

LIGHTING

EQUIPMENT NEWS

24 NOV 1988

NOVEMBER 1988

BRE technical expertise available

A new technical consultancy has been launched by the Building Research Establishment to meet the needs of the construction industry, its professions, clients and manufacturers of construction products.

BRE technical consultancy gives access to the whole range of BRE technical expertise. An important feature is its ability to tackle problems involving whole buildings and the interaction of different components and factors within a building.

The first four specialist services are construction products, fire technology, wind engineering and building advice. Lighting is expected to be added at a later stage.

Japanese link for Osram

One area of technology in which Japan is not pre-eminent is that of lamps. Two joint subsidiaries are being set up in Japan by Osram GmbH of Germany, parent company of Wotan Lamps, and the Mitsubishi Electric Corporation. Osram will have 51% of the joint production and development venture and Mitsubishi will have controlling interest in the distribution company. But for the time being the existing Osram business for vehicle lamps in Japan will continue under the direct control of Osram.

Production is expected to start at the beginning of 1990. All existing production facilities for Mitsubishi's lamps will be incorporated into this factory and extended continuously by the addition of new production plant from Osram.

The joint venture, leading to an investment of over £50 million, will make Osram GmbH the third largest lamp manufacturer in the world. It is planned in the first year to achieve a turnover of £50 million with 500 employees. After three years the target is a turnover of about £100 million.

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The gymnastics hall with its display of banners and national flags.

Leading lights on show at the Seoul Olympics

The twenty-fourth summer Olympic Games, held at Seoul, South Korea in September ultimately proved more newsworthy for the light they threw on the nature of sport at international level than on that actually illuminating the splendid range of purpose-built stadia and sports arenas provided at the Olympic Park.

First pictures of the Games received by *Lighting Equipment News* show the less spectacular face of the Olympics: the facilities and the competitors themselves.

The spectacular gymnastics hall, with a sports area of 67 x 43 metres, holds up to 15 000 spectators.

The lighting system is installed in two concentric catwalks with diameters of 32 and 63 metres. It comprises 108 floodlights with louvres, mounted at heights of 18 and 15 metres respectively and equipped with 2000 watt metal halide lamps.

Five lighting levels are available. With all lights on, an average vertical illuminance of 1500 lux is obtained in the direction of the main camera. An emergency



Mast and stand floodlighting at the velodrome.

lighting level can be used in case of power failure so that colour television is never interrupted.

The Olympic velodrome features a 333.3m timber covered cycling track, with a spectator capacity of 6000 people. The lighting system comprises four 36-metre masts, with 60 flood-

lights on each of the two masts positioned on the main stand side and 66 floodlights on each of the two masts on the opposite side.

An additional 63 floodlights have been mounted in a line arrangement on the leading edge of the canopy fifteen metres above the main stand. All floodlights are of the narrow-beam type and equipped with 2000 watt metal halide lamps.

This arrangement results in a vertical illuminance of 1,700 lux on the cycle track in the direction of the main camera and a horizontal illuminance of 1800 lux on the infield area with perfect uniformity.

Finally, the swimming hall contains Olympic swimming and diving pools, and can house 10000 spectators. In this installation, the floodlights are mounted on catwalks and comprise 144 floodlights with 2000 watt metal halide lamps, which can provide four lighting levels. With all lights on, the vertical illuminance is 1600 lux in the direction of the main camera.



Metal halide lamp installation in the swimming hall.

Australian lighting group for Thorn EMI

Thorn EMI is to acquire the Sydney-based lighting group, Howard Smith Industries Pty Ltd, subject to Foreign Investments Review Board approval. The group comprises three trading operations — Associated Lighting Industries, and the Rymer and Kempthorne activities — whose combined turnover in 1987 was approximately £30 million.

The purchase price has been fixed at some £10.5 million over the book value of the net assets,

giving a final sum in the region of £28 million. Completion is expected by the end of October 1988.

According to Thorn Lighting's MD, Hamish Bryce, this acquisition together with existing businesses in Australia and New Zealand, "will provide a strong platform for a major sales thrust in the rapidly growing and valuable markets for lighting fittings and sources throughout the Asia Pacific region".

CU reorganises

An unusual collection of street lighting columns from many British towns have pride of place around the new headquarters of the CU Group in Ware, Hertfordshire.

The columns are from the company's museum of street lighting and are sited at intervals around the perimeter of the building, which is enclosed in a reflective glass envelope.

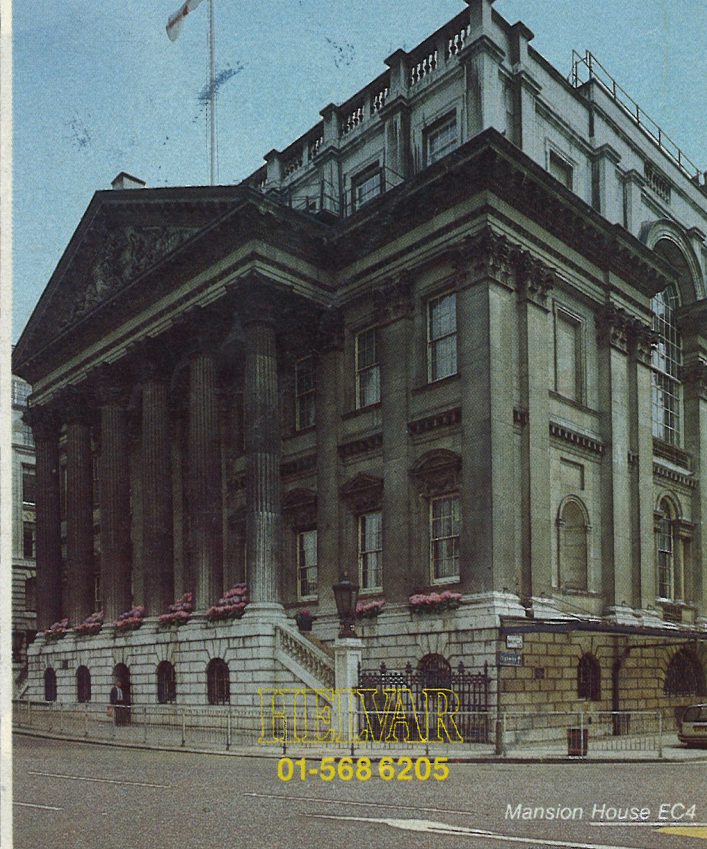
Part of the £6 million reorganisation of CU has involved a restructuring of the group. A new holding company has been formed, CU Ware plc, and the various trading companies now have titles that reflect their product ranges: CU Lighting, CU Street Furniture, CU Bridges, CU Pontoons, and CU Power Towers.

Other developments include an up-dated, BSI registered, photometric laboratory which is integrated into a new computer aided design system, the installation of



new plant, and a showroom for the company's products.

WHAT YOU CAN'T SEE
IS JUST AS IMPORTANT



01-568 6205

Mansion House EC4

LETTERS

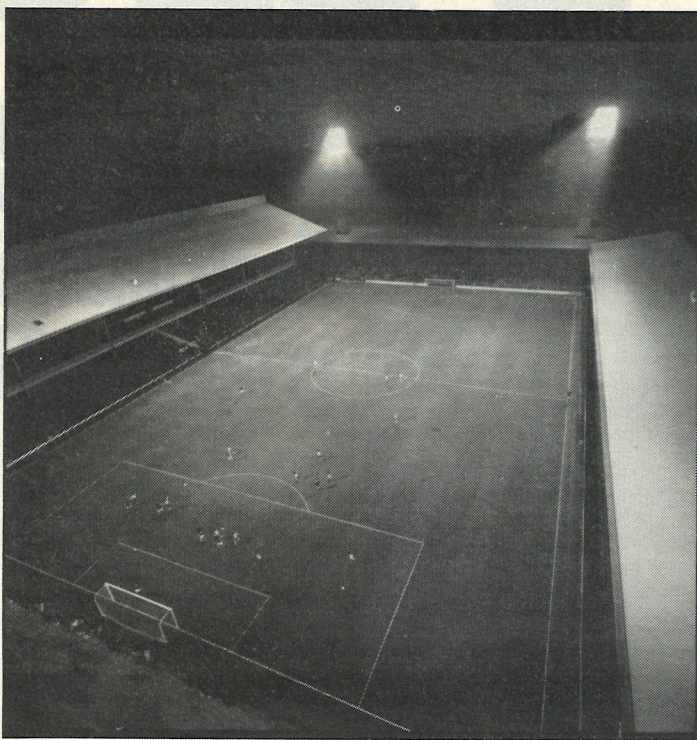
Simply 20 lighting years ahead

On page 8 of the September issue of *Lighting Equipment News* you reported a 'new' stadia lighting system for colour television. New, it may be for the manufacturer, which has only just realised that compact metal halide lamps are the ideal solution for this application, but may I remind your readers that the Thorn Compact Source Iodide (CSI) colour television floodlighting system was first installed in 1969.

As you reported in the same issue (page 10) this original installation has just been replaced with the latest version of the THORN 0Q/1000 CSI Floodlight after the first scheme had given nearly 20 years of reliable service.

Imitation is the sincerest form of flattery, but CSI has a number of important advantages over the so-called 'new' system:

1. The CSI Floodlight presents 40% less windage area per lamp watt.
2. For 20 years the CSI system has been saving energy by providing 36-40% utilisation for a typical stadium.
3. The starting current for the circuit is lower than the running current.
4. The sealed beam lamp means that a new reflector is installed with each lamp change maintaining the efficiency throughout the life of the installation.
5. Up to four 0Q1000 Floodlights can be mounted, with superimposed beams, in one headframe space. This also allows the illuminance to be switched to 4 levels while maintaining uniformity.



6. Three lamps in a group balanced over 3 phases allow slow motion filming without beat (flicker). This is partly due to the 50% peak to trough light waveform of CSI compared with about 80% for other metal halide lamps.
7. Hot re-strike fittings have been a standard offer for nearly 10 years.
8. The factory focused reflector lamp guarantees excellent and consistent beam control. The picture of the original West Ham installation shows the cut-off of the lighting on the stand roof not on the road outside the stadium.

This brings me finally to the table in your September article. The inverse square law dictates that 5 million candelas are required to produce 25 lux on a window 450 metres from a mast, not 200,000 candelas and therefore 5 lux requires 1 million candelas not 200 candelas as claimed. The superior beam control of CSI produces less than 4 lux on the same window for the value of pitch illuminance shown in the table.

Robin Aldworth
Thorn Lighting Ltd.
Lighting Systems Division

NEWS

In brief . . .

● The contract to light the tunnel linking Devon and Cornwall on the A38 has been awarded to **GEC Streetlighting Ltd.** Some 1200 lanterns will be used, housing either 58W fluorescent, or 180W low pressure sodium, or 131W SOX-E lamps.

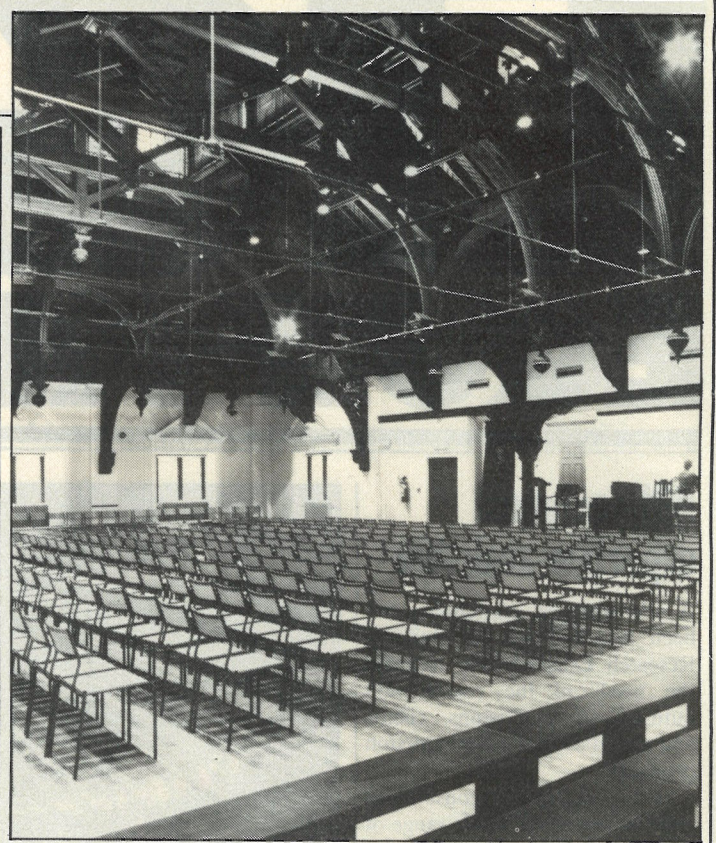
● **GEC** has also gained the contract to light the Conwy Crossing, part of the North Wales coast road. Almost 4000 lanterns are involved in this twin-bore tunnel.

● **Anglepoise Lighting Ltd** is offering four of its task lights fitted with Wotan's new colour 21, Dulux type, compact fluorescent lamps. It believes these lamps complement today's working environment better than the colour 41 version.

● **Margaux Controls Ltd** has been purchased from the USA parent company by its three UK directors. The deal includes manufacturing rights in Britain and Europe for the company's electronic building energy management systems.

● **Roadsigns** for road traffic guidance are the subject of a report from the *Commission Internationale de l'Eclairage*. It is restricted to matters of concern to road users. Copies available from A Dangerfield, Jules Thorn Lighting Laboratory, Great Cambridge Road, Enfield, Middx EN1 1UL.

● Advertisements in the **LEN Where to Buy Directory** of September and October may have given the impression that Alanod and Garfield Lewis is now manufacturing louvers and reflectors. This is not the case, and we apologise for any confusion this may have caused.



Historic school relit

Oscar Faber engineering has helped to enhance facilities in one of Scotland's leading schools — George Heriot's in Edinburgh.

The refurbished assembly and examination hall is a listed 1894 addition to the original school, which is over 360 years old.

An ambitious scheme, led by local architects Alistair M Smith, has met the brief for better facilities and increased space. It did this by installing a new hall floor at first floor level and provided extra music and library rooms on the new ground floor below.

Oscar Faber and Partners was commissioned to design the mechanical and electrical services

required.

The original Victorian architecture of the hall features splendidly ornate timber trusses. Formerly lost in darkness these are now highlighted by eight 500W Tyta tungsten halogen uplights, supplied by Tyta Services Ltd.

A stage lighting grid is also being installed with 36 spotlights each of which is independently controlled from a Strand lighting console, supplied and installed by Northern Lights, at the rear of the hall.

All the Thorn Lighting Clipper fluorescent luminaires in the library and music department were fitted with electronic control gear.

Set the scene with Electrosonic

Electrosonic have set the standard in 'scene set' architectural lighting control. Now, we offer a choice of two systems to meet every lighting requirement at the touch of a button.

DIGI

A unique and flexible combination of product to suit the most sophisticated of larger installations.

SYSTEM

Now, Electrosonic have brought the benefit of scene-setting into the smaller retail and leisure installation with this compact wall mounted package.

For full details, distributors, etc., contact:

ELECTROSONIC

815 Woolwich Rd, London SE7 8LT. Telephone: 01-855 1101. Telex: 896323 ESMX G.

Buoyant emergency lights

More demanding emergency lighting requirements for roll-on, roll-off passenger ships, following the Zeebrugge ferry disaster, have led to an export success story for Chloride Bardic.

It has re-engineered its type 308 weatherproof bulkhead emergency fitting to meet the exacting specification of the Department of Transport Shipping Notice M1299.

Among the requirements are extensive shock and vibration testing, high temperature performance measurement and tests to ensure the fitting does not create radio frequency interference.

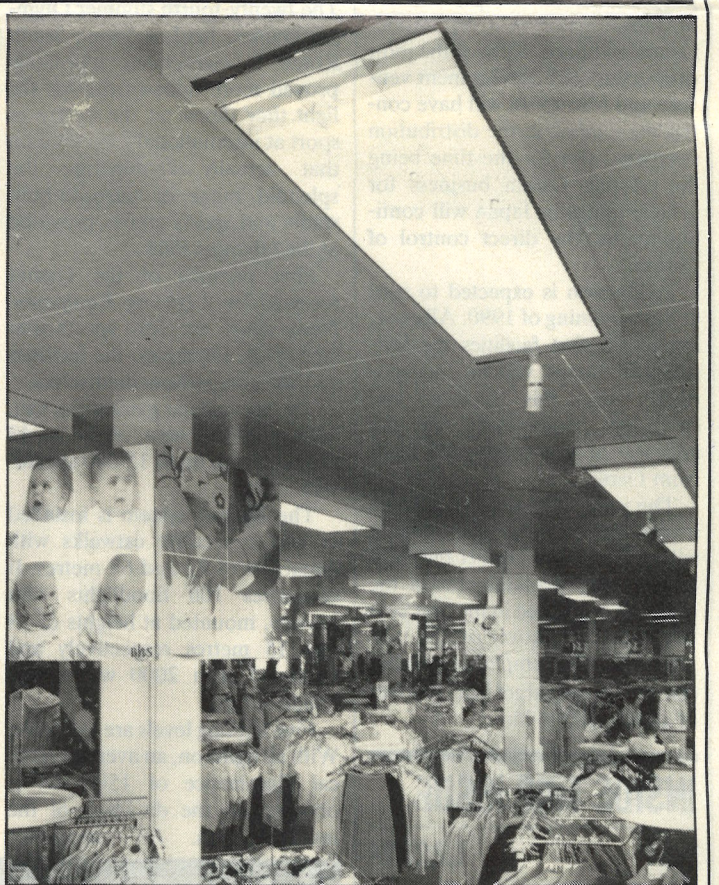
A large number of UK based ferry operators have already fitted the marine 308 and, because the shipping notice covers all RO/RO vessels entering British ports, many of the leading continental lines have ordered the product as well.

Lighting World expands in size

Lighting World International has announced that 65% of the show's exhibition space for 1989 at the Jacob K Javits Convention Center in New York has been sold, and extra space has been added.

As the largest display of architectural lighting in the USA more than 600 exhibitors are expected. To-date, 230 companies have booked stands at the show which takes place from 10-12 May. The theme is Spotlight on Innovation.

A three-day conference programme will complement the exhibits to discuss industry trends and issues.



Quality lighting for BHS store

A major refurbishment project recently undertaken by British Home Stores at their retail outlet in Wigan, Greater Manchester, involved extensive redesign of the lighting installation.

Moorlite Electrical Ltd fitted 118 specially designed fluorescent luminaires to fulfill BHS requirements for an efficient lighting system with low running costs.

The 1800 x 600mm three-lamp luminaires were supplied in a mixture of surface and pendant mounted versions. These fittings proved more cost-effective than the previous four-lamp luminaires

and gave equivalent illumination.

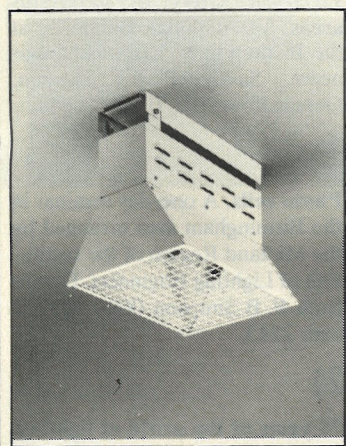
The new lighting has resulted in a dramatic improvement in overall store appearance and colour rendering.

To satisfy the requirement for glare-free background lighting to complement display lighting, each of the special luminaires was fitted with a powertrack to accommodate spotlights. This ensured that display lighting could be moved to wherever it was required.

Costs were also reduced as the need for additional wiring was eliminated.

NEW PRODUCTS

Low bay luminaire



Fitzgerald Lighting Ltd has a low bay luminaire suitable for commercial and industrial applications with mounting heights from 3-5m. It accepts either SON-T, metal halide or mercury lamps up to 400W.

The luminaire moves away from the traditional box shape to a cross section that is an inverted Y-shape. This gives it an improved light distribution. It can also be mounted from suspension chains.

The fitting is packed complete with lamp and is available with a full range of attachments.

Reader Service No. 151

Compact fluorescent bulkhead

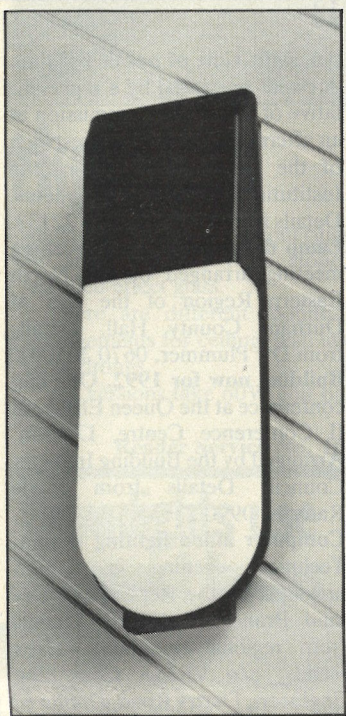
A bulkhead light for exterior or interior use has been launched by Osram-GE Ltd.

Featuring slim modern styling, particularly appropriate for lighting in residential areas, the new fitting, Outline, has been designed to accommodate either one or two 11W Opus S compact fluorescent lamps.

Constructed with a tough polycarbonate body and metal gear tray, this luminaire is vandal resistant and ingress protected against dust and liquid to IP54 standard.

Interior applications include corridors. For automatic outdoor lighting a photo-cell can be fitted.

Reader Service No. 152



Lighting control for schools

An electronic lighting timer from Chalmor Ltd is designed primarily for schools, but also has applications in locations such as hotel corridors, squash courts and warehouses.

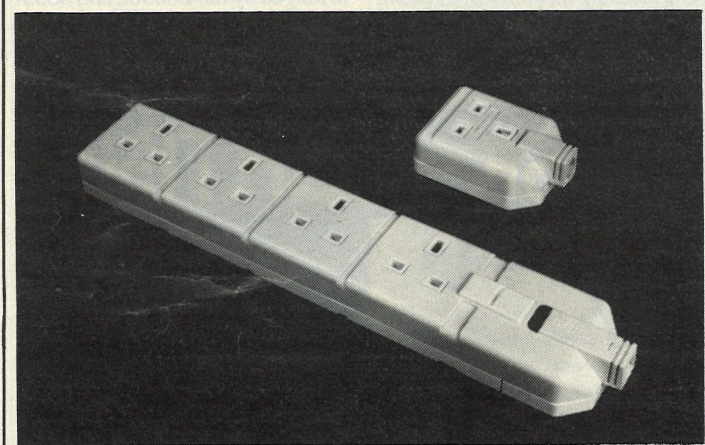
In a classroom, Chalmor recommends that two-thirds of the lighting should be controlled by the

timer with the remaining third controlled manually.

The manually controlled element is for safety reasons, to avoid a classroom being plunged into darkness without warning, and it can also be used by the cleaners.

An advantage of the system is that it does not require major re-wiring to install. The control unit is mounted alongside the lighting fitting on the ceiling.

Reader Service No. 153



Trailing sockets are tough

Perma Industries plc has a four-in-one trailing socket. This rubber covered accessory with resilient nylon base can stand up to rough handling in the home and in commercial and industrial premises.

It has a neon mains-on indicator and is fitted with a removable fuse holder.

Keyhole slots are provided on the base for temporary mounting on wall or bench.

Design improvements have also been made to Perma's single trailing socket, to make it easier to wire.

Reader Service No. 154

Ultralux re-styled

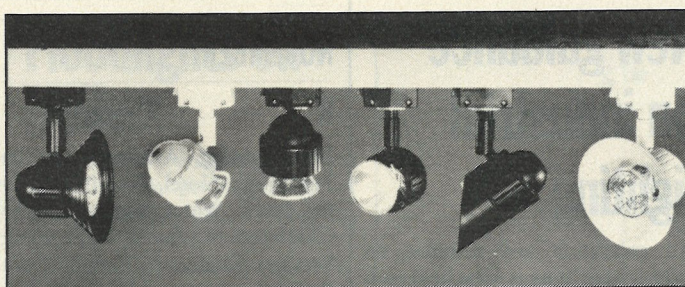
The Ultralux range of downlights and spotlights made by AEG Lighting has been completely updated and extended.

The units have undergone restyling to accommodate single-

ended metal halide and Superspot low voltage lamps with a full range of attachments available, including barn doors, baffles and filters.

There are surface and track mounting models for use where display lighting with good colour rendering is essential, for example in shops, displays and exhibitions.

Reader Service No. 155



Capella and Titus spotlights

Microlights Ltd has widened its range of low voltage spotlights. The new models, Capella and Titus, have a softer look with rounded corners and edges.

Titus is available in four versions: with a stepped flared cowl, a smooth cowl, a parallel spinning cut off at an angle of 45°, or with-

out a cowl.

Lamps rated at up to 50W are used. Titus operates off a remotely mounted transformer.

Capella is designed for use with Wotan's Halo Star lamp in ratings of either 50, 75 or 100W. It gives a powerful light, suitable for retail display areas where there is a high ceiling. There are versions for use with either remote or integral transformers, and a colour choice of black or white.

Reader Service No. 156

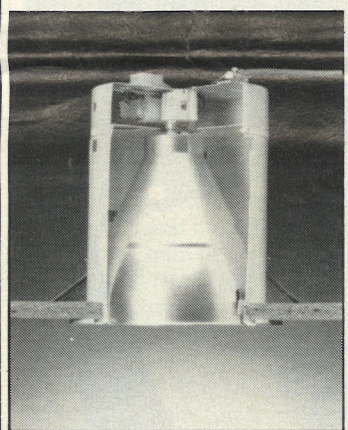
Energy saving downlights

The Plus Program of PL/Dulux compact fluorescent downlights has been introduced by Centec Lighting Ltd.

It is based on the FLI series with a number of additions and improvements.

The fully recessed unit can be converted to a semi-recessed luminaire by the use of the Plus-Minus accessory. The surface mounted version is also available as a pendant, and there is a wallwasher and emergency conversion pack.

Reflectors are either gold or silver coloured. Lampways offered



are from 1 x 5W to 1 x 18W and a version using three 9W lamps. Three body sizes fit cut-outs of 110, 150 and 185mm diameter.

Reader Service No. 158

Candle lamps give charming light

Crompton Lighting's Charmlight candle lamps are available in five pastel shades of pink, blue, green, yellow and peach. The new colour

range has been developed to create an appropriate mood for lighting in restaurants, clubs, hotels, the home and any other area where discreet colour co-ordination is required.

All the lamps are rated at 40W and have bayonet caps. They are packed in pairs, either in cartons or slotted blister packs suitable for dispenser displays.

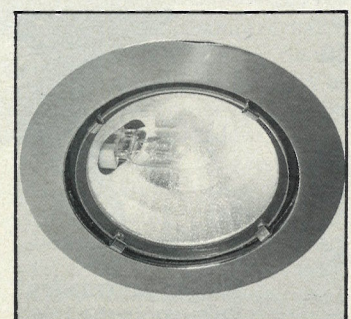
Reader Service No. 159

Metal halide luminaires

A sturdily designed range of metal halide luminaires for single-ended and double-ended lamps has been launched by Prima Lighting Ltd.

The range consists of ceiling mounted projectors with either integral or remotely mounted control gear, fully recessed fittings adjustable to 25°, a spotlight with integral control gear and a compact, round, recessed fitting adjustable to 30°.

Every fitting is supplied com-



plete with a safety glass. Barn doors, gold coloured reflectors and anti-dazzle louvers can also be supplied on request for selected models.

Reader Service No. 160

COMMENT

You can please some of the people some of the time

This is the season when the coming year's editorial plans are drawn up and your editor's hair grows progressively whiter. Quite a simple task, I hear you say. Think of your readership — what interests them and what they need to know — and plan accordingly. For journals with readerships more homogeneous than our own this may well be all the advice that is needed. But *Lighting Equipment News* is aimed at a broad spectrum of people involved in lighting — specifiers, installers, distributors and manufacturers. All have very different interests and technical knowledge of a very different order.

The most recent readership breakdown shows approximately one third of readers are professional specifiers in private practice — architects, designers and consulting engineers — with a further 12% in similar positions in government or local authorities. Contractors, wholesalers and retailers account for a further third with industrial users of various kinds forming 13% of the readership. Lamp and luminaire manufacturers amount to some 9% of total circulation.

This is by way of a preface to saying don't expect everything within our pages to be of equal interest to you. All we can hope to do is to select features with an eye to ensuring that at least two thirds of the content in any issue should appeal to any of the major groups of readers.

As with topic, so with level. A newly employed architectural graduate with only, say, 40 hours of lighting study behind him will look for and, occasionally, find articles outlining basic lighting theory. Those established in industry, by contrast, look for informed discussion on the major issues confronting the lighting world.

With the latter group particularly in mind, we hope to introduce a series of topical features under the heading of 'Briefings'. The intention here is to appeal to a specific group — be it manufacturers, designers or lighting engineers — and look at the problems confronting it. Examples under consideration include product liability, the impact of 1992 and selling professional services abroad.

Finally, if you like what we give you, let us know. If nothing else it makes the task of reading the morning post a much pleasanter one. If you feel something is missing, again let us know. Constructive suggestions are always welcome.

But — in either case — be prepared for the editor to come back with the excuse:

You can't please all the people all of the time.

LIGHTING EQUIPMENT NEWS

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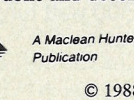
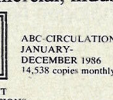
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NEWS

Silver Lightshow

To commemorate Lightshow's 25th anniversary the Decorative Lighting Association has commissioned 6200 silver medallions. The show will take place at Olympia, London, from 15 to 19 January.

The medallions are being specially struck at the Birmingham Mint, Britain's oldest commercial mint, and are likely to become collectable memorabilia in the decorative lighting industry.

DLA president, Brian Godwin, and director and Lightshow organ-

iser, John Tengwall, were at the mint to see the first medal struck.

For the first time, the National Hall's Apex area will be used for stands in addition to the main hall and first floor. "It's a significant expansion and is particularly encouraging on the show's 25th anniversary," said John Tengwall.

With the British lighting industry in a boom period, the organisers are confident that the 25th anniversary show will attract more visitors than ever.

Interior design in the North

The first Northern Interior Design Conference, which will take place in Manchester on 15 and 16 November, will include a session on lighting.

Speakers will be Janet Turner, Concord Lighting Ltd, Rodney Cooper, BDP Design, Peter Hucks, Coombs Associates, and Jonathan Speirs, Lighting Design Partnership.

Other sessions will deal with space planning, cost and selection, and interior design in the leisure environment.

New guidance on industrial lighting

An exhibition and seminar on industrial lighting is to be held on 6 January at the University of Manchester Institute of Science and Technology.

It has been arranged by The Chartered Institution of Building Services Engineers to launch its latest publication, *Guide to industrial lighting*.

Major manufacturers of industrial lighting, such as Simplex, Crompton, Thorn, Thorpe and Holophane have already booked space in the exhibition.

Registration fee for the seminar is £25 plus VAT. For further information contact the member services department, CIBSE, 222 Balham High Road, London SW12 9BS.

DIARY

NOVEMBER

8

Floodlighting. A meeting at the Post House Hotel, Cardiff, held by the South Wales Region of The Chartered Institution of Building Services Engineers. Details from regional secretary, H J Doolan, 0222 569241.

In the morning light. Address by new chairman of CIBSE Lighting Division. Evening meeting arranged by CIBSE South West Region at Holbourne, Bath. Details from regional secretary, D Lowdon, 0272 279419.

10

Lighting columns — design, finish and quality assurance. A meeting arranged by London and South Eastern Region of the Institution of Lighting Engineers at the Post House Hotel, Brentwood. Details from regional secretary F P Ramsay, 0920 870567.

Modern lighting at work. One-day conference at the Hilton International Hotel, Brussels, organised by the European Lighting Council. Details from ELC secretary general, Dr J C Ramaer, telephone (32) 2.657.4361, Hoeilaart, Belgium.

15-16

Northern Interior Design Conference at the Holiday Inn, Manchester. Details from AGB Exhibitions Ltd 01-868 4499.

15-17

Northern Interior Design Exhibition at the Greater Manchester Exhibition Centre. Details from AGB as above.

17

An audit view of public lighting. A paper presented by a representative of the Audit Commission at an afternoon meeting in Prestwich of the Northern Region of the Institution of Lighting Engineers. Details from J Brewis, 0484 22133.

Lamp developments. An evening meeting arranged by the North Eastern Region of the ILE at Durham County Hall. Details from D J Plummer, 0670 361081.

Building now for 1992. One-day conference at the Queen Elizabeth II Conference Centre, London. Arranged by the Building Industry Council. Details from Joyce Ramsey, 0990 23355.

Computer aided lighting design. Technical evening in Dublin arranged by the Republic of Ireland Branch of CIBSE. Details from regional secretary, Oliver Reddy, c/o VRMA Consulting Engineers, Dartry Road, Dublin 6.

22

The benefits of the electronic lighting revolution. The Philips lecture, to be held at University College London. For an invitation write to David Loe, Bartlett School of Architecture and Planning, University College London, Wates House, 22 Gordon Street, London WC1H 0QB.

Energy-saving lighting. Joint paper presented by London and South East Region of CIBSE and the Institution of Electrical Engineers. Evening meeting to be held at the Crest Hotel, High Wycombe. Details from CIBSE area repre-

sentative, R Cleaver, 01-631 4733.

22-24

Electrical safety in hazardous areas. International conference at the Institution of Electrical Engineers, Savoy Place, London. Details from IEE, 01-240 1871.

23

Photo cells. A one-day seminar in the Birmingham area arranged by the Midland Region of the Institution of Lighting Engineers. Details from R B Simpson 0602 269711 extn 2243.

24

75 years of the world of lighting. An afternoon seminar arranged by the National Illumination Committee of GB on wide ranging lighting topics. The venue is CIBSE London headquarters. Details from Ian Davies, CIBSE, 01-675 5211.

Management of a low pressure sodium installation, and Contra candelas and their application. A meeting in Swindon arranged by the Western Region of the Institution of Lighting Engineers. Details from D Wilson 0272 266031 extn 686.

Application of computers to building services. Full day seminar in Dublin arranged by the Republic of Ireland Branch of The Chartered Institution of Building Services Engineers. Details from Oliver Reddy, VRMA Consulting Engineers, Dartry Road, Dublin 6.

29

Hospital lighting: clearing the confusion. Afternoon seminar at the Crest Hotel, Coventry, arranged by CIBSE Lighting Division. Details from CIBSE, 01-675 5211.

The design of atria. Evening meeting held by the Scottish Region of the CIBSE at RIAS, Edinburgh. Details from R S Webb, 031-449 5111 extn. 4619.

DECEMBER

5

Lighting for people. A meeting at the Civic Centre, Hounslow, arranged by the London and South Eastern Region of the ILG. Details from F P Ramsay 0920 870567.

TWO GREAT CREATIONS

BOTH DESIGNED TO OPERATE FROM DUSK TO DAWN.

STARMASTER PHOTOCELL OPERATED LUMINAIRE

70 Watt High Pressure Sodium for golden light Code CMS 70.
80 Watt Mercury Fluorescent for white light Code CMF 80.

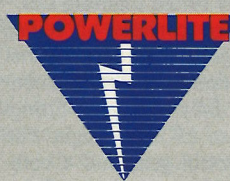
SECURITY

In the hours of darkness this automatic, Photocell operated luminaire combines low energy consumption with high light output.

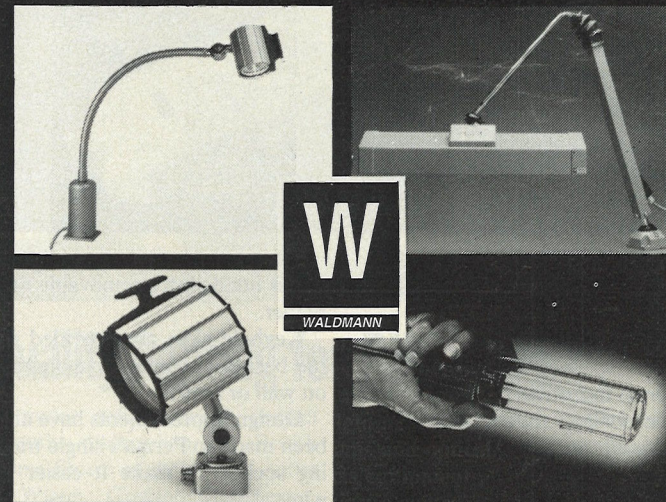
SAVING MONEY

- Save on buying new lamps — the 70 watt SON lamp lasts 5 times as long as the usual tungsten-halogen lamp.
- Save on labour charges — longer lamp life means less lamp replacements.
- Save on electricity charges — the POWERSON 70 is 70% cheaper to run than a 300 watt tungsten-halogen floodlight and gives a better light output.

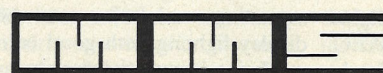
Available from leading wholesalers throughout the U.K.



TASK LIGHTING



The WALDMANN range of quality industrial luminaires offers over 100 standard models and 500 special variations. Waterproof (I.P 65) fluorescent and halogen. Available in a range of voltages from 12 volts to 240 volts. Full details from:



MIDLAND MACHINERY SERVICES

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NEW PRODUCTS



Light for workplaces

Decorative lighting fittings in glass and polished metal have been introduced by Poole Lighting Ltd for workplaces such as offices, hotels and public buildings.

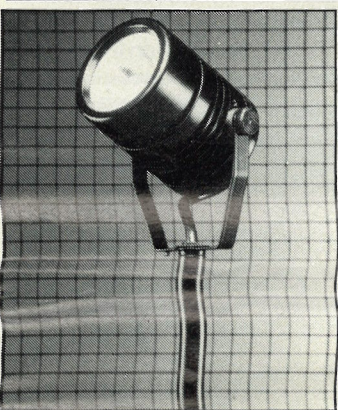
The 8000 series is available with frames in either brass or chromium plated finish. Shades are either white opal glass decorated with

matching brass or chromium rings, or are made of "flake stone", marbled effect glass.

There are different mounting arrangements for ceiling, wall and table fittings.

All versions take 60W golf ball lamps.

Reader Service No. 161



Miniature outdoor lights

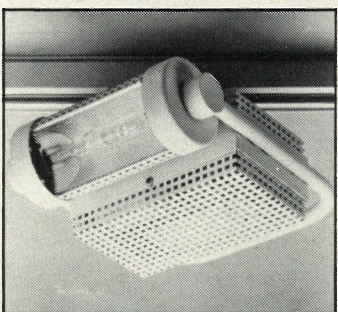
Light Projects Ltd has launched a range of exterior lights designed to accept low voltage, dichroic, multi-mirror reflector lamps rated from 20-50W.

This M16 range provides designers with very compact luminaires for highlighting architectural details, shrubs, trees, flower beds, fountains and exterior signage. Ingress protection rating is IP65.

Transformers are either remotely mounted or integral; there are also versions on extension arms and others with surface mounting plates or ground spikes.

Glare reducing tubes and coloured glass filters are available.

Reader Service No. 162



Metal halide indoor floodlight

A stylish metal halide luminaire with integral control gear, the TS Flood, has been introduced by Prima Lighting Ltd.

With the option of surface or track mounting, it provides power-

ful general lighting for retail, recreational or other public areas.

The 6000-hour nominal life of the metal halide lamp is maximised by separating it from the choke. There is a choice of silver or gold coloured reflectors.

A two-action movement gives maximum adjustability. The cylindrical lamp housing rotates vertically and the whole fitting can be horizontally rotated through 360°.

Both 70W and 150W ratings are available; the 70W version measures only 240mm long, 95mm high and 196mm wide.

Reader Service No. 164

For more information on any of the products listed above, circle the enquiry number on the free reader reply service card.

Floodlights on trailers

Two mobile floodlights have been added to the product range of Auriga Lighting and Mechanical Systems Ltd.

They are mounted on two-wheeled, rough terrain trailers stabilised with four extending outriggers.

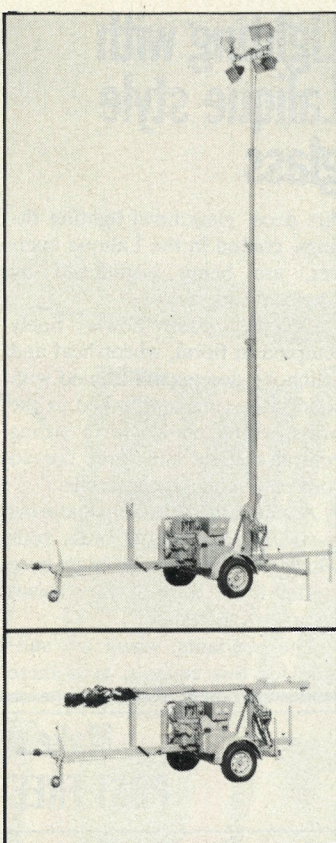
The telescopic steel masts are adjustable up to 9m and 12m respectively.

A detachable lighting gallery carries the floodlights. The 9m model uses either two or four tungsten halogen 1500W luminaires; the 12m version accepts either four 400W high pressure sodium units, or four 1500W tungsten halogen floodlights.

Each luminaire is adjustable through 360° horizontally and up to 170° vertically.

Trailers have compact operating dimensions and each model is complete with diesel engine generator.

Reader Service No. 165



Controller for building services

JEL Energy Conservation Services Ltd has launched the JEL UC8000 Universal Controller, a versatile stand-alone DDC (direct digital control) controller suitable for a wide range of building services applications.

The UC8000 combines the flexibility of a fully programmable controller with the simple-to-use format of a dedicated DDC controller. It can function either as a stand-alone controller, or as an intelligent outstation for any of

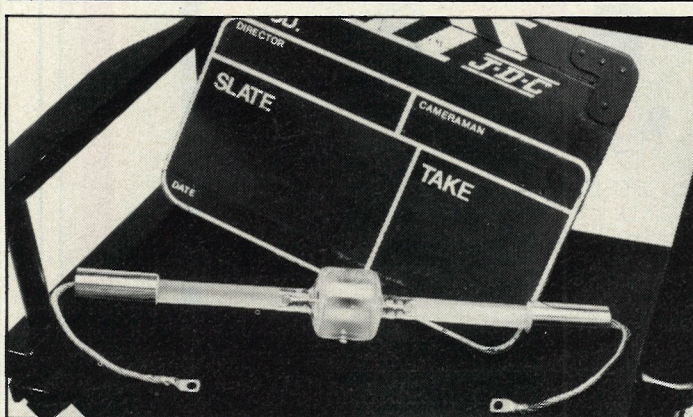
JEL's building management systems.

Information is presented to users in a clearly understandable way and there are extensive data recording facilities.

Plug-in and interface modules have been designed to allow the UC8000 to interface to over 150 different sensory devices, and make it possible to expand the basic 24 point controller to cater for up to 96 points. This allows its configuration to match individual requirements.

The modules provide a wide range of control functions, including lighting control.

Reader Service No. 166



High light output for TV and films

GEC has expanded its range of MEI lamps with the introduction of two 12kW versions.

Designed to provide high quality studio and outside broadcast lighting for TV and film production, the lamps are the most powerful in GEC's MEI range, with a light output greater than one million lumens.

The two versions, a 160V low voltage, and a 180V with Super-cool leads, have a life of 250 hours

and colour temperature of 6000K, making them suitable for simulating daylight in a studio. They are also appropriate for infill lighting to reduce harsh shadows.

Both lamps are constructed using the GEC Coolseal principle, which involves etching the seal surface to ensure effective heat dispersion. This leads to a reduction in temperature at the end of the molybdenum seal, increases lamp life and gives a more reliable performance.

When used with the appropriate ignitor, both lamps have hot restrike.

Reader Service No. 167

LIF LINE

LIF — What's in it for you?

A year or two back, there was a TV advertisement with the memorable tag-line "It's good to know that you belong".

It's a comforting thought, isn't it, evoking feelings of shared experience, shared expertise, benefits to be derived from working together towards common goals for the good of our industry.

For example, are you doing anything about 1992? **LIF is.** Are you involved in the campaign to help revive our inner cities through more and better public lighting? **LIF members are.** Do you have regular access to reliable market statistics, based on actual figures supplied from within the industry? **LIF members are.**

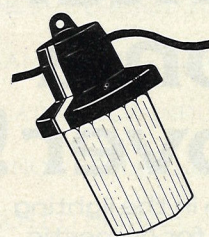
If you are a lighting manufacturer who doesn't belong to his Trade Association, LIF advises that you take note of this brief summary of the advantages of LIF membership and then give us a call. We'll do the rest.

Advantages of membership:

- Know the competition; meet potential customers: spot business opportunities.
- Know your market: assess your own true position in the market; regular access to hard market data.
- Talk to government: LIF has a constructive, on-going dialogue with government, potentially our industry's biggest customer
- Train your staff: LIF's courses are tailor-made for the industry — how do your staff rate?
- Protect yourself against unwelcome developments: LIF is the voice of the lighting industry in confronting, for instance, onerous contract conditions, technical problems arising from "non-lighting" products, allegations against lighting, often ill-informed.

If you're still reading this, you're probably a member of the LIF secretariat or maybe one of those manufacturers with some nagging doubts about whether you're really "in the know" as to what your own standing in the marketplace is, what's just around the corner that you might be unprepared for, what business opportunity is going to pass you by. If that's you, your next move is get in touch with LIF (Tel: 01-6675 5432) and begin to remove those doubts.

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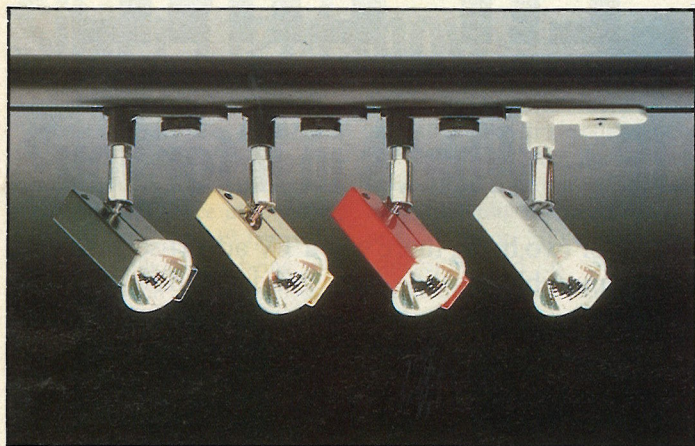
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NEW PRODUCTS



Easy to relamp

Profile is a low voltage spotlight which is very easy to relamp. It has been introduced by Light Years and is suitable for use on the company's low voltage Mini and Tube tracks. A surface mounting model is also available.

The spotlight housing pulls open lengthways for simple and

quick replacement of the lamp, which can be either a 20W, 50W or 75W M16 quartz halogen type.

There is a choice of five colours for the housing: gloss white, gloss black, polished silver, polished gold and red.

Reader Service No. 168

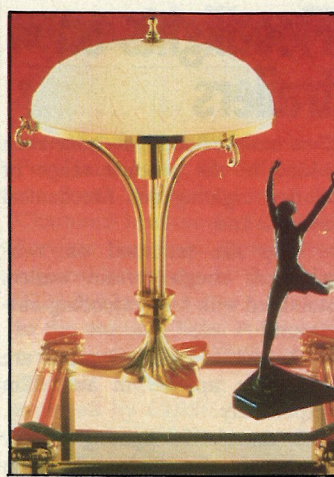
Lighting with Lalique style glass

Art deco, glass bowl lighting fittings, crafted in the Lalique manner, are being introduced by Chelsom Ltd.

Opaque glass bowls finely sculpted in floral, wheat sheaf and artichoke designs are framed with solid brass rims and linked to the brass ceiling plate with a strong central column and three curved rods ending in simple scrolls.

A matching table lamp featuring a stylised column of brass rods which flow into a solid brass base crafted in the form of three leaves completes the range.

The pendants, which are suitable for low ceilings, take three



60W GLS lamps and have a diameter of 320mm and a height of 300mm.

The table lamp uses one 60W lamp, has a diameter of 320mm and a height of 450mm.

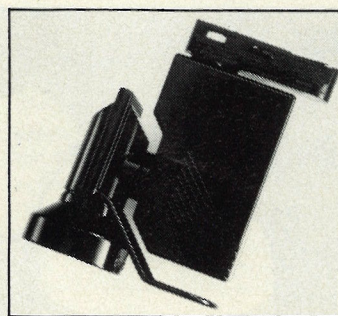
Reader Service No. 171

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Tiny Torch spotlight

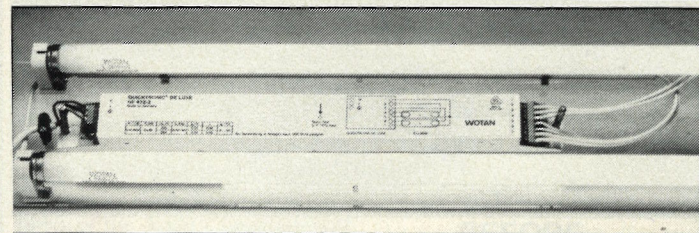
A tiny low voltage spotlight called Torch 50 has been introduced by Concord Lighting Ltd. It has a die-cast aluminium housing in satin black or white with an overall size of 107 x 99 x 32mm. Weight is 360g. The fail-safe electronic transformer is encapsulated.

There are versions for track and surface mounting. It uses 12V tungsten halogen lamps rated at



either 20W, 35W or 50W, with dichroic reflectors and glass, sealed fronts.

Reader Service No. 174



Energy savings from new ballast

A new energy saving, electronic, high frequency ballast for operating fluorescent lamps, the Quicktronic De Luxe, is available from Wotan Lamps Ltd.

Quicktronic De Luxe saves energy in two ways, says Wotan: by reducing the power consumption of the lamps from, for example, 58W to 50W; and by reducing

the power losses of the ballast from, say 13W to 5W.

Despite these power savings, the luminous flux remains almost unchanged, even when there are large fluctuations in supply voltage. A built-in voltage stabiliser makes the unit suitable for voltages from 200V to 255V a.c. as well as d.c.

The self-contained unit is compact and lightweight and easily included in modern, slimline luminaires.

Reader Service No. 175



Additions to Lytetube system

A low voltage spotlight module has been added to the Lytetube 75 tubular lighting system by Concord Lighting Ltd.

It consists of Tiller spotlights with transformers mounted within the Lytetube. Three versions are available: a two-spotlight module 256mm long; one with four spotlights, which is 1255mm long, and an eight-light module which is also

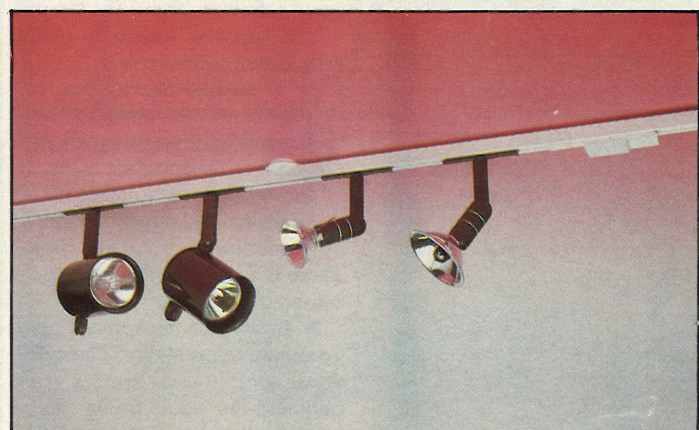
1255mm in length.

A tungsten halogen floodlight module is another addition. This uses a 200W linear lamp in a 256mm long module with a diffuser.

Because of Lytetube's ability to be rotated through 360° in increments of 22.5°, this module can be used for uplighting, downlighting, wallwashing or to highlight a particular feature or display. Barndoors are an optional extra.

A flexible coupler has also been introduced in white, red or black.

Reader Service No. 176



Miniature track system

A miniature low voltage lighting track 14mm square has been introduced by Osram-GEC Ltd. Made of aluminium finished white, it is available in 1m and 1.5m lengths.

There are four spotlights in two

shapes, Bullet, a slim design, and Tube a wider cylindrical shape. They each accept lamps up to 50W and are adjustable through 360° horizontally and up to 90° vertically.

The system is called Dimension Twelve and it complements the company's recently introduced downlight range.

Reader Service No. 177

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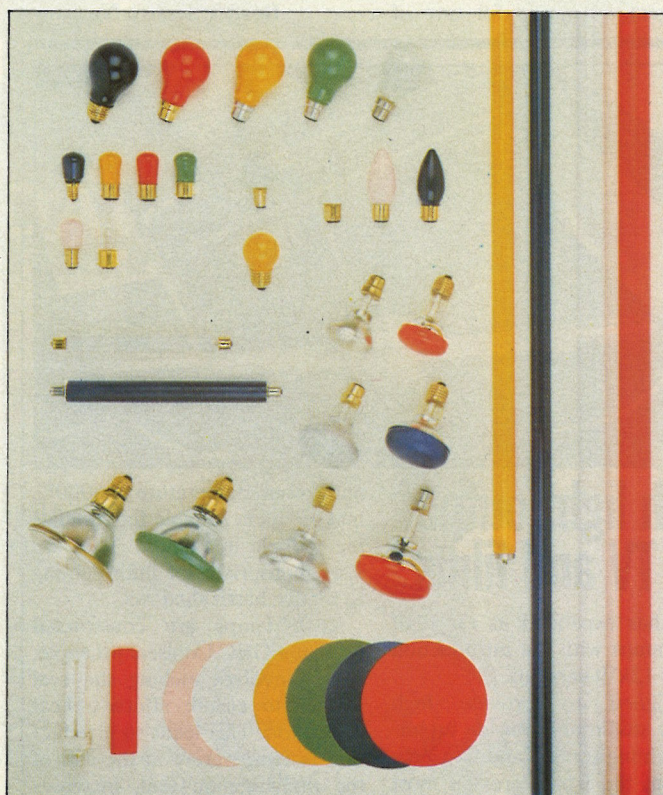
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Reader Service No. 7

Page 6

Lighting Equipment News, November 1988

Popular Art



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Because it is the perfect meeting place for creative design where all the latest trends in traditional and contemporary decorative lighting are to be found.

Because it is the perfect meeting place for the trade and brings together all those involved.

* Saturday 14 January Open Day

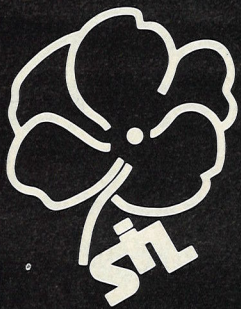
Because it takes place within the framework of Perspectives, the worldwide week for equipping and decorating the home.

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** 1988 figures

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Creation Studio CFE

Fibre optics come of age

The introduction of a standard range of luminaires for fibre optic lighting means that this technique can now be used more widely. *LEN* reports on the latest developments.

Now that a range of lighting fittings is available off the shelf for use with fibre optics, this lighting technique can be said to have come of age.

Four sub-miniature downlights and a recessed eyeball spotlight are available from Applied Lighting Technology plc (previously called Lighting Developments Ltd). They are so small they look like lights for dolls houses.

One is a fixed downlight, another is a downlight with an adjustable lens on a screwthread to permit the light beam to be varied between 52° and 30° to highlight small objects.

There is a directionally adjustable downlight, fully recessed above a plate with a slot in it, and finally a lensed version of this.

The tiny eyeball spotlight also has a lens.

Three standard fibre optic harnesses are available: one with six 2m long tails, one with six 3m tails, and a third with 12 tails 3m long. In all cases, each tail has a light transmitting diameter of 6mm.

Non-standard harnesses can be provided, but the company finds these three between them are suitable for 90% of applications.

Two light boxes, or projectors, are produced. One uses a 100W M28 low voltage tungsten halogen lamp and has a transformer in a separate housing. The other uses a 150W metal halide lamp with, in this case, control gear for the lamp in a separate box.

A mechanical dimming facility is available.

Photometric data for the various fittings and alternative lamps is given in a new catalogue from Applied Lighting Technology.

Advantages

Fibre optic lighting is not cheap, light projectors are priced from £250, harnesses from £450 and luminaires from £4, but it offers advantages and solutions to designers of lighting installations.

Principally, the miniaturisation is something that other types of lighting cannot compete with. This makes it particularly suitable for buildings of architectural merit, and very small spaces where it is difficult to accommodate normal sized luminaires.

The equipment is easy to install, it is simply plugged into a 13A socket outlet and is just as easy to relocate.

Because one lamp feeds 6-12

luminaires, running costs are lower than with conventional lighting and so are maintenance costs.

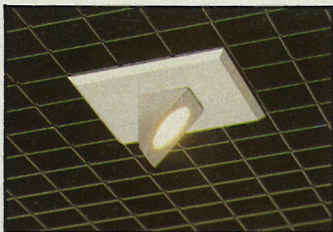
An important advantage for museums and art galleries, where conservation is always one of the priorities, is that there is virtually no ultra-violet radiation and near infra-red radiation is also removed by using optical fibre.

In other buildings, at this stage of its development, fibre optic lighting primarily provides mood and accent lighting.

In residential applications, fibre optics can be used in decorative niches to light objects d'art and add a "starlight" effect.

Because the light source is located remotely, fibre optic lighting is safe in bathrooms. The light box can be in the ceiling void or outside the bathroom altogether.

In retail displays, the lack of heat is advantageous for food such



Downlight plus 45° cowl used in louvres in the top of a display cabinet.



Small niche with recessed fibre optic lighting.

as fish or chocolates. Problems of heat built-up in enclosed glass cabinets are avoided and it is particularly appropriate where valuable items are being displayed because it is not necessary to unlock the cabinet to replace a lamp.

The fixed, unlensed downlight, which is on a ceiling plate with an outside diameter of only 25mm, can be used over restaurant tables.

Installations completed to-date in buildings where the architectural detail must not be obscured or damaged, include spotlights recessed between the ceiling moulding to light a tapestry at the headquarter of Polly Peck International plc.

At the Goldsmiths Hall in London, similar spotlights have been inserted inconspicuously into the



Fibre optic spotlights recessed between ceiling moulding at Polly Peck International.

ceiling rose of a chandelier.

Another chandelier installation is in The Queen's House at the National Maritime Museum, Greenwich. Here, the fibre optic tails have been fed through the arms of a chandelier to position the spotlights in the candle drip trays in order to light pictures.

Special lighting fittings are available for museum cabinets. These are used in very small, egg-cell louvres and the angle of the light beam can be adjusted.

Other applications which Applied Lighting Technology foresee are in aquaria, showers, whirlpool baths and for emergency lighting. New uses are continually being found.

The company predicts that within five years fibre optics will be a major tool in display lighting in the high street.

It is continuing to work on methods of transmitting light even more efficiently along optical fibres and is looking at the use of new light sources.

Applied Lighting Technology plc is at Southbank Technopark, 90 London Road, London SE1 6LN.

2.0M TAIL 100W TH PROJECTOR
COLOUR TEMPERATURE 2680K

M	70°	BEAM ØM	LUX
0.5		0.7	281
1.0		1.4	73
2.0		2.8	17
3.0		4.2	7
4.0		5.6	4
5.0		6.9	3

LUX VALUES ARE BASED ON AVERAGE READINGS
TAKEN FROM ONE 6mm OPTICAL DIAMETER FIBRE WITHOUT A LENS

2.0M TAIL WITH LENS - 100W TH

M	MAX BEAM 52° BEAM ØM	LUX	MIN BEAM 30° BEAM ØM	LUX
0.5	0.47	276	0.24	926
1.0	0.97	70	0.54	236
2.0	1.9	18	1.1	59
3.0	2.9	9	1.6	26
4.0	3.9	5	2.1	16
5.0	4.9	4	2.7	10

LUX VALUES ARE BASED ON AVERAGE READINGS TAKEN FROM
ONE 6mm OPTICAL DIAMETER FIBRE INCORPORATING A LENS

Examples of photometric data available, in this case for 2m long tails using low voltage tungsten halogen lamps.

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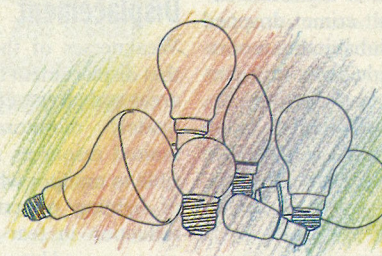
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Lighting beats crime

LEN looks at the recently published results of the Edmonton study.

The first independent UK analysis into the effects of lighting on crime in urban areas has been published by the Centre for Criminology and Police Studies at Middlesex Polytechnic. The project was primarily concerned with examining the extent to which improved lighting reduced the incidence and fear of crime and harassment.

The area chosen for the project was Edmonton Green in North London, an outer city residential area. Attention was focused on a badly lit street offering opportunities for crime to occur.

Local people were questioned about their experience of crime both before and after the installation of improved street lighting.

Specific crimes examined were autocrime and violent crime, including robbery and physical and sexual assault. Harassment was also included as this was recognised to contribute to a feel-

to four areas of concern in crime prevention:

- A lack of research into the relationship between lighting and crime.

- A growing interest in the possibilities of reducing crime through changes in environmental design.

- Increasing public concern and fear of violent crime.

- A recognition of the need to develop an inter-agency approach to crime prevention.

Previously the only figures available in this field had all been gathered from the other side of the Atlantic, where social conditions are somewhat different.

The site was clearly demarcated. It comprised Salisbury Road from its junction with Victoria Road to the left hand bend near the railway (some 200 metres) and then a 30 metre length of path to a rail overbridge. This leads to Bridge Road, a side road which in 50m joins the main roads of Fore Street and The Broadway. The advantages of restricting the project for analysis was that the relationship between lighting, crime and harassment and fear could be efficiently managed, controlled and monitored.

Although over 80% of interviews took place after dark between 5.00pm and midnight, some daytime interviews were included to take account of the experiences of people who seldom or never went out at night.

The project adopted a multi-agency approach to crime prevention. For instance, in order to eliminate other variables it was essential to maintain a strictly controlled environment. So police kept their level of patrolling constant, the local authority delayed building work scheduled to begin during experimental period and, after installation, the borough engineer's department checked the lighting each day during the six week period to monitor efficient maintenance.

Displacement

Weaknesses of the scheme were that displacement of crime to other areas and targets could not be adequately monitored, and that limited resources made it impossible to monitor whether the effect of lighting on crime levels and reduction in fear were sustained over a period beyond the six-week experiment.

'The apparent lack of central government interest in the relationship between lighting and crime stands in stark contrast to the concerns of ordinary people.'

ing of personal insecurity and dissatisfaction with a neighbourhood.

Interviews conducted prior to relighting disclosed high levels of violence and, especially among women, fear of physical attack. A total of 21 incidents of assault, autocrime and threats were reported during the six-week period prior to upgrading street lighting.

When questioned again six weeks after the level of road lighting had been boosted almost four-fold, 85% of those questioned thought that fear of crime had decreased. Actual crime dropped too, with local inhabitants reporting only three incidents in a corresponding six week period. So, effectively, the chances of being victimised fell from 1 in 10 to 1 in 50 because of better street lighting.

Crime prevention

The project, sponsored by Thorn Lighting, originated as a response



Salisbury Road, showing the tower blocks of the housing estate.

The overwhelming majority of women questioned (86%) feared sexual assault. Three quarters of them would only go out at night if accompanied, and 46% avoided going out at night altogether. Overall, 65% of all respondents said they feared for their personal safety and nearly two thirds avoided areas within a five minute

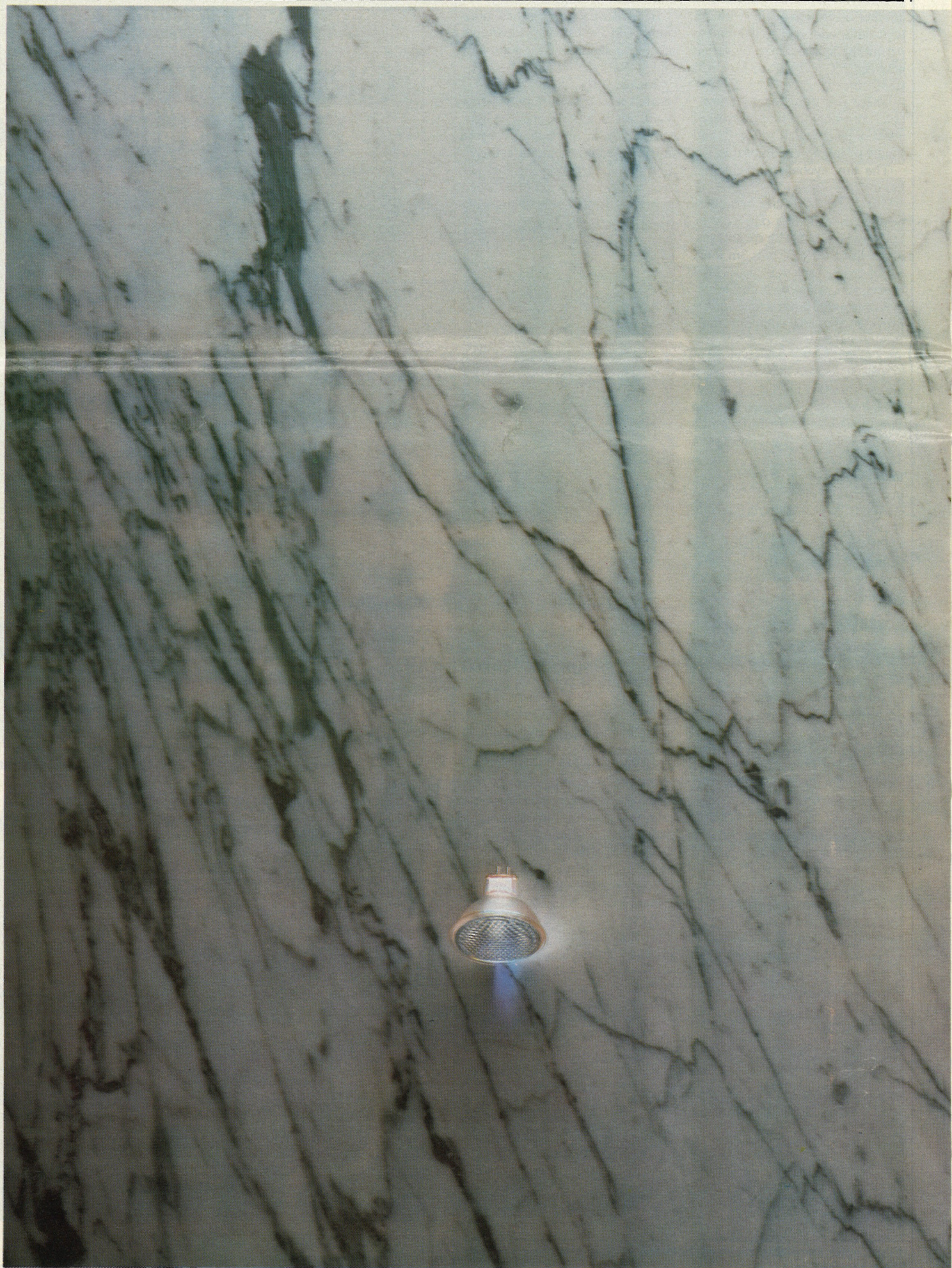
'Concern about criminal victimisation clearly undermines the quality of life for men and women, but its impact on women's lifestyles is profound.'

walk of the interview point after dark.

As a result of their fears, a high proportion of women in the area (some 29%) had taken to carrying implements for personal protection. These included knives, scissors, sprays, bleach and long-handled combs. As carrying these implements could be considered illegal if the intention was to use



View along Salisbury Road towards the path and railway bridge.



them as a weapon, 35% of women refused to answer this question for fear of prosecution. Other — less controversial — strategies included wearing flat shoes, taking self-defence lessons and limiting the cash and possessions they carried about their person.

Moreover, women were not the only group who felt the need to carry an object as protection. The impression given was of quite ordinary men and women of all ages adopting individualist crime prevention behaviour. As the report emphasises, "It seems that if people's public safety cannot be guaranteed by the police and local authority citizens take personal responsibility for their own protection by carrying some form of weapon".

Harassment

An attempt to have women interviewers patrolling alone on the street to midnight had to be abandoned because of the high levels of harassment they experienced, and male colleagues had to be detailed to accompany them.

Police patrols emerge as the clear favourite in public opinion as

to what will do most to reduce crime. This option is favoured by 50% of both men and women. However, 32% of respondents put street lighting as a second choice; although this alternative was more popular with women (36%) than with men (20%). Police patrols and better lighting are similarly seen as the best means of increasing women's safety. Thus, the

'Bad news spreads quickly and extensively, heightening fear of crime within a locality.'

public undoubtedly perceive that lighting is an important crime prevention strategy.

One factor that emerged was the importance of uniform lighting. Public safety is seen to be diminished if surrounding trees or buildings cast shadows around well-lit areas.

Sixty nine per cent of those questioned after the installation of new lighting had noticed the



The path to Salisbury Road — a dark area even by day.

by 80W mercury post top fittings. Within the time scale envisaged it would not have been feasible to lay new cables or change column positions or lantern mounting heights. So, the existing low pressure sodium installation was simply replaced by Thorn 100W and 150W high pressure sodium lanterns respectively.

After relighting, the highest category of lighting level in the new proposed BS 5489: Part 3: Code of Practice for Lighting Residential Roads was substantially met over the study area and only three measurements out of 120 taken failed to meet the proposed 5 lux minimum illuminance. Although the new scheme has a greater power consumption — the

'Lighting makes a vital contribution on all fronts — it improves the look of an area, it encourages people to use the streets, it enhances public safety. As this project demonstrates it can and does reduce crime.'

change. Women were more alert to the change than men (82%, compared with 63% of men) which seemed to suggest they continually monitor their surroundings for safe and unsafe places to walk. Women were also found to be much more positive in their appraisal of lighting than men.

Of those that noticed the change in the lighting: 99% thought it was brighter; 97% thought it was easier to recognise people; 82% thought it was better maintained; and 65% thought it cast less shadows. In terms of quality of light, orange lighting was generally perceived to give out a poor light. The overwhelming majority (82%) preferred the white light emitted by high pressure sodium.

The route was used by people travelling to and from a high street to a large housing estate of tower blocks. The area itself houses a well established community: 94% of those interviewed lived within 5 minutes of the interview point, and many had lived in the area for a long period of time. The majority of people (84%) used the route regularly in spite of poor street lighting because it provided a quick way home and the safest

level on Salisbury Road has doubled — by the same token lighting levels have increased over four times.

Researchers found that in the 12 months immediately leading up to the study, 41% of locals questioned had been victims of some form of harassment, physical attack or autocrime and 9% had been victimised more than once. A further 29% reported that a member of their household had been victimised in this way. Contrary to figures from national firm surveys, it was shown that women in this particular area were more likely to be threatened, pestered and insulted than men, although there was an equal chance of physical attack.

Public perception

Not only did actual crime fall, improved lighting positively affected public perceptions of crime levels. Two thirds of those interviewed felt that people being threatened and pestered had decreased; 54% thought that physical and sexual assault had decreased; two thirds thought that lighting had increased pedestrian traffic; and a massive 85% thought that fear of crime had decreased.

Overall then, the report indicates that improved lighting can dramatically, and at low cost, reduce crime and the fear of crime within a community. According to Middlesex Polytechnic research officer Kate Painter, the report's author, "Lighting makes a vital contribution on all fronts — it improves the look of an area; it encourages people to use the streets; it enhances public safety. As this project demonstrates it can and does reduce crime."

'Risks and fear of crime are major contributors to inner and outer city decay. Combined, they segregate communities and isolate individuals, imprisoning them within their homes.'

route involved making a long detour along a well lit main road.

Originally the route was poorly lit: the road by 35W low pressure sodium lanterns, and the footpath

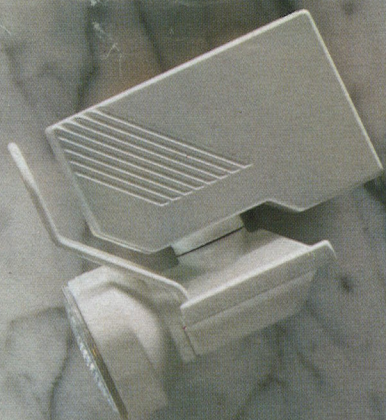


View from Bridge Road under the railway bridge by night.

THE BLACK



THE WHITE



THE GREY MATTER



Torch. Clever, capable, classic.

A tiny low voltage spotlight for track or surface connection, that accepts the 20/35/50 watt Tru-Aim Professional dichroic lamp.

A die-cast housing containing fail-safe electronic circuitry — total weight 360 grammes, overall size 107 x 99 x 32 mm.

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Variety is the spice of light

As the speed of lamp innovations has increased in the last decade, so the number of applications in the field of original equipment manufacture has escalated, according to **Keith Neilson** of Philips Lighting.

A'nuts and bolts' lighting manufacturer expects to supply all industries from high tech to the most basic. He expects to have a huge variety of sizes and specifications to meet a massive range of applications and to have the technical expertise to advise on all these.

Similarly, lamp manufacturers supplying the original equipment manufacture (OEM) market need the expertise to cope with applications throughout the electromagnetic spectrum — extending from what are essentially chemical

‘Cosmetic sun tanning is not only a popular pastime . . . it also provides an extensive example of collaboration with OEMs’

reactions at the ultra-violet end of the spectrum, through the whole range of lamps for visible light, to heating in the infra-red wavelengths.

Applications include sun tanning, surgical techniques, gluing, printing, standard and non-standard lighting, automobiles, studio and theatre, dentistry, semiconductor manufacture, zone heating, cooking, paint drying, process heating — the list is endless. This article features some recent market developments in the original equipment manufacture world.

Cosmetic sun tanning is not only

Skin group	Brown targets/red limits		
	Session	Month	Year
Sensitive	10/8	80/70	400/300
Medium	10/10	80/80	400/400
Hardy	10/12	80/100	400/500

Brown targets and red limits.

a popular pastime, despite some ill-informed publicity by the popular press, it also provides an extensive example of collaboration with OEMs. It begins with fundamental appliance design guidance, both at development and during the experience curve. This includes such aspects as spacing, the appropriate gear — it is not standard — and lamp temperature control for optimum performance. Since the introduction of R-UVA lamps from Philips, reflector design is less of an issue, as the integral reflector provides a performance that is superior to external reflectors.

Procedures

One need, however, is to provide caring and sensible tanning procedures for users, based on UV measurement and tests. While this information is essentially the responsibility of the appliance manufacturer, lamp manufacturers clearly saw the need for collaboration. The result has been the introduction of a new quantitative system for sun tanning practices adopted by the UK industry this year.

The method has been given the acronym the BaR system, meaning Browns and Reds. Red units are a function of the medical science erythema (or burning) unit, called the MED (minimum erythema dose); while Browns are a function of the melanogenesis (or tanning) unit, the MMD (minimum melanogenesis dose). The definitions are based on the IEC curve for erythema and a similar curve for melanogenesis.

These units are given a practical meaning by translating them into recommended session, monthly

and annual doses for users' skin groups or relative sensitivity to the sun (see table).

At this stage the output of the appliance is measured in terms of Browns and Reds per unit time by an independent company and given a BaR rating. A virtue of the BaR system is that it can be universally applied.

Slide rule

Finally, users can employ a simple user-friendly slide rule calculator, not only to determine their tanning time, but also to keep a diary to ensure that they stay within the recommendations for Browns and Reds. And, since BaR ratings can be derived for all appliances, the Browns and Reds received from any appliance can be entered in the diary. This enables users to tan at home or in salons, and keep control of the doses received.

Hence, collaboration has provided sensible objectives and practices for end users so that they can "tan by numbers". It is a good example of the less obvious support that an OEM may require.

To progress from one sex sym-



Prototype automobile headlamp.

bol to another, the most exciting recent advance in automobile design has been the development of prototypes of small metal halide lamps for car headlights. Vehicle manufacturers can take advantage of a number of opportunities pres-

ented by this application. The essential features are that headlights can be made much smaller than normal and the wattage reduced to 35W in comparison with the 55W typically used in a double filament H4 (60/55) lamp.



It takes a long time to become a legend. It's not something that happens overnight.

Not only do you have to come on with the impact of a shooting star, but then you've got to stay on top without burning yourself out.

Lucalox made its debut two years before Sergeant Pepper.

And like all good legends it came on with a bang.

Light Years Away From Mercury

Suddenly here was a range of high pressure sodium lamps, light years away from mercury, that at once optimised light output, extended lamp life and — if that wasn't enough — also saved energy.

Uniquely designed, uniquely constructed

What made Lucalox so different was its unique construction. Unlike other high pressure lamps, the amalgam for Lucalox was kept in a reservoir *outside* the arc tube, and released into the arc stream *only as it was needed*.

As a result the voltage rises considerably slower, which is a critical point when you consider that

controlling voltage rise is the key to long life.

The American Lamp With The Great British Virtue

It also meant that the lamp was less likely to crack under pressure.

Many high pressure sodium lamps, particularly those used in street lighting, are prone to vibration by factors such as high winds.

With ordinary lamps there's always a danger of the amalgam splashing onto the electrodes which can cause 'blink-out'.

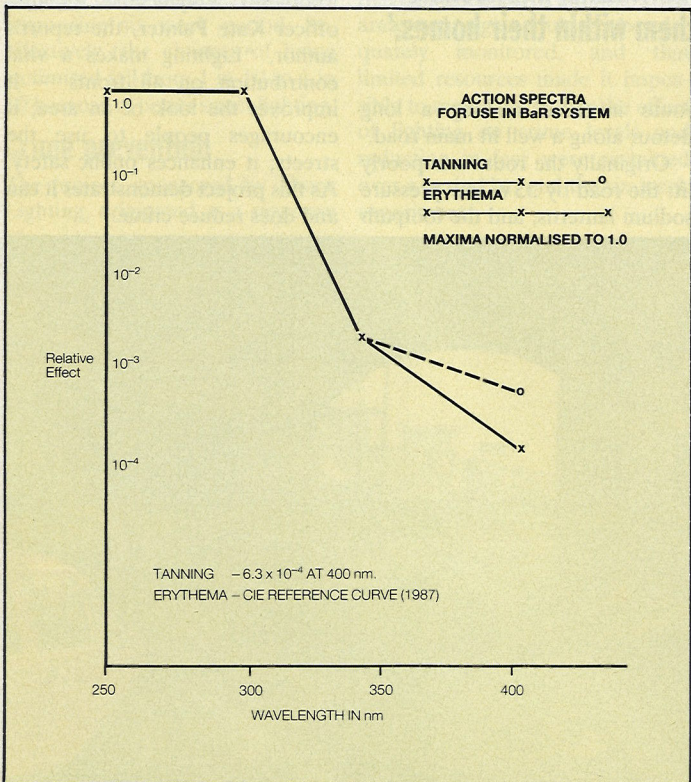
But this is far less likely to happen with Lucalox because since the amalgam is outside the arc, there's little chance of it coming into contact with the electrodes.

The Lamp That Can Cope With The Ups and Downs Of Factory Life

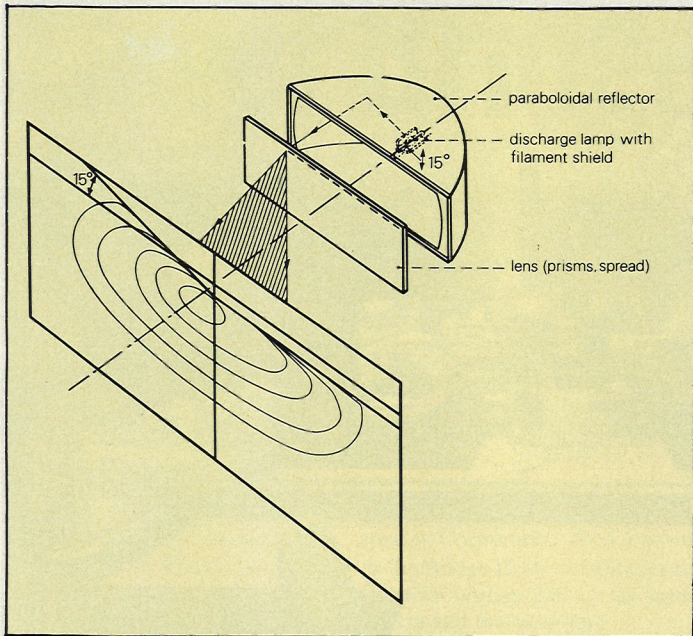
But being stable in high winds is one thing.

Coping with factory life is another.

This is important because variations in mains voltage will affect many high pressure lamps. And some lamps don't cope with it very well.



Action spectra for use in BaR system.



Optical diagram of prototype headlamp.

This reduction in size gives car stylists much greater freedom in designing cars with smoother lines, lower profile fronts and correspondingly lower drag coefficients. The resulting styling benefits, improved performance and potential economy in petrol consumption have excited the imagination of designers.

Less immediately obvious, but of great interest to electrical designers, is the potential that can be realised by the extra available

watts released by the high efficacy lamps. Here, as the available electrical power is already at a premium, the electrically powered add-ons demanded by users can be realised more easily. In addition,

‘This reduction in size gives car stylists much greater freedom to design cars with smoother lines’

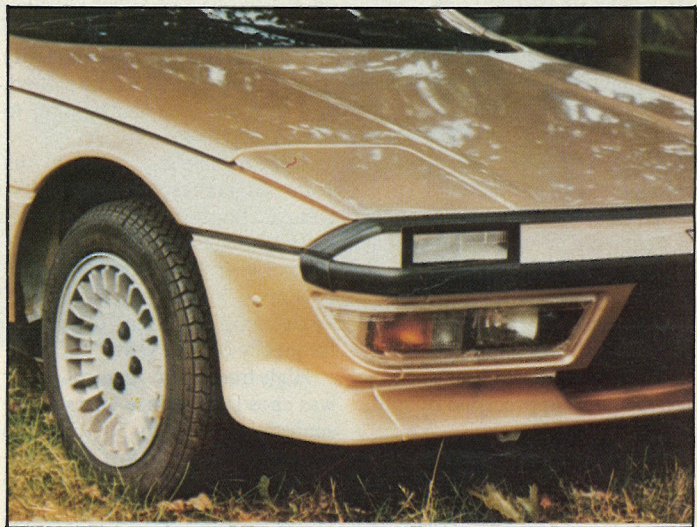
the “black box” development of the necessary lamp ignition characteristics has exercised their minds in a novel direction.

The new lamp has already been road tested in several international rallies where it was received enthusiastically. More importantly, con-

cept cars have already been developed without the need for pop-up headlights. But don't get too excited and demand the lamp immediately — like any external vehicle lamp, the Philips D1 needs to be accepted as complying with international regulations before it can be permitted legally on public roads.

Following a different tack, the contribution made by high powered quartz linear infra-red lamps is worth examining. Epitaxial reactors are used worldwide to make ICs. In simple terms, pure silicon or germanium wafers about 150mm in diameter are heated to about 1000°C in an oven. A gaseous atmosphere is introduced to provide the necessary ‘contaminants’ and the end result is some 500-1000 chips per wafer.

Heat is provided by about 70 IRK lamps, each 4.5 kW to 6kW. Other heat sources have been considered — and even used — but IRK short wave lamps provide the most attractive and economic solution. The principal need is for high efficiency, as the heat has to pass through a window in order not to introduce unwanted impurities in



Current 175mm, and future 100mm headlamps.

the highly controlled conditions. Here, the penetrating properties of short wave infra-red radiation are eminently suitable.

Other important considerations

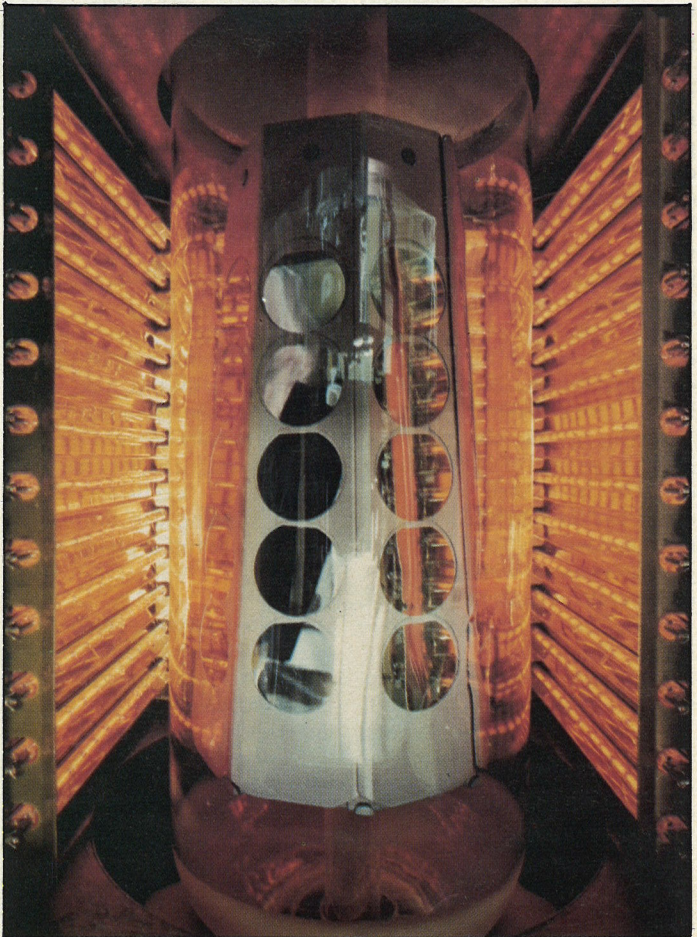
Not the least of the benefits of short wave lamps is that high power densities can be achieved to enable small, simple, and relatively cheap oven units to be made quickly. The simple nature of their construction also contributes to the ease of maintenance.

Competing systems include carbon rods which are slower because they rely on medium wave infra-red, and magnetrons which are much more expensive. In both cases the economics of the decision favours short wave lamps. Hence — and given the enormous and expanding demand for chips — it is not surprising that the linear IRK lamp has found a natural home in this field.

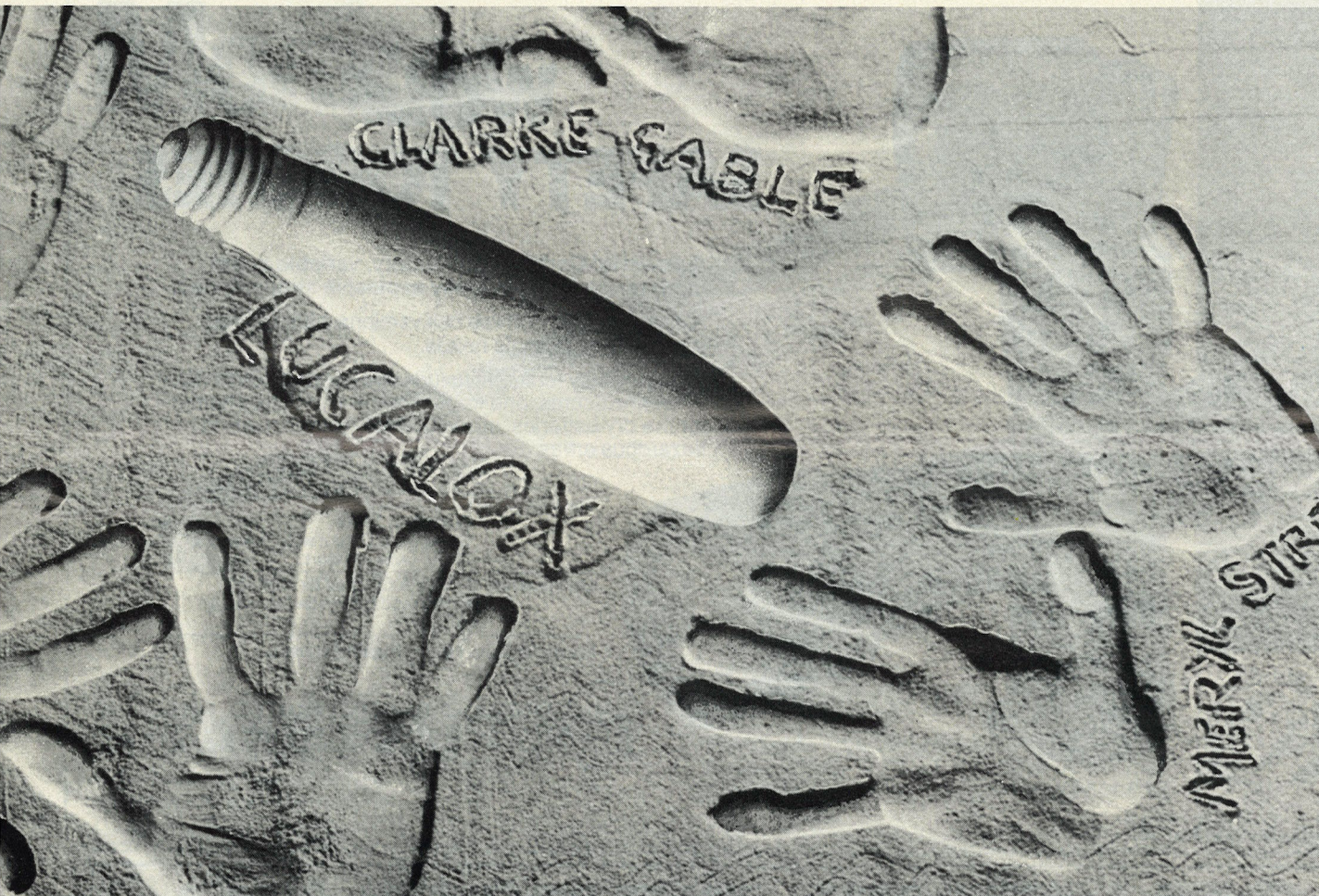
Reverting to our “nuts and bolts” lamp manufacturer, clearly the lamp OEM manufacturer has to cover at least as wide a variety of lighting applications. Even ignoring the increasing number of applications under research and development, there can be no doubt that the lamp manufacturer operates in a most exciting world.

‘The principal need is for high efficiency, as the heat has to pass through a window in order not to introduce unwanted impurities . . .’

are ease of temperature control, the possibility of using relatively simple resistive load practice, and rapid response. Again, short wave infra-red scores well on all counts.



Epitaxial reactor used to make microchips.



A LEGEND IN ITS OWN LONG LIFETIME

But Lucalox can take variations of plus or minus 5% in its stride.

From The Avenue of the Americas to London Bridge

Lucalox's street lighting debut was a dramatic one. One of the first streets chosen was one of the most glamorous streets in the world — The Avenue of the Americas. The question was would anyone notice.

But when they saw the dramatic improvement in the lighting level (from 35 lux to 70/90), even New Yorkers were impressed.

Add our 8000 hour guarantee and you can see why it was also chosen to light London Bridge.

And Equally At Home On The Meanest Streets

But just as important as glamorous avenues are the streets people are afraid to walk at night.

If anything, this is where good lighting is even more vital.

And here the new Lucalox LUH 110 lamp is playing a leading role. Compared to a 125 watt mercury lamp, it provides considerably more brightness while at the same time conserving energy.

Twenty Two Years On. And Still on Top

If the test of a legend is the test of time, then Lucalox has passed with flying colours.

Because it's just as popular now as when it first came out.

And it still has a substantially longer life than other high pressure sodium lamps.

It has also been estimated that Lucalox has so far saved American businessmen over \$1 billion. And we're working on the second.

We're continually improving the lamp. Extending lamp life is one example. Developing the range is another. Lucalox's present lamp life is up to 24,000 hours. But we're hoping to improve on that.

After all, you don't remain a legend by standing still.



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Banking on energy saving

Energy saving and the flexibility to adapt to changing practices are important to the office of a national bank.

Low-brightness luminaires and automated switching provide the most efficient and cost-effective system of lighting available today.

That is the opinion of Lloyds Bank Facilities Department Manager, Mike Ive, following the installation of low brightness luminaires from RADA Lighting and a Switchplan lighting control system at Lloyds' new Thameside office at Hays Lane, SE1.

The standard and evenness of illumination throughout are superior to those in the previous offices and are much appreciated by staff.

Productivity

In particular, Rada's low-brightness Quaser luminaires with flicker-free, high-frequency control gear, are providing a level of visual comfort in the extensive VDU areas that is making a major contribution to productivity.

At the same time, Lloyds are effectively combating energy costs through programmed lighting control.

Work areas, corridors and security routes are separately switched, and it is easy to cater for new office layouts without expensive new wiring.

This kind of saving is becoming even more important than cutting down on energy, because of frequent office changes.

It is not uncommon for offices to be refitted twice within the first twelve months of occupation as people sort themselves out in a new environment, and nobody wants to close down a department while electricians rewire the lighting.

Half an hour

To revise the lighting for a new office layout is a simple matter of recording those luminaires or of connecting a low voltage cable to the nearest dual output receiver — perhaps half an hour's work.

Planning the lighting layout itself to cater for future partitioning was influenced by the unusual plan of the building and by existing ductwork in the ceiling void. However, it was possible to design the lighting scheme on a 1.5m grid with a head track incorporated into the ceiling system to accept partitioning at any point.

The lighting system is also designed to work flexibly and economically in tandem with Lloyds' own generator.

As part of their crisis planning, Lloyds have 50% of all the lighting operable from their own generator, and the lighting control system automatically load sheds for generator control without the cost of segregated switching.

When the generator is operating, a predetermined level of lighting has manual on/off control, the remainder being held off.

The whole system was designed to provide high performance lighting with maximum energy-efficiency throughout a modern, VDU-intensive building and to ensure illuminance of 500 lux in all work areas, reducing to 150-200 lux in the circulation areas.

Quasar luminaires were

selected, for the ultra-low glare characteristics of their wedge-shaped louvres, which have proved to maximise screen clarity in areas where VDUs are used, and also for their contribution to energy-efficiency.

Approximately 20% of the 1500 luminaires have two 18W compact fluorescent lamps operating from high-frequency dimming control gear. The remainder have either two 36W or two 70W fluorescent lamps operating from high-frequency control gear.

High-frequency control gear was chosen to reduce energy consumption by up to 30% and to increase visual comfort by eliminating the possibility of flicker from the fluorescent lamps.

Wattage per square metre is approximately 16W.

The luminaires simplify the fixing of the metal plank ceiling and reduce on-site time and cost substantially. They fit into the ceiling contractor's trim and also the linear air slot diffuser.

Automated switching throughout the building is controlled by a Switchplan SP200 system with manual override facilities.

Flexibility

It is based on 20-code, dual output receiver modules wired in series to dual socket outlets, with each module controlling two twin-tube luminaires. Typically, output A will control one tube in each luminaire, and output B will control the other for maximum lighting flexibility.

Automatic control signals are generated and transmitted from a multi-channel micro-computer, programmed with the user's own lighting sequence and yearly cycle.

At Lloyds, the system is programmed to switch on, at set times each morning, 50% of the fluorescent lamps in the corridor luminaires, followed by 50% of the office area lamps and the other 50% of the corridor lighting. The remaining office lighting can be switched on manually as required.

It is designed on the principle that if no light is on the first person in will switch everything on, but if people find, say 50% on when they arrive, they will tend to move their work area without increasing the level of lighting.

And, since people can't be relied on to switch lights off, the system caters for this, too.

At lunchtime, the office lighting is automatically reduced by 50% — to be switched back on manually as required — and then at the end of the working day the lighting again switches off in pre-set stages.

Sunlight

During the daytime, photocells at selected locations throughout the building also automatically reduce the illumination as the sunlight increases.

The total system is pre-programmed to take account of weekends, holidays, office cleaning periods and security patrols, and has the flexibility to enable new switching patterns to be programmed in, and for changes to be accommodated manually.

Each dual output receiver, for example, has manual input facilities for pull cord switching, wall switching, active infra-red switching and even passive infra-red switching, which will activate the lighting purely by detecting the presence of people.

Future needs

In short, the lighting system caters for changing needs in the future while providing an excellent level of visual comfort now, as well as meeting energy-saving criteria.



As a result of the client's enthusiasm, the installation has been entered in the LIF National Lighting Awards 1987/88.

Electrical contractor for the project was Brightsides Limited; consulting engineers were Parsons Brown of Bristol; and architects were DEGW.

General view of the office areas where VDUs are extensively used.



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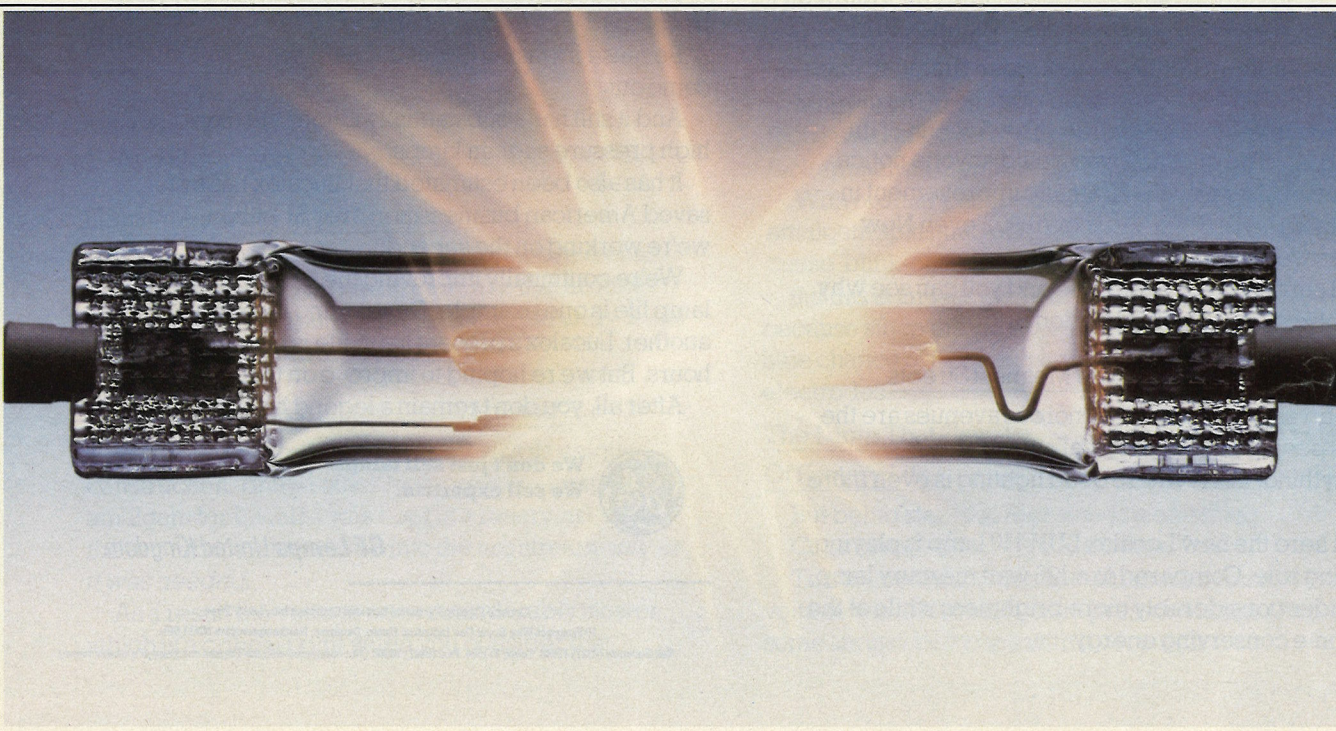
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Reader Service No. 13

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Tower Bridge — lighting a legend

Basil Austin looks at the problems, political and technical, that made lighting up Tower Bridge from bank to bank such a challenge.

Tower Bridge was opened by Edward, Prince of Wales, on 30 June 1894 and soon became one of the most famous structures in the world. Its construction is unique, making it instantly recognisable. It is a symbol of London and all its traditions and greatness.

Although the bridge lies just outside the boundary of the City of London, it was paid for and built by the Corporation. The bridge was, and still is, financed from a

special Corporation fund known as the Bridge House Estates, so no financial burden falls on the rate-payers and the taxpayers.

Tower Bridge is Grade I listed building and in June 1983 it was adapted and opened to tourists, giving the public access to the two main towers, walkways and engine rooms. It has since become one of the most popular major tourist attractions in London, and in 1987 almost 500,000 tourists visited the bridge.

There have been several schemes to light Tower Bridge using first festoon lights and then high-wattage incandescent lamps to illuminate the river faces of the two main towers and the high-level walkways. This lighting was converted to HPI mercury discharge lamps in 1978. Although attractive, this latest lighting scheme left the cutwaters, spandrels and abutment towers in darkness so much of the splendour of the monument was lost at night.



Tower Bridge — London's newly illuminated gateway.

floodlighting to provide a complete night-time spectacle of the bridge was conceived in December 1986 at an energy managers' conference in Birmingham. During a lunch break, Corporation representatives, Hugh Olson, chairman of the Energy Committee, and Basil Austin, chief electrical and mechanical engineer, were joined by Mike Goodwin, managing director of Philips Lighting Limited. We got round to discussing the recently installed floodlighting of the Eiffel Tower and the desirability of providing an even better scheme for an equally famous British landmark — Tower Bridge was the inevitable choice.

The subject was again raised in March at a Lighting Industries' Ladies' Day and on this occasion David Jeffries, deputy chairman of the Electricity Council was also present. He observed that the London Electricity Board would, in 1987, be celebrating 100 years of electricity in London. Both he and Mike Goodwin intimated that if the Corporation were to agree to a top-quality floodlighting scheme for Tower Bridge then both Philips and the LEB would be prepared to contribute to the capital cost. So, it was agreed that technical staff of the London Electricity Board, Philips and the Corporation should get together to see if it would be possible to achieve a suitable lighting scheme.

The meeting, which took place in London on 19 May 1987, was attended by lighting experts from

Philips. Schemes discussed included lasers, holographs, festoon lights and, even the image of a union jack derived from lights suspended between the main towers.

The outcome was a brief from the Corporation to Philips for a floodlighting scheme of the highest quality, which would light the entire structure from bank to bank, using the most modern equipment and techniques available in order to present Tower Bridge as the 'Gateway to London'. Such a scheme was felt to be in keeping with the dignity of the structure, the environment and the Corporation's image. At the same time, it would provide a spectacular attraction which could be seen from afar by night, and also enjoyed by local workers, residents and tourists.

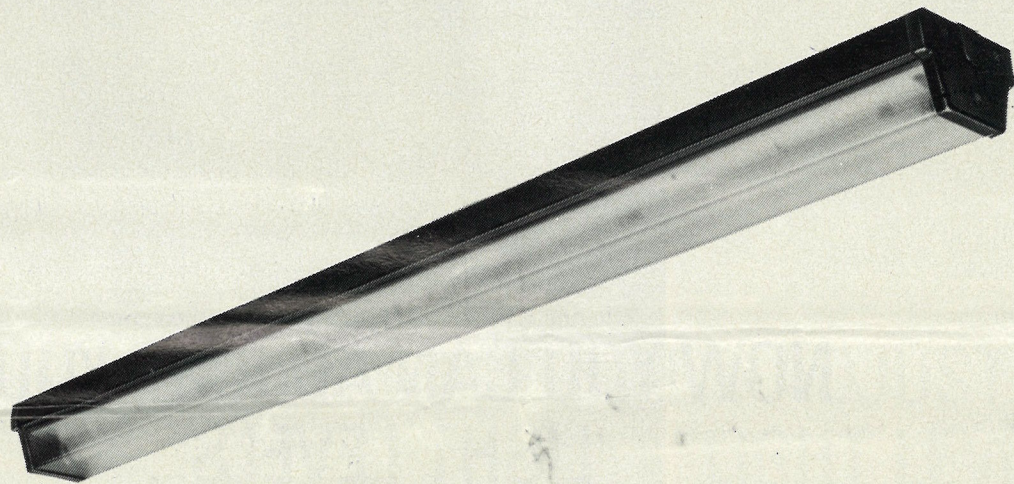
Constraints

There were a number of particular design constraints, for with such a large number of lights to be installed each had to be positioned so as to achieve the desired illumination without impairing the day-time appearance of the bridge. Also, extreme care had to be taken to minimise glare to road and river traffic, pedestrians and nearby residents.

The next step, to provide a detailed scheme, was quickly achieved by Philips, based on a computer design process, using drawings and photographs. An illustrated brochure was then

The idea of extending the existing

Monitor



Vandal resistant

Range: Twin + single 8w, 18w, 36w, 58w, 70w + 36w PL
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Whether for surface or area lighting, for use in offices, conference halls, museums or production areas;

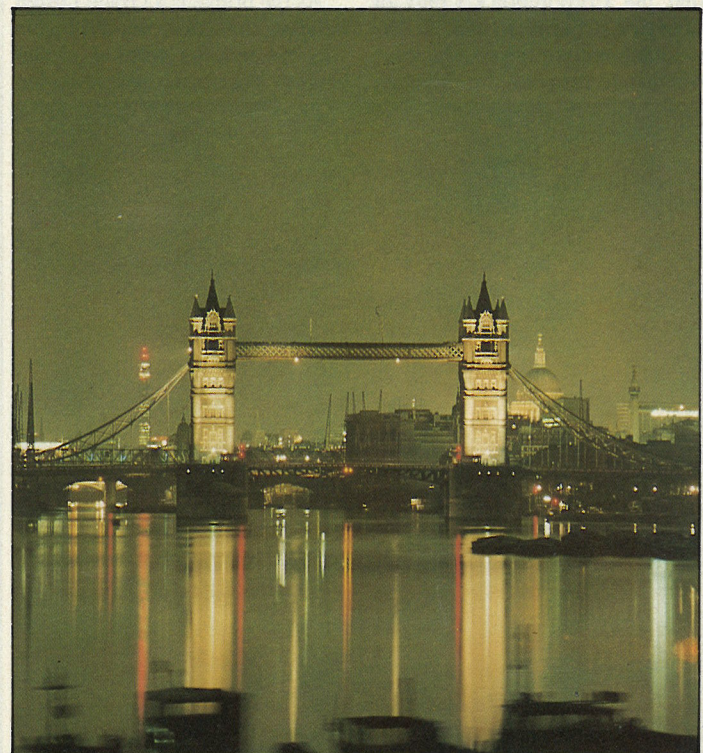
or in parks, pedestrian precincts and for floodlighting façades.

Plus eye-catching displays in showrooms, shop windows and exhibitions.

And, for sheer economy it steals the show from other lamp types. One single HQI-TS 150 watt can replace eight 120 watt tungsten PAR lamps. It uses 80% less energy and lasts three times as long.

Type	Lamp wattage	Length mm	Diameter mm
HQI-TS 70	75	114,2	20
HQI-TS 150	150	132	23
HQI-TS 250	250	163	25

WOTAN



An earlier scheme lit only the towers and the high-level walkways.



Lanterns and beam angles were superimposed on photographs.



A computer-designed impression of the new scheme.

prepared, showing lanterns and beam angles superimposed on photographs. Schedules of the equipment and an artist's impression of how the bridge would look when lit were appended.

The scheme involved 230 floodlights with a total load of about 135kW. Although some adjustments were later made, basically the bridge was to be lit using HPI-T metal halide lamps of 2,000W, 400W and 250W, with 58W fluorescent lamps, Colour 84 (4,000K), lighting the two overhead walkways between the bascule towers. Finally, white SON 100W lamps would be used to light the Corporation's six insignias on the high-level walkways.

The new floodlighting was designed to create a three-dimensional effect by varying the brightness of the surfaces on adjacent faces of the towers. Elevations facing the river were made twice as bright as sides facing the roadway, at 100 lux and 50 lux respectively.

Approvals

The next, and by far the greatest hurdle was to convince the Corporation that the scheme should be implemented. Philips arranged two presentations, attended by the chairman of the London Electricity Board and of those Corporation Committees which would decide whether the scheme would go ahead.

Although those attending the presentations were receptive to the proposal, it was acknowledged that the Corporation's Court of Common Council would be the ultimate authority in deciding whether to proceed. Accordingly,

the City Engineer prepared his report to the Planning and Communications Committee for its meeting on 8 September 1987, and the Policy and Resources Committee on 17 September 1987.

The report recommended that the new floodlighting should be provided at an estimated cost of £373 000 and financial contributions negotiated with the London Electricity Board and Philips. Philips were to supply the necessary equipment and the London Electricity Board to undertake the installation.

Because of their knowledge of the complex building structure gained from previous contracts, it was also recommended that Holford Associates (architects), the Kensall Partnership (quantity surveyors) and Tarmac Constructions (main contractors) should be appointed for the project.

The Court of Common Council finally gave formal approval for the project on 22 October.

Early meetings had been held with parties affected by the installation. The enthusiasm of those involved, particularly the Port of London Authority and the owners of four riparian developments adjacent to the corners of the bridge where four floodlights had to be installed on each bank, was particularly heartening. One of these sites was owned by the Tower of London, and another by the Tower Hotel. Formal licences between the Corporation and the building owners later concluded the negotiations.

As the bridge is a Grade I listed building and located outside the City of London, it was known that English Heritage, the London



Fluorescent lamps at high walkway level illuminate the girderwork.

NOW YOU CAN ADJUST YOUR LIGHT LEVELS...

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New Philips High Frequency Regulation gives fluorescent lighting the one benefit it's always lacked.

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Now, when higher light levels are needed, just raise the light output of the lamps.

When you need less, they'll give you less.

The days of having to change the lighting layout when the visual task changes, are over.

High Frequency Regulation is so flexible it can be 'tuned' to provide more light for a designer, less for a

VDU operator, and still less for the cleaners.

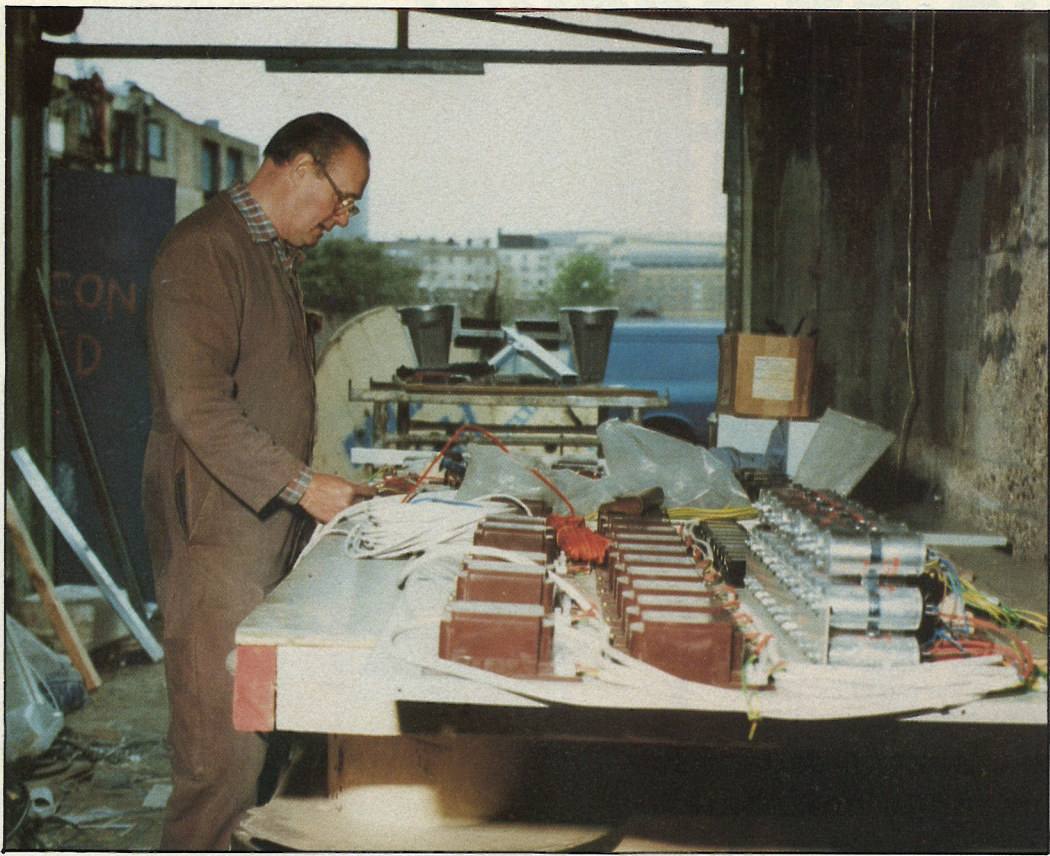
The light output of each luminaire can be adjusted individually, or by whole areas, to suit different tasks, or to add impact.

Install a light sensor, and new Philips High Frequency Regulation will even vary the light output up and down automatically – making optimum use of natural daylight instead of electricity.

Combine new High Frequency Regulation with luminaires such as Philips TCS 660 on the right of our

Philips Lighting





All components were tested before installation because of difficulties in replacement.



Four floodlights were installed on each bank of the Thames.

...AND ADJUST YOUR
LIGHT LEVELS.

FREQUENCY REGULATION

picture, and you not only get the light levels you want.

You get the light precisely where you want it.

These luminaires can be ceiling mounted, or suspended to mere feet above the working plane.

They'll lead the eye directly to displays, highlight work areas, or invite visitors onto walkways.

No other luminaire system allows you to make more of fluorescent lighting.

But then, never before has fluorescent lighting been so flexible.

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Docklands Development Corporation and the London Borough of Tower Hamlets would be interested in the scheme. It was hoped that formal planning approval would not be necessary, as early advice indicated that an extension of the existing floodlighting would not require formal approval.

Regrettably, these early indications proved false, and the Planning Department of the London Docklands Development Corporation insisted on a formal planning application; this was submitted on 26 October 1987.

So began a protracted series of negotiations over a three-month period involving repeated requests for the supply of further details. Original hopes of a completion date in March were soon dashed; formal planning consent was finally received on 27 January 1988; and work on site commenced on 1 February with a new, more ambitious target of 14 weeks for completion. This resulted in a revised date for the switch-on ceremony of 19 May, exactly one year to the day from when technical representatives met to agree the nature of the scheme.

By now, the London Electricity Board had fully detailed the electrical installation, taking into account changes such as the requirements of the Port of London Authority and the operational needs of the Bridge Master. It was then possible for the building work to be scheduled, and it soon became evident that the previous estimate of £373 000 would be significantly exceeded.

In fact, the updated estimated cost submitted by the quantity surveyors was £570 000 but, by

making several economies, the City Engineer was able to reduce this figure to £473 000. All approvals to complete the project were finally obtained on 21 April 1988.

Power supply

The whole of the floodlighting installation derives its supply from the low-voltage busbars of the main switch panel which is fed from the 11kW high-voltage feeder located in the north-west cutwater switchroom.

The London Electricity Board's electrical installation involved over 7 500 metres of cable and cost some £140 000. The majority of the installation comprises PVC/SWA/PVC cables, although for the walkways, fluorescent lighting and, in some cutwater areas, PVC insulated single-wire cables are used, drawn into heavy-gauge galvanised steel conduits. Every effort is made to ensure that cable runs are as inconspicuous as possible.

There are 15 distribution boards and, because of excessive distances to the south side, three step-up transformers are used to raise voltages back to 414 volts. Protection of final circuits is by MCB/RCD units of Merlin Gerin manufacture housed in the distribution boards. Shock protection is of 30mA sensitivity and the MCBs are Type 2 for 5-, 10- and 20-amp rating and Type 4 for 32-amp rating.

A unique feature of neatly securing cables to the main support chains is the use of epoxy resin compound to support the 1.5 and 2.5 sq. mm PVC/SWA cables feeding the lights. Blobs of compound, shaped like rivet heads, have obviated wholly undesirable drilling and the use of clamps, and



Mounting control gear for one of the floodlights to the main tower.

PHILIPS

match the appearance of real rivets. Good workmanship was an essential requirement.

As with the previous floodlighting installation, it was decided to control the new system using a solar dial time clock, with spring reserve, which would switch the lights via contractors operating in sequence with built-in time delays.

The Port of London Authority required the Corporation to provide the facility for the duty officer to switch off the floodlights adjacent to the bascules if necessary.

It was finally decided to operate the Tower Bridge floodlighting until 01.00 hours throughout the year, at an estimated annual cost of about £13 000 including energy. The energy cost alone is estimated at £10 000, but this would have been some £800 per annum higher if advantage had not been taken of the 11kW metered supply.

Contract

Tarmac's intimate knowledge of the bridge proved a vital asset in their role as the main contractor. This experience was called upon, during the contract, to safeguard



Final adjustment of luminaires.

Electricity Board endeavoured to align the floodlights to the angles shown on the design drawings. However, this was difficult to achieve and final adjustment of every luminaire during the hours of darkness was still necessary. This was carried out under the direction of Philips, generally after dark between 2130 and 0100 hours.

In addition, road closures were arranged for three evenings in early May, between 0100 hours and 0500 hours, in order to align lights, working from a boat equipped with a boom. High tides, making it possible to reach the lights on the cutwaters, dictated these early hours.

After the close alignment of the floodlights, it was essential to secure properly all adjustments as most of the lights are exposed to high winds, and some are extremely difficult to reach by boat. It was part of the Corporation's brief that, once adjusted, lights would be marked to show the correct alignment. This, hopefully, will avoid the possibility of future expensive night-time operations for realignment should luminaires become damaged or loose on their original settings.

Prior to the new floodlighting,



Floor trap in high level walkway houses the road lighting.

the roadway was lit by SON lamps, mainly in floodlights, mounted under the high-level walkways and on the bascule and abutment towers.

As the colour appearance of SON lighting would spoil the effect of the floodlighting, the opportunity was taken to renew the 20-year old installation, using 400W HPI lamps in floodlighting lanterns. The design brief was to provide an average surface illuminance on the road of 40 lux.

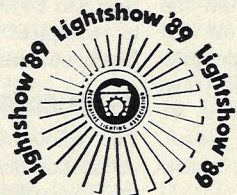
A ceremony to mark the inauguration of the new floodlighting took place at 21.30 hours on 19 May 1988 at Tower Pier when the Prime Minister was invited to instruct the Halyardman to break out the City Flag. To the accompaniment of fireworks, the lighting was switched on.

The Prime Minister summed up the feelings expressed, "How fitting, then, that this most impressive gateway to the City and, indeed, to the Capital, should be floodlit in so spectacular a manner. It will be seen as a signal of the regeneration of Britain and of our confidence in the future."

Basil Austin is Chief Electrical and Mechanical Engineer with the Corporation of London. This paper was originally presented at the ILE annual conference.



Inaugurating the new installation on 19 May 1988.



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the welfare of pedestrians and motorists, and in arranging road closures, a rescue boat, scaffolding, safety nets and general building work.

At one time, as many as 35 operatives worked on the installation, including 14 scaffolders and nine electricians.

Diamond drilling into the hard granite was a major feature of building work, the longest holes for cables being some 4 metres deep, drilled direct through the main buttresses to the lights fixed to the cutwaters.

The main contractor was also responsible for obtaining and fixing all the special brackets needed to support many of the floodlights; these were made either of stainless or galvanised steel. All the floodlights were painted at Philips' factory to match the colour of the bridge, but Tarmac were responsible for painting all parts of the installation, including cables, to blend with the colour scheme of the bridge.

One of the many interesting features is the specially designed floor traps in the high level walkways. Each houses a floodlight of a luminaire used for road lighting. Brackets on the river banks are designed to meet the requirements of the four property owners.

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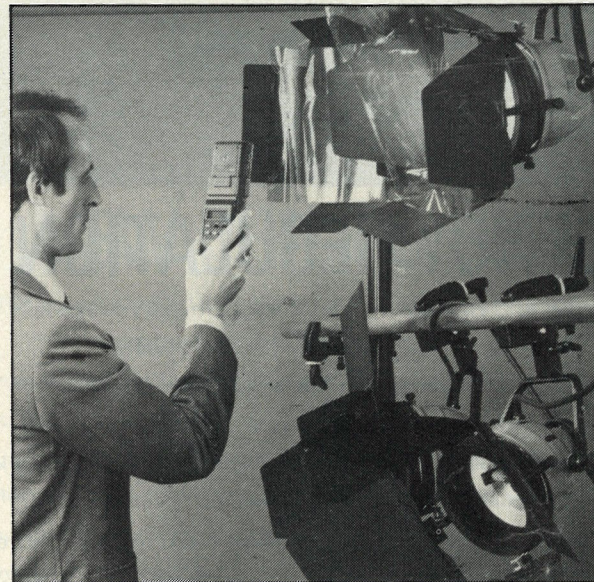


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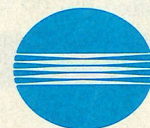
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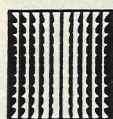
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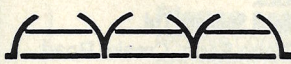
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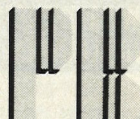
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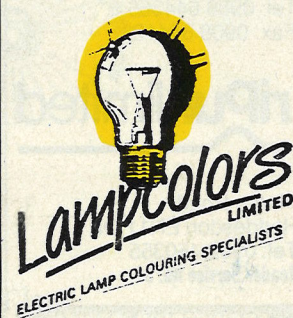


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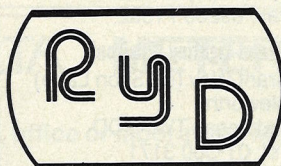
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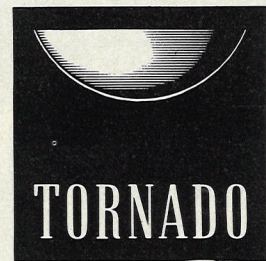
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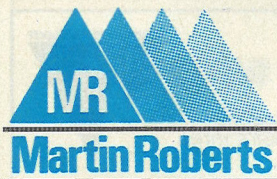
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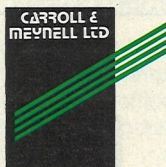
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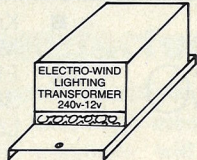


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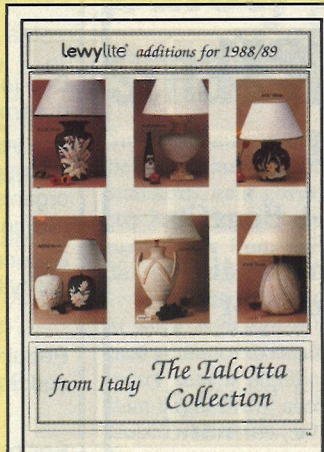
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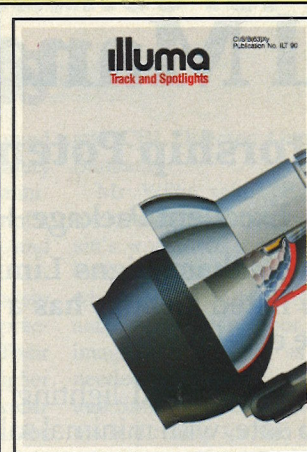
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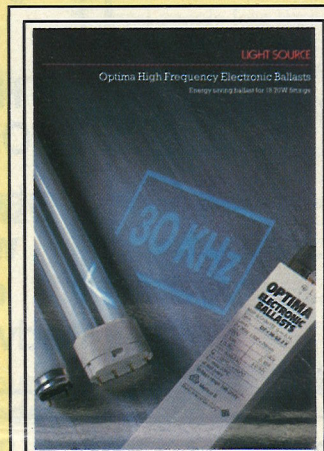
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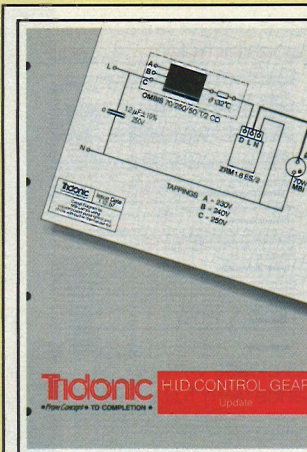
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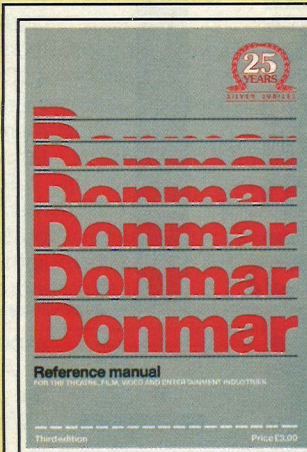
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Although a technical or lighting background would be an advantage, full product training will be provided.

Please send your detailed C.V. to:

The Managing Director, Thousand and One Lamps Limited,
4 Barmeston Road, London SE6 3BN.
Telephone: 01 698 7238 Facsimile: 01 698 6134

MANUFACTURER REQUIRES

Active Sales Representative to sell interesting range of lighting fittings to distributors, retail chains and local authorities. Excellent opportunity for candidate with flare, initiative and knowledge of lighting market. Salary, commission, company car and usual benefits associated with this position.

Apply with full C.V. etc. to Box No 1451

Lighting Equipment News

Maclean Hunter House, Chalk Lane,
Cockfosters Road, Barnet, Herts EN4 0BU.

ESTIMATOR

Required for busy sales office. Experience of reading specifications an advantage. Technical back-up available with full training given to suitable applicant.

Do you have the ability to work on your own initiative whilst still being part of the sales team?

Salary negotiable plus health care and pension benefits.

Apply to:

Philip Wilson, Director
Alpa Lighting Limited
133 Nathan Way
Woolwich SE28 0AZ
Tel: (01) 855 0055
Fax: (01) 854 5047

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Manufacturers Agent

with extensive lighting connections established 26 years. Based South Wales and covering Wales and the South West seeks one main line agency, preferably with established accounts on territory. All enquiries will be replied to and treated with strict confidentiality.

Box No. 1454

Lighting Equipment News, Maclean Hunter Ltd

Maclean Hunter House, Chalk Lane, Cockfosters Road, Barnet, Herts EN4 0BU

PRODUCTION PLANNER

Whose main function would be to convert customers orders into clear works instructions i.e. interpreting quotations, vetting working drawings, calculating material requirements etc. Practical sheet metal working knowledge/experience is essential but we are also looking for someone with the initiative to run their own small department. In view of our rapidly expanding current sales we are expecting to shortly increase our staff who would be directly responsible to the production planner.

SENIOR DRAUGHTSMAN

To supervise small drawing office (four/five persons) and to be responsible to the technical director. Preferably with knowledge of the lighting industry, but essentially having a good understanding of sheet metal working methods and the enthusiasm to motivate a small team. We consider it unlikely that anyone under the age of 30 would have the experience or maturity that we are seeking.

Salary negotiable plus health care and pension benefits will apply to both positions.

Apply to:

David Hamshaw, Director
Alpa Lighting Limited
83 Gloucester Road
Croydon, Surrey CR9 2LB

Tel: (01) 684 4211 Fax: (01) 684 8771

Safety guidance for small firms

Small manufacturing firms need help to improve health and safety standards, said government minister John Cope, at the launch of a new book from the Health and Safety Executive.

'Essentials of Health and Safety at work' is designed to give practical guidance to small firms. Their injury rate is significantly higher than larger firms, according to Mr Cope, Minister of State for Employment.

The book has been written for small firms with less than 100 employees and gives basic advice on such things as legal requirements, protective clothing, safe use of chemicals, electricity, machinery and maintenance work.

Mr Cope said "Small firms' managers are very busy people. They need clear, well presented guidance to help them understand and minimise workplace risks."

"Every year 500 people die at work and several hundred thousand people lose time through illness or injury. Workplace accidents cause needless pain and suffering; they also mean higher costs and lower efficiency for business."

Mr Cope was joined by TUC General Secretary Norman Willis

and CBI Director General John Banham.

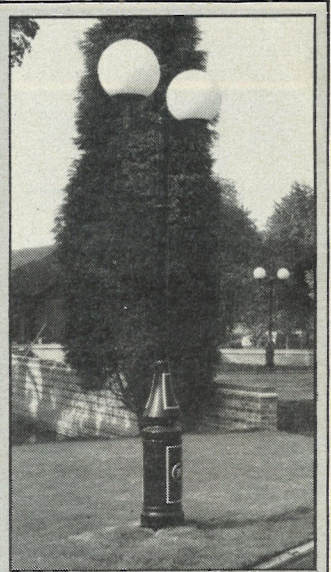
Mr Willis said, "Because the overwhelming proportion of Britain's workforce is now employed in small and medium sized firms in which health and safety performance is relatively poor, new and imaginative action is urgently needed, if the aims of the Health and Safety at work Act are to be made a reality for the majority of people at work."

"As many workers know to their cost small is not always beautiful."

John Banham said that many small firms find the UK and EC legislation too complex and suffer from a lack of trained people to tackle tricky situations.

The book is packed with good advice and its 19 chapters contain checklists, diagrams and case studies, all laid out in a straightforward and easy-to-follow manner.

'Essentials of Health and Safety at Work' costs £2.95 and is available from HMSO bookshops and booksellers; by post from HMSO Books, PO Box 276, London SW8 5DT; or by phoning HMSO publications centre on 01-622 3316.



Harlite Installations Ltd has designed and installed an amenity lighting scheme on an exclusive residential development at Risley, in Derbyshire. Risley Hall, a former remand home and country hall, is set in landscaped grounds mid-way between Derby and Nottingham and has been converted to luxury retirement homes. Twenty-eight 3m high, ornate, cast base columns are used with a combination of either two or four 400mm diameter opal spheres on specially designed brackets.



Because blood donors spend some 30 minutes looking up at the ceiling while giving blood, lighting must not cause discomfort glare, but must be adequate for medical staff.

A new blood donor clinic in Luton found the solution by using AEG Lighting's Akcentolux low brightness wallwasher and narrow-angle fluorescent fittings. The wallwasher type has a silk finished reflector with an extremely asymmetric light distribution which provides even illumination on vertical surfaces. The narrow-angle fitting has small, square-celled, low-brightness louvres finished in matt silver colour for minimum glare.

Video gives tips on film lighting

Roscolab Ltd has produced a video called *Lighting in the real world*. Hosted by Dick Reizner, an American Emmy Award winning cameraman and videographer, the tape walks the viewer through a wide number of lighting problems faced by professionals in the world of production in film and video.

The video tape, which lasts 65 minutes, covers in a direct and practical manner the use and selection of filters for colour correction and colour balance, diffusion effects and gobos, all of which work together to enhance production values.

The programme includes dozens of practical tips for lighting in situations as diverse as studios, offices, factories and warehouses, working with a variety of light sources, including discharge lamps.

Available in VHS format, the tape costs £70 and is available either from Roscolab Ltd, Blanchard Works, Kangley Bridge Road, London SE26 5AQ, or its distributors.

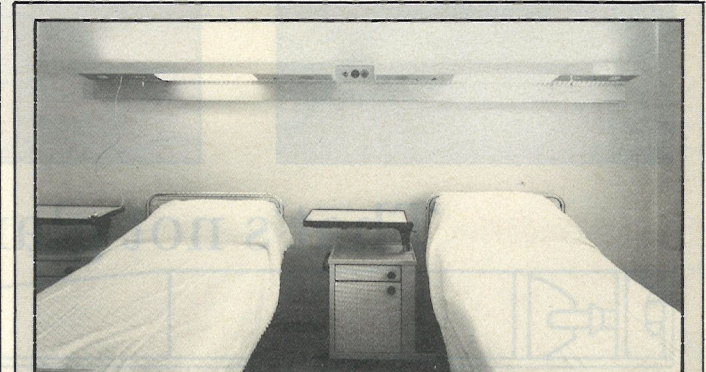
Trade Literature in brief . . .

● Cable management systems using power poles and posts are described in a catalogue from Gilflex Ltd.

● Hylite Engineering Ltd gives details about its mobile lighting systems in a new leaflet. They are designed for civil engineering, quarrying, road works and similar outdoor activities requiring flood-lighting.

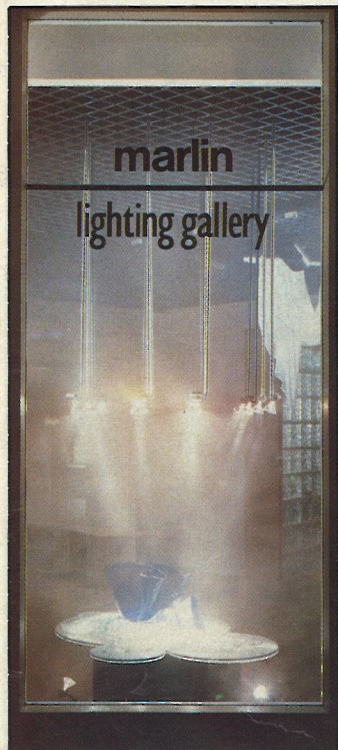
● Emergency lighting, in the form of both self-contained units and central battery systems, is described in a catalogue from Bradley Lomas (Electrical) Ltd.

● A leaflet on security lighting from Ring Electronics Ltd gives information on outdoor lanterns with photo-electric control, a passive infra-red detector and a tungsten halogen floodlight complete with detector.



A new hospital bedhead fitting provides illumination, electrical supplies and medical gas pipelines. The bedhead produced by Prima Lighting, takes a 36W or 58W fluorescent tube for general indirect uplighting of the bed area. An 18W fluorescent tube gives direct down-lighting for reading and an additional 18W tube can be switched on to provide the greater illumination levels needed to examine a patient.

A variety of accessories can be integrated into the bedhead including switches, socket, intercoms and telephones, and electrical cables and medical gas pipelines can be fitted into the housing to form a compact multi-service unit.



Marlin opens London lighting gallery

Marlin has opened The Lighting Gallery in Warren Street, in London's West End. The location is in the heart of specifier land, within easy walking distance of architects, designers and engineers. The Lighting Gallery exists to give technical advice, detailed demonstrations and explanations, and to act as a platform for communicating knowledge and expertise on lighting as a key subject in modern building design.

The 230m² display space has been designed by Barry Finnegan of Portland Design, in conjunction with Marlin's own design director, Michael Kankowski. Dramatic displays are by retail display specialist Philip Honey.

The gallery will be used to de-

monstrate the style, performance and quality of a wide range of lighting fittings. Demonstrations begin with the light source where colour temperature, power and beam spreads can be compared and contrasted, and move on to look at the performance of the wide range of Marlin light fittings incorporating these sources. Light fittings are primarily intended for interior and exterior commercial applications.

Applications can be discussed with a resident lighting engineer who will assist with the selection of light sources and associated luminaires, and has computer facilities for detailing lighting schemes.

Marlin also intends to run seminars on specific lighting topics.



These will be given by experienced lighting practitioners, all of whom are acknowledged experts in their chosen field, including: Sally Storey from Lighting Design Ltd; Barry Hannaford, partner of the Lighting Design Partnership; and Eric Maddock, lighting consult-

ant with YRM Engineers.

As a bonus, the majority of Marlin luminaires will be available directly from the gallery, drawing on the extensive stocks held in the company's warehouse in Camley Street, NW1. Further details from 01-387 6667.

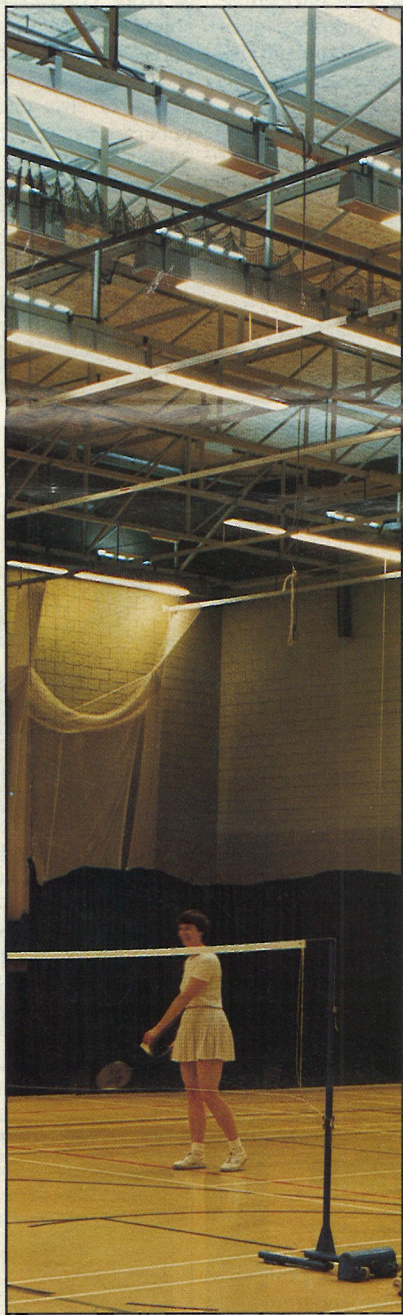
In brief . . .

● **Ashley and Rock Ltd** is now a BSI registered company in accordance with the requirements of BS5750. This status has been achieved for the quality systems at all its factories in Cumbria and Brentford.

● **Electric light sources — state of the art — 1987** is the title of a publication from the *Commission Internationale de l'Eclairage*. It covers light sources, radiation sources and electronic devices used in connection with such sources. Copies can be obtained from A Dangerfield, Jules Thorn Lighting Laboratory, Great Cambridge Road, Enfield, Middx EN1 1UL.

● **The Household Cavalry's** refurbished barracks at Hyde Park, London, now have 328 Linolite CSL3 luminaires fitted with PL type compact fluorescent lamps, to give bedside lighting in the lower ranks' quarters.

A bright idea from Simplex Lighting



Conductalite - the unique, patented light fitting which harnesses all the power of HID light sources without any of the limitations.

Conductalite's revolutionary design is already transforming lighting in locations across the UK.

Conductalite offers major practical benefits to users in applications as diverse as warehouses, swimming pools, sports halls, car assembly lines, factory production areas and many more.

MINIMAL GLARE —

For increased user comfort and safety.

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with good lux levels right down to floor level and excellent area coverage.

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from reduced numbers of wiring points, less wiring, less switchgear.

SAVINGS ON MAINTENANCE —

through fewer relamping points, easy rapid access to lamp and gear and cool illuminating surface.

IMPROVED EFFICIENCY —

can replace several conventional luminaires and reduce power loading. Find out for yourself how Conductalite can revolutionise your lighting.

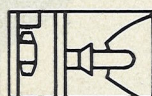
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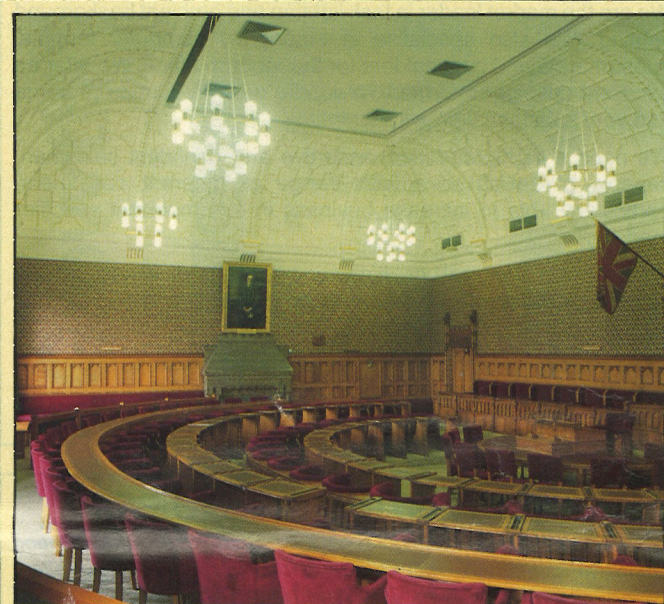
COMPANY

ADDRESS

TEL. NO.

Please return to Simplex Lighting Limited, FREEPOST, Groveland Road, Tipton, West Midlands DY4 7XB, England. Tel: 021-557 2828. Telefax: 021-557 8900. Telex: 339543

SIMPLEX LIGHTING



Middlesbrough Council expects energy savings of more than of £10 000 at the Municipal Building in Russell Street, Middlesbrough, as a result of replacing GLS lamps with Osram-GEC Opus-EL electronic lamps. Lighting the Municipal Building requires long burning hours with lamps left on for up to 17 hours a day in some areas.

Staff have been enthusiastic about the better lighting levels. Moreover, a longer lamp life has resulted in lower labour costs which should reduce the pay back period on relamping the project to under a year.

Approximately 1200 Opus-EL Lamps have been installed throughout the building, including 168 lamps in six chandeliers within the Council Chamber. Previously 40W and 60W tungsten filament lamps were used.

Vandal-proof lighting for Broadmoor

Attack-resistant luminaires worth over £40 000 have been supplied by RADA Lighting for the Broadmoor Hospital redevelopment.

The 'Extral' luminaires have been installed in hospital wards, detention areas and corridors to provide maximum security lighting fittings.

Features of the anti-vandal design include a special steel body, extruded aluminium frame and a polycarbonate diffuser, 5mm thick, to resist impact damage.

The frame is retained by captive, anti-vandal, socket-head

screws, and silicon rubber gaskets between the frame and the body and between the frame and the diffuser also help to seal the fitting against the weather in exterior locations. The internal reflector/gear tray is fabricated from zinc-coated sheet steel, and the control gear is HPF switch start with a fused, plug-and-socket terminal block.

The luminaires at Broadmoor are recessed, and special sizes were produced for non-standard ceiling openings. They have also been modified to take a variety of lamp configurations from four 1200mm fluorescents to 40W 'U' tubes. In addition, some of the luminaires also combine emergency lighting or have dimming gear.

Further details from 0707 43401.

IN YOUR NEXT ISSUE

These days, lighting controls are the norm for commercial and industrial premises, to keep electricity costs as low as possible. The December issue of *LEN* will contain a feature on lighting controls for such buildings.

Brian Morgan will be taking an end-of-the-year look at developments in lamp technology. He will be reviewing and commenting on compact fluorescent, low voltage and high intensity discharge light sources.