

LIGHTING EQUIPMENT NEWS

FEBRUARY 1989

Design judges chosen

Judges have been announced for the New Designers' Exhibition, to be held at the Business Design Centre, London from 16-19 July.

The lighting section will be judged by Michael Jankowski, director for design and development at Marlin Lighting, and Sally Storey, chairman of Lighting Design Ltd.

For the first time, the exhibition is expanding into industrial and consumer product design. The judges for these categories are Kenneth Grange of Pentagram, and Nicholas Butler of BIB Design Consultants. Other categories include interior design, furnishing fabrics, floor and wall coverings, tableware and furniture.

The New Designers' Exhibition is sponsored by Emess plc to the tune of £90 000 and organised by the Chartered Society of Designers in association with the Business Design Centre.

It is intended to support and encourage the work of young British design talent. The best 500 students from colleges throughout the UK will be selected by their tutors to enter their designs for the various categories of the exhibition.

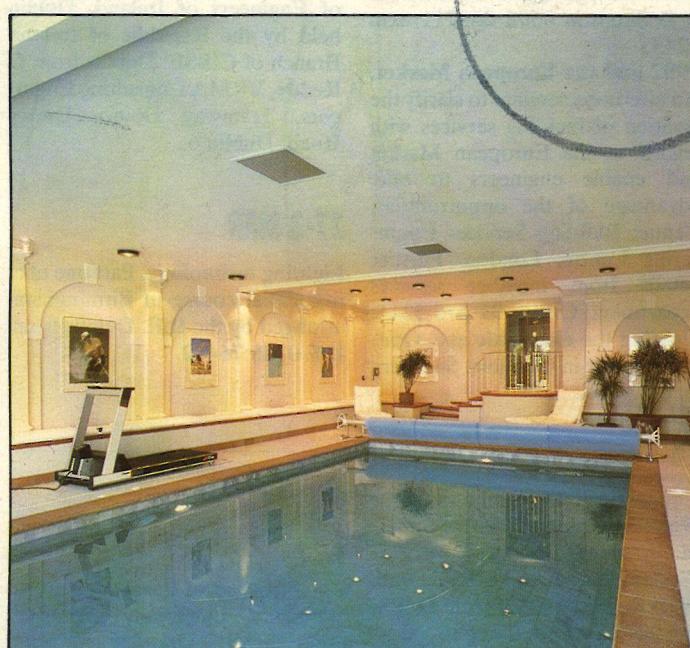
RTZ buys further companies

RTZ Pillar Ltd has acquired three more companies: Duraplug and Fleetwood, which both make electrical accessories, and Tripower which supplies power distribution equipment for construction sites.

These companies become part of Pillar Electrical plc, alongside firms such as MK Electric, Ega, Gent, Superswitch and Andrew Chalmers and Mitchell.

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Most exciting home lighting

A £10m million private home has examples of lighting techniques ranging from those used in shops to sports floodlighting.

The house, created for recording impresario Mickey Most in North London's Totteridge, cost more than £4 million to build and attracted a £10 million offer as soon as it was completed.

Built around a dome-topped atrium, the three-storey house has eight bedrooms, nine bathrooms, a health and sports complex, a five-a-side football pitch, a tennis court

and what is claimed to be the largest privately owned swimming pool in Europe.

Light Years were called in to design and install a lighting scheme that cost in the region of £100 000. The centrepiece of the entrance hall is a 2.65m high, 1.8m wide chandelier. A Georgian design in Bohemian crystal, it has hand-blown arms and 3665 hand-cut crystal drops.

A concealed winch in the ceiling lowers the 400kg 60-light chandelier for cleaning. Two-arm crystal



Above left: downlights and giant table lamps create atmosphere in the living area. Above: swimming pool in Mickey Most's new house.

brackets on the hall walls and staircase match the chandelier.

In the living room, Light Years was faced with a ceiling height of some 16.5m and the considerable natural light provided by the domed atrium. A mixture of low and mains voltage downlights is installed around the atrium and

along the galleried landing, with crystal wall brackets and giant ceramic-based table lamps to create atmosphere at night.

A row of low voltage downlights is positioned above the television area to neutralise glare from the cinema-sized screen that descends from the ceiling.

The mahogany bar has brass uplights contributing to a 1920s Art Deco look. By night, they are supplemented by a mixture of low and mains voltage downlights.

Mickey Most's all-black bathroom has large mirrors lit by Art

Deco type black-and-gold fittings with Lalique style glass shades, supplemented by a subdued level of sealed, low voltage down-lighting.

Outside the house there are 40 Georgian style flush fitting lanterns in matt white, with the tennis court and football pitch lit at night by 400W high pressure sodium floodlights.

Light Years' director, John Barnett sums it up by saying, "It is lighting as much as anything else, that has turned this palace into a family home."

Seaside shopping with a nautical flavour



A variety of metal halide fittings light malls in Canute's Pavilion.

Canute's Pavilion covered shopping centre is part of Ocean Village, a £150 million development of Southampton's dockland. It is on two floors comprising shops, office suites, restaurants and a gallery for exhibitions.

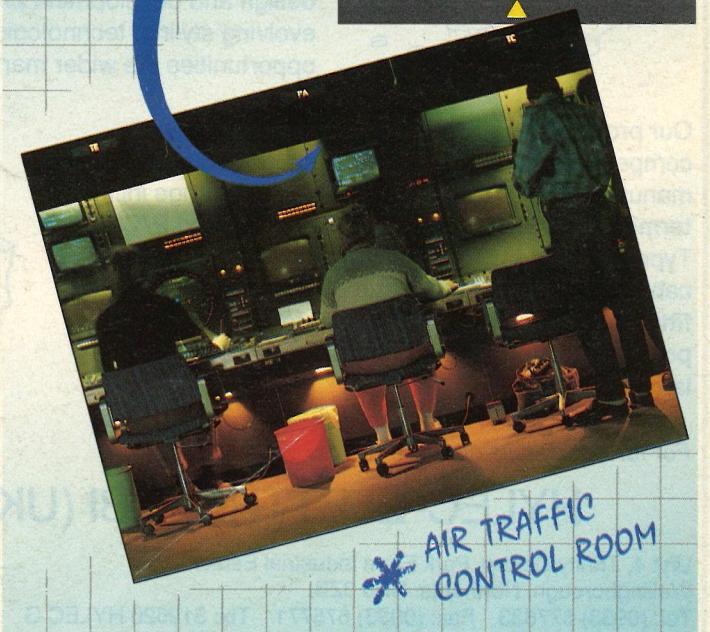
Lighting Design Ltd was brought in to design the lighting for phase 2 and upgrade the lighting in phase 1.

It specified Wotan's metal halide HQI-TS lamp for the mall lighting because of its long-life, energy-saving characteristics and colour rendering, which brought out the blue of the nautical interior colour scheme.

Two wattages have been used in the Metro fittings, from Designed Architectural Lighting, which come in two versions. The first is a functional recessed downlight which is used for perimeter mall lighting; the second version has an etched circular glass floating 100mm beneath the ceiling line and is used to provide a decorative link between phases 1 and 2.

Ocean Village is a significant urban renewal project which is transforming disused dockland into a prestigious waterside community.

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NEWS

London symposium will discuss stage lighting

Lighting for the theatre is the subject of an event being organised by the International Philips Centre for Lighting Education and Research. It will take the form of a one-day symposium at the Bloomsbury Theatre, London, on 20 April.

At the morning session, which will be introduced by Jonathan Miller, Francis Reid will talk about the aims of the stage lighting designer and Bob Anderson will review the latest equipment for stage lighting.

After lunch, two leading theatre lighting designers, David Taylor and John B. Read, will describe their work, and André Tamms will close the symposium by describing his work and its links

with the work of the architectural lighting designer.

Amateurs and professionals concerned with the fundamentals of stage lighting will find it of interest, as well as lighting designers in other fields who would like to know how theatre lighting experts go about their task.

Registration fee is £75 with a discount of £10 for members of the co-organising institutions, i.e. CIBSE Lighting Division, the Association of Lighting Designers and the Association of British Theatre Technicians.

Further details are available from Ann Nash at the Bartlett School of Architecture and Planning, University College London, 22 Gordon Street, London WC1.

ations of this sophisticated method of lighting control will be discussed, along with trends and future demands.

The Glasgow event will be held on 15 February at the Hospitality Inn; the Manchester seminar will take place on 17 February at the Hotel Piccadilly.

Registration fee is £46 including VAT. Bookings should be made through Anna Scalera, Lighting Industry Federation, 207 Balham High Road, London SW17 7BQ. (Telephone 01-675 5432).

LEN is your magazine. Letters to the Editor on topical lighting issues are always welcome.

Lighting the electronic age

Glasgow and Manchester are the venues of two seminars being held in February by the Lighting Industry Federation under the title *Lighting the electronic age*.

An insight will be given into high frequency operation of fluorescent lamps as part of energy management systems. The implications of this sophisticated method of lighting control will be discussed, along with trends and future demands.

The Glasgow event will be held on 15 February at the Hospitality Inn; the Manchester seminar will take place on 17 February at the Hotel Piccadilly.

Registration fee is £46 including VAT. Bookings should be made through Anna Scalera, Lighting Industry Federation, 207 Balham High Road, London SW17 7BQ. (Telephone 01-675 5432).

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DIARY

FEBRUARY

7

CIBSE Energy Code Part 2B. An evening meeting at the Trinity Maritime Centre, Newcastle upon Tyne, arranged by the North East Region of The Chartered Institution of Building Services Engineers. Details from M J Calvert 0642 766266.

8

In the morning light. Address by chairman of CIBSE Lighting Division at an evening meeting of the North West Region of CIBSE. Venue: School of Architecture, Manchester University. More details from J H Troughear 061-449 0276.

9

Road lighting. One-day conference in Leeds organised by the Northern Region, ILE. Details from J Brewis 0484 22133.

14

Lighting of the Royal Scottish Museum. An evening meeting at the RSM in Edinburgh held by the Scottish Region of CIBSE. Details from R S Webb 031-449 5111 extn. 4619.

Design: science or art. An evening talk arranged by the South West Region of CIBSE. Details from D Lowdon 0272 279419.

Battery stand-by systems. Evening meeting at Leeds University held jointly by Yorkshire Region of CIBSE and Leeds Power Section of the Institution of Electrical Engineers. Details from G D Hoyle 0532 674411 extn. 351.

16

Colour for light. A seminar at the Winter Gardens, Weston-Super-Mare, arranged jointly by ILE Western Region and CIBSE South West Region. Details from D Wilson 0272 266031 extn. 686.

17

Lighting the electronic age. One-day seminar in Manchester. See story on this page.

18-22

International Frankfurt Fair. Details from Collins and Endres 01-734 0543.

15

Design and use of modern platform vehicles. An evening meeting at the West Lodge Park Hotel, Hadley Wood, arranged by the London and South Eastern Region, Institution of Lighting Engineers. Details from F P Ramsey 0920 870567.

Vehicle lighting: latest developments. A meeting organised by the Midland Region, ILE. Details from R B Simpson 0602 269711 extn 2243.

1992 and the European Market. An afternoon seminar to clarify the position of building services with regard to the European Market and enable engineers to take advantage of the opportunities.

Venue: Building Services Engineering Centre, London. Further details from member services department, CIBSE 01-675 5211.

Lighting the electronic age. One-day seminar in Glasgow. See story on this page.

22

Sheffield total energy scheme. Evening meeting at the Rutland Hotel, Sheffield, organised by the Yorkshire Region of CIBSE. Details from G D Hoyle 0532 674411 extn 351.

23

Emergency lighting in practice. A technical evening at the Institution of Engineers of Ireland, Dublin held by the Republic of Ireland Branch of CIBSE. Details from O Reddy, VRMA Consulting Engineers, Tramway House, Dartrey Road, Dublin 6.

27-3 MAR

Lighting technology. Part one of a residential course in Birmingham arranged by the ILE. Details from ILE 0788 76492.

MARCH

1

Classification of hazardous areas containing potentially explosive atmospheres. One-day tutorial arranged by Sira Ltd in London. Further details from Sira conference office 01-467 2636.

7

Charles Marques memorial lecture: Making light of electronics. An evening event in London arranged by the ILE. More details from ILE 0788 76492.

Quality assurance in the electrical

contracting industry. Evening lecture at the Putteridge Centre, Luton, held by the Institution of Electrical and Electronics Incorporated Engineers. More details from IEEIE 01-836 3357.

7-8

Safety of electrical equipment in potentially explosive atmospheres. Two-day course for engineers and managers organised by Sira Ltd. Venue: Chislehurst, Kent. Further details from Sira 01-467 2636.

8

Security lighting. An evening meeting held by the North West Region of CIBSE at the School of Architecture, Manchester University. Further details from J H Troughear 061-449 0276.

The new hospital lighting guide. Meeting at the Old Royal, Birmingham, arranged by the West Midlands Region of CIBSE. Details from A Singleton 021-706 5511.

9

Lighting and television, including site visit. Meeting arranged by the Irish Region of the ILE. Details from S K Whiteside 0265 4111.

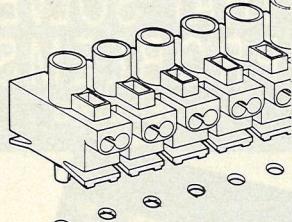
Hospital lighting. A meeting at the Hilltop Hotel, Carlisle, held by the North Eastern Region of the ILE. Details from D J Plummer 0670 361081.

15

Electrical services paper, presented at an evening meeting of the London and South East Region of CIBSE. Venue: LEB, Whitfield Street, London. Details from M Carter 01-348 5171.

WE'RE ON THE WAY TO 1992

The recent association between Hylec Components, one of Britain's fastest growing specialist component distributors, and Elettro Gibi S.P.A. of Italy, already established as one of Europe's leading manufacturers of **connectors and cable accessories**, provides us with the resources and expertise to meet the demands of the single market.



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Reader Service No. 2

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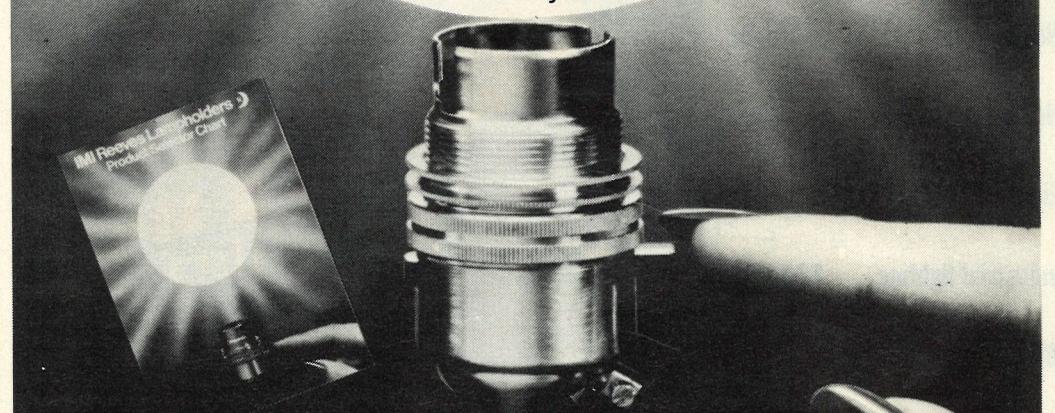
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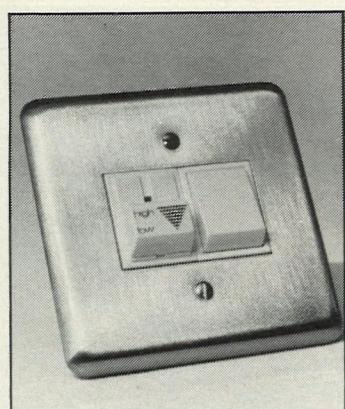
Lighting Equipment News, February 1989

NEWS

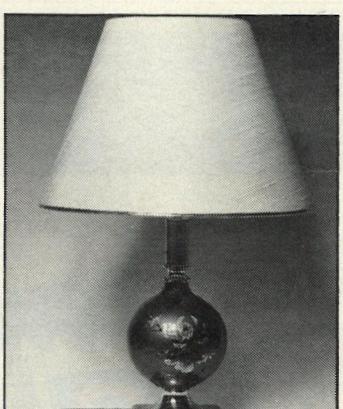
Innovative and highly useful was how a dimmer module was described by the judges of the Decorative Lighting Association's design awards. It won the Russell Trophy for modern design, presented at Lightshow.

Made by Delta Accessories, it is an addition to the Supergrid 8000 gridswitch range. The dimmer controls tungsten lighting loads up to 360W using a vertical slider.

A feature is that several units can be combined and operated by a single dimmer, in either one- or two-way mode. When used with a two-way centre-off switch, the



Dimmer switch by Delta.



Studio 17's table lamp.

Design winners announced

module permits lighting to be turned on at either a pre-set level or full illumination. Only one hard wiring circuit is required.

It is particularly suitable for applications such as hospital wards

and hotels.

Winner of the Pegasus Trophy for the best traditional style design went to Studio 17 for a table lamp.

The cast, polished brass base of the lamp is lacquered either jade or

antique gold colour and is hand cut and inlaid with various brass and nickel designs. It is supported on a brass plinth.

The lampshade in textured fabric is edged with a gold trim.

Bumper student entries

The DLA's third annual Student Lighting Design Award is attracting a record number of entries. Twenty-one colleges have indicated that their students will be competing for the top prize of £1500 cash.

The 1989 awards have attracted entries from all over England, Scotland and Wales compared with entries from 12 colleges last year.

DLA secretary, Graham Samuel, says "The fact that lecturers are now incorporating lighting design into students' normal curricula means that colleges will be generating lighting-conscious designers. It's a tremendous boost for the British

lighting industry.

"There was a vast increase in both numbers and quality of entries when the 1988 award was compared with the first one and we are confident the trend will continue."

Mr Samuel asked for the co-operation of lighting manufacturers and retailers who may be approached by students entering for the award.

"We very much hope that manufacturers will support students if they ask for particular products or facilities which may be necessary for them to complete a prototype. They could end up influencing a top-class designer for future years.

and the 75W size has a quoted life of 3500 hours. Both wattages were previously rated at 2000 hours.

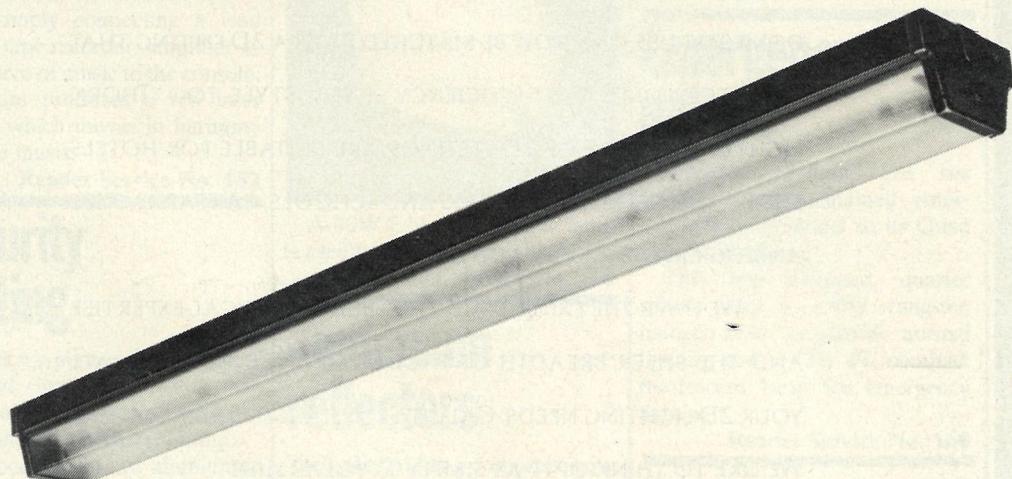
The life of Wotan's Dulux S, D, DE, SE, Compacta and Circolux EL compact fluorescent lamps has been extended from 6000 to 8000 hours.

The new figures have been released as a result of tests in the UK and the rest of Europe.



Lumiance Luxline 65 tubular lighting system is providing attractive, functional illumination for Bristol airport's refurbished restaurant. Luxline 65 is a modular system that includes fluorescent luminaire sections and track sections. A high level of general lighting is provided for the check-out area by fluorescent sections. Displays of food and drinks are accented by spotlights mounted on lighting track.

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COMMENT

Decorative — and safe

Safety is a major preoccupation in the decorative lighting field and the new DLA/BSI Safety of Luminaires Scheme, announced at Lightshow, is a considerable step in the right direction. It represents a cost-effective and comprehensive testing scheme for small companies who would be unable to afford the considerable outlay in terms of financial and manpower resources to go for full accreditation under the BS5750 Quality Assurance Scheme.

Approximate charges are published (£281 for initial surveillance visit, for instance; £219 for annual inspection; £175 for a luminaire test) so companies can be confident that they are not getting themselves involved in an open-ended commitment.

The scheme applies to companies who are accepted by the Decorative Lighting Association under their Code of Practice and who are prepared to have their *whole range* of fittings tested by BSI under the DLA's Safety of Luminaires Specification. Products of companies meeting all these requirements will be eligible to carry a new DLA/BSI label certifying their compliance.

BSI will maintain a register of eligible luminaires, and the onus will be on the manufacturer to inform BSI of any modifications to its luminaires or additions to its ranges.

The scheme, like the DLA's own luminaire safety scheme before it, is intended to help the supplier, retailer and consumer by lending authority to the claim that a product is safe. This is now backed by the prestige of BSI, the UK national standards body.

It is also more comprehensive. The old DLA scheme required a test for electrical safety on the most onerous fitting only in a manufacturer's range; in addition to electrical requirements, the new scheme makes certain constructional requirements such as stability.

So, increasingly, it will no longer be reasonable for the smaller manufacturers, who are the main suppliers to the domestic market, to complain that there is no quality scheme suitable for their needs: the new DLA/BSI Code of Practice Scheme has been specially formulated with them in mind. Let us hope it will be equally accepted by the retailers.

LIGHTING EQUIPMENT NEWS

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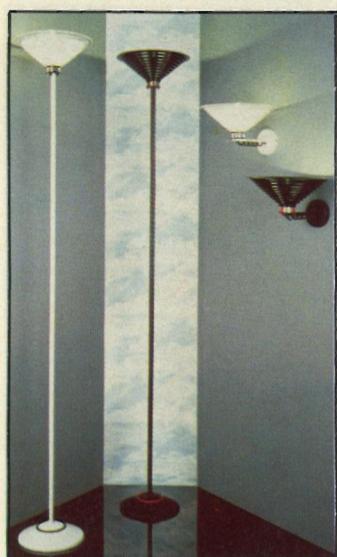
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NEW PRODUCTS



High output LV spotlight

A low voltage spotlight by Reggiani Ltd has been designed for areas where the ceiling height exceeds 3m.

It incorporates a transformer and uses lamps available in three beam angles, 10°, 30° and 60°.

The 111mm diameter, computer designed aluminium reflector is finished in either silver or gold colour.

The luminaire is made of cast aluminium. It accepts laminated or electronic transformers and is ventilated at the back to disperse heat generated by the light source.

Both the head of the luminaire and the top fixing (to track or sur-



face mounting plate) can be rotated through 358°.

Reader Service No. 154

Compact sodium floodlight

Sonscan is a new floodlight from Simplex Lighting Ltd. It uses a 70W tubular high pressure sodium lamp and is weather and impact resistant. Ingress protection rating is IP54.

The compact housing is made of white GRP with a polycarbonate

Spotlight on adaptability

Latest addition to Lighting Workshop's low voltage spotlight range is the Adaptor Spot.

The fitting can be surface or track mounted on to Mini-Track or Tube Track 30, and uses the 12V 50W M32 halogen lamp in conjunction with an adjustable reflector. This allows the light beam to be adjusted from a narrow to a wide angle. A remotely mounted transformer is used. Adaptor Spot is available in black or white.

Reader Service No. 155



period, the light output is sampled and monitored and the result indicated visually, although a beeper can also be supplied if required, to indicate a fault.

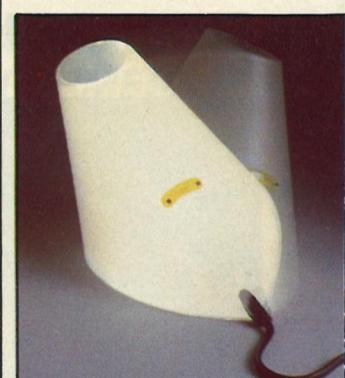
Under normal conditions, when the emergency system is healthy, a green light shows. During the test sequence this flashes. When the test is complete, the green light returns to continuous illumination unless a fault is detected, then it goes out and does not re-light until the fault is corrected, so indicating which fitting needs to be investigated.

Reader Service No. 162

Saucer shaped uplights

An unusual table or bedside lamp available from Artemide GB Ltd is called On Off.

It is made of flexible plastic and is switched on and off by repositioning it and changing its balance.



The floor standard has a slender supporting stem on a circular base and a foot operated dimmer/on/off switch. On this model, the head can be tilted to direct the beam.

Finishes available are textured charcoal, textured white and brass plated.

Reader Service No. 159

Emergency uplight

Anglepoise Lighting Ltd has added a non-maintained emergency lighting model to its Quad uplight range.

This wall mounted, quarter sphere uses a 150W tungsten halogen lamp to provide normal lighting and a 13W PL compact fluorescent lamp for emergency lighting.

Reader Service No. 160

Transformers

Westropp Ltd has announced a 50VA transformer for low voltage lighting. Safety features include thermal fuse and shrouded output terminals.

The transformers can be used with dimmers. They are available ex stock.

Reader Service No. 161

output than the previous generation of compact fluorescent lamps.

Other advantages are instant start and flicker-free lighting. The lamps are also lightweight and have a nominal life of 8000 hours.

They are a straight replacement for GLS lamps and fit B22 or E27 lampholders.

Reader Service No. 163

Glass uplights

Sirio floor standing and wall mounted uplights are the latest additions to the range available from retailer Lightstyle.

A cast iron base on the floor standard supports a slim metal stem and conical, coloured glass diffuser with a ribbed profile. An electronic dimmer controls the 250W tungsten halogen lamp.

Sirio is produced in two colourways: black and white with details highlighted in red and chromium respectively.

Reader Service No. 151

Laser display for shops and discos

Laserbete, by Scientifica-Cook Ltd, brings the exciting atmosphere created by laser light to clubs, wine bars and shop windows as well as discos.

The small console, about the



size of a portable television set, projects a laser beam from its screen onto a facing wall or ceiling. When used in a shop window it must be projected onto a screen, such as white fabric, and must not be positioned where the laser beam could enter anyone's eyes.

By simply connecting a lead from a tape recorder, amplifier or any source of music to the console, the beam produces a red laser display which moves in harmony with the music.

Reader Service No. 152

Security lighting

Photolux is a photo-cell controlled bulkhead luminaire from JSB Electrical plc. It uses a 24W, PL type, compact fluorescent lamp.

The body is diecast aluminium and the diffuser is made of polycarbonate. The luminaire is ingress protection rated IP65.

A built-in photo-cell controls up to six additional luminaires, giving automatic control of a row of lighting fittings from one Photolux unit. The lamps are switched on when the ambient lighting level falls below 55 lux.

Reader Service No. 153

Aluminium reflectors

Tridonic Ltd has a comprehensive range of aluminium reflectors for use with metal halide, high pressure sodium, compact fluorescent, and mains and low voltage tungsten halogen lamps.

Full photometric data is available for each reflector on request. Standard items are in stock and a design service is offered for special requirements.

Reader Service No. 157

LIF LINE

BS 5750 — The road to quality

Out of the plethora of meetings, seminars, teach-ins and learned articles about 'that year', at least one simple incontrovertible fact has emerged. The removal of all those barriers to trade will work in both directions, imports as well as exports: we're certainly not going to be the only ones to benefit. It would be foolish to assume that the attention being paid to the opportunities arising from 1992 is confined to the UK.

LIF believes that if we are at least to maintain our share of the home market and, hopefully, increase it and expand further into the wider 'single European market', it is essential to address, as a matter of urgency, the fundamental question of quality assurance. Many lighting manufacturers are already BSI, ICEL or BASEEFA licensees, BSI registered firms or have equivalent approval from other QA bodies or the several major purchasers and government departments who require their suppliers to operate a structured approach to QA. Those manufacturers that are not, should look to their backs and ask themselves how they are going to be able to compete with all-comers in the years ahead.

LIF Council takes this matter seriously enough to make it a requirement of membership of the Federation from the end of this year, and for all new members within 2 years of joining.

LIF sees several good reasons for taking this important step:

1. It will reinforce the premise that membership of the Federation is synonymous with quality and safety.
2. Associated publicity, both by LIF and in collaboration with BSI, will further strengthen the market demand for suppliers to be assessed to BS 5750 (and certification generally).
3. This publicity will also promote the fact that QA is an integral part of BSI's product certification activities, which is not yet the case with some of the other European certification bodies.
4. It will convey to the UK lighting industry in general the need to be alert to the changing international climate with regard to product quality.

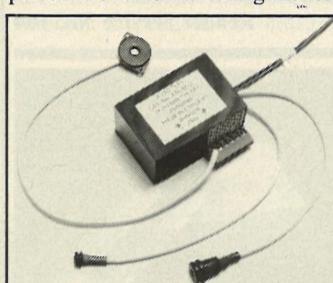
Apart from the paramount need to be able to compete profitably in the market place, there are, of course, other very important reasons why a lighting manufacturer should seek and obtain the reassurance that certification can confer. The Consumer Protection Act 1987 and the EEC Product Liability Directive which came into effect in March 1988 both impose certain duties on the manufacturer, duties which independent assessment of quality assurance and, perhaps more important, certification to British Standards, can help you meet.

It is now generally agreed that operating a QA system independently assessed as conforming to BS 5750 can be an aid to defending, and a means of avoiding, product liability suits. It has also been found to reduce waste and ensure customer satisfaction. All of which leads one to ask whether any manufacturer can afford not to be involved in this QA/certification activity. Our overseas competitors will be, sooner or later — let's be there first!

Automatic emergency testing

The Autotest unit developed by Emlux Ltd tests emergency lighting installations automatically. The compact (75 x 50 x 37mm) Autotest module is easily wired into non-maintained, maintained or sustained circuits for fluorescent tubes from 4 to 125W.

Autotest interrupts the mains supply once every 2.2 weeks. On seven successive occasions this simulation of a mains failure lasts for eight minutes, on the eighth the period is one hour. During the test



period, the light output is sampled and monitored and the result indicated visually, although a beeper can also be supplied if required, to indicate a fault.

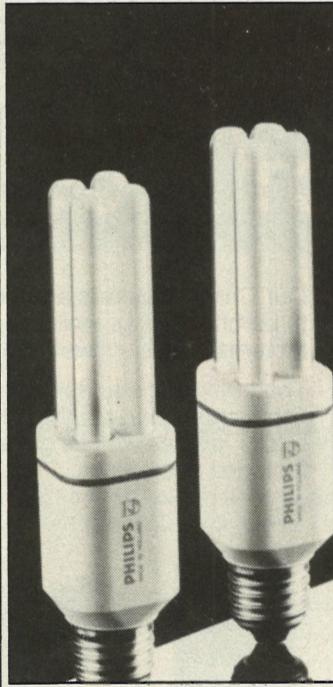
Under normal conditions, when the emergency system is healthy, a green light shows. During the test sequence this flashes. When the test is complete, the green light returns to continuous illumination unless a fault is detected, then it goes out and does not re-light until the fault is corrected, so indicating which fitting needs to be investigated.

Reader Service No. 162

Electronic compact fluorescent lamps

The PLCE range of electronic compact fluorescent lamps introduced by Philips Lighting is available in 9, 11, 15 and 20W ratings.

Increased circuit efficiency through the use of electronics means that these lamps consume even less power for a given light

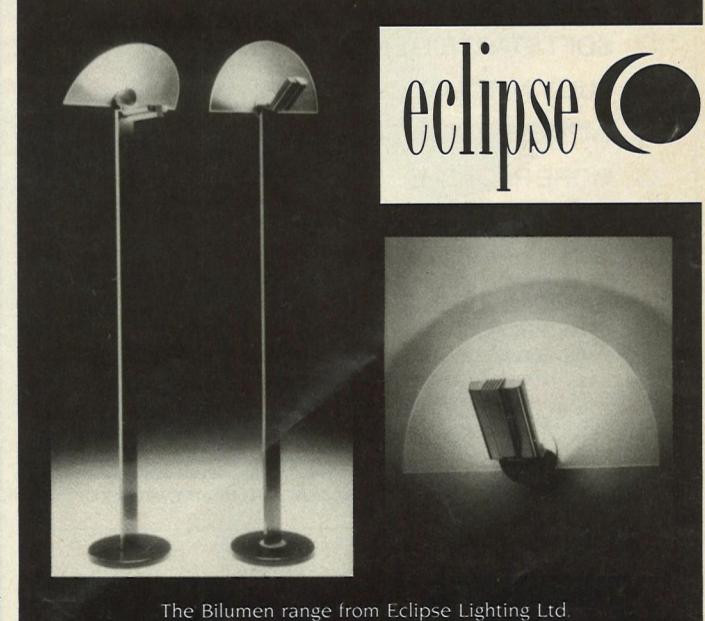
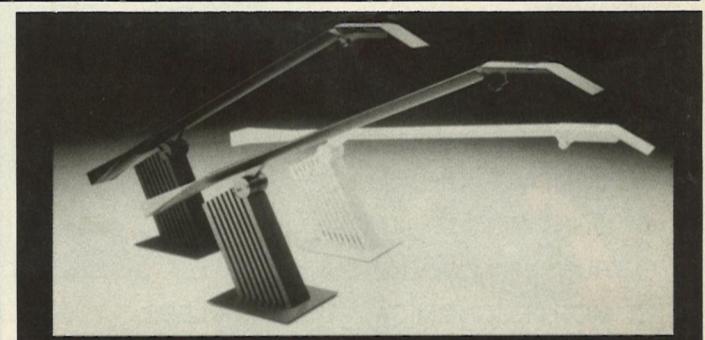


output than the previous generation of compact fluorescent lamps.

Other advantages are instant start and flicker-free lighting. The lamps are also lightweight and have a nominal life of 8000 hours.

They are a straight replacement for GLS lamps and fit B22 or E27 lampholders.

Reader Service No. 163



eclipse

The Bilumen range from Eclipse Lighting Ltd.
8-10 West Mills, Newbury, Berkshire Tel: 0635 36111 Fax: 0635 38090

NEW PRODUCTS



Display lighting range

Philips Lighting has launched a collection of miniature spotlights and downlights for retail, leisure and commercial applications.

There are two groups of spotlights, White Montana and Ceramique Montana, for mounting on either specially designed mini-track or ceiling mono-points. The transformer and adaptor are designed to complement the range.

The Ceramique Montana spotlights are made of ceramic materials which are resistant to temperature build up.

They use low voltage dichroic halogen lamps rated at either 50,

65 or 75W.

One design combines a matt grey ceramic body with opaque glass cowl; two designs have a louvred cowl, one of which is complete with barn doors, and the last style has an optional coloured dichroic glass filter.

White Montana spotlights are in three styles: a streamlined model with semi-exposed lamp (illustrated), a version with cowl and one with the lamp totally exposed.

There are two designs of adjustable, recessed downlight, each available in a choice of white or gold coloured finishes.

Reader Service No. 164



Emergency lighting

Gent Ltd has launched a series of emergency lighting including exit signs and spotlights.

The ten self-contained models encompass most applications, from small shops to large commercial and industrial premises, providing a choice of styles and light outputs.

Constructed from either injection-moulded polycarbonate or sheet steel, the models are extremely tough. They are stated to meet ICEL standards and the requirements for the 'F' mark, (safe for fixing to flammable surfaces).

Some models are splash-proof



Fluorescent handlamps for high risk areas

Bricticent International has expanded its range of handlamps with the EHB range of super-tough fluorescent inspection lamps which are suitable for aircraft maintenance and similar high risk areas.

The range includes weather-proof, immersion-proof and explosion-proof units for the harshest environments. Explosion-proof versions are stated to be BASEEFA approved for use in zone 1.

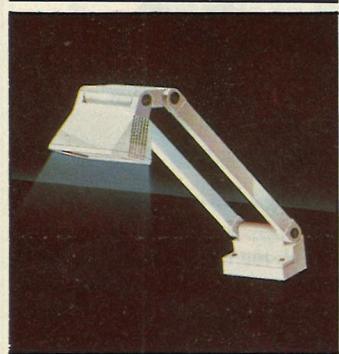
The units are double insulated and shatter resistant. Handles are made of moulded neoprene and are resistant to acids, oils, solvents and water.

Four explosion-proof units are available. Single tube, twin tube and barrel inspection types have various a.c. power options. A d.c. powered single tube unit can also be supplied.

Voltage options for the a.c. types are 240, 110, 50 and 24V. The d.c. units are available in 12 and 24V versions. Each handlamp is complete with 11m of cable, customised lengths can be supplied.

Reader Service No. 170

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



Versatile lighting

Ibiza, a collection of luminaires for either metal halide or tungsten halogen lamps, is being launched by Prima Lighting Ltd.

Adjustability is the keynote and the fittings can be used to give either direct or indirect lighting. This makes them suitable for both display and general background lighting.

There are two wall fittings, and two luminaires for either wall or ceiling use that have double arms adjustable to 180° giving a total reach of almost one metre. These four lights use either 150W, 200W or 300W tungsten halogen or 70W metal halide lamps.

In addition, there is a floor standing uplight that takes a 300W tungsten halogen lamp and has a dimmer.

All the lamps are covered by a sandblasted protective glass for extra safety and efficient diffusion of light. Reader Service No. 165

New interior for lampholders

To avoid problems due to brass interiors of lampholders becoming deformed, Volex Accessories has produced a new lampholder interior moulded in one piece.

An exceptionally strong plastic is used and the lampholders are



available with either long or short skirt. The new design incorporates a non-rising terminal.

These new design aspects will be progressively adopted throughout the company's whole range of lampholders.

Reader Service No. 168

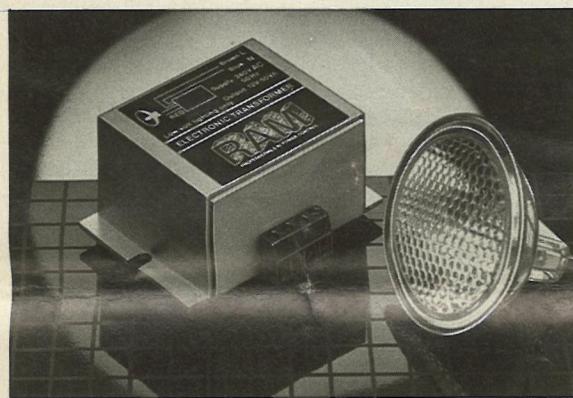
Light sensors

Light leakage or reflections from luminaires can affect light sensors. RYD Design Ltd has a range of switches with 3mm sensors and miniature electronics which can be matched to the requirements of luminaires.

Ratings vary from 60W to over 1kW, with prices from £2.50.

Reader Service No. 169

MIN SIZE



MAX EFFICIENCY

The advanced design of the RAM low voltage 12 volt electronic transformer is the result of an extensive 3 year development programme.

Designed mainly for tungsten lighting, its small aluminium case contains a host of features not found in conventional transformers.

Just look at the benefits:

- COMPACT - ONLY 56 x 50 x 28mm
- LIGHTWEIGHT - JUST 100 grams
- RUNS 40% COOLER
- MORE ECONOMICAL - USES 15% LESS ENERGY
- SOFT START EXTENDS LAMP LIFE
- FULLY AUTOMATIC FAILSAFE
- IMPROVED SCREENING
- MORE RELIABLE
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Reader Service No. 7

MINOLTA METERS MAKE MEASURING LIGHT WORK!

In the factory, office or laboratory, Minolta Meters make light of measuring!

Superb design and advanced electronics ensure accurate and reliable results - time after time.

Our Chroma Meters are ideal where the colour of luminaires has to be checked as well as light output. Read-out is digital and the Meter is battery powered and fully portable.

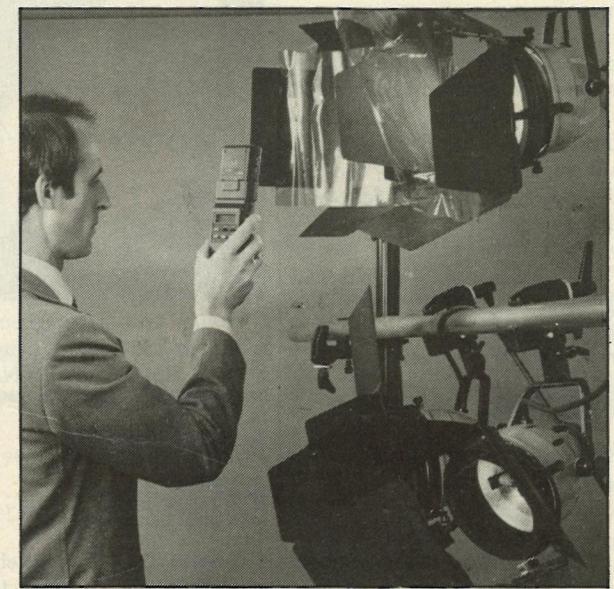
The Luminance and Illuminance Meters can be used to measure light output and brightness of lamps, back-lit panels, legends, LED's, etc, as well as general illumination levels in warehouses, factories and offices.

We make Meters for most applications - see if we can make your light work!!!



For full details of all Minolta Light Meters, or a "no strings" demonstration contact:

The Industrial Department at Minolta (UK) Limited
1-3 Tanners Drive, Blakelands North, Milton Keynes,
Bucks MK14 5BU. Telephone: (0908) 211211



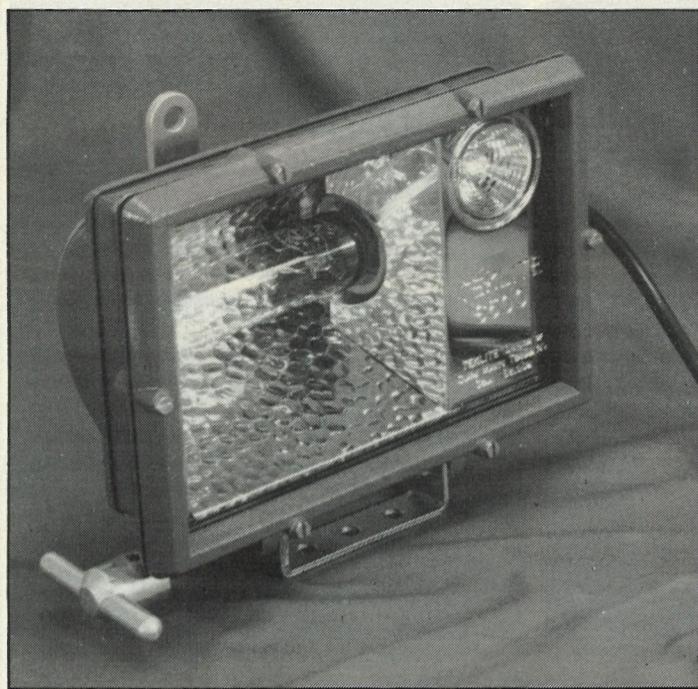
CHROMA METER



Reader Service No. 8

Lighting Equipment News, February 1989

NEW PRODUCTS



Portable emergency floodlighting

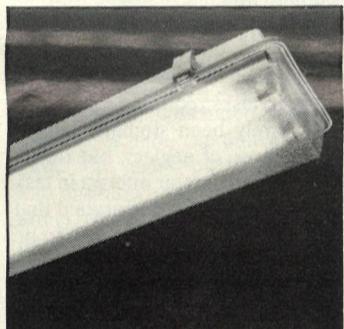
The Teklite 6500 lighting system from Clark Masts Teksam Ltd uses a transformer which converts the 12 or 24V d.c. electrical supply of an automobile battery into a suitable form to power a high pressure sodium lamp.

The system produces 6500 lumens for a consumption of less than 8A of current from a 12V battery. The drawback of warm-up

time associated with sodium lamps is overcome by including in the floodlight housing a 50W filament lamp which switches out automatically after two minutes.

Typical applications for the system are roadside emergencies, night-working loaders at airports and harbours, and tunnel and sewer inspections.

Reader Service No. 171



Tough jetproof luminaires

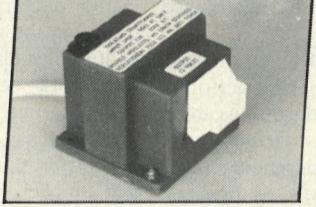
Fortress range from Philips Lighting is a full range of jetproof and dust-tight fluorescent luminaires in a robust GRP housing which has ingress protection rating IP65.

The luminaires are packed complete with Colour 35 lamps and have an option for emergency operation (three hours non-maintained).

Applications include loading bays, food processing areas and car parks. The range of wattages is 18, 36, 58 and 70W single or twin lamp luminaires.

Reader Service No. 172

LOW VOLTAGE LIGHTING TRANSFORMERS



Our range now includes the 50 VA
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More elements in Kingsprofile

Further additions have been made to the Kingsprofile lighting system from Futmis Ltd. Wall mounted elements are now available with brackets that give both mechanical support and cable entry facilities.

Other modules incorporating

recessed fixed low voltage downlights have been specifically developed to facilitate relamping.

The lampholder is fitted to a steel plate which is retained by a pair of magnets. This not only ensures that the lamp fits securely but also makes relamping easy.

All transformers and control equipment are housed within the profile.

Reader Service No. 173

Hand-held searchlight

A powerful hand-held searchlight has been introduced by Francis Searchlights Ltd.

It uses a xenon lamp and has deep parabolic mirrors which produce an exceptionally tight, narrow beam. The company claims that the searchlight could illuminate a newspaper 1km away to a level of 20-30 lux!

Originally designed for security,



marine and emergency service use, the FX100 has also been used for internal inspection of industrial chimneys.

It operates from any 12V power supply, including a portable power pack or the electrical circuit of a vehicle or boat.

Reader Service No. 174

Low voltage task light

Anglepoise Lighting Ltd is launching a low voltage task light. The 90LV is a 20W 12V tungsten halogen light offering improved light control and cost efficiency, making it suitable for modern offices.

Unlike the majority of tungsten halogen lamps, that used in the 90LV has an axial filament which gives better light control.

Based on the adjustment mechanism of the model 90, the



90LV is available with the company's full range of mounting brackets.

Reader Service No. 175

Submersible torches

Lejon has a range of rechargeable waterproof torches from the USA which is stated to be approved for use in hazardous areas and also to meet military specifications.

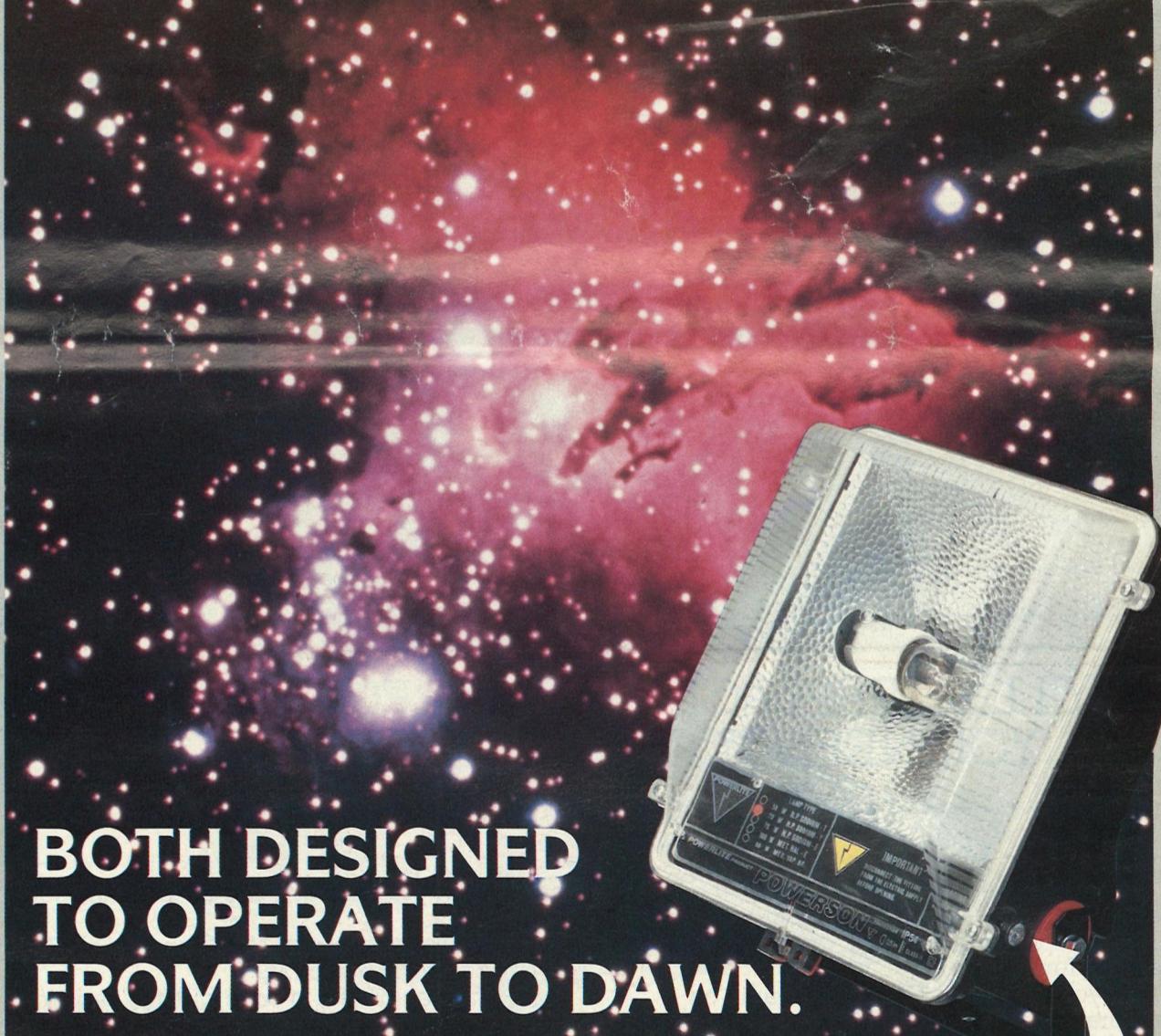
The torches are moulded from Lexan polycarbonate and use high intensity 30-hour xenon lamps, with dioptic computer designed reflectors.

All are submersible to a depth of 500m and are currently being used by the United States navy.

Models range from a small pen torch to one that has an adjustable beam, back-up lamp filament and a sealed magnetic switching module.

Reader Service No. 176

TWO GREAT CREATIONS



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.



Modern lighting at work

Lighting is an important aspect of the workplace environment. Peter Boyce considers the ways in which it can affect task performance.

Light is the medium which allows our visual system to operate. With it we can see; without it we are blind.

Nearly all forms of work involve vision, so lighting has always been associated with work.

And people consider the lighting provided on their work to be important. When the occupants of twelve offices were asked to identify the three most important

aspects of the environment to them, the occupants placed good lighting first¹.

But what exactly is good lighting? The functional answer to this question is lighting which allows the work to be done safely, quickly, accurately and in comfort — but what sort of lighting is that?

Before we can answer this question we need to know something about the way lighting affects

people's ability to work. Obviously, different forms of work, place different requirements on the visual system but probably one of the most basic requirements is the ability to move about a space without injury.

Experiments conducted in coal mines² and under emergency lighting conditions³ have shown that only a small amount of light, evenly spread over the whole area,

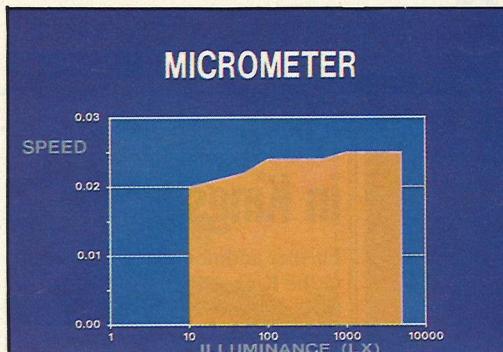


Fig. 1. Effect of illuminance on task performance.

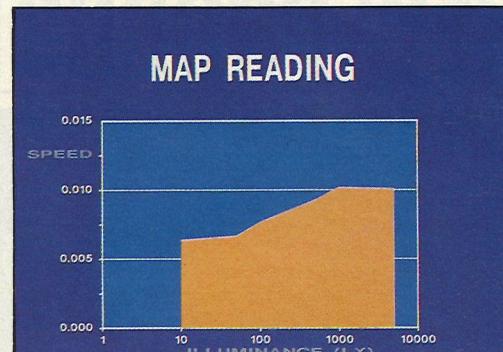


Fig. 2. Effect of illuminance on task performance.

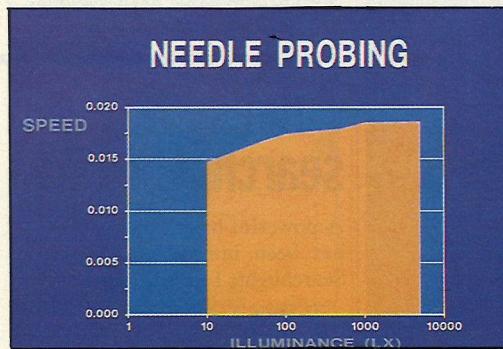


Fig. 3. Effect of illuminance on task performance. It is needed to ensure safe movement but if the illuminance (as the amount of light falling on a surface is called) is too low, movement is

likely to be hazardous. In this way minimum lighting conditions necessary for safety, either indoors or outdoors, can be identified.

Of course, safe movement is hardly all there is to safety at work. Some machines, such as presses and saws, are inherently dangerous and anyone using them needs to be able to see detail. Fortunately, the effect of lighting on the ability to see detail has been studied for many years.

The improvement in visual acuity, contrast sensitivity and other measures of visual system capabilities which result from increases in illuminance are well-established⁴. The general trend is that the greater the amount of light available, the finer the detail which can be perceived; hence, the common practice of taking work to a window when we need to see fine detail.

However, the visual aspects of safety in tasks requiring fine detail have rarely been studied. This is not because of neglect, but rather because of a greater interest in task performances; it being argued that if the lighting allows the task to be performed quickly and accurately, then the visual contribution to safety is complete anyway.

That lighting does affect the performance of tasks is easily established. Increasing the illuminance on a wide range of practical tasks, such as reading micrometers, draughting work, map reading and needle-threading (Figs. 1-3), led to increases in the speed of work⁵.

Of course, these increases do not go on for ever. Rather, the relationship shows a law of diminishing returns with the speed of working eventually reaching a maximum level beyond which further increases in illuminance have little effect.

A more detailed picture of this pattern of improved task performance with improved lighting can be obtained from a carefully conducted series of experiments based on reading columns of figures⁶. Two variables were used in these experiments. One was the contrast of the printed figures, which is a property of the material being used: black printing on white paper having a high contrast and light grey printing on white paper having a low contrast.

The other was the luminance of the task, which is the product of the illuminance, the amount of light and the reflectance of the task. The relationship between the speed of reading and these two variables is shown in the form of a performance surface (Fig. 4). This surface can be described as having a plateau and an escarpment.

This shape is important. What it tells us is that the human visual system can maintain performance with only limited deterioration over a wide range of lighting and

task conditions (the plateau). However, once the limits corresponding to these conditions are exceeded, then performance disintegrates (the escarpment).

The plateau and escarpment shape of this performance surface has implications for lighting at work. For all forms of work it is essential to avoid the escarpment. This means that there exist minimum lighting conditions for all forms of work if safety and a reasonable level of performance are to be guaranteed.

Once the conditions are such that the task is on the plateau of performance then the lighting to be provided becomes a matter of economics. This is because the plateau is not a true plateau — rather it is a slowly rising surface which peaks at high contrast and high luminance.

The cost of improving lighting can be related to the improvement in performance. Often such expenditure is worthwhile because the cost of lighting is such that only a small increase in performance is sufficient to justify the cost of better lighting.

Improvements

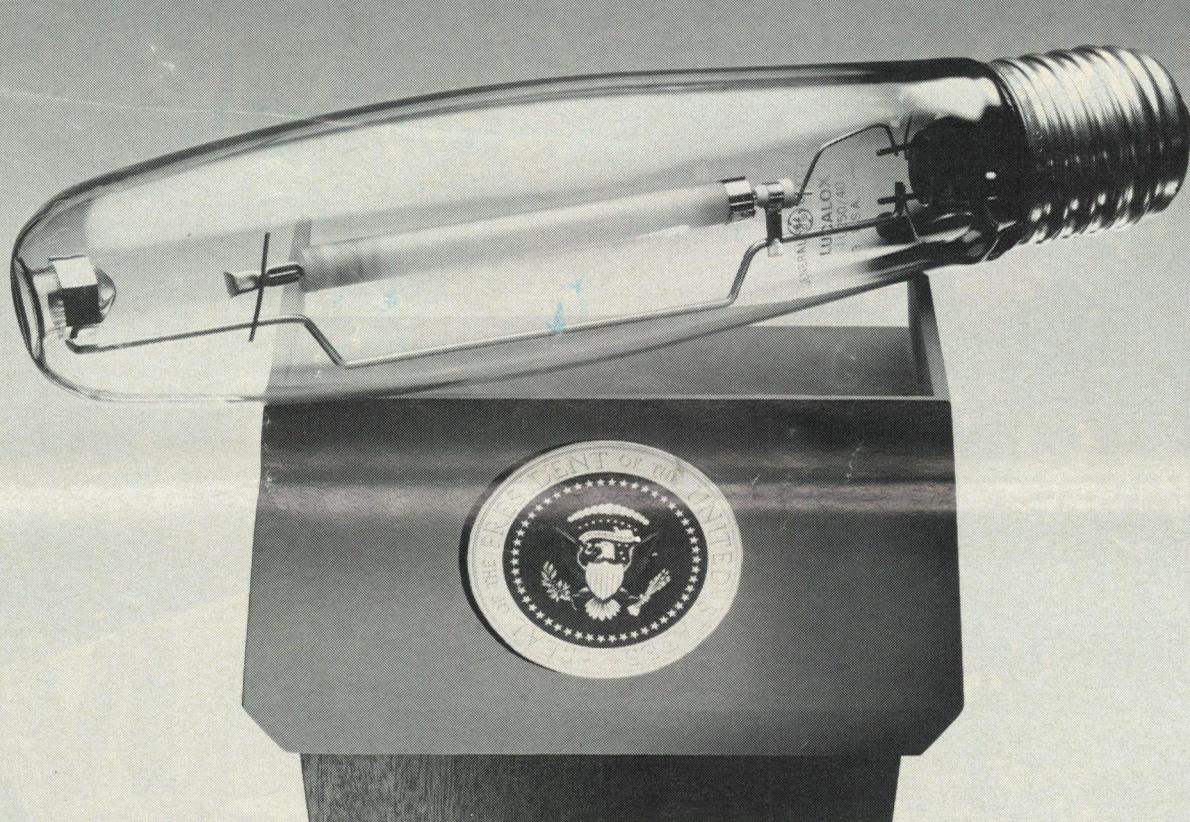
If the plateau and escarpment shape of visual performance applies to the performance of many types of task it can be anticipated that changing illuminance and, hence, luminance would produce improvements in the performance of everyday work. In spite of the difficulties of experimental control often associated with case studies, there are one or two such studies which do demonstrate such improvements.

One such study involved the measurement of the output of a leather factory over a four-year period in the middle of which the lighting installation was changed⁷. The work being done was the punching-out of fault-free panels for handbags, purses and other items from skins using iron shapes and a mallet.

For two years the lighting was provided by daylight supplemented by local fluorescent lighting giving an illuminance of 350 lx. For the next two years, daylight was largely eliminated and a uniform 1000 lx was provided by general fluorescent lighting. The average monthly performances showed a statistically significant improvement in performance with the higher illuminance lighting (Fig. 5).

Another study examined the effect of changing the illuminance from 500 lux to 1500 lux on the productivity of 500 keypunch operators⁸. The results obtained showed that productivity was, on average, 12% less under the lower illuminance, a difference which was statistically significant (Fig. 6).

Further, the lower productivity



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Presidents need to be replaced every four years, even if the incumbent replaces himself.

Lucalox[®], on the other hand, doesn't have to be replaced for five.

So if you installed a GE Lucalox lamp on inauguration day, you could forget it until 1993.

Because under normal usage Lucalox has an average lifespan of 24,000 hours, eight thousand of which we guarantee absolutely.

That's considerably longer than your ordinary high pressure sodium lamp.

The reason for this remarkable longevity is simple.

It lies in our lamp's unique design, as well as its unusual construction.

Lucalox has its unique amalgam reservoir outside the arc tube. As a result, the amalgam is released only as it's needed.

Since the amalgam is released more slowly, the voltage rise within the lamp is also slowed down considerably.

This is the critical point. Because with high pressure lamps, the key to longer life lies in how carefully you control voltage rise.

But we wouldn't want you to get the impression

that longevity is the only thing Lucalox has going for it.

Its unique construction also makes it less likely to crack under vibration.

And far better able to cope with the variations in main voltage that are frequently encountered in factories.

Any lamp with all these virtues is bound to be popular.

So you won't be surprised to hear that Lucalox was chosen to light the prestigious Avenue of the Americas in New York.

And London Bridge.

As well as some very high powered factories.

So next time you're looking for an HPS lamp, it might pay to keep those points in mind.

Long live long life. Long live Lucalox.

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LEATHER WORKING

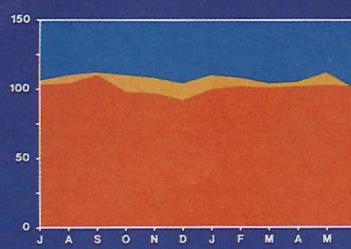


Fig. 5. Measurement of output of leather factory.

KEYPUNCH OPERATORS

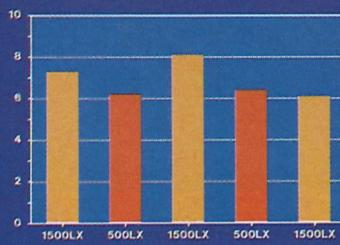


Fig. 6. Productivity of keypunch operators.



Fig. 7. Inspection needs accurate colour judgement.

at the lower illuminance was associated with a greater level of complaints of headaches, fatigue and discomfort⁸. Therefore, there is evidence that changing the illuminance on a task does affect the performance of everyday work.

These results are what would be expected from the plateau and escarpment shape of visual performance, but how can it explain the results of changing the lighting installation used by a group of draughtsmen⁹? In this case the change in lighting resulted in a reduction in average illuminance, from 1550 lx to 1250 lx but productivity increased — a result which would seem to contradict the plateau and escarpment pattern of visual performance.

In fact, it is perfectly compatible with the pattern, because the change in lighting not only changed the illuminance but also the extent to which veiling reflections occurred on the draughting material. Veiling reflections are reflections of high brightness objects — a phenomenon which everyone who has tried to read a glossy magazine near a window will know. The effect of these high brightness reflections is usually to reduce the contrast of the task and the other variable in the plateau and escarpment model is task contrast. Therefore, removing veiling reflections and increasing task contrast might be expected to improve task performance even though the illuminance was reduced.

This result is important because it tells us that there is more to good lighting than just illuminance. Obviously, veiling reflections are also important but are there any others? Undoubtedly there are. Veiling reflections matter because they change the contrast of the task so any other lighting conditions which also change contrast are likely to matter.

What are these other aspects? For a start, there is the background against which the task is seen. Uniformity of illuminance is important because a uniform illuminance together with a uniform reflectance provides a uniform background and, hence, a constant contrast for the task.

Another aspect which is important is glare. Glare is basically a high brightness close to the line of sight. If it is so close that light scattered in the eye itself falls over the image of the task, contrast of the task will be reduced. This form of glare is called disability glare. All of us have experienced it when driving at night and meeting an oncoming car with headlights on full beam. Some people at work also experience it; people such as fork lift truck drivers, and operators directing overhead cranes who have to look up towards the lighting.

Another aspect of lighting

Lighting Equipment News, February 1989

which can alter contrast is the extent to which the lighting is diffused or direct. Diffused lighting is lighting which does not appear to come from any particular direction. It occurs in rooms with white surfaces where a lot of the light is inter-reflected.

Direct light appears to come from a specific direction. It occurs in rooms which have dark surfaces and in which the lighting is emitted in a particular direction. The more direct the light, the sharper are the shadows that it casts.

Such shadows can be either a help or a hindrance to work. They help reveal the shape of three-dimensional objects. Grazing incidence direct light which casts strong shadows is a standard technique for revealing defects in flat surfaces. However, sharp shadows cast around drawing instruments or on the edges of rulers, can be very deceptive.

It can be concluded that the amount of light, the uniformity of light, the directionality of light and disability glare are all likely to affect task performance. Of course, the evidence on which this conclusion is based is empirical.

Visual system

I hasten to add there is nothing wrong with empirical evidence but it is much more convincing if there is a theoretical basis which can be used to explain it.

The basis for explanation of the above empirical results is the human visual system. As I said at the beginning, light is what enables the visual system to operate so good lighting can be defined as that lighting which enables the visual system to respond to the stimuli presented to it quickly and accurately.

On this basis, the amount of light to which the visual system is adapted, which is approximately related to the illuminance produced by the lighting installation and the reflectance of the task itself, is important. Increasing the amount of light to which the visual system is adapted increases the speed of response and sensitivity of the visual system.

Another major variable which influenced the operation of the visual system is the uniformity of illuminance, shadows and disability glare all modify the contrast of the stimuli presented to the visual system.

It should now be clear that there are both empirical and theoretical reasons for expecting the amount, uniformity and distribution of light to affect task performance. But does the theoretical basis of this expectation suggest any other factors which might be important? Yes, it does.

For some sorts of work, accurate colour judgements are required (Fig. 7). These judgements can be

meat carcasses. Either way, accurate colour judgements are more likely to be made if the colours are rendered accurately¹⁰. Different lamps render colours in different ways so the choice of lamp is also important.

Therefore, uniformity, directionality, disability glare and colour are all important to work because they change the stimulus presented to the visual system. But what about other stimuli to the visual system? For example, those stimuli which are too far away from the actual task to affect it directly but are still near enough to attract attention.

Discomfort glare

When stimuli attract attention away from the main task the effect is irritating and undesirable. The phenomenon of discomfort glare can be linked to such distraction¹¹. It is plausible to suggest that where discomfort glare occurs for a long time then the performance of tasks is likely to deteriorate.

To summarise, this brief review of the aspects of lighting which influence the operation of the visual system and, hence, the per-

formance of work proves that the amount of light, the uniformity, the directionality, the glare characteristics and the colour of light are all important.

Of course, not all these aspects are equally important for all work. If a task does not require accurate colour judgement then the colour of light is probably immaterial unless there is some sort of motivational effect of colour, a matter which still awaits examination⁴.

The review also proves that there is more to good lighting at work than simply providing more light. This in turn implies that modern lighting should be about more than simply putting in another lamp and switching it on.

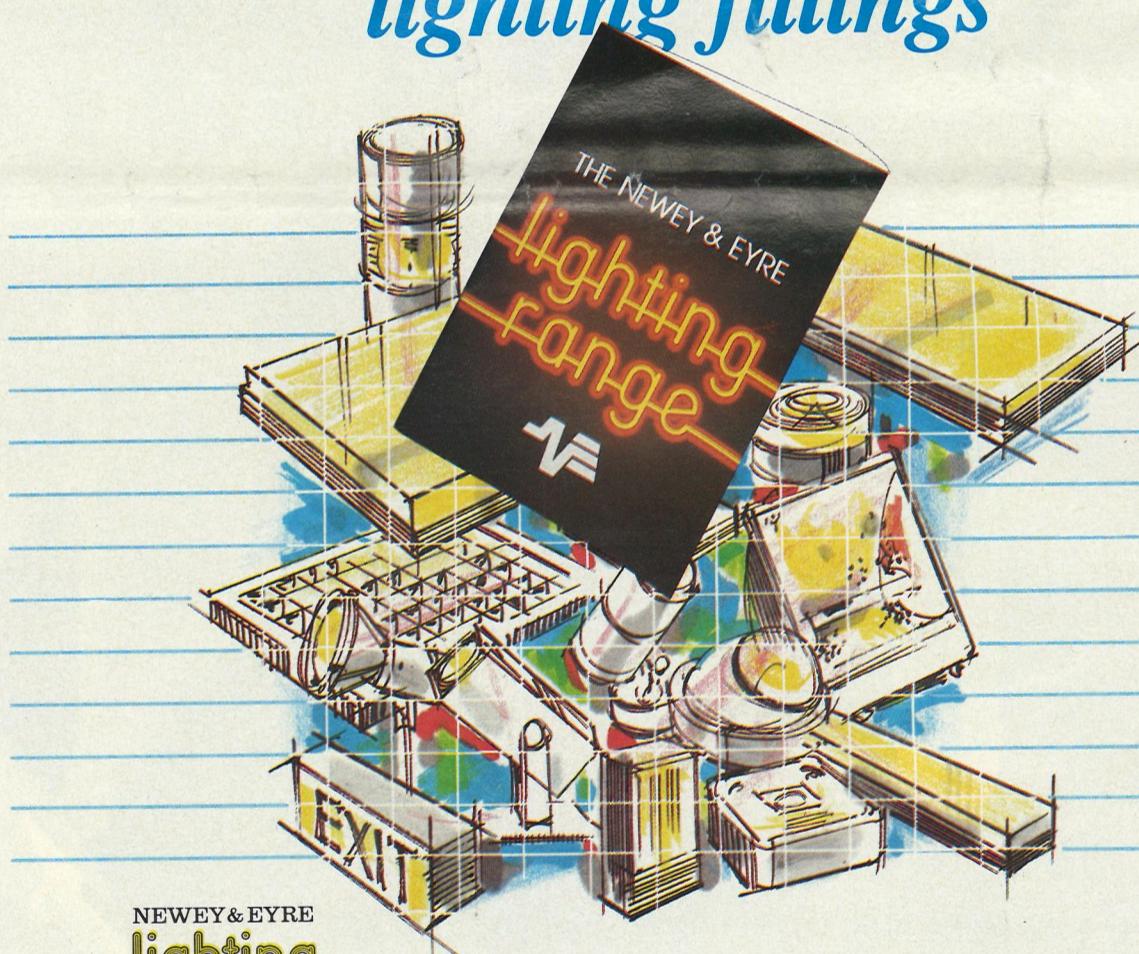
Rather, good, modern lighting at work is the organisation of advanced lighting equipment so as to provide light of the right colour, in the right amount, in the right place and from the right direction in order to allow the visual system to respond quickly and accurately to the stimuli presented to it. If this is done then modern lighting can be a valuable component in raising the productivity of industrial and commercial activity.

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This paper was originally presented at the ELC's Brussels seminar.

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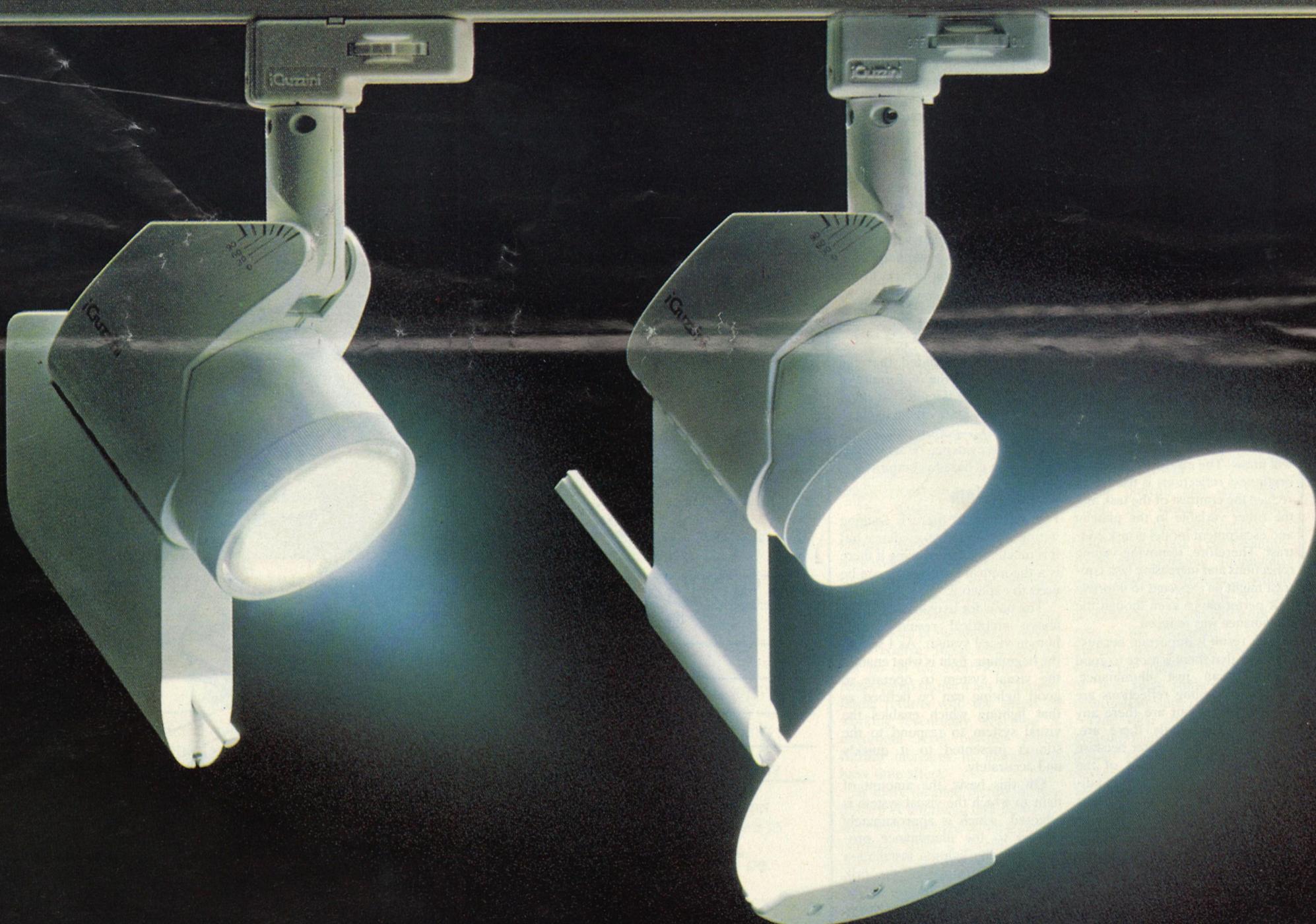


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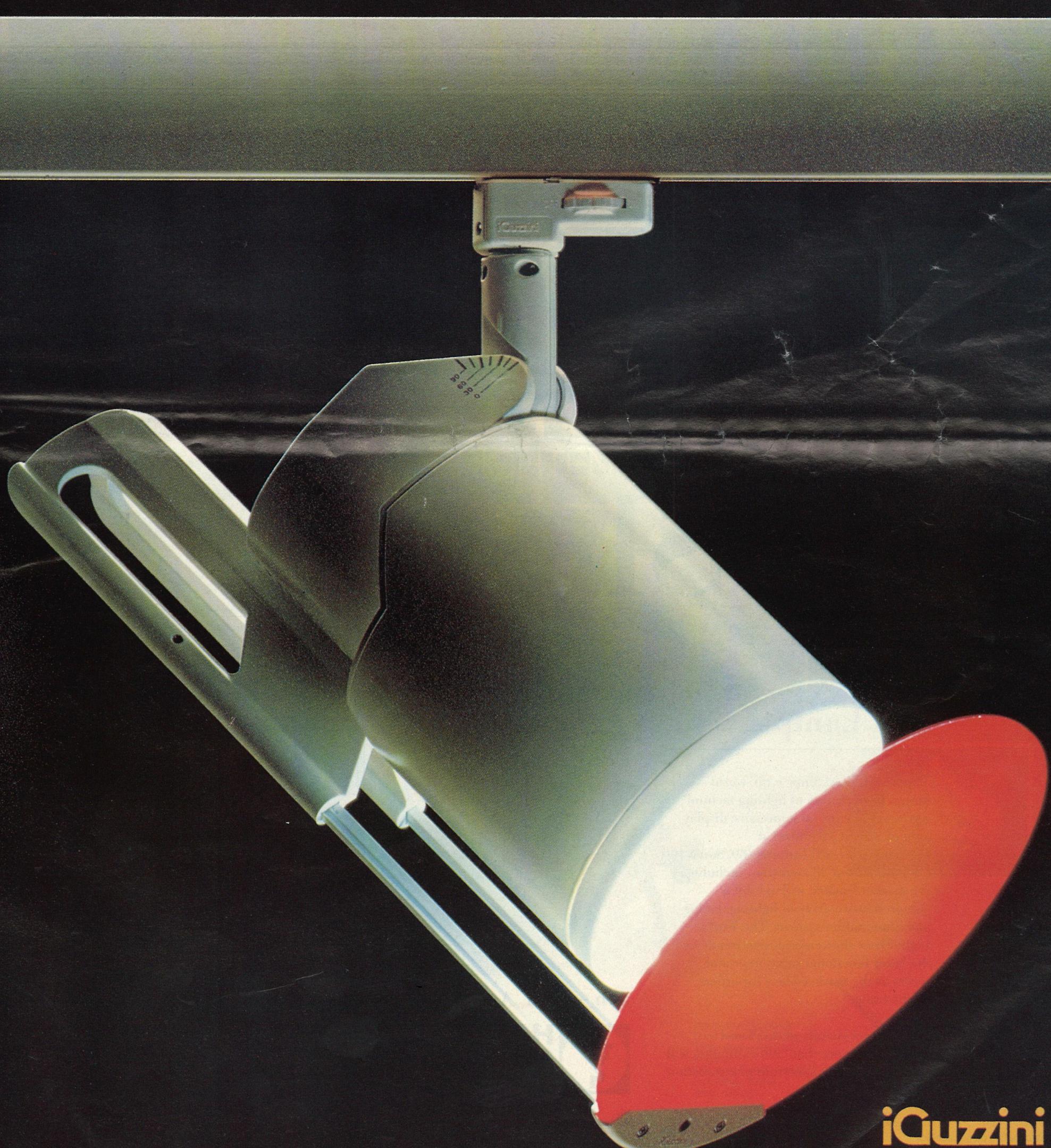
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Hives of industry

Industrial environments can make heavy demands on lighting. *LEN* looks at the need for advice in this field and reviews the new CIBSE design Guide.

The industrial environment covers a vast range of different needs — far wider than offices as a building type, for instance. Yet, 'satanic mill' or hi-tech shed, for many years factories have been the Cinderella area of the Lighting industry. This was true not only of the United Kingdom but worldwide — the CIE made no recommendations in this field, and very

little guidance was available in the USA.

The new CIBSE Lighting Guide to the industrial environment aims to bring factory lighting in from the cold. It is designed as an extension to the CIBSE Code of Interior lighting in much the same way as the existing Design Guides for health care buildings and hazardous environments.

As its purpose it takes the need

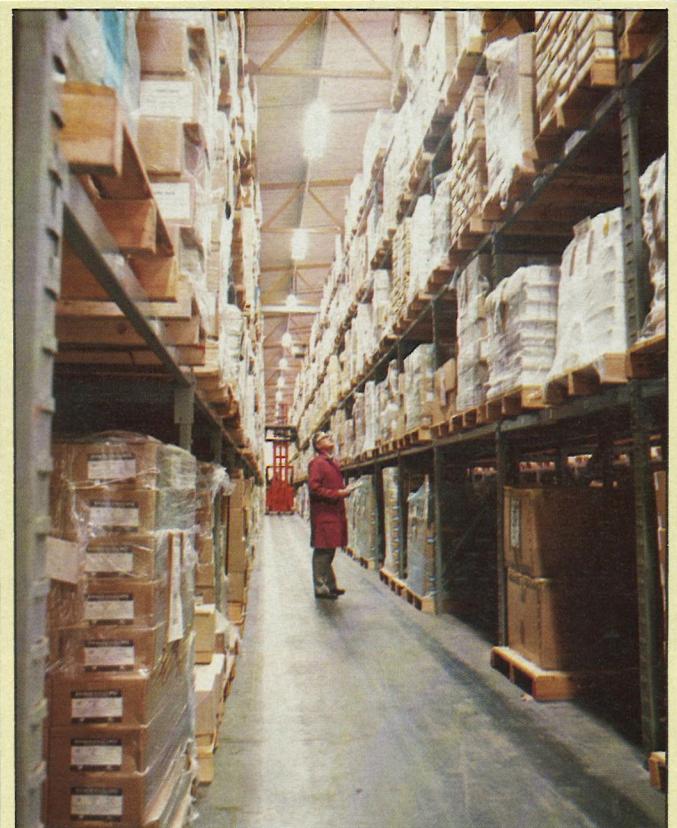
to facilitate work, to ensure safety and to *create a good visual environment*. In this, it goes some way beyond the HSE Guidance Note 38 on Lighting at Work, which merely provides the minimum requirements for health and safety.

The advantages of the Guide are that it is practical, comprehensive, goes beyond the basic requirement of illuminances, and takes the scale

of the industrial operation into consideration. It also recognises the reality that industrial environments can be unavoidably dirty and greasy.

An introductory chapter considers factors peculiar to industrial lighting design. It makes the point that a feature of industry is that tasks often occur in planes other than the horizontal, and that illuminances provided — on the vertical plane in particular — are often too low. This is ascribed mainly to overspacing of luminaires and the use of narrow distribution luminaires where this is inappropriate. Recommended illuminances should be produced on the task plane.

This section goes on to stress the importance of uniformity of illuminance, and the need for the ratio of minimum to average illuminance to be no less than 0.8. Where spaces are divided into working and non-working areas, a ratio of up to 3:1 is permissible, but this inevitably compromises



The stationery store at Barclays PLC, Milton Keynes, has ten narrow high racking aisles which were lit from 168 twin 85W, 1800mm trough reflector fittings mounted on the trunking, with a total installed load of 30.24kW. The illuminance at ground level was 100 lux. These were replaced with 104 Philips GTX luminaires each embodying one 58W, 1500mm fluorescent lamp. The specular reflector gives a narrow distribution of 2 x 16° so that an illuminance of over 100 lux is given at ground level, with good vertical illumination at all levels. The total installed load has been reduced to 7.28kW, a saving of 76%.

future flexibility of the space.

A further feature of factory buildings is the frequent use of bulky plant and machinery, overhead conveyors, and pipe-work, all of which can cause extensive obstruction to the distribution of light.

Techniques for reducing the problems caused by obstruction are then suggested. The importance of reducing the spacing between luminaires is stressed in this connection, as is the necessity of lighting the general surroundings by providing surfaces with high reflectances to minimise glare and even out shadows (at least 0.2 for the floor, 0.5 for the walls and, if light is to be reflected off the ceiling, a ceiling reflectance of at least

0.7).

The design guide then goes on to consider solutions to the problem of glare, a particularly important factor in the industrial situation as it affects the safety of workers. Discomfort glare be controlled by ensuring that the glare index of the installation lies within the recommended limits. With disability glare, which typically occurs when a fork lift driver has to look towards a luminaire in placing a pallet on high-level racking, the solution lies in the careful selection and location of luminaires.

Finally, the introductory section emphasises the limitations of power loadings as a criterion in installation design. These are secondary to the lighting con-

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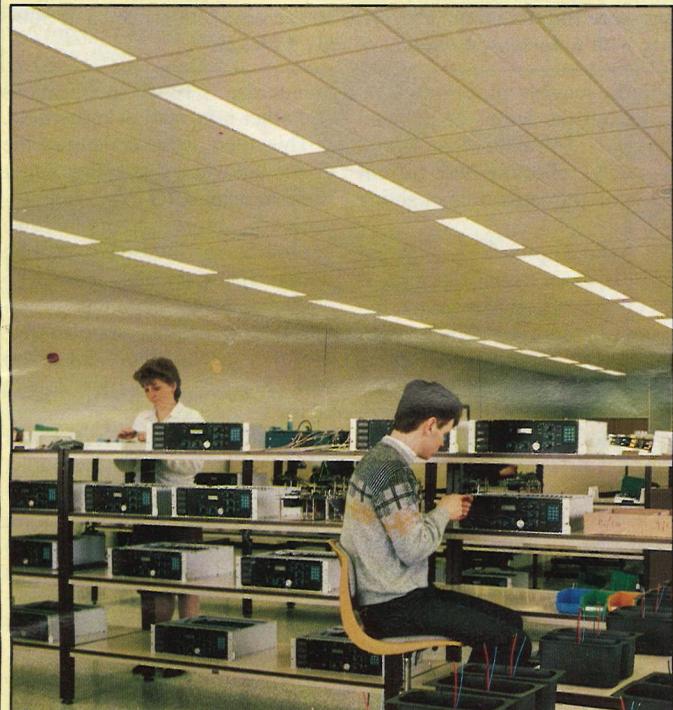
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ditions to be achieved and only indicate the power range within which it should be possible to provide such conditions. In special situations power loading targets might need to be increased. These could include the use of special flameproof or corrosion-proof fittings or where a glare index of less than 22 has to be achieved.

The second section of the Guide deals with individual industrial environments, and these are grouped as in the CIBSE Code. Within each lighting group a simple series of recommendations is given for the different applications, including illuminance in lux and limiting glare index together with any legislation or other relevant practice documents applicable to the purpose group as a whole.

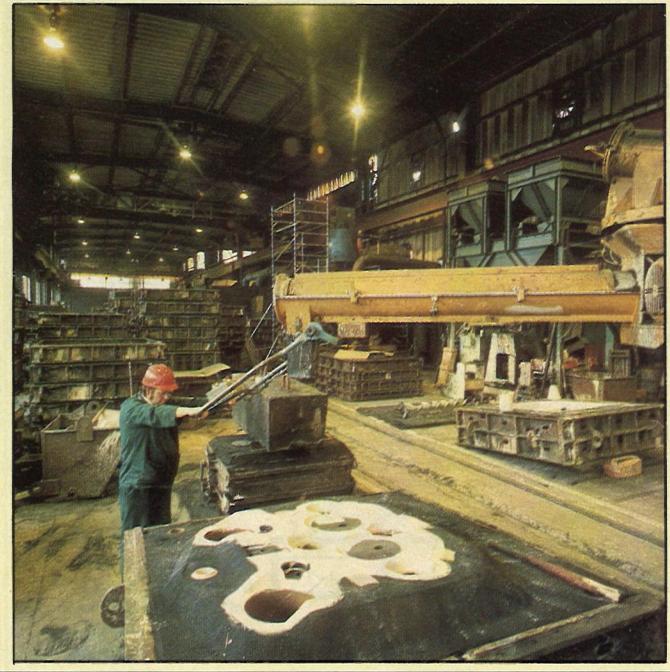
The problems likely to be met in each application are then succinctly outlined and greater attention paid to certain areas which give rise to difficulties. The latter includes lighting for control rooms where VDUs and mimic diagrams are extensively used and the lighting of high rack storage systems.

This section is fascinating for the glimpses it gives into the nature of industrial processes. Within the food preparation industry, for instance, most unexpected processes such as cake and sweet manufacture may present fire and explosion risks as fine dusts such as



Assembly of printed circuits at BS Instruments, Littlehampton, requires a high level of illumination with good colour rendering and visual comfort. The lighting scheme uses Philips TBS 300/232HF luminaires with mirror controllers. Each of these recessed fittings contains two 32W, high frequency lamps and gives a broad spread of light. Cross louvres control glare. This cost effective form of lighting gives good colour rendering and instant, flicker-free starting. Forty eight luminaires give an average illuminance of 750 lux; total installed load is 3.4kW.

At the foundry works at Warman International in Todmorden, lighting levels have been substantially increased without adding to the energy load. The company has installed 40 Sylvania high-bay industrial luminaires with 400W high pressure sodium lamps to replace 400W mercury fittings. The lux level has risen from 75 to 300, significantly improving working conditions.



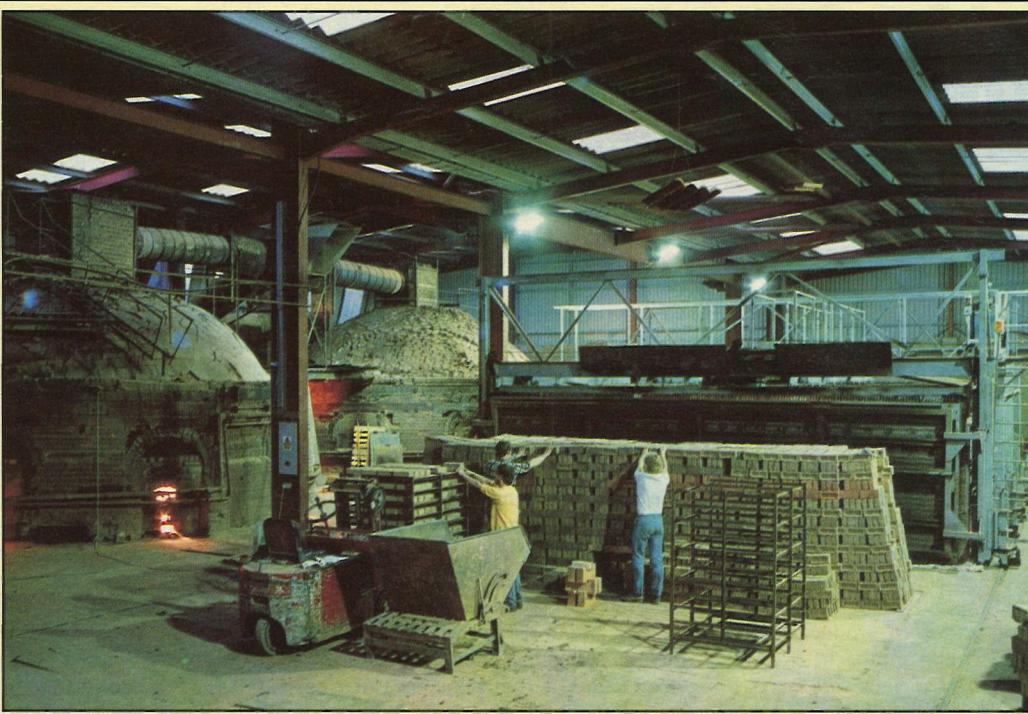
floor and icing sugar are present.

Similarly, glass manufacture is notable for the extremes of scale it presents: ranging from huge plant used for producing float glass for windows to the intricate processes such as cutting, bevelling and etching used in decorative glass manufacture.

Two other features occurring in industry are dealt with in the appropriate sections. The first is the requirement for special lighting and, in particular, a good colour rendering index in inspection areas where accurate colour judgements must be made.

The second is the stroboscopic effect, an interference phenomenon produced when a light source gives a regular oscillation in output. This produces the illusion that rotating or reciprocating machinery is standing still or moving at a slower speed than is actually the case. The key to eliminating this danger is to minimise the magnitude of such oscillations, and possible methods achieving this are detailed.

Similarly, emergency lighting requirements are discussed at length, as these can well be more extensive than in other places of work such as offices or shops given that, in addition to providing for people to leave the building safely and quickly in an emergency, it may also be necessary to bring plant or processes into a safe,



arduous atmospheric conditions in the handmade brickworks of the Michelmersh Brickwork Company, Romsey, demand luminaires classified to IP53 (dust and spray protected). Crompton Gladiator totally enclosed floodlights mounted on wall brackets project the light down from columns and girders throughout the firing area.

The luminaires successfully withstand the rising heat and corrosive gases from the cooling bricks stacked below.

Good colour rendering, allowing the handlers to identify different brick hues and select them to meet customers' requirements, is essential so MBF/U mercury discharge lamps have been used.

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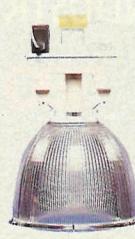
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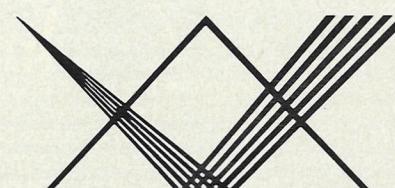
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HOLOPHANE
LIGHTING



Hives of industry

Continued from previous page

stable state before evacuating, or to continue operations in the case of a power failure.

Outdoors, the aim is to provide a safely lit environment, which is free from obstacles and hazards and permits efficient operation. Exterior spaces can usually be grouped into working areas, access, storage yards and site perimeters, and the needs of each of these is considered separately in the third part of the Guide.

Loading bays present a problem because of the potential for large vehicles using them to cause severe

obstruction of lighting installations. Methods of locating luminaires to minimise this danger are suggested. Similarly, signalling and marshalling yards are complicated both by the bulk of railway rolling stock and by the need to position luminaires carefully so that they do not conflict with the driver's ability to see trackside signals. As the Guide points out these factors have tended to produce a tower floodlighting approach.

Security dictates the need for even lighting to avoid pools of shadow in which an intruder can

lurk. Gates and gatehouses are weak points in perimeter security; and the effective gatehouse should be planned so that the potential intruder cannot see from the outsider whether it is manned or not.

An introduction to lighting equipment is given in the fourth section of the Guide. Light sources are briefly examined and the implications of their choice discussed. For instance, safety must be considered before deciding on lamps which have a significant re-strike time.

A further warning concerns the need to check with manufacturers before replacing a light source with one of greater luminous efficacy, as control gear may be in compatible and the optical system inappropriate. The luminaires most likely to be used in industrial lighting are listed, together with their most suitable luminaire types.

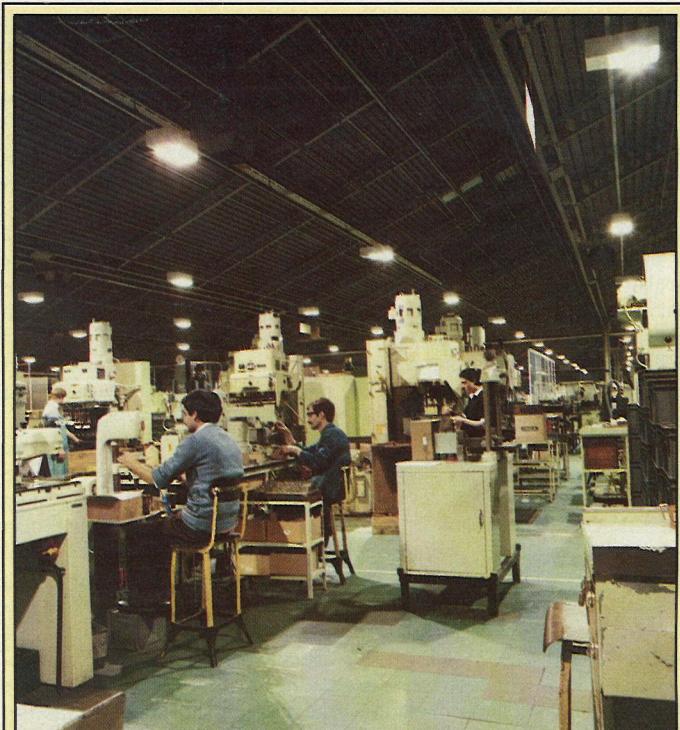
Inseparable from the choice of lamps and luminaires is the consideration of maintenance. Up to

50% of light output can be lost through dirty fittings in some industrial environments. So, the Guide rightly insists that maintenance must be considered right from the initial design stage, if only to enable the designer to select an appropriate maintenance factor for calculating the installation.

But, maintenance will only be as good as access to the luminaires is safe and easy. Where access is unavoidably difficult dustproof/dust-tight luminaires, lamps with internal reflectors or vented luminaires designed for self-cleaning should be selected.

However, choice of special lamps like this implies a penalty, in the sense that their maintenance must be carried out only by staff with specialist knowledge and considerable care must be taken in their cleaning and reassembly.

Disappointingly, the Guide comes down unequivocally in favour of group replacement — "For the majority of installations



Foxboro GB of Redhill, manufacture process control equipment. Operations carried out include electronic and mechanical component assembly, machine pressing, drilling, grinding and calibration/testing.

The original lighting, installed 1957-60, comprised 650 twin battens with trough reflectors, and 1248 single battens with trough reflectors. Over 2500 80Wm 1500mm white fluorescent lamps were incorporated to give an illuminance of 150 lux with a total installed load of 244.7kW. Average operating time is 20 hours per day.

The refurbished lighting scheme comprises 44 Philips LB250 low-bay luminaires each furnished with a 250W SON/T high-pressure sodium lamp. This gives an increased illuminance of 500 lux with a decreased loading of only 124.32kW.

the most sensible procedure is to replace all the lamps at planned intervals" — rather than more accurately reflecting the current debate on this issue in the lighting field.

A basic approach to lighting design is given in the last part of the Guide, as guidance to the younger practitioner. The need to analyse the visual tasks taking place within a space and only then to translate the perceived requirements into a lighting design specification is stressed. Only by asking the right questions can a satisfactory scheme result.

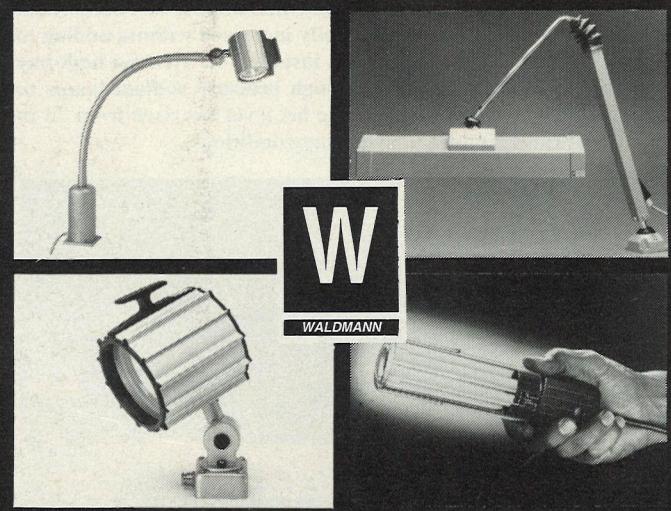
Planning to allow for daylight, choosing an appropriate lighting system and translating this design into appropriate lamps and luminaires are all considered. Finally, calculation procedures are given for detailed planning of interior, exterior and roadway lighting. The value of the Guide is further enhanced by including a brief glossary of lighting terms and a bibliography detailing legislation, British

Standards, CIBSE publications and other information in this field.

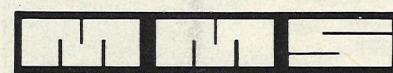
This, then, is the content of the Guide but what, if anything, can it hope to achieve? Firstly, it represents a more comprehensive approach to industrial lighting design. If it persuades those who commission factory buildings and the lighting engineers who interpret their clients' requirements to look beyond watts per square metre to providing a satisfactory industrial environment it may well achieve a great deal. Secondly, given the lack of guidance available in the EEC it could well form the basis of a concerted European approach to workplace lighting in the industrial sector — and workplace lighting is the current CIE field of interest.

Copies of *Lighting Guide, LG1: The industrial environment* may be obtained price £38 (members £19) from CIBSE at 222 Balham High Road, London SW12 9BS.

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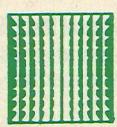
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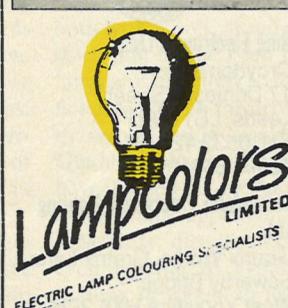
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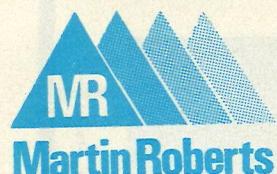
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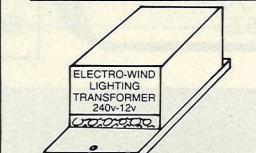
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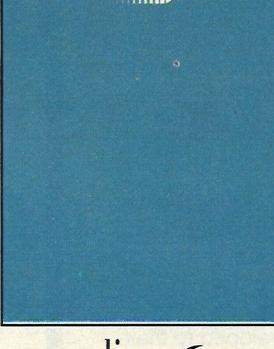
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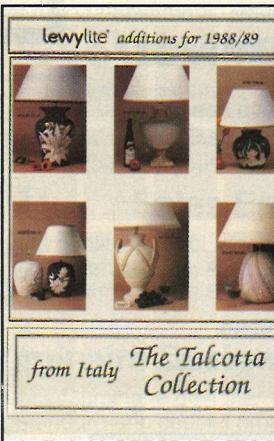
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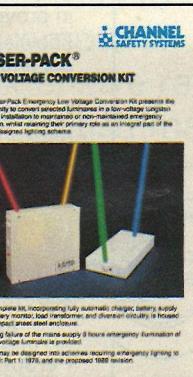
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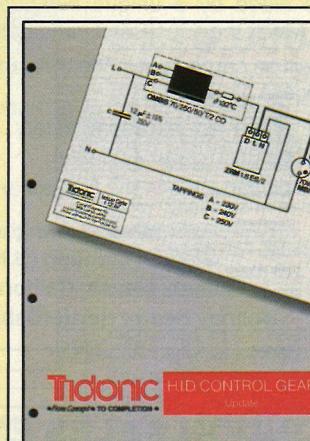
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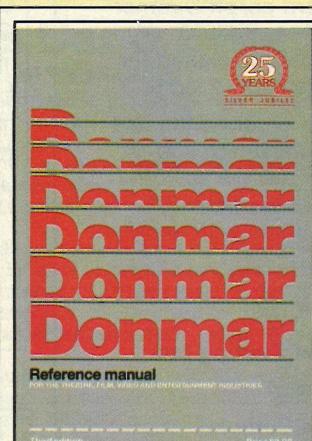
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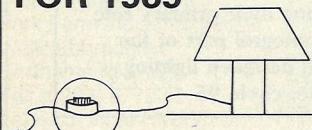
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Opportunities at Marlin Lighting

Lighting Engineers/Projects Engineers

With constant growth in sales and profits over several decades, Marlin Lighting is now set to expand still further its U.K. and overseas business. Strong technical support for our sales team is vital if we are to increase our market share, and additional personnel are now required to help tackle the growing demands made on our lighting schemes design department.

This is a tremendous opportunity for a young person who wishes to make a career in lighting engineering. If you already have an electrical qualification (ONC minimum preferred) and now wish to specialise, we will train you. You will assist in the design and drafting of lighting schemes, the preparation of customer quotations and the provision of technical data and support for our sales force. We offer a negotiable starting salary, which will reflect your qualifications and your experience. You will be based at pleasant modern offices within easy reach of the M3 and M4 motorways. Other benefits are good and the opportunity to progress in the lighting industry is second to none.

Ring or write for application form to:

Sheila Folkard, Personnel Officer,
Marlin Lighting Ltd,
Hampton Road West,
Feltham, Middlesex TW13 6DR
Telephone: 01 894 5522

marlin
Marlin Lighting Limited
Feltham, Middx. TW13 6DR
Telephone 01-894 5522

SALES REPRESENTATIVE

An excellent career opportunity has arisen for an experienced Sales Representative who is currently working in the Lighting or Electrical Industry.

To join a young but rapidly expanding Lighting Company with a new and exciting range of products.

The job function will be to open new accounts as well as cultivating existing customers within the West Midlands.

We offer an excellent Salary, Company Car, plus other fringe benefits you would expect from a National Company.

In the first instance write to the Sales Director:

Euroelectric (U.K.) Ltd
Brunel Close
Park Farm Industrial Estate
Wellingborough
NN8 3QX

Enclosing a full C.V.

To reserve
space
for the March
issue telephone
Joanne on
01-441 6644
ext. 1154

HAVE YOU
FOUND
RONALD DURY?

SALES PROFESSIONALS
Our client, a world leader in their field is now seeking additional sales personnel to compliment the existing team.

SALES MANAGER — LONDON HOME COUNTIES

Circa: £18,000 + car

Are you a direct and decisive professional with experience in creating and maintaining enthusiasm in others? We are looking for an integrative leader who has the skill to harness people to help obtain goals and results. You will describe yourself as a self assured, eager, self-starter who thrives on challenge and competition. The ability to communicate with a wide range of customers is essential.

SALES EXECUTIVE — BEDFORDSHIRE/CAMBRIDGE

Circa: 11,000 + car

We are looking for exciting and enthusiastic people who are looking to strengthen their career and future. You will describe yourself as persuasive, mobile, active and alert, someone who has the ability to gain the respect and confidence of a wide variety of individuals.

You will work in conjunction with a dedicated management team who will provide the support and back up when required.

The rewards for these positions are substantial basic salary — car — bonus — pension scheme — 25 days holiday plus all the benefits of a blue chip organisation.

For further details please telephone 0924 477277.

BUSINESS & MANAGEMENT CONSULTANTS
ASSESSMENT, DEVELOPMENT,
TRAINING & RECRUITMENT

[0924] 477277



Lighting Growth

ERCO

Sales Engineer
Public Lighting

Philips Lighting Ltd is a major supplier to Public Authorities, Electricity Boards and Street Lighting Erection Contractors. An experienced Sales Engineer is required to manage a territory which includes North London and the Northern Home Counties. Preferred candidates will have an ONC or equivalent in Electrical Engineering or be a member of the Institute of Lighting Engineers or the Chartered Institute of Building Services Engineers.

The successful candidate will work as part of an established team and will be expected to maintain and improve sales by successful negotiation at all levels. He or she will benefit from the support of a Company of worldwide repute, including on-going training and opportunity for career development.

Please either send your C.V. including details of present remuneration, or telephone for an application form to Mrs. P.A. Hayden, Personnel Manager, Philips Lighting Ltd., City House, 420-430 London Road, Croydon CR9 3QR. Tel: 01-689 2166 Ext. 2606.



Lighting

PHILIPS

Futimis

SALES ENGINEERS

We need the best and are prepared to pay. An excellent package is offered.

If you are young, ambitious and energetic you will enjoy working with us; helping to develop our role as the sole UK importer and distributor for Light of Belgium.

Experience of the specifier market is essential, as will be the capacity to communicate our enthusiasm for our superb range of luminaires.

For an informal interview please call:

Anna Coulling 01 502 0134
Futimis Limited
Kings Hill, Loughton, Essex

- Lighting Design Engineer
- We have a vacancy for a qualified, innovative Lighting Engineer experienced in all aspects of Architectural lighting design and specification work.

The person that we are looking for will be sophisticated and perform to the same exacting standards as our products and clients — architects, consulting engineers, government departments and major retail chains.

We are intent on employing the very best and offer salary and company benefits accordingly. If you are interested in the opportunity to develop your career in conjunction with our rapid growth, please contact.

- Mark Rowling
Technical Manager
- ERCO Lighting Limited
Unit 1
Silver Road
White City Industrial Park
London W12 7SH

Lighting
Representatives£15,000 +
LONDON AND HOME COUNTIES

Due to continuing expansion ILLUMA require highly motivated sales personnel to promote their new lighting ranges through specifiers, electrical contractors and wholesalers.

Sales experience in the electrical or lighting industry is preferred but not essential as full product training will be given.

ILLUMA has a unique growth record and this is an excellent opportunity for younger persons aged 22-30 to share our success and achieve high earnings.

We are offering a substantial basic salary, unlimited commission, Company Car, Life Insurance, BUPA and Pension plan.

Applications in writing including CV to:

The Managing Director
ILLUMA LIGHTING LTD
24-32 Riverside Way,
Uxbridge, Middlesex UB8 2YF
Tel: (0895) 72275

ELECTROSONIC
LIGHTING SALES PROFESSIONALS

Electrosonic is an acknowledged leader and innovator in the design, manufacture and marketing of commercial dimming and lighting control systems.

The next phase of our expansion requires the appointment of two experienced and self motivated professionals to join our U.K. sales team.

FIELD SALES ENGINEER

LONDON

A vacancy exists for an additional Sales Engineer in London calling on Architects, Consultants, Contractors and major specifiers.

The ideal applicant will be established in the lighting industry with experience of selling at senior level in this market area.

Formal qualifications in design or engineering would be a distinct advantage.

Salary dependent on experience and qualifications, in the region of £14-£17K p.a. + commission + yearly bonus + car.

SALES SUPPORT ENGINEER

The increased level of business requires the appointment of a senior sales support engineer. Based at our offices in Woolwich and responsible for the preparation of quotations, customers technical queries and liaison with the sales and project engineering teams.

Although office based, some visits to customers and sites will be necessary. The position would suit either a recently qualified graduate/engineer looking to develop a commercial career or a more senior individual with 'hands on' experience of the lighting market.

Salary to £12K + bonus.

Only candidates prepared to give 100% commitment should apply.

Applications in the first instance to DAVID DANBY, U.K. Sales Manager.

ELECTROSONIC LIMITED
815 Woolwich Road, London SE7 8LT, Tel: 01-855 1101

BE ONE OF OUR LEADING LIGHTS

As Courtney Pope Lighting, we are accustomed to insisting on the best. One of the most respected designers and manufacturers in the commercial lighting industry, we are now looking for individuals who share this commitment to excellence to fill the following key positions:

Sales Manager

Your track record of sales achievement has marked you out for greater things — the chance to motivate your own sales team, to reach and exceed targets. If you have experience of calling on consultants, architects, contractors and interior designers, and can convince us of your leadership potential, this could be your big opportunity.

Sales Engineer

With our reputation and quality product range, we can provide more than enough scope for your talents. If you can sell to consultants, architects, contractors and interior designers, we can offer excellent on target earnings plus car, on-going training, and good prospects for career development.

Luminaire Designer

If you are an experienced luminaire designer you could join our design team to develop standard and special project luminaires. Previous experience in CAD/CAM would be an advantage but training will be given. Attractive salary with very good prospects for the right person.

To apply for any of these vacancies, please write or telephone to: The Personnel Manager, Courtney Pope Lighting Ltd., Amhurst Park Works, Tottenham, London N15 6RB. Telephone 01-800 7671.



AGENTS
REQUIRED for
all areas to
promote an
extensive range
of British made
fluorescent
modular
luminaires.

Apply to:
Box No. 1457
Lighting Equipment News
Maclean Hunter House
Chalk Lane,
Cockfosters Road
Barnet,
Herts EN4 0BU.

Lighting Technology Group Ltd

Technical Sales

Two sales representatives required for Greater London area. Self motivated and interested in lamps and lighting applied to specialised but wide fields from retail display to West End theatre.

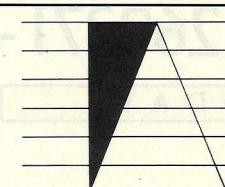
Good basic salary, company car, Pension scheme, usual benefits.

Apply:

Valiant Electrical

20 Lettice Street
Fulham SW6 4EH
Tel: (01) 736 8115

F.A.O. The Managing Director



CENTEC LIGHTING LIMITED

Require experienced Agents and established Distributors to sell Low Voltage, Compact Source, Metal Halide and other luminaires.

Detailed reply to the Sales Director
Times House, Throwley Way,
Sutton, Surrey, SM1 1LF.

Institute of Environmental Engineering
CENTRE FOR CONTINUING PROFESSIONAL EDUCATION

Another in the series of Lighting short courses is being offered by the Centre on Monday 20th and Tuesday 21st February 1989.

Design of optical systems for luminaires

The two day course will cover basic principles of light control, methods of reflector and refractor design and photometry of luminaires. Course fee £195 including refreshments.

A course certificate will be issued on completion.

For further information and registration please contact:

The Centre, Room N201A, IoEE, Polytechnic of the South Bank, Borough Road, London SE1 0AA.
Tel: 01-928 8989 Ext 2025.

South Bank
Polytechnic

SALES ENGINEER
LIGHTING

c£15,000 plus Car & Benefits

Midlands and West London

Moorlite Electrical, a recognised leader in Commercial Fluorescent Lighting is currently enjoying a period of sustained growth. As part of the expansion we seek to recruit Sales Professionals for the **Midlands and West London**. Dealing at a senior level with Contractors, Consultants, Health Authorities and other Specifiers, the role of the Sales Engineer is to increase the profile of the company with energy and professionalism.

The successful candidate is likely to come from a Lighting related background and will certainly be able to provide evidence of strong negotiating skills and a track record of achievement in this type of environment. The continued success of the company will present increased opportunities for career advancement within Whitecroft PLC Lighting Division.

The remuneration package includes a bonus and commission element, enabling "high flyers" to earn well in excess of the quoted figures. In addition, there is a comprehensive benefits package.

For further information and interview details, contact **KEVIN KEATING** on 01-242 4440 (24 hours), quoting **REF NO 1305** or write, enclosing full C.V. to: **Morgan Keating Associates, 25 Bedford Row, London WC1R 4HE**.

Lighting Agent
Scotland

ILLUMA require an experienced sales agent to promote their NEW Display Lighting ranges through specifiers, users and the electrical trade.

Applicants should have established contacts with electrical wholesalers and be able to appoint additional Illuma stockists throughout the territory.

ILLUMA is a highly successful British Company with a unique growth record, and this is an excellent opportunity to share our success and achieve high earnings.

Applications in writing including CV to:

The Managing Director
ILLUMA LIGHTING LTD
24-32 Riverside Way, Uxbridge,
Middlesex UB8 2YF Tel: (0895) 72275



Robotic lighting seen at new showroom

Shiu Kay Kan has opened a showroom in London's Soho. The new premises are now the headquarters for his lighting design and consultancy work, as well as being a retail outlet.



Dinosaur table light.

Among the lighting fittings on sale are the Dinosaur, a low voltage spotlight cum table lamp on four plastic feet. It gives either high or low intensity light.

A series of robotic lights travels backwards and forwards across the ceiling on two horizontal parallel wires. Described by Shiu Kay Kan as "intelligent" lights, they each use two low voltage, tungsten halogen spotlights. These luminaires are remotely controlled by a hand held unit which determines the direction of travel and adjusts the angle of the light beams.

There are four models in the range, including one that is driven by a small fan and has indicator lights that illuminate according to the direction of travel.

This range of lights has been



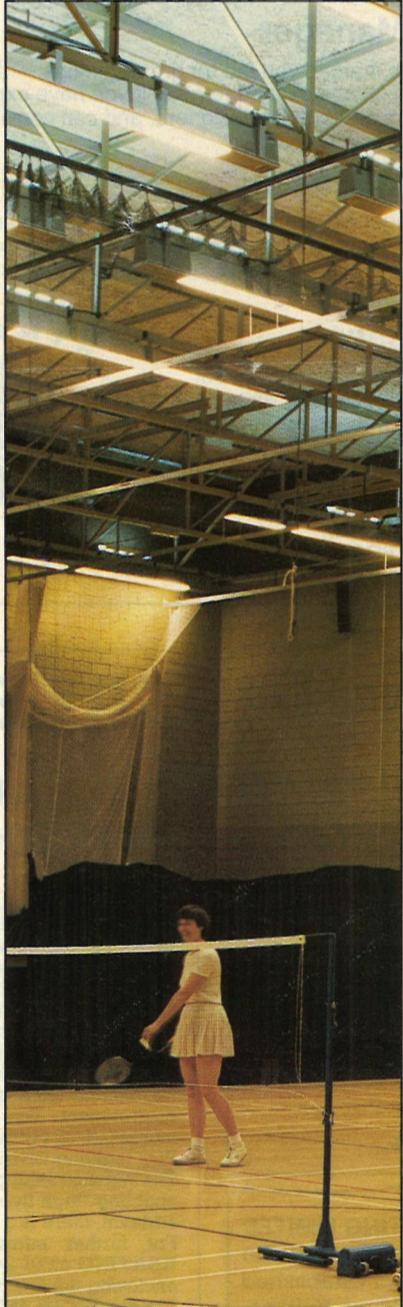
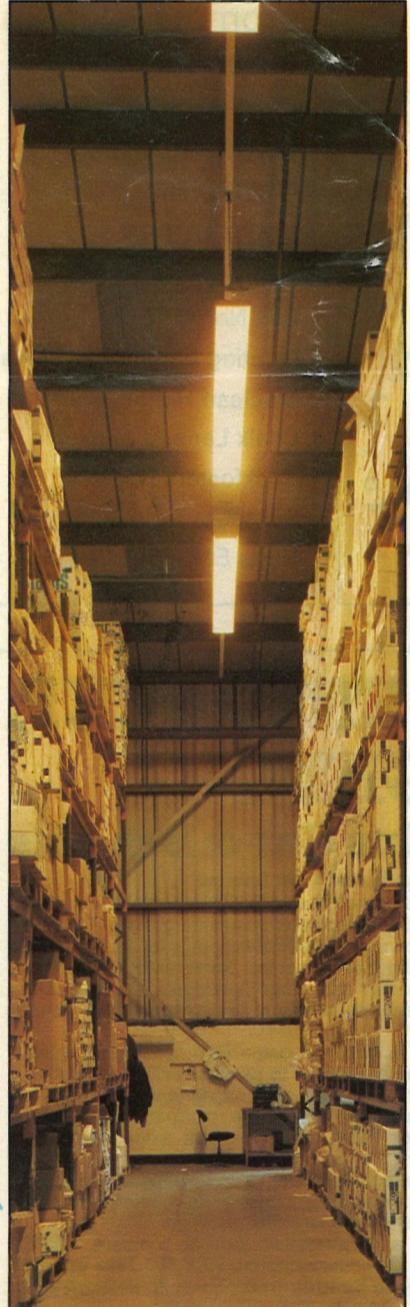
Robotic ceiling lights in the Forbidden Planet.

used in installations ranging from the Forbidden Planet — a shop which sells comics and science fiction books — to domestic interiors, for example the bedroom of a

pop star.

Further information is available from SKK, 34 Lexington Street, London W1R 3HR (telephone 01-434 4095).

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.

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

LOWER INSTALLATION COSTS —
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.

Fill in the reply paid coupon, or

PHONE FREE

-0800 269371 -

TODAY

That's not glaringly obvious



CONDUCTALITE™

Please send me the Conductalite brochure

Please ask my Simplex Lighting representative to make an appointment

NAME

POSITION

COMPANY

ADDRESS

TEL. NO.

SIMPLEX
LIGHTING

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

Manufacturers meet to study 1992

The European Lighting Council is holding a series of study groups in Paris on 23 March on the theme Europe 1992.

Topics to be considered are: opportunities and threats in Europe and other parts of the world for European manufacturers; collaboration among European manufacturers to strengthen their competitive position, and opportunities for the lighting industry to expand markets.

Under scrutiny also will be the

EEC Product Liability Directive and its implementation; the CENELEC Certification Agreement, and the need to harmonise lighting application standards.

The Lighting Industry Federation is urging all its manufacturing members to attend; participation is restricted to member companies of European national lighting trade associations.

Those interested in taking part should contact Mr X Peyrou, European Lighting Council, 52 Boulevard Malesherbes, 75008 Paris. Registration fee is F1000 per delegate plus partner.

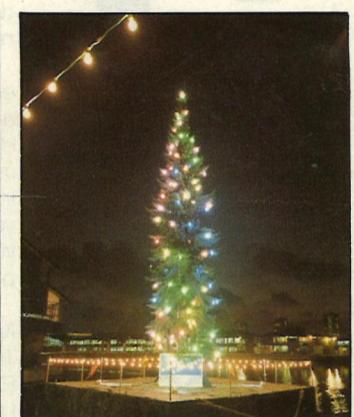
Zeebrugge route gets safety lighting

Cross channel ferries run by both P & O European Ferries and Sealink are now equipped with emergency lighting systems by Bradley Lomas. To-date some 1379 fittings have been supplied.

The 8W three-hour fluorescent Sureglow, a self-contained luminaire suitable for interior and exterior use, is said to meet the strict criteria laid down by the Department of Transport.

First vessels to be fitted with this system by P & O European Ferries include the Pride of Sandwich, with a passenger capacity of 1035 together with either 370 cars or 60 articulated lorries, and the Pride of Canterbury. These vessels serve the Dover/Zeebrugge and Dover/Boulogne routes respectively.

Sealink has just equipped the St David, which carries 1200 passengers and 306 cars, and eight other vessels with this safety lighting system.



Xmas lights with a difference

In December, in London's Docklands, a giant Christmas tree blazed with colour — colour provided by 20 compact fluorescent 2D lamps.

Specially modified by Thorn for outdoor use, this was the first time the seven vibrant colours of these energy-saving lamps had been used in this way. The effect was stunning.

■ IN YOUR NEXT ISSUE ■

The March issue of *Lighting Equipment News* will feature the latest techniques for retail display lighting. This is a market that has seen drastic changes over the last few years, both in technology and in the creative opportunities that have been opened up by it.

A one-day seminar for architects and interior designers,

entitled *Lighting design update*, will be reported. Talks ranged from lighting for effect, to legislation and safety matters.

In addition to regular sections such as new products and topical news reports, *LEN* will be taking a look at the lighting market in Europe as part of a new series of briefings on the implications of 1992.

NEW ARRIVAL

TRADE ANNOUNCEMENT

TWO LEADING LIGHTING COMPANIES HAVE JOINED FORCES TO OFFER THE MOST IMPRESSIVE RANGE OF EMERGENCY LIGHTING SYSTEMS YET!!

Hitech
Beghelli

EMERGENCY LIGHTING

PLEASE ASK YOUR HITECH SALES CONSULTANT FOR FURTHER INFORMATION OR CALL OUR SALES LINE ON 01-884-3333.