. The filament wire is coiled to trap the emitted IR but the coil is not dense enough to intercept all the IR reflected back onto the filament. The best filaments capture less than half the returned radiation.

A linear lamp with a long cylindrical filament positioned precisely on the axis of a narrow diameter coated tube is a good geometric arrangement for relected IR and was the first lamp type to adopt this technique. For short linear lamps the loss of IR from the ends of the lamps reduces the efficacy gain.

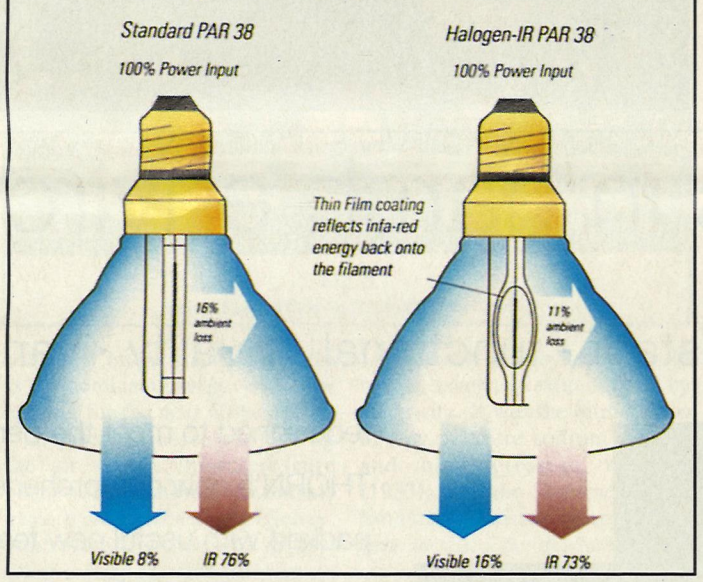
For interference filters, the reflection band width and reflectivity depends upon the difference in refractive index of the two materials used and the number of layers. A simple eight layer titania-silica filter coated by dip or spray methods has an average IR reflectivity of 40%. This will only produce a 3-5% efficacy gain.

The POW-IR-FILM from GE Lighting has a 46 layer tantala-silica coating which averages 78% reflection over the IR region of interest. This filter is designed for high transmission over the entire visible spectrum thus retaining good quality white light. To obtain a wide transmission window, this patented design uses thin 20nm layers of the two materials to simulate a third material and eliminate reflection in the visible region. The other layers are 100-200nm thick. This filter coated onto an elliptical envelope by a proprietary chemical vapour deposition process, produces 33% gain in lamp efficacy.



GE Halogen IR lamps (above and left) use layers of rare metallic elements to allow almost 100% transmission of visible light while reflecting infra-red energy back on to the filament.

How Halogen-IR works



The IR-PAR 38 produces up to 33% less heat than standard lamps.

Other benefits of Halogen-IR lamps are significantly reduced heat and increased life. The radiated heat is about 50% lower than a non-IR halogen lamp with the same light output. This can result in conservation of sensitive materials, better comfort for occupants of the lit space and reduced air conditioning loads.

Standard products

The lamps which now have the IR coatings are versions of types in common use, the K1 and K9 linear tungsten halogens and the PAR38. The benefits of these lamps are available to many users immediately by retro-fitting in existing sockets. The economic advantage of changing to Halogen-IR is indicated by the simple cost comparison below but there is an additional environmental benefit. Less lamps means less material for disposal at landfill sites, and less electrical consumption means less pollution.

In the comparison below, a standard linear K1 500W lamp is compared with a Halogen-IR linear 375W lamp. It assumes an electricity cost of £0.075.

Standard linear K1 500W
Lamp net trade price £6.94 x 2 £13.88
Electricity 4000 hours £150.00
Total £163.88

Halogen-IR linear 375W
Lamp net trade price £ 8.56
Electricity 4000 hours £112.50
Total £121.06

This indicates a total saving of £42.82

**Brian Haywood is marketing manager at GE Lighting*

Reader Service No 195

Lakeside illumination

The recently built Lakeside shopping centre in Thurrock houses up to 300 shops and contains two main halls, each a quarter of a mile long. The specifier, Lighting Design Partnership, used Osram's tungsten halogen lamps and Powerstar HQI metal halide lamps throughout the centre.

Rather than flood the centre with harsh artificial light, the lighting scheme at Thurrock makes use of the glazed roof and large central dome to provide maximum daylight in the public areas. Tungsten halogen lamps were chosen for Lakeside's downlighters and balustrade mounted uplighters.

The central data control computer monitors and controls all the electrical output within the shopping mall. 24 pre-programmed lighting 'scenes', which take into account the time of day, day of the week and season, are sent through electronic dimmer panels throughout the centre.

When light levels are insufficient 250W Powerstar HQI natural daylight lamps, which are trained on the many plants in the mall, are switched on and remain so until light levels increase.

100 pendant fittings, each using four 150W incandescent lamps, have been installed in the lower food court and Lakeside Pavillion – a craft and shopping market modelled on Covent Garden. There are also a number of wall mounted luminaires with 50W or 70W SON lamps. The lighting design is intended to help recreate the atmosphere of old-style markets.

Eight Powerstar HQI 150W spotlights are mounted around the rim of the central dome. These, together with a combination of coloured filters and mirror, attractively illuminate the glass dome and the water fountains below.

Reader Service No. 196

C&A in Chester is using QL lamps in KBS100 downlighters to illuminate the entrance canopy and the wells of the escalators to give illumination with good colour rendering and a CT of 3,000K. The lamps operate by induction so there are no filaments or electrodes and lamp life is governed by the electronics. This gives a virtually maintenance-free lamp life of some 60,000 hours.

An additional feature at C&A was the installation of small downlighters in between the QL downlighters. These are of the fibre-optic type – light comes from fibre-optic tails at the back of the QL luminaires.

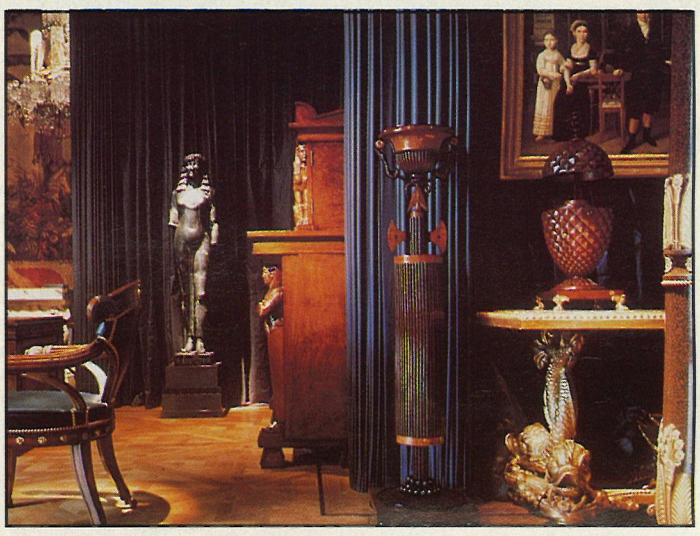
Reader Service No 197

For the refurbishment of the Dunnes store in Dublin, Moorlite became involved with interior designer John Michael to provide appropriate lighting for the shop's vast ceiling area. The solution proved to be special 1200 x 1200mm recessed luminaires with silver louvres to add sparkle to the ceiling, while maintaining the appropriate visual scale. **Reader Service No 198**

Fine art and flexible fittings

One of the country's most important dealers in antiques and fine art, Carlton Hobbs, called upon Concord to provide lighting for its 130m² exhibition stand at the Paris Biennale.

Representatives from Carlton Hobbs visited Concord's showroom where the Control Spot prototype was on display. They tested the performance of the spots and projectors by bringing various objects, such as a 'shell' chair, to the Concord's lighting theatre, then placed a £70,000+ order for the stand.



Control Spot is suited to exhibitions as each luminaire has inbuilt dimming facilities. In Paris three dimming levels were used on a stepped dimmer – 100% for dark absorbent surfaces and 80% or 60% for marble and paintings. Spot reflectors were focused on objects and furniture, while broad and medium beam reflectors were used to light tapestries.

After the show, the luminaires were installed in Carlton Hobbs' refurbished Pimlico Road showroom, as part of the new lighting scheme also designed by Concord.

Reader Service No. 199

Retaining our heritage

Since the mid-1970s a new sector has emerged in the lighting industry. This article is based on a paper given by *Malcolm Richards entitled, 'Developments in Heritage Lighting'

As good a date as any to mark the beginnings of public lighting in Britain is 1807, prior to which experiments with coal gas, notably by William Murdoch, had met with some success. But it was German entrepreneur, Frederick Albrecht Winzer (later anglicised to Albert Windsor) who saw the commercial potential of coal gas for lighting. His marketing endeavours culminated in 1807, when he lit Pall Mall with 13 elegant cast-iron lamp posts, spaced 30-40 yards apart. Each of these carried three globes and the light from the luminous gas flames was described as 'clear, bright and colourless'.

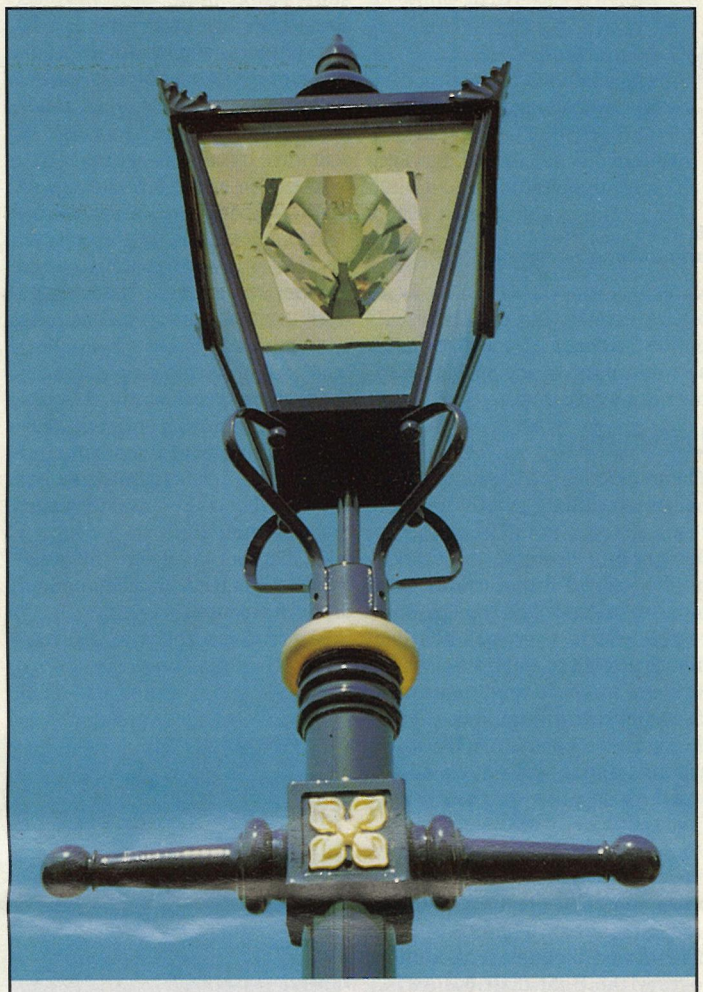


Fig. 1
Heritage style with light control.

London lights

Eventually he won government approval to incorporate the first gas company in 1812, the London and Westminster Chartered Gas Light and Coke Company. By the early 1820s London had over 30,000 gas lights.

Research into burner design gradually produced greater efficiencies, with William Sugg a leading figure in this research. But, by the late 1870s, the challenge from electricity grew, with the established but complicated carbon arc and the simpler carbon filament lamp introduced by Swan and Edison. The latter was 10 times as efficient as the luminous gas flame, giving 2 lm/W. This proved to be the stimulus for further research and led to the incandescent mantle from Carl Auer von Welsbach. The rare earths with which it was impregnated, thoria and ceria, incandesced through the heating value of the flame and increased efficacy to 2 lm/W, maintaining gas as the dominant energy source for lighting for the next 60 years.

Inverted burners, pre-heating the air supply, high pressure burners and automatic controls gave ever increasing efficacy, controllability and reliability. Even as late as 1937 the City of Leeds had 644 miles of streets lit by gas, compared with only 25 by electricity. It was the introduction of low pressure sodium (1932), and high pressure mercury (1933), with the long-established tungsten filament lamp (1908) that heralded the gradual demise of gas.

Elegant lanterns

Back at the beginning of the gas era, urban life was developing at a fast pace in the early 19th century, demanding the ever-increasing provision of lighting to allow safe passage after dark. The Victorians' flair for design and decoration was unleashed on this new technology and a vast range of lanterns and lamp posts began to be produced, many having a vigorous and elegant style.

Then, beginning around the 1920s, attitudes changed and a much starker design philosophy took hold. The efficient high lumen packages offered by sodium and mercury lamps, and the latest improved high-output gas burners, were harnessed into functional enclosures of glass ...rs and reflectors to ...he newly declared prin... effective street lighting – ... by enhanced contrast, or silhouette vision. The superior performance began to displace the old, and understandably so. More recently we woke up to the impending extinction of something we liked and preservation began; only more so. For in public lighting, preservation turned into a kind of revival.

Reproducing the past

So it was in the 1970s when, rather than scrap old cast iron lamp posts removed to make way for lighting improvement schemes, they were restored and an attempt made to sell them. This failed because there were no appropriate lanterns to go with them, so reproductions were made of the 'Windsor' lantern – the traditional four sided design – in original materials but with modern lamps. These met with a slow start but eventually the market proved to be extremely receptive and since 1976 a whole new sector in the lighting industry has emerged, reproducing much that has appeal from the past.

"The designs of lighting equipment that are being perpetuated have charm, style and elegance and are fully in keeping with the architecture"

But why should it be so widely used? The designs of lighting equipment that are being perpetuated have charm, style and elegance and are fully in keeping with much of the architecture. But whilst, initially, they were simply used for their period harmony and decorative value, this alone was not sufficient for them to survive in the mainstream public lighting arena. To justify their wider use the industry realised that performance was an essential attribute of heritage-style lighting if the differing aesthetic needs of the architect and the functional demands of the lighting engineer were to be reconciled. So developments have proceeded in heritage lighting equipment very much on a par with 'ordinary' lanterns to ensure that wherever its use is desired for aesthetic reasons, it can equal or surpass the alternatives on technical grounds to justify its place in the street scene, by day and by night.

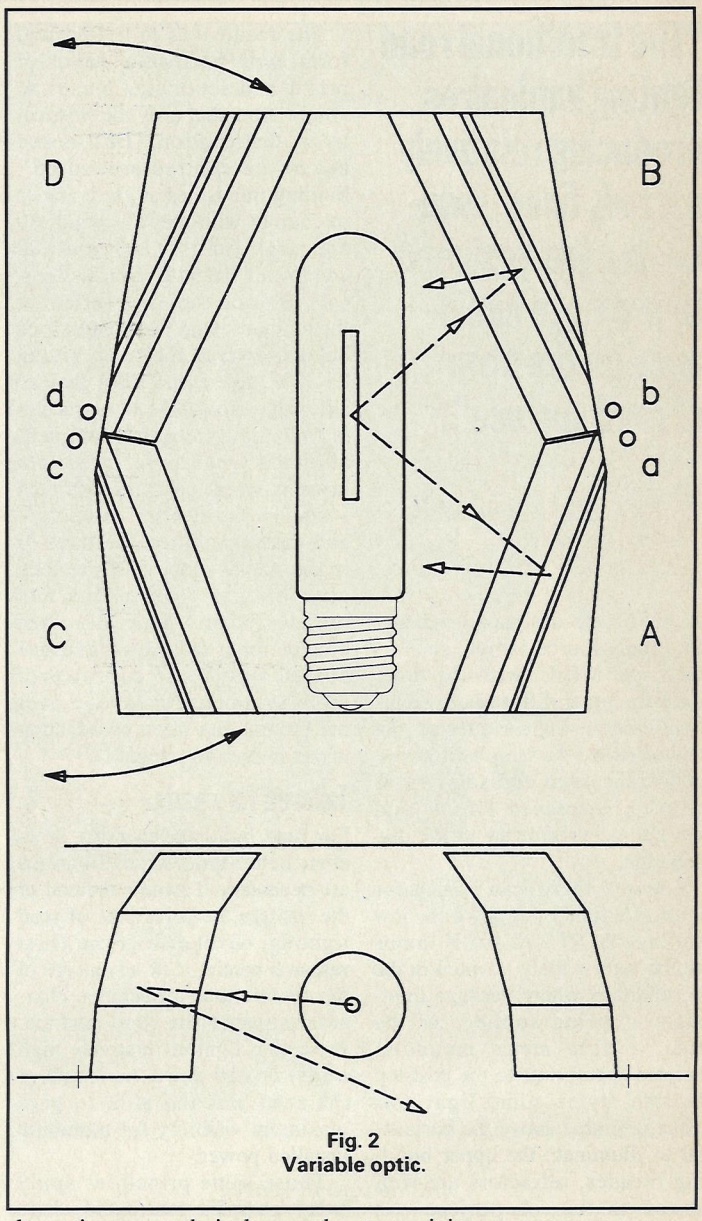


Fig. 2
Variable optic.

Lighting performance

When first re-introduced, heritage style lanterns frequently accommodated vertically fixed lamps suspended below a white reflector tray, giving an appearance somewhat reminiscent of the gas lantern. Light control was incidental but with low power lamps they fulfilled the decorative role required of them. Dome refractors – perhaps better known as sugar bowls – were then incorporated to give a degree of optical control.

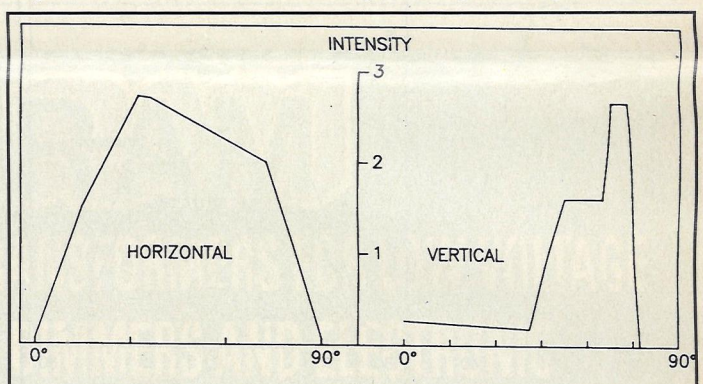


Fig. 3
Calculated intensity distributions.

Table 1
Illuminance Requirements.

Part of BS 5489 Requirements for Mixed Pedestrian and Vehicular Traffic		
Category	*Maintained Lighting Requirements* illuminance average	minimum point
Part 9—Urban Centres	*lx*	*lx*
9/1/2 City or town centre	30	15
9/2/2 Suburban shopping street	25	10
9/3/2 Village centre	15	5
Part 3—Subsidiary Roads	*lx*	*lx*
3/1 High night time use	10	5
3/2 Moderate night time use	6	2.5
3/3 Minimum night time use	3.5	1.0

"The traditional road lighting luminaires producing relatively narrow, fixed, twin-beams are designed to promote luminance on the strip of road surface"

As they were designed originally for small source lamps, such as GLS and MB/U, with the more modern, larger diffuse-bulb lamps light control was less precise, but they shielded the lamp to improve appearance and add some glare control, increased DLOR and gave some asymmetry to the distribution.

Clearly, there was a need for improved light control for the low wattage SON and MBF lamps which were widely adopted in the installations where heritage lighting was being applied. At the four to five metre mounting heights appropriate to the post-top lantern styles some light was often desirable above the horizontal to illuminate the upper building facades, refractors are well suited to this. A project was therefore initiated, in conjunction with SIRA, to develop a computer program to design a more effective compact prismatic controller in pressed glass that completely surrounded the lamp.

The result was in cylindrical form, with horizontal bands of prism and lenticular lenses to control the shape of the vertical light distribution. Bull-nosed beams are centred around 65°, limiting intensities at glare angles to comply with the 'all round' 80 and 90° limits (160 and 80 cd/klm) of BS 5489 part 3. Vertical prisms on the inside surface of the cylinder bend the light in toed beams towards the road, giving 25-30% more than on the 'house' side. One advantage of refractors is that they are quite compact, allowing them to be fitted into lanterns where space is restricted – small post-tops for example – and through limited apertures as in one-piece globes. While they give lower peak intensities and broader beams generally than conventional reflectors, because of their less precise control, their more symmetric coverage over the ground can often be advantageous in area lighting.

Tailored for roads

For road lighting generally, however, better-tailored distributions are necessary. Towards the end of the gas era the principles of road lighting, developed at the Hirst research centre, took advantage of the preferential reflectance characteristics of the road surface. Projecting light at relatively high angles up and down the length of the road was the aim, to give maximum visibility for minimum installed power.

Those same principles apply today for traffic routes and where older style city, town and village areas are involved that are being enhanced or refurbished, a solution would be to use heritage lanterns as a decorative feature and to provide the 'working' light from less obvious conventional luminaires. However, rather than duplicating equipment, a more positive approach was to use the traditional style alone and give it the functional lighting role also.

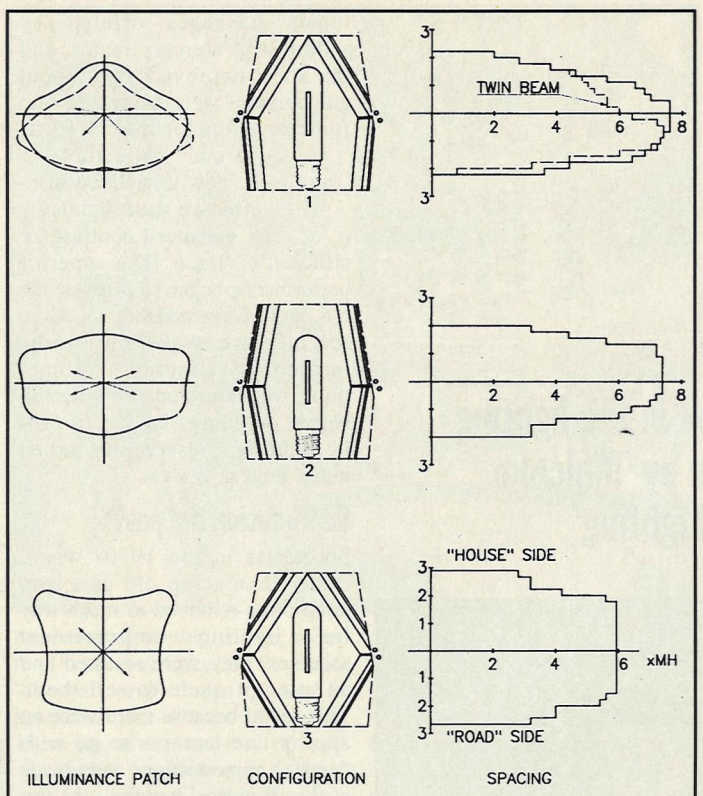


Fig. 5
Variations—optic, illuminance, spacing.

The industry was quick to adopt this approach and began to embody the up-to-date optical systems developed for conventional side-entry lanterns – pressed aluminium reflectors and reflector/refractor combinations. Post top and pendant mounting lanterns covered the range of lamps up to 250W, giving the ability to cope with all categories of traffic routes and subsidiary roads in BS 5489, with performances equalling their modern counterparts in achieving carriageway luminance average and uniformity. Engineering these units into the various styles of lantern required considerable design ingenuity if the very reason for using the lantern – its elegant style – was not to be sacrificed. Proportions had to be carefully adjusted where necessary to take the reflectors; with the control gear often integral in the hood or canopy, and above or alongside the lamp in a restricted space, careful thermal design was required.

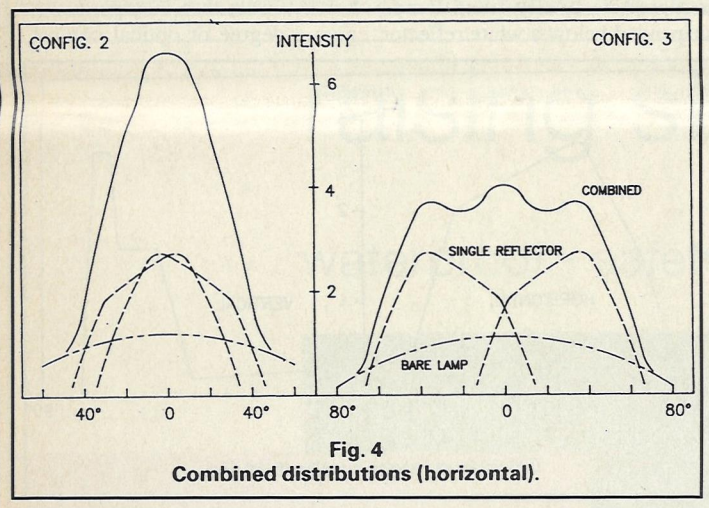


Fig. 4
Combined distributions (horizontal).

Twin beam distribution

These optical systems produce essentially the traditional twin beam distribution – with some toe to maximise luminance yield and uniformity – suited to the relatively restricted range of road proportions. A limited degree of adjustment can be made to the beam, toe and elevation by, for example, incorporating a means of moving the lamp position within the reflectors.

Pedestrian design

Heritage lighting frequently has a much wider role than simply lighting roads and streets for vehicles. The areas where it is used are very varied in shape and proportion and are often designed around pedestrians, who may in many cases be the dominant or sole user. They will include the pavements alongside the carriageway, open areas, shopping plazas, squares and walkways. Where residential developments adopt it, the verges, pavements and property frontages benefit from being lit to similar standards to the carriageway – the lighting is as much or more for the security and amenity of the pedestrian and resident as the guidance of traffic. Recommendations for these applications are given in parts 3 and 9 of BS 5489 in which illuminance – rather than luminance – is the main consideration and its distribution in terms of average level and minimum value is specified over the whole area.

Lantern siting

The traditional road lighting luminaires producing relatively narrow, fixed, twin beams are designed to promote luminance on the strip of road surface, with more restricted light on the surrounds. Different types of light distribution are desirable when lighting a whole area to a relatively uniform illuminance. Furthermore, to handle a wide variety of shapes and sizes of lit space, the lighting designer wants flexibility in siting lanterns, so that they can be placed where they will be visually most appropriate and convenient for installation rather than where the light distribution dictates. The ability to vary the light distribution is, therefore, highly desirable.

It was concluded that a reflector system consisting of four independent elements could provide a substantial degree of flexibility in the shape of the resultant light distribution, whilst allowing a fairly simple mechanical arrangement. The essentials of the optic are shown in figure 2. The four separate reflector elements A-B-C-D are shaped to a similar vertical profile to collect upward light from the lamp. They reshape it by single and double reflection largely into the downward zone between 50 and 75° to give beams that uphold illuminance out to a throw of about 3:1, they also shield the lamp and provide a sharp runback above the beam to obviate glare – in heritage installations particularly, quality of the visual scene is of prime importance. Figure 3 shows the calculated intensity distributions (vertical and horizontal) for one element. The four elements are arranged around an aperture in a supporting plate and pivoted about a vertical axis at points a-b-c-d (Fig.2). By moving each reflector about its hinge point the four beams can be moved independently of one another in azimuth by up to around 70°, overlapping to produce a range of shapes of combined distribution.

To achieve this desirable state of affairs over a useful range requires the azimuth beam shape from each element to be carefully chosen by means of its length and relationship to the lamp. Figure 4 shows the combined distributions predicted for two configurations: a) when both beams are superimposed to give an axial distribution and b) when they are split apart towards their limit to produce a wide distribution, where the beam widths must be such as to avoid a dip in the centre.

In practice a range of distributions, as selected in figure 5 are generated from three typical reflector settings. At one extreme, configuration 1, the light is biased towards the roadway but to meet the requirement to light the surroundings one of the reflector pairs deals with the pavement side. The superimposed conventional twin beam is seen to be less good in this respect, and to meet the requirements of part 3 of the BS , attention paid to this would be worthwhile, whether heritage or not. Configuration 2 shows a narrow axially symmetric patch for use, for example, in centrally mounted installations in shopping streets and pedestrian areas whilst configuration 3 produces a squarish shape for wider areas, plazas, car parks and the like where spacing between rows needs to be maximised.

"The emphasis on lighting against crime has changed the role from merely marking the run of the road to providing fairly uniform illumination"

Fig. 6
Pendant lantern in The Strand.

Uniformity

To compare their effectiveness, it is useful to look at the parameter that normally determines spacing, which for an illuminance specification will almost invariably be uniformity – in BS quoted as the minimum point value. A diagram can be constructed showing the maximum spacing between lanterns in a line that will just yield the minimum value, for a range of widths of area either side of the line (house side and road side). Figure 5 shows the diagrams for 3/2 for a lantern with a 6800lm lamp at 5m mounting height and 0.85 maintenance factor. Any point outside the boundary will be below Emin. Where the line cuts the kerbline will, of course, be the limiting spacing regardless of how much further the line then extends along the road.

In between these patterns lie other combinations which seem to give fairly small differences at first sight. But the shape of an area is often such that with one distribution, no matter what spacing is adopted, the minimum illuminance cannot be met unless an extra row of lanterns is installed, or lanterns forced into sites where they may not be preferred. Variable optics can be applied as effectively to what we used to call group B installations as to town centre and public amenity lighting. The emphasis on lighting against crime has changed its role from merely marking the run of the road to providing fairly uniform illumination of the pedestrian areas. Even where these roadside areas are narrow, such roads twist and turn and on the bends the fixed beam lantern may well be deficient behind the beam, so spacing may be closd up, whereas the variable optic can give two beams directed differently, even of differing width if appropriate.

Careful and considered light control is of importance for a variety of reasons – making efficient use of energy, reducing light pollution by limiting upward light and minimising light intrusion from unwelcome spill light. Reflectors provide a most effective way of meeting these objectives. The construction of the variable optic lends itself readily to production in alternative sizes so that compact units with lower wattage lamps can bring this control even to the smaller lanterns.

Ingress protection

The optical controls discussed and the use of highly efficient lamps are partly negated if dirt accumulates – the light output suffers and the shape of the distribution is degraded. the original gas lanterns could not, of course, be fully sealed since they required considerable quantities of air to burn the gas. The ventilating top, which is regarded as such an attractive feature of these

"Heritage lighting is much used in 'special' places where aesthetic valves rather than absolute economy are the criteria"

Table 2
Lamp Choice.

	SON high output	*MBF*	*HQI*	*MCF compact*
Lumens	6800	6000	6800	6500
Watts	70	125	100	4x24
Efficacy	97	48	68	66
Colour temp K	2000	3800	3200/ 4000	3000/ 4000
Colour rend.	moderate+	moderate	good	good+
Life kh	12	16+	7.5	8

lanterns, was a balanced flue which allowed air in, often to be pre-heated, and combustion products out.

Today, the flue remains as an essential decorative feature, but is closed; and a good deal of effort has been devoted to sealing the rest of the lantern to upgrade IP ratings.

The tray carrying the lamp and optic is then sealed to the glazing bowl and by using proprietary sealed reflectors, or adapting others, ratings up to IP6.6 are achieved. In a similar way, refractor units can be sealed, with the lampholder fixed within a removable gasketed can. Even complete conventional luminaires have been embodied within heritage shells, although it must be recognised that quality of appearance should be one of the hallmarks of this style of lighting and such an approach may not always be visually satisfactory.

Fig. 7
Gasketed hood.

This goes a long way towards minimising maintenance but, where possible, it is more satisfactory to seal the whole lantern to a high level to protect the control gear and electrical connections as well. It is often the construction of the lantern that makes achieving this a challenge without destroying the proportions that give it elegance. Lanterns such as the square 'Windsor' lend themselves well to a hinged hood; the lid overlaps the frame so the initial barrier is provided, and by gasketing the hood where the edge of the vertical rim on the frame intrudes, a reliable compression seal is formed. On round lanterns a similar result is obtained with a lift-off lid, secure and pulled down onto the gasket by, say, a screw-on finial. By such methods complete lanterns can be sealed up to IP6.6, if that is appropriate.

Light sources

Quality as an attribute of heritage lighting does not stop at the hardware; at night this quality needs to be continued in the light it emits – its colour appearance and rendering. Even in the days of gas these aspects received attention. The composition of rare earths giving the mantle its incandescence could be varied from "an intense white light to a golden yellow or greenish colour" according to Welsbach's literature from around 1890. Whilst in 1921 the South Metropolitan Gas Co introduced the 'Daylight Mantle' to satisfy a demand apparently for a light 'nearly approaching the solar spectrum', and life and candlepower depreciation were as topical then as now.

Aesthetic values

Heritage lighting is much used in 'special' places where aesthetic values rather than absolute economy are the criteria. This extends to the lamp used, where colour is of importance. In the main, most users would opt for 'white light' and here it is a question of compromise. Table 1 summarises a typical set of characteristics of various lamp types that could be used for a lumen package of 6000lm or so. SON is widely used, with some reluctance when colour is really important because the standard type is rather orange. If lower wattage improved colour lamps become established they would go a long way towards addressing this problem. The apparently small increase in colour temperature to about 2150K coupled with much improved colour rendering (Ra 60 instead of 25-35) does a lot but at a likely expense of effective life, as the colour will deteriorate. 100W would be needed as the efficacy drops. 'White' SON, as developed for display lighting, is an option in some circumstances with an excellent colour appearance (2500-2600K) and colour rendering (Ra 80-85) but efficacy is further reduced so 150W would be necessary for the above lumen package with a life of probably around 6000h.

At the illuminance levels specified, a higher colour temperature light can be very effective: not too high or it may appear uncomfortably cool, somewhere around or a little above tungsten. HQI at 3200 to 3700K offers a promising alternative, and the shorter life is perhaps not too much to sacrifice for the benefits of a pleasant white appearance and quite good colour rendition. MCF has not really a large enough output, but it has a lot to offer in lower power applications – especially in colour and cost. The advantage of the small source lamps such as SON and HQI is that they are more amenable to precise optical control, thus maximising energy utilisation.

The heritage industry has grown to make available to a wide market the best from the past, not only the relatively distant past of gas, but the more recent also. It is not to perpetuate the past for reasons of nostalgia, but to maintain designs that have inherent quality. It satisfies the demand for lighting that will complement the period of the street scene, or add style and elegance for its own sake.

The future path for the industry looks clear. There is an ever increasing appetite for stylish products, even against the background of a recession. New products with improved performance will satisfy this in part. But to widen the market still further requires a combination of lower cost products with technical innovation, to enable potential applications to more easily realise the benefits of heritage lighting – lighting that is both a pleasure to see and a pleasure to see by.

"There is an ever increasing appetite for stylish products, even against the background of a recession"

Fig. 8
Welwyn Garden City.

**Malcolm Richards is technical director at DW Windsor. His paper was first delivered at the 1982 Institution of Lighting Engineers' Annual Conference in Swansea.*

Reader Service No. 200

So how long *do* discharge lamps last?

*Nick Kelso examines the controversial topic of discharge lamp life and lumen maintenance

Some years ago, an attack was launched on lamp manufacturers for supplying lamps to the US market that appeared to be twice as good and to last twice as long as those supplied for use in Europe. The attack was sincerely meant; the evidence to support it was misleading.

Lamps supplied internationally are, of course, identical within normal manufacturing tolerances. What differs is the national standard for predicting economic life. In the US, the quoted life expectancy of a discharge lamp is the point at which half of a batch on life test under laboratory conditions have failed completely. In this country, economic life is more usually quoted as the burning hours achieved before the lamp's light output has fallen below 80% of its 100-hour figure. By these yardsticks, the same lamp does indeed last twice as long in America as it does in the UK!

When to replace

Unlike filament lamps, discharge lamps generally don't die – they fade away into a senility of reduced light output and, in some cases, increased energy consumption, so that their dwindling light output actually costs more and more to provide. Clearly, the point is reached where it is cheaper for the user to replace them than to continue to use them. To aid users, manufacturers publish data under three main headings:

1. Life survival curve: The average life expectancy (to extinction) of a large batch of lamps tested under controlled laboratory conditions.
2. Lumen depreciation curve: The average fall-off in lumen output of a batch of lamps measured over a specific period of time and under controlled laboratory conditions. The initial light output is the 100-hour figure and subsequently the lamps are maintained at nominal wattage by controlling the input supply.
3. The economic service curve: An attempt by manufacturers to predict economic life by publishing the additive percentage value of the life survival curve and the lumen depreciation curve. Given no spot lamp replacements in a lighting scheme using lamps where both the survival and lumen maintenance curves have fallen to 90% after, say, 10,000 hours, the economic service curve would show 80% indicating that the performance of the installation in terms of light output has fallen to 20% below its initial design lumens.

A fourth piece of data, the average rated life, is the US standard to indicate the point at which half of a batch has failed under laboratory conditions. This information is of little or no value to the user in determining the economic relamping cycle for his installation.

These laboratory figures are all very well, but it has to be accepted that they give no more than a yardstick indication of the replacement cycle in a particular installation. Spot replacement, for example, cannot be ignored in street lighting for reasons of safety – lamps need to be replaced as soon as they fail. In every lighting installation, the user has an obligation to maintain adequate lighting levels at all times, regardless of cost.

It might well be argued that, because no two installations have the same economics, there is no case for international agreement 'on the exact point in the life cycle of a lamp' where reduced performance indicates that the time has come for economic replacement. In that case, it is up to each user to determine his/her own relamping cycle by interpretation of manufacturers' published life expectancy and lumen maintenance data.

Interpretation of the life survival curve in terms of cost-effectiveness must take into account the fact that it is far cheaper per lighting point to replace all the lamps in one go than to spot-replace lamps as they fail. The survival curve for the high-pressure sodium lamp, for example, shows that after 10,000 burning hours (about three years' use), around 12 percent of lamps in a large installation will have failed and spot-replacement of these lamps will probably have been necessary for reasons of safety.

Cost of replacement

Any attempt to save money by extending the interval between bulk replacements will be increasingly offset by the rising cost of spot replacement. At some point, the lines will cross. That point indicates the optimum bulk relamping cycle based on lamp life alone, and ignoring the effect of lumen depriciation.

Obviously, judged by the criterion of cost-effectiveness alone, the economic life of a discharge lamp depends not so much on the lamp itself as on the actual cost to the user of replacing it. Users have done very little research in this area; one bulk user that has is Hertfordshire County Council. Relamping in Hertfordshire is contracted out under a carefully-negotiated deal that gives an extremely reasonable figure for spot replacement of failed lamps.

The recently-retired Mr N Zuman set up a computer system for Hertfordshire which monitored, evaluated and provided inventory for the county's maintenance contract in trials involving SOX-E low-pressure sodium lamps. His eventual conclusions resulted in Hertfordshire changing from a two-year to a three-year bulk change programme, despite the fact that the generally-accepted life expectancy of a SOX-E installation is two years.

Mr Zuman subsequently wrote a paper on his finding which was published in Lighting Journal as well as being presented to various regions of the ILE. It is interesting to note that Hertfordshire still operate a three-year bulk change programme using SOX-E lamps and, on Mr Zuman's figures, still reckon to save money on their maintenance contract for street lighting – but, as has been said, it is a very good contract.

Authorities who carry out their own maintenance often have no idea of the cost to them of attending a failure. Not so long ago, one such authority was horrified to find that the cost of changing a 60p GLS lamp in sheltered housing was £12.50!

The beneficiaries of a lighting installation judge it, not on its cost-effectiveness but on the quality and quantity of light it provides. To ensure that the installation is at least meeting minimum standards, the user will need to overdesign initially to compensate not only for lumen depreciation of the lamp but light loss in the luminaire or lantern caused by the ingress of dirt.

Overdesign implies an energy penalty that must be costed in alongside the increasing cost of spot replacement in an old installation, and will inevitably shorten the bulk relamping cycle.

Cleaning and relamping

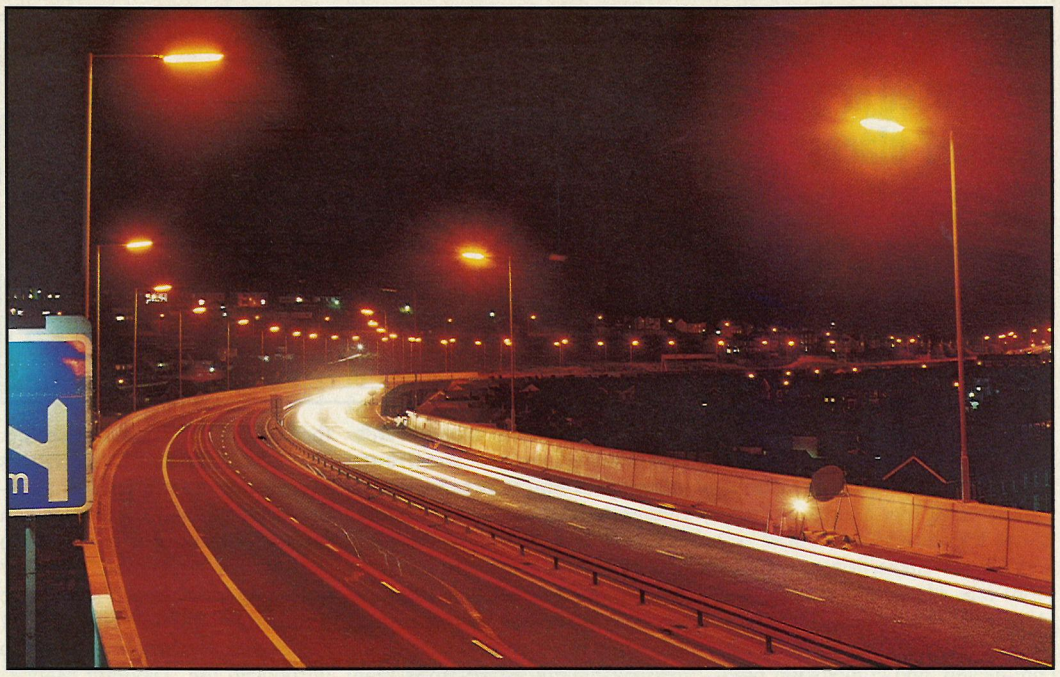
It is obviously not cost-effective to have separate cycles for cleaning and relamping – both jobs need to be done at the same time. Extension of the relamping cycle therefore implies the selection of luminaires or lanterns which either have designed-in self-cleaning properties, as with certain high-bay luminaires, or with higher IP ratings in which the first characteristic numeral, which is concerned with the degree of protection against ingress of solid objects, is the most significant. The second characteristic numeral, concerning water ingress, is less important – if water gets in, then the luminaire is either faulty, badly made or subject to quite exceptional circumstances.

The highest IP rating against solids is IP6* – dust cannot enter at all (talcum powder is used in the test). Experience has shown that luminaires of suitable design with an IP rating of IP6* can be left for three years between cleaning and, indeed, there is a marked trend for roadlighting lanterns designed specifically for use with high-pressure sodium lamps to be made with the Degree of Protection IP6*.

This philosophy has now been extended to lanterns using the new SOX PLUS long-life low pressure sodium lamp, and should certainly be considered by any user planning to extend his/her bulk relamping cycle to much over two years.

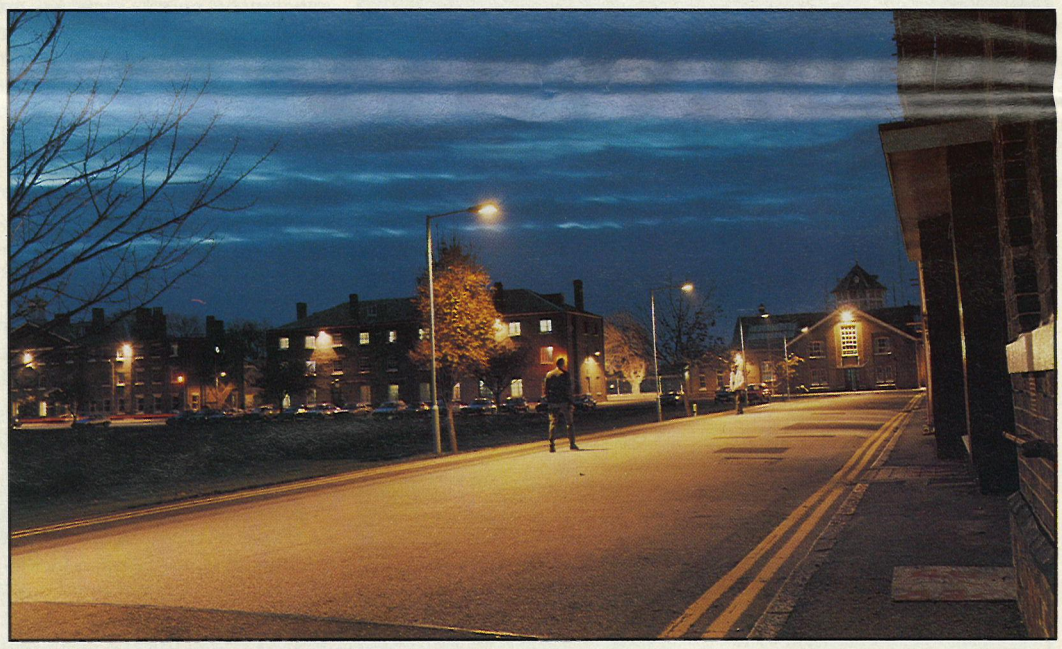
In summary, it can be said that the determination of the economic life of a given discharge lamp in a particular situation is a difficult but worthwhile job that generally only has to be done once and can show a very worthwhile reduction in the overall lighting budget.

** Nick Leso is PR manager for Philips Lighting*



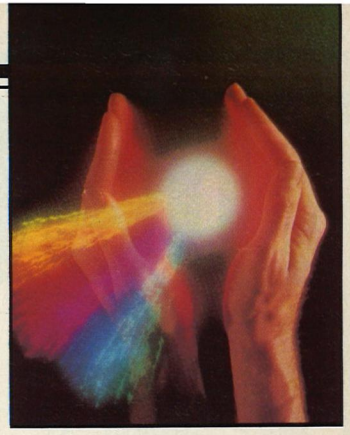
180W SOX lamps used to light 15 miles of the M5 motorway before it was widened.

These were replaced by 250W SON/T Plus – which can be changed to 400W if the M5 widens again.



Flat glass lanterns are used to reduce glare.

The Lighting Design Awards 1994



After the successful launch last year of the new lighting awards scheme – the Lighting Design Awards 1993 – the Lighting Industry Federation is inviting submissions for this year's competition – The Lighting Design Awards 1994.

The Lighting Design Awards aim to provide a showcase for the very best of UK lighting, and exemplify the design and energy management skills of the building design teams who have made such a significant contribution to the lit environment.

The competition is simply named to achieve a simple purpose – to promote excellence and innovation in all aspects of lighting design.

The sponsors of the competition no longer find it necessary to run two competitions, or to consider and promote energy efficiency as separate from the principles of good lighting design. The Lighting Industry Federation believes that these lighting awards span a breadth of lighting design and application which has not previously been considered in one national lighting awards scheme.

In the new competition last year, for instance, Mark Henderson, a theatre lighting designer, won a Highly Commended Award for the lighting of a permanent display in the Leisure Category. Anyone who was at the awards ceremony at the Savoy earlier this year would surely agree that the inclusion of such an innovative and imaginative scheme lifted the whole presentation to a more exciting level.

The competition will continue to place great emphasis on energy efficiency, of course, and intelligent energy management. This is why the sponsors have made a special award in this new competition – The Design Award for Energy Management. Last year, this went to an electronics company, Muirhead Vactric Components, who, because they could make savings of 52% on their power consumption used for lighting, were able to consider moving to a new site. Had the lighting design not created this opportunity for them, costly modifications to the on-site distribution set-up would have placed severe financial constraints on their ability to re-locate.

Philips designed the new lighting for Muirhead Vactric Components in Penge using 50W high frequency tubular fluorescent lamps in industrial reflectors. Illuminance levels have been increased by 36% and the power consumption for lighting reduced by 52%.

Lighting Designer, Mark Henderson, who recently won an Oliver Award as Lighting Designer of the Year, has captured the mood of Beatrix Potter's work beautifully in the World of Beatrix Potter exhibition at Bowness in Windermere. Strand Lighting's Premiere programmable lighting control system has been used to set the theatrical scenes and represent the varying times of the day and seasons for this woodland walk experience.

The lighting of the North Bridge in Edinburgh by the Hawthorne Boyle Partnership is extremely dramatic and stylish and has significantly improved the East End of the City Centre. A combination of high pressure sodium, fluorescent and metal halide light sources has enhanced the natural colours of the structure and architectural detail.

The Sponsors

The Lighting Design Awards have gained the support of just about every organisation associated with lighting in the UK. The official sponsors for the Awards Scheme are as follows:-

Energy Efficiency Office
Electricity Association
Chartered Institution of Building Services Engineers
National Illumination Committee of Great Britain
International Association of Lighting Designers
Confederation of British Industry
Royal Institution of Chartered Surveyors
Royal Institute of British Architects
Chartered Society of Designers
Trades Union Congress
Institution of Lighting Engineers
Electrical Contractors Association
Electrical Contractors Association of Scotland
Electrical Wholesalers Federation
Institution of Electrical Engineers
Lighting Association
Lighting Forum
Professional Lighting & Sound Association

What is Good Lighting?

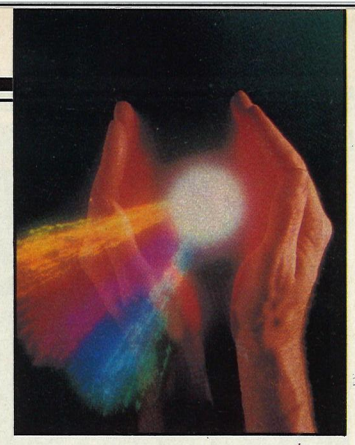
But what does constitute good lighting? At what point does purely functional illumination become "well designed", "innovative" or "aesthectically pleasing"? The award-winning examples on these pages illustrate that well-designed lighting can do more than just provide a specific illuminance on a working plane with minimum use of energy. Visual comfort, lighting matched to the task, appropriatre contrasts and highlights, the total lit effect - these affect us all, whether consciously or unconsciously. The characteristics of lighting in terms of intensity, direction and colour can enhance the appearance of space, objects and people and help to create a particular mood, or special ambience. And that mood or ambience will almost certainly affect the performance of tasks, our productivity, our safety, the enjoyment of our surroundings. even the quality of our lives.

The Lighting Design Awards have been conceived in order to reveal and promote the importance and influence of good lighting and to encourage its wider application by all those concerned with the design, supply, specification, installation, maintenance and use of the lit environment.

Invitation to Enter

The Lighting Design Awards offer a unique opportunity to gain the highest recognition for the owners, or users, and designers of lighting excellence. The sponsors of the Lighting Design Awards invite designers, manufacturers, architects, lighting consultants, installation technicians and service engineers, indeed all those people associated with good lighting, to bring to our attention the schemes which are of a quality and standard to be called a Lighting Design Awards winner.

The Competition Rules



Who Can Enter?

In order to enter the Lighting Design Awards, the attached entry form must be completed by both the designer of the scheme, and the owner, or user or operator, of the lighting installation to ensure that both parties have given their consent to participating in the competition.

Entries can be originated, for example, by individual companies or organisations - including manufacturers and consultants - local authorities, government departments and agencies and health authorities.

The owner or user of the installation, and the designer of the scheme must approve and sign the entry form.

Submission of an entry form will signify acceptance of all the rules.

The decision of the assessors and the sponsors will be final, and no correspondence will be entered into.

The Lighting Design Awards cater for practically all types of lighting installation. There are no restrictions as to the origin of the equipment or the design skills used. Only ROAD LIGHTING AND INDIVIDUAL HOME LIGHTING are excluded.

Qualifying Period

The competition is open to all completed UK schemes that have been installed or refurbished during the qualifying period which is 1st May 1992 - October 29th 1993.

Assessment

The criteria for assessment of the schemes are as follows:

* Effectiveness in terms of engineering and aesthetics
* Effectiveness in terms of energy eficiency and energy management.
* Effectiveness in terms of user satisfaction
* Innovation
* Compliance with the scheme rules, and relevant standards, codes of practice and legislation

Every scheme entered will be examined by a panel of independent lighting professionals who form the assessment team. The assessors reserve the right to visit any installation that may be short listed for an award.

The Bath Forum is a lovingly restored and valuable example of a 1930's grand art deco cinema. The original "Odeon" style lumninaires now incorporate a selection of Philips compact fluorescent lamps reducing the installed lighting load by 78% while increasing the illuminance levels.

Categories

Multi Residential

A new category has been added to the competition this year to cover multi-residential buildings. This includes, for example, residential homes, sheltered housing, student halls of residence, nurses homes, hospitals, boarding schools and other residential properties which share communal facilities such as corridors, stairs and laundries.

The following are some typical examples of lighting installations which would qualify for the remaining categories:

Commercial

Offices, computer rooms, shopping centres, conference and training facilities, airports, car showrooms, sorting offices and-private schools.

Industrial

Foundries, power stations, manufacturing areas, elecronic assembly shops, maintenance depots, print rooms, distribution and storage areas, petrochemical and offshore installations.

Leisure

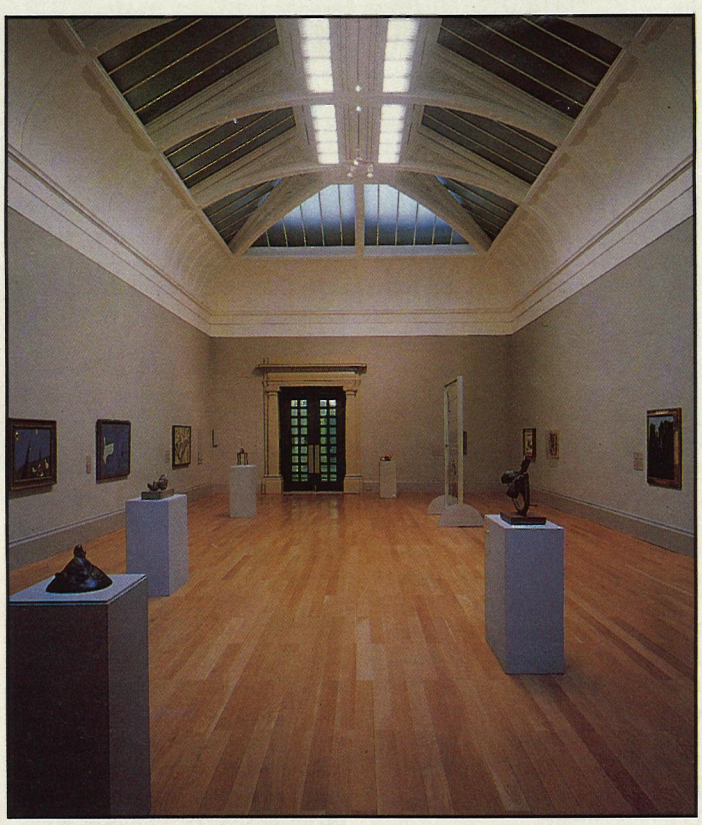
Hotels, restaurants, theatres, exhibition halls, museums, art galleries, cinemas, leisure centres, golf clubs and ice rinks.

Civic

Court rooms, registry offices, churches, parliamentary buildings, council offices, prisons, libraries, schools and hospitals.

Exterior

Architectural floodlighting, sports stadia, and outdoor shopping precincts, car parks, pedestrian squares and loading bays.



The SVM Partnership have used Osram linear compact fluorescent lamps in Erco recessed ceiling luminaires to provide an elegant and sympathetic lighting solution for the Tate gallery in London.

TVertically displayed merchandise is highlighted for more variety and impact with a special system of compact fluorescent fittings with low brightness symmetrical reflectors designed by Thorn Lighting for Tesco.

Photographs

All entries MUST be accompanied by suitable **labelled** photographs and, if necessary, supporting material such as installation design drawings to enable the assessors to give the fullest consideration to each entry.

Although copyright of the photographs will remain the property of the entrants, the organisers reserve the right to use such photographs for purposes associated with the competition and its publicity.

Submission of any entry implies full acceptance of this rule by the owner or user, designer and all those associated with the installation. Any description of the installation extending beyond the scope of the entry form must be kept as short as possible and should be submitted on A4 size paper. It is not possible to return any documents or photographs submitted by entrants.

Additional photographic material will be required from winning entrants for the awards ceremony and associated publicity. Entrants should ensure that this is of the highest quality.

The Awards

The Awards will be presented at a ceremony during the Autumn, 1994. A certificate will be presented to the designer of each award winning lighting scheme and also to the owner or user of the installation.
In addition to the Winning and Highly Commended Awards which will be selected from each category, the assessors have the discretion to make special category awards to any entry which they feel is outstanding in its approach to a particular aspect of the design process.

Closing Date

The closing date for entries is December 13th 1993.
Entry forms should be completed as soon as possible and returned to:

THE SECRETARY, LIGHTING DESIGN AWARDS
SWAN HOUSE, 207 BALHAM HIGH ROAD
LONDON SW17 7BQ

The Winners of the Lighting Design Awards 1994 will be announced in September 1994.

The Lighting Design Awards are organised and sponsored by the Lighting Industry Federation Limited, Swan House, 207 Balham High Road, London SW17 7BQ. Tel: 081-675 5432. Fax: 081-673 5880

The Lighting Design Awards 1994 Entry Form

Please complete Section 1 - 6 where applicable. If necessary, details can be continued on a separate sheet and attached securely to the form,

1. Details of Entrant

NAME OF ORGANISATION *(owner or user of the installation)*:

Address:

Postcode: Telephone:

EXACT ADDRESS OF LIGHTING INSTALLATION *(if different from above)*

Postcode: Telephone:

CONTACT FOR POSSIBLE SITE VISIT

Name: Position:

Telephone No:

DESCRIPTION OF THE AREA (indicating its primary use)

2. Lighting Equipment Installed & Installation Performance

LAMPS:

Quantity Type & Colour: Manufacturer(s):

LUMINAIRES:

Quantity: Type: Manufacturer(s):

CONTROLS:

Type:

Manufacturer(s):

ENERGY MANAGEMENT *(tick appropriate boxes)*

[ ] Photocell control [ ] Computer control [ ](more) Reflective decor [ ] Regular cleaning schedule

[ ] New local switching [ ] Group lamp changing [ ] Time switcher [ ] Energy Manager appointed

DATE INSTALLATION COMPLETED:

APPROXIMATE SIZE OF TOTAL AREA (m2) INSTALLED LIGHTING LOAD (kW)

(include gear losses where relevant)

REFURBISHMENT, or	[ ]	MAINTAINED	OPERATING HOURS
NEW LIGHTING	[ ]	ILLUMINANCE (lux)	PER ANNUM
(tick appropriate box)			*(average)*

CAPITAL COST OF LIGHTING (£) IMPROVEMENT IN ILLUMINANCE (%)

PAYBACK *(months)* SAVINGS IN ELECTRICITY *(£ per annum)*

The Qualifying Period is 1st May 1992 - 29th October 1993

3. Previous Lighting Installation *(where applicable)*

Maintained illuminance (lux) [ ] Measured [ ] Estimated *(tick appropriate box)*

Installed Lighting Load (kW) *(include gear losses where relevant* Average operating hours per annum

LAMPS:

Quantity: Type & Colour Manufacturer(s):

LUMINAIRES:

Quantity: Type: Manufacturer(s):

CONTROLS;

Type: Manufacturer(s):

4. Scheme Associates *(where applicable)*

Designer of the Lighting Scheme

Name:

Position:

Address:

Post Code Tel No
Fax No.

Architect

Name:

Position:

Address:

Post Code Tel No

Electrical Contractor

Name:

Position:

Address:

Post Code Tel No

Electrical Wholesaler

Name:

Position:

Address:

Post Code Tel No

This entry is being submitted by:

Name:

Company:

Signature:

LIGHTING INDUSTRY FEDERATION

The Lighting Design Awards 1994 Entry Form

5. Lighting Designer's Statement

**Where necessary, a fuller statement can be continued on separate sheets and attached securely to the form.*

A THE LIGHTING DESIGN BRIEF*

B HOW THE INSTALLATION MEETS THE DESIGN BRIEF* *(Identify points of excellence in the installation)*

C WHAT DO YOU CONSIDER TO BE THE MAJOR INNOVATIVE FEATURES OF THE INSTALLATION IN TERMS OF DESIGN, EQUIPMENT OR APPLICATION TECHNIQUE?

THIS STATEMENT HAS BEEN COMPLETED BY:

Name: Position

Company:

Signature Telephone No:

Important Note

Completion of this statement by the Lighting Designer implies acceptance of all rules pertaining to the 1994 Lighting Design Awards, in particular the rule relating to photographs and copyright thereof.

6. Owner's or User's Statement

Owners/Users are invited to summarise the features of the installation, paying particular regard to points of excellence, points of innovation and other features which satisfied them, and their needs in particular. The following headings are provided for guidance:
****Aesthetics and Visual Comfort***
**** Productivity***
**** Cost and Energy Effectiveness***
**** Safety, Security and Flexibility***
Where necessary, a fuller statement can be continued on separate sheets and attached securely to the form.

THIS STATEMENT HAS BEEN COMPLETED BY:

Name: Position:

Company:

Signature: Telephone No:

Important Note

Completion of this statement by the Owner or User implies acceptance of all rules pertaining to the 1994 Lighting Design Awards, in particular the rule relating to photographs and copyright thereof.

Completed entry forms should be sent to:

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Closing Date: December 13th 1993

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Section: **[C] [I] [CI] [L] [MR] [EX]**

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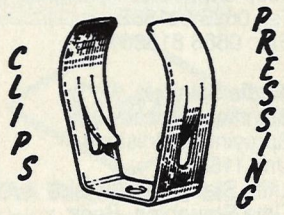

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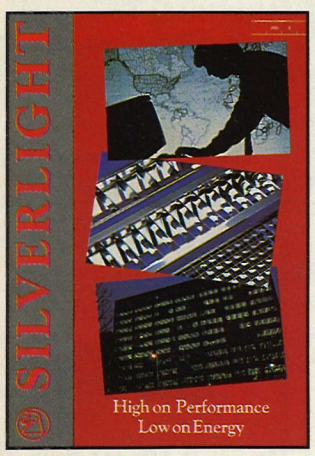

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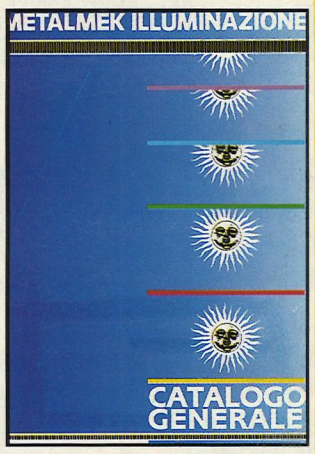

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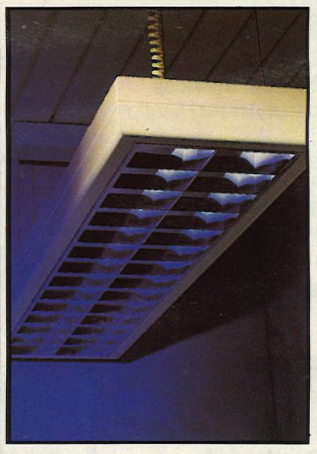

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NEWS

Lamp disposal

In the June issue of LEN we carried an article on the disposal of lamps and the environmental implications of such disposal. The article stated that two manufacturers of lamp crushing machines had, in recent years, been banned from advertising their products. The wording of this statement may have been misleading and implied a total ban on advertising for these companies.

In fact two manufacturers of such equipment, in 1988, were required by the Code of Advertising Practice Committee to change the content of some of their advertising material. This was because the material in question was considered to imply that the equipment advertised could eliminate all the hazards associated with the disposal of fluorescent lamps. Neither of the two advertisers submitted material to support this claim.

In the next issue of LEN we shall be reporting further on other comments made in the article which, while fully substantiated, would benefit from a more detailed explanation.

This will be based on information we are awaiting from various water companies, Her Majesty's Inspectorate of Pollution and the National Rivers Authority.

Publications

● *Light & Engineering* is a translation of the Russian *Svetotekhnika*, described as one of the oldest and most authoritative journals in the world devoted to light and lighting research. The new English edition will appear quarterly and carry articles from the Russian monthly issues.
Reader Service No 240

● A new catalogue from Hubbell describes the company's new line of general purpose contactors and overloads. There are now seven contactor ratings from 5.5kW to 40kW and 17 overload units with setting ranges from 0.24A to 75A.
Reader Service No 241

● The latest technical bulletin from Armada Lighting and Fire Ltd summarises changes on emergency lighting codes of practice and legislation. It covers the subjects of quality, open areas, defined escape routes, high risk areas, exit areas and emergency lighting testing.
Reader Service No 242

● Illuma Lighting has produced a new 1993 Buyers' Guide to accompany the launch of six new product ranges at the European Lightshow. As well as product information and line drawings, three new sections cover lamp data, wiring installations and guidelines for low voltage systems. **Reader Service No 244**

● Menvier has introduced a combined shortform catalogue and price list covering its emergency lighting products, fire detection and central battery systems. Among the new products featured are; Autotest, Testcheck, The Safe Range, analogue addressable fire systems and Series 700 fire detectors.
Reader Service No 245

● Nichicon has announced the availability of its 1993 Electronic Components catalogue. It details the company's range of electrolytic and tantalum capacitors.
Reader Service No 246

● The Aluminium Stockholders Association has published an explanatory leaflet on the switch from imperial to standard metric sizes for ex-stock rolled aluminium from January 1st 1994. The leaflet answers typical queries and includes a table showing the range of standard metric sizes that will be available.
Reader Service No 247

● A new book *Lights* presents a subjective, but representative selection of 300 lamps for home use currently on the market. The comprehensive overview is intended to be used as a guide by architects, designers and others responsible for buying lighting.
Reader Service No. 248

● Semtech Ltd has issued a 32-page catalogue detailing a wide range of transient voltage suppression products for ESD, lightning, inductive local switching and nuclear EMP protection.
Reader Service No. 249

● BSRIA has issued an updated version of its directory of building services legislation, including a guide to 150 Government Acts and Statutes and 100 standards, codes and technical documents.
Reader Service No. 250

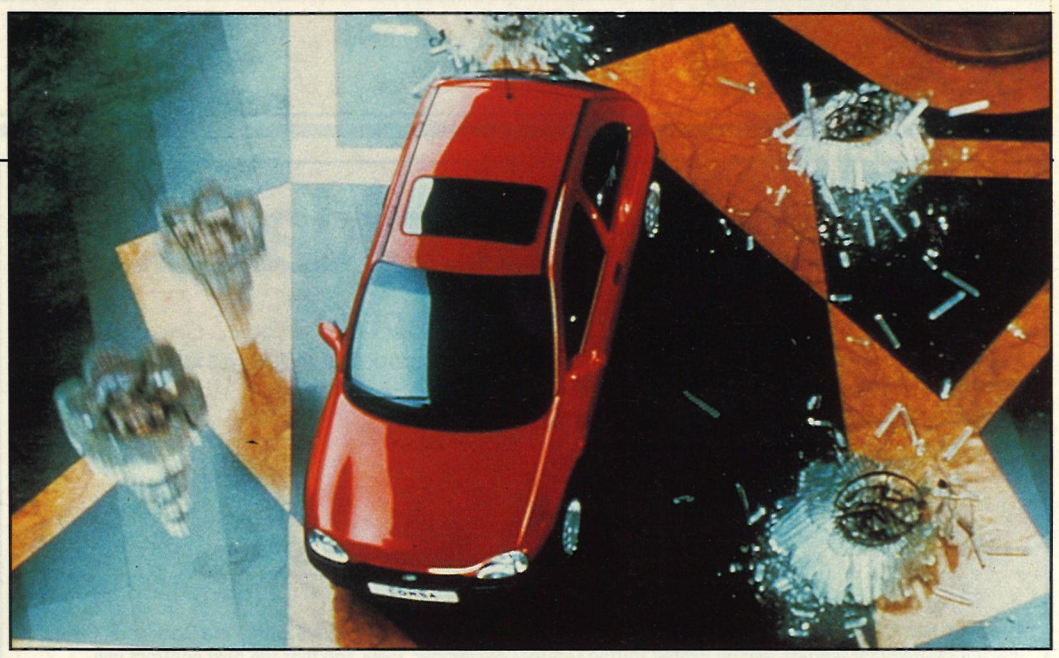
● An A4 catalogue describing high quality luminaires from Swedish company Annell International is available from MW United Ltd.
Reader Service No. 251

● Linolite's new catalogue contains technical information on the company's comprehensive range of commercial and domestic fittings. There are new sections on downlighting and multi-purpose lighting, and a low voltage guide in the technical section.
Reader Service No. 252

● Elkay Ltd, UK distributors of HPM products, has introduced new weather, dust and hoseproof switches to its range, all of which are detailed in a new colour brochure from the company.
Reader Service No. 253

● Glamox Electric has published *Lighting for Effect*, a 70-page brochure depicting the SDS range of interior light fittings. It includes technical details of high quality downlights and spotlights.
Reader Service No. 254

● Bernlite has introduced a separate lamp guide and price list. Nearly 1,000 incandescent, halogen, fluorescent, compact fluorescent, and discharge lamps are listed in the guide.
Reader Service No. 255



A smashing job of work

Providing chandeliers to be smashed to smithereens is not Chelsom's normal way of doing business but this is precisely what was required for one of the recent series of adverts for the new Vauxhall Corsa. The chandeliers were required to collapse in a fountain of glass around the car, so the normal solid brass internal frames had to be modified.

The search for an alternative form of construction led to the replacement of the internal framework with a series of suspension chains. This arrangement enabled the horizontal wagon wheel structure to be retained, while allowing the chandeleirs to concertina on impact.

With each chandelier fully lamped, cutting the support chains and the electric cables sent nearly 1000 pieces of 15cm cruciform Venetian crystal rods plummeting to the ground in an explosion of glass.

Reader Service No 275

Lighting up the presses

Fifth Generation Technology Lighting (FGT) is currently upgrading a number of lighting installations for Sheffield Newspapers Ltd. FGT's consultancy service was called in to advise on lighting in two key areas, printing and despatch.

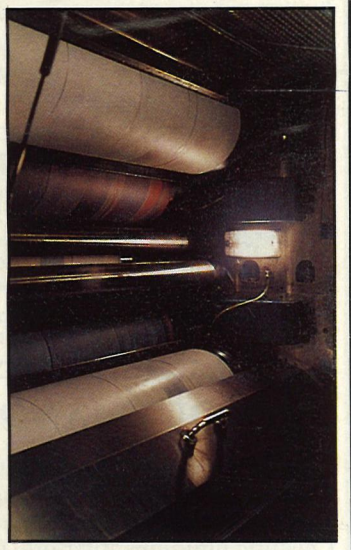
The light fittings built into the printing presses gave poor quality light, with 60W lamps which needed to be replaced every four weeks. To resolve this problem, FGT designed and installed retrofit kits, installed in less then five minutes, which are said to have reduced wattage by about 80% while raising light levels by 300%.

The despatch area was faced with a combination of two problems, inadequate light levels and glare on VDU screens. This was dealt with by the provision of FGT's System 96 units, raising light levels to the required standard while providing an even spread of light throughout the area.

"I am highly delighted with the service we have received from FGT," said Sheffield Newspapers' hardware maintenance manager Tony Martin. "Resolving one problem has highlighted the need to look at others as we have gone along. Each new one has met with a positive response from FGT," he continued.

"The combination of our personalised designs and advanced materials ensure good light levels at low cost," says FGT's technical director John Davies. "The provision of quality lighting is a highly specialised business. That is why we see our consultancy service as a very important part of our relationship with our clients.

Reader Service No 276



In brief...

● John Farnhill has been appointed managing director of Econolight plc. He was previously commercial director with Siemens Plessey Systems.

● Ian Brown FCIBSE has taken over as technical secretary of the Chartered Institution of Building Services Engineers. He replaces Peter Scurry who has retired.

● Noel Cox has become Britain's top young electrician in a contest run by the Electrical Contractors' Association. He works for the Midlands regional office of Crown House Engineering in Birmingham.

● David Taylor, project leader at Theatre Projects Consultants, London, is moving to the company's Connecticut, USA, office to become its senior consultant and project manager.

● The Building Services Research and Information Association (BSRIA) has published *M&E Contracting in Great Britain* which gives an authoritative assessment of past, future and present trends in M&E contracting.

Reader Service No 277

IN YOUR NEXT ISSUE

Next month's feature will tackle the subject of office lighting. Included in the feature will be a look at the lighting design in the new offices of the Lighting Association.