

# LIGHTING EQUIPMENT NEWS

SEPTEMBER 1992

## In brief

● Peter Lovett has left the DHSS and started his own lighting consultancy specialising in hospital lighting (tel 0227 751420).

● Complete Lighting Systems is now UK distributor for Lamp tubular lighting systems made in Spain (tel 0923 859988).

● Design Lighting (Bristol) has opened a showroom and warehouse in Exeter at 2 Ashton Road, Marsh Barton. Clients and their contractors can see some 1500 luminaires of all types there.

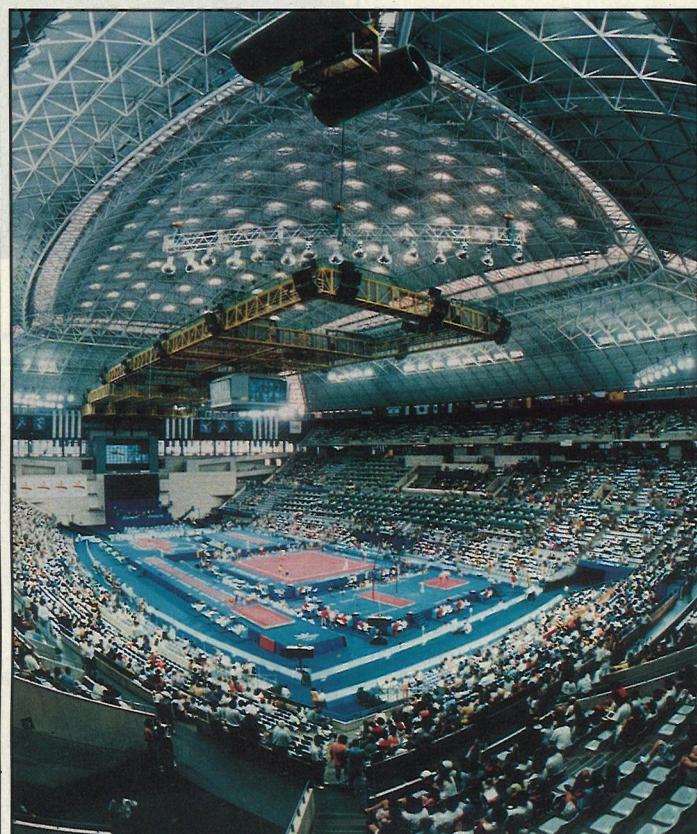
● Britmac Electrical has appointed Newey and Eyre's Salford Branch as main distributor in the greater Manchester area for cable management systems.

● One to One Lighting Design has been appointed lighting consultant for special areas of the extension to St Cross College, Oxford. This includes a new picture gallery.

● Kinkeldey-Leuchten's product Orbix in LEN's June review of the Hanover Fair was inadvertently attributed to Kinkeldy-Lyktan. We apologise for the mistake.

● BICC Cables has supplied 174km of cabling for general wiring and lighting at a 1000-seater entertainment centre being built in High Wycombe.

● Bowthorpe Holdings has acquired Penny & Giles, which makes components for lighting, audio and video equipment



## Olympic highlights

Sadly, the twenty-fifth summer Olympic Games, held in Barcelona over sixteen days in July and August, will no doubt be remembered more for the light they threw on drug abuse in international athletics than on that actually illuminating the superb range of stadia and sports halls provided for the occasion. But pictures taken during the events graphically illustrate the importance of modern lighting installations to world sport, particularly in permitting colour televising.

Lighting installations for the major sites were provided by Philips Lighting – and this included the lighting design for the two most spectacular venues, the Montjuic Olympic Stadium and the Saint Jordi Sports Palace, also located on the Montjuic site.

The Olympic Stadium, originally built for the 1929 Barcelona International Exhibition, was completely gutted and redesigned, preserving only the original facade and the external appearance of the building. The lighting scheme integrates Arenavision luminaires into the edge of the stadium roof on one side of the track and uses five masts to provide illumination from the other.

By contrast, the San Jordi Sports Palace is a wholly contemporary building designed by the world-famous Japanese architect Arata Isozaki. Its main feature is a spectacular dome, some 13 000 sq m in area, which rises to a height of 45 m above floor level.

Here, some 240 floodlights fitted with 2kW metal halide lamps are used to provide lighting levels of 2500 lux (Eh) and 1250 lux (Ev) to meet international broadcasting standards. The luminaires are positioned along two catwalks at heights of 31 m and 35 m. A computerised central control room facilitates the regulation of all building services.

## Studio 3 control is a winner

Home Automation was awarded the Electrotech '92 Award in the general class for its Studio 3 lighting control system.

The judges were particularly impressed by the ease of installation and the level of safety offered to users and installers.

The system operates on a 12V two-wire bus which carries programme commands and information to the dimmer pack.

Studio 3 is suitable for use in restaurants, clubs, hotels or shops where creative lighting control is required.

## European lighting event for Berlin

Berlin will be the venue for Show Tech '93, an international trade fair covering lighting, sound and special effects for the entertain-

ment and events industries. It will take place from 8-10 June and be accompanied by a congress.

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## GTE sells to mystery buyer

American corporation GTE is to sell its European lighting interests to a mystery company. Sylvania International BV – a new company owned by an undisclosed consortium of international investors and apparently registered offshore in the Netherlands Antilles – is to purchase GTE's international lighting business which controls the company's European operations and its interests in the Far East, Latin America and Australia.

GTE's core American lighting business together with its operations in Canada and Puerto Rico is to be sold to German lamp manufacturer Osram.

Together, the sale of these businesses will bring in some \$1.1 billion.

The two transactions are subject to obtaining the necessary monopolies approvals and are expected to be concluded by the end of the year.

The deal excludes two non-lighting companies in the electrical products group – Valenite and Control Devices – which GTE expects to sell separately later this year.

Sylvania Lighting International BV will have annual sales of over \$600 million in 35 countries and employ approximately 6500 staff worldwide. In Europe, it is one of the continent's top three lighting companies; European sales alone exceed \$450 million. The company, with its headquarters in Geneva has more than thirty sales offices and nine factories in Belgium, France, Germany, the Netherlands and the United Kingdom, and a total payroll of 4000.

## Eco or energy labels for lamps?

Lamp manufacturers will not support a proposal for eco-labelling of lamps for domestic use.

The European Commission asked the UK Department of the Environment to lead a study on its behalf into the criteria for awarding eco-labels to lamps. This is a voluntary scheme under

corp Venture Capital. The company's existing brands – Claude, Concord, Linolite, Lumiance, Le Dauphin and Sylvania – will be unaffected by the change in ownership.

The new owners are said to be committed to developing new products, and improving manufacturing, distribution and support services.

The company will also consider expanding by acquisition as well as by natural growth. It will continue to sponsor European-based research and development and is prepared to enter into technology agreements with other major lighting companies.

### Sizeable market share

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which manufacturers can apply to use the eco-label if products meet specific requirements regarding their impact on the environment.

A research report commissioned by the DoE proposes that energy consumption should be the principal criterion for awarding the label. This would mean that only compact fluorescent lamps would be eligible.

Lamp manufacturers in Europe and the UK do not believe this is

Osram, a Siemens subsidiary, had worldwide sales of \$1.8 in 1991. The company enjoys a strong position in Europe and already has widespread operations in Latin America, Japan and the Far East.

The acquisition of the US and Canadian operations of Sylvania will make Osram the second largest lighting manufacturer in North America after GE. The net effect of the purchase will be to boost Osram sales by 70% to approximately \$3.1 billion. Eighty per cent of this turnover will be generated outside Germany. At the same time, the workforce will increase from 16 400 to approximately 29 000 worldwide.

Sylvania, based in Danvers Mass, has 29 factories in the USA and Canada with sales of around \$1.3 billion. It produces general purpose, fluorescent, high pressure and auto lamps as well as components.

It was in September 1991 that GTE announced its intention to get out of the lighting business to concentrate on its core activity of telecommunication. This reversed a trend towards diversification which had begun with its acquisition of Sylvania Products in 1959.

the right way to persuade consumers to buy environmentally friendly lamps.

They say the proposals would duplicate the compulsory energy labelling scheme just agreed between the European Lighting Council and the Energy Directorate of the EC. This scheme involves the use of symbols to indicate energy consumption and so help consumers to make their own choice.

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# DIARY

## SEPTEMBER

14-18

**Residential lighting technology course.** Part 1 of a course in Birmingham arranged by the Institution of Lighting Engineers. Details from 0788 576492.

15

**Electromagnetic compatibility.** One-day seminar in London held by the Institution of Electrical Engineers. Details from 0438 313311.

16

**Lighting certificate course** commences in London. Details from LIF 081-675 5432.

21

**Electricity at work regulations.** One-day course in London organised by the IEE. Details from 0438 313311.

22

**Electricity at work regulations.** One-day course in Manchester.

Details from IEE, as above.

22-23

**Exterior lighting.** Advanced module, to be held in London, arranged by LIF. Details from 081-675 5432.

22-24

**Lightec '92.** Annual conference of the Institution of Lighting Engineers at the University of Swansea. Details from ILE 0788 576492.

24

**Electricity at work regulations.** One-day course in Bristol. Details from IEE, as above.

25

**Electromagnetic compatibility.** One-day seminar in Manchester. Details from IEE, as above.

27-30

**Decorex International '92.** Exhibition at Syon Park, London. Details from organisers on 071-833 3373.

29

**Lighthouses: past, present and future.** Evening meeting of CIBSE Lighting Division, at the Institution of Structural Engineers, London. Details from Karen Phillips, 081-675 5211.

30

**Advanced studies in lighting course commences.** A series of 16 one-day modules to be held on Wednesdays, in Manchester, arranged by UMIST. Details from Geoff Levermore on 061-200 4257. **Electromagnetic compatibility.** One-day seminar in Bristol. Details from IEE 0438 313311.

## OCTOBER

2

**16th Edition update.** One-day course in London organised by the IEEIE. Details from 071-836 3357.

6

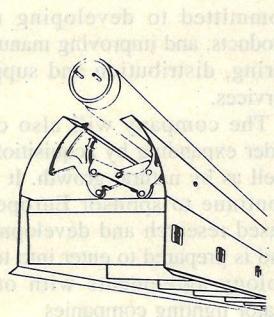
**Aspects of low vision.** One-day course in London for lighting designers. Details from Bob Greenhalgh 071-722 9703.

7

**Electricity at work regulations.** One-day course in London arranged by the IEEIE. Details from 071-836 3357.

8

**Apparatus and installations for potentially explosive atmospheres.** One-day seminar in London on the implications of two EC Directives. Details from Technology Division, BEAMA 071-437 0678.



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# NEWS

## Opportunity to catch up on lasers

Laser safety is the subject of a one-day course to be held in Manchester on 3 November.

It will provide a general review of laser safety for users in industry, science and medicine and will discuss implementation of safety standards.

With the emergence of new European requirements governing the manufacture and use of laser equipment, this seminar will provide a timely update on the safety issues of laser technology.

Details are available from Bioptrica, The Jeffreys Building, St John's Innovation Park, Cowley Rd, Cambridge CB4 4WS (tel 0223 423603).



## On the right lines

The new City Thameslink Station off London's Ludgate Hill uses nearly 200 ceiling downlighters and special feature uplighters by LB Lighting with 75W and 150W Sylvania single-ended metal halide lamps.

The special uplighters were developed from an initial sketch by architects RHWL. Emergency lighting in each case is provided by a 24W Lynx compact fluorescent lamp. The downlighters use 12V

50W tungsten halogen lamps as the emergency light source.

Single-ended metal halide lamps were chosen for stability and good colour rendering. The special feature luminaire uses a purpose-made aluminium extrusion to give the necessary vandal resistance. The top uplighter bowl is spun from heavy gauge copper and is chromium plated. The luminaires are finished in Network South-East colours.

Consulting engineers were the Ove Arup Partnership.

## Protecting the sky at night

Guidance notes on how to reduce outdoor light pollution, drawn up by the Institution of Lighting Engineers, have been welcomed by the president of the British Astronomical Association and the

Environment Minister. Basic advice on how to avoid spill light is given by a working group set up by the ILE. It is written for both lighting installation designers and users.

The notes are available free of charge from the ILE, 9 Lawford Rd, Rugby, Warwickshire CV21 2DZ.

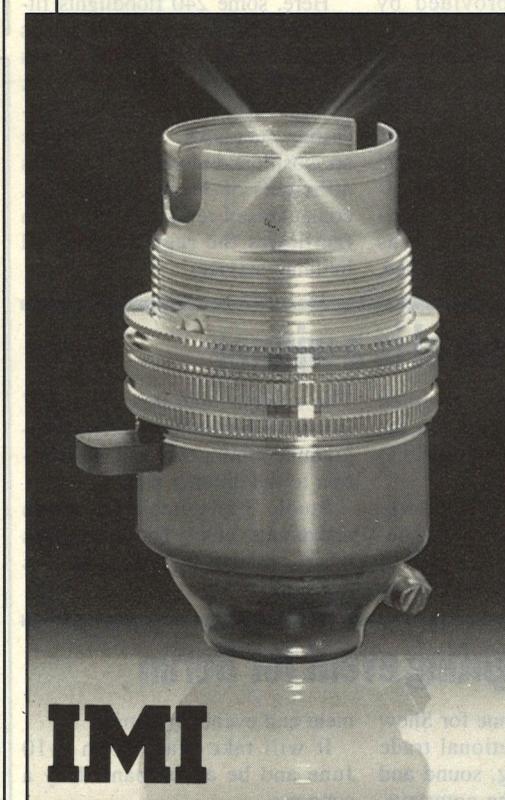
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# Business on Stage!

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## GE launches its unified identity in the UK

GE Lighting launched its new identity in the UK to a conference of 350 wholesalers, contractors, specifiers and consultants at ElectroTech.

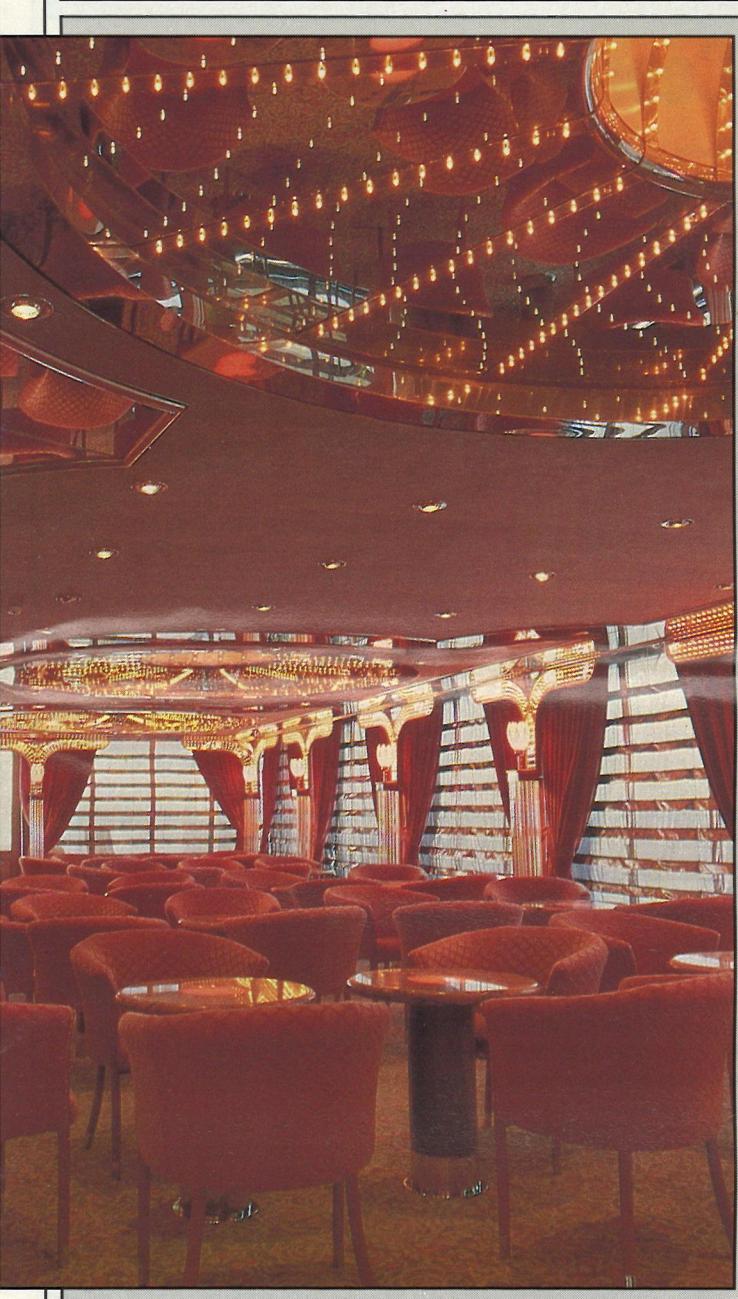
The two main messages were that Thorn lamps are now GE lamps and that the company wants to work closely with its customers, which it regards as trusted partners.

Investment throughout Europe is strengthening the business. Some £15 million has already

been spent in the UK, including £10 million on the distribution centre at Northampton, which became operational in July.

### Lightshop on offer

An unusual facility being offered to wholesalers is the company's Lightshop, a miniature lighting studio designed by Luciano Zucchi to be installed on their premises. It demonstrates the colour rendering of GE's lamps on different objects.



**Symphony**, the world's largest ferry, sails between the Finnish capital Helsinki and Stockholm in Sweden. The 203 m long ferry, 31.5 m in height, can accommodate 2500 passengers in its 950 cabins.

The ship has been lit throughout with 24 000 Sylvania lamps. Low voltage tungsten halogen dichroic and capsule lamps create a stardust effect in restaurants, shops and boutiques, while corridors, halls and cabins are lit by energy efficient Lynx compact fluorescents.

### People in brief...

● **Tony Armstrong**, formerly UK Group Managing Director of GTE Sylvania, has been appointed Director of Marketing and Product Management (Europe) and will be located in the company's Geneva headquarters. Other changes at Sylvania include the appointment of **Erhard Schubert** as Director of Product Management (Fluorescents) operating from Erlangen in Germany. **Marc van Herp** is appointed Director of Product Management (Halogen and discharge lamps) and will work from the company's Tienen, Belgium, plant.

● **Willem Klijnstra** has been appointed by Hubbell to the new position of Director, Lighting Division (Europe) with the brief to develop business on a European level for the company's commercial lighting products.

● **Roger Ayres** has become managing director of Hitech Lighting. He takes on this position in addition to his existing responsibilities as md of Silvertown Lighting, also part of the Whitecroft Group.

● **Peter Spearing** has joined the Institution of Lighting Engineers as technical officer. He was previously with Philips.

## Osmond chairs Spanish seminar

LIF president Andrew Osmond will chair the Lighting Market in Spain conference to be held at the Spanish Chamber of Commerce in London on 16 September.

"Spain's recent high profile with the Olympics and Expo is only the tip of a huge commercial iceberg", he stressed. "The Spanish market holds any number of exciting opportunities for all types of lighting which the seminar will explore for interested parties".

The one-day seminar, organised by Single Market Briefings and sponsored by Lighting Equipment News, begins by sketching in the background to conducting business in Spain.

An overview of the lighting market and industry follows, and this also looks at lighting design, specification and technical compliance. The role of the consultant and the importance of the public sector market will also be discussed.

Specialists then go on to consider the help available from government overseas trade services, and give advice on the important considerations of transport, advertising and promotion.

Further details of the seminar can be obtained by ringing 071-385 2674.

## Saving with safety

One of the largest producers of metal cans for the food manufacturing industry CMB Foodcan not only cut their lighting costs by 64% but also created a safer working environment by installing new lighting.

In a trip around the factory, customers pointed out to CMB that if a tube in any of the overhead open batten fluorescent light fittings were to burst it will be possible for glass to fall inside a finished can, and for that can to reach a customer, with disastrous results.

This was considered highly unlikely but nevertheless it was a problem the company had to face.

Silverlight suggested a fitting from their Multisave polyester sealed range of fluorescent luminaires. This has a glass reinforced polyester body to withstand rough usage and many corrosive atmospheres. Its high impact injection moulded prismatic acrylic controller is securely fixed by three part stainless steel clips.

Having solved the safety

## Lightshow scope extended

Lightshow, now renamed the European Lightshow, is reported to be arousing unprecedented interest among potential exhibitors although it does not take place until 14-17 February.

A considerable number of commercial and industrial lighting manufacturers including major lamp and transformer manufacturers, Thorn Lighting, Siemens, Abacus Municipal and Chloride Bardic, have booked space as well as the usual decorative lighting companies.

A preview of the new CIBSE *Code for interior lighting* will be the subject of one of the three half-day seminars being organised by the Lighting Industry Federation to run alongside the exhibition.

The other seminars will deal with energy efficiency and emergency lighting.

For more details about the exhibition contact The Lighting Association at Bryn, Bishop's Castle, Shropshire SY9 5LE.

## Major conference at Hilight

Hilight exhibition will be accompanied by a major conference. The two events will take place from 10-12 November at London's Business Design Centre.

*Quality light works* is the theme of the conference programme. Sessions on the first day will include a masterclass by Axel Stockmar on lighting software, and discussions on exterior lighting and lighting controls.

Defining light quality will be the subject of a masterclass taken by Peter Boyce on the second day. Other topics will be lighting and ergonomics, and lighting requirements under the EC Display Screen Directive.

The third day's subjects include the lighting designer's job, fibre optics, and a special session on the urban night.

Thorn, Philips and Osram are among the 24 exhibitors who have so far booked space at the exhibition.

For further information contact the Business Design Centre on 071-359 3535.

aspect an additional benefit was the energy saving element of the fitting. The luminaire incorporates a high specular 3M Silverlux reflector which allows only one lamp to be used in a twin body, giving 50% savings over conventional luminaires. The use of high frequency control gear and T8 lamps gave additional savings of 14%.

Where cans with open ends passed below twin open batten fluorescent fittings, these luminaires were replaced by Multisave fittings. Some 120 of the 56W old fittings were replaced with 120 56W L Multisave luminaires. The net saving was 12KW, or the equivalent of £4750.68 per annum and giving a 2.2 year payback period. The luminaires also increased the level and distribution of light.

# COMMENT

## Better the devil you know

The announcement about the future of GTE's European lighting interests (see front page story) could hardly be more unsatisfactory as far as both its employees and the industry as a whole are concerned – instead of putting an end to nearly a year of speculation it has only succeeded in opening up the whole field again.

And in this case, not only the identity of the new owners but also the reasons behind this secrecy are rich sources for gossip, that will not be stilled by worthy assurances about the future of the companies concerned. These are only reassuring to the extent that one can trust the integrity of those issuing them. They should stand up and be counted.

On a more mundane level, the lighting industry looks likely to be caught between the proverbial devil and the deep blue sea as far as the labelling of domestic lamps is concerned. If for the word 'devil' you read 'European Commission' and for 'deep blue sea' you substitute the 'EC Energy Directorate' the nature of the disagreement becomes much clearer – it is basically the old problem of whether to build the Community from the bottom up (the recent and more successful grass roots approach) or to impose grand solutions from the top.

The background is as follows. Over the past couple of years the European Lighting Council, representing Europe's lamp manufacturers, has agreed the outlines of a compulsory energy labelling scheme with the Energy Directorate of the EC. The Energy Directorate involved the ELC in its discussions from the outset, thereby securing the backing of the manufacturers.

The Environmental Directorate, on the other hand, did not bring in the lamp companies until they were quite far down the road to developing their eco-labelling scheme. As a result, energy consumption seems to be the sole criterion for awarding the label and light sources regarded as wholly interchangeable. So, compact fluorescents become the only lamp type eligible for this award in the domestic lighting field.

A few figures demonstrate graphically the limitations of this approach. The average British home probably has 15-20 lighting points, including table or standard lamps which operate from power sockets. Of these, a maximum of perhaps two or three are suitable for compact fluorescent lamps. For the remainder, an alternative light source will be found more appropriate – and these are excluded by definition from the eco-labelling scheme.

In short, the customer needs to balance his lighting needs in any particular part of the home against environmental considerations. To this end, manufacturers propose to classify lamps into four categories and give basic information on energy consumption on the package. At the point of sale a leaflet will be made available that explains the suitability for use of different lamp types and expands on the information given on the packaging.

The approach, then, is to give the consumer the knowledge to enable him to make an informed choice. This is surely a route more likely to encourage satisfaction than simply advocating a single lamp type, however inappropriate to a customer's circumstances.

## LIGHTING EQUIPMENT NEWS

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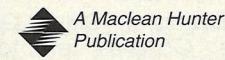
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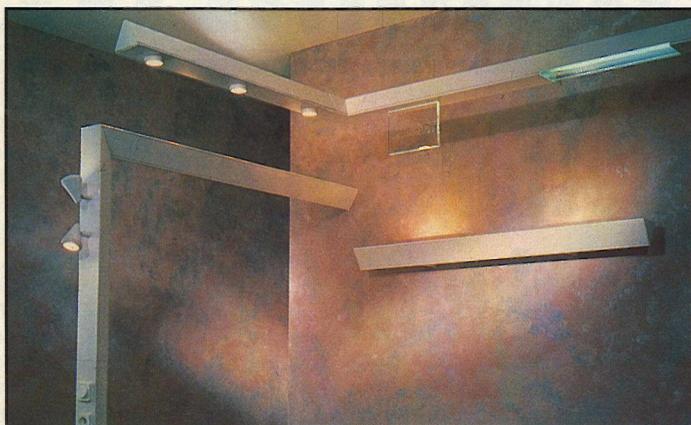
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# NEW PRODUCTS



## Modular lighting

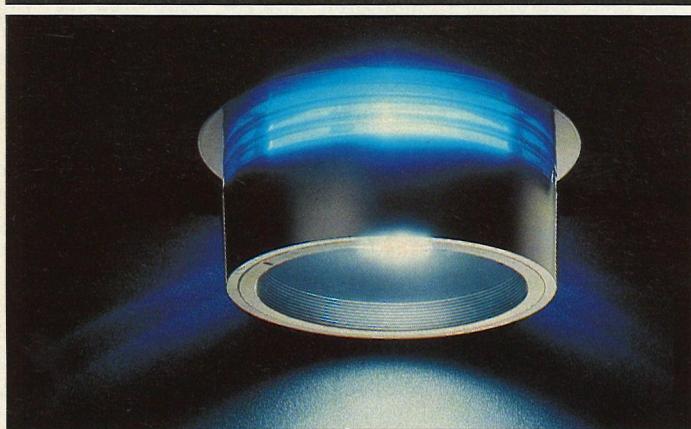
TG System is an extruded aluminium lighting system from Futimis. It is triangular in cross section.

Available in prewired, modular sizes and five standard colours, it accepts a variety of light sources, including low voltage tungsten halogen, compact fluorescent,

linear fluorescent and metal halide. Further options include emergency lighting packs and signage.

The elements are capable of adjustment to any angle to provide uplight, wallwashing or downlighting.

Reader Service No.161



## Downlights offer a choice of coloured rings

Targetti has extended its Dese range of cylindrical luminaires by the addition of a semi-recessed fitting with an interchangeable coloured polycarbonate ring. Three additional coloured rings are available as an accessory kit,

giving a choice of blue, red, green or yellow.

There are versions for metal halide, white SON and tungsten halogen lamps.

A security clip allows easy replacement of the lamp and safety glass which is tempered and satin finished to limit glare. Optional ultra-violet and rose coloured filters are available.

There are co-ordinating wall, ceiling and pendant models.

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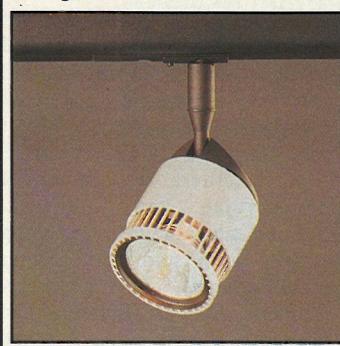
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Page 4

## Spotlights have neat knuckles

Target range of spotlights from Hitech Lighting consists of three fittings: Mini, which has a 78mm

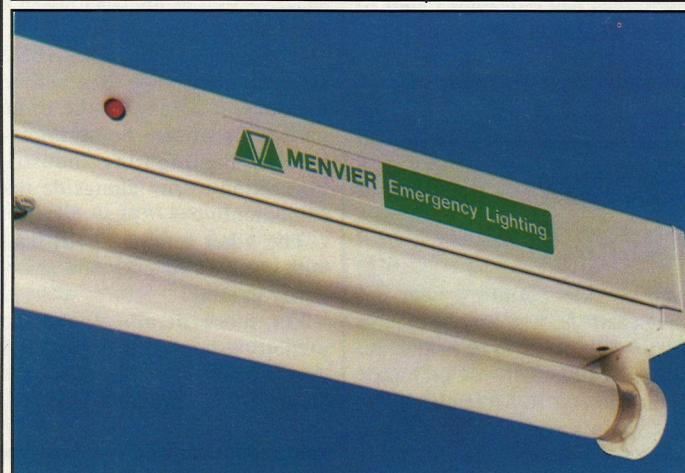


long cowl with integral anti-glare baffle, and the Micro and Midi, both with a 60mm cowl.

The cowl on the Micro (illustrated) has a row of slots just behind the lamp which allows heat to dissipate and a limited amount of spill light to create a decorative backlighting effect.

All three Target spotlights have a particularly neat knuckle joint which allows vertical movement through 90° and horizontal adjustment through 360°.

There is a choice of black, white, gold or chromium finish. Dichroic lamps rated at 20W, 35W or 50W can be used, or a model with integral reflector can be supplied for use with capsule lamps. **Reader Service No 163**



## Emergency conversion kit offers test check

Menvier has introduced an enhanced version of its emergency lighting conversion kits that makes regular testing quicker and simpler.

Converalite with Testcheck option has an LED display that indicates the state of the unit.

When the LED indicator light is permanently on, it means that the emergency lighting facility is fully operational.

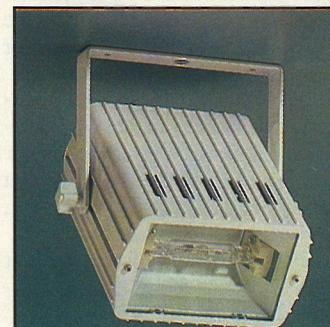
If the LED is permanently off, the mains supply has been interrupted, either deliberately as part of a test, or through fault or accident.

When the LED is flashing, there are two possible causes: on restoration of mains power it indicates a battery fault, or if mains power is on, there is a charger fault. **Reader Service No 164**

## Metal halide for retail displays

A range of metal halide fittings particularly suitable for retail applications has been launched by Hitech.

Both the projector and a unidirectional downlight use 70W or 150W linear metal halide lamps and have pure aluminium parabolic reflectors to maximise light output.



The projector has integral



## Adjustable task light range

Tangram is a task light available in the UK through Forma Lighting. The two elements of the articulated arm are counter balanced by springs. The reflector can be rotated through 340°.

Either a GLS lamp up to 100W or a PL compact fluorescent lamp

up to 15W can be used. By inserting the arm into different mountings Tangram can be used as a desk, floor or wall light. There is also a clamp-on version. **Reader Service No 165**

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



## Coordinated lighting

Nexxo lighting system from Crescent Lighting offers flexible design solutions using direct and indirect illumination.

Robert Heritage designed the range for an Italian manufacturer. It is based on a triangular aluminium extrusion with ridged end-caps.

Reflectors are available in both symmetric and asymmetric versions for each light source.

The system includes wall mounted, free standing and screen mounted uplights for use with 70/150/250W metal halide, 300W tungsten halogen or 36W PLL compact fluorescent lamps.

A matching range of suspended luminaires, suitable for linking or individual suspension, provides both upward and downward lighting. There is a choice of 58W linear fluorescent, PLL compact fluorescent, tungsten halogen or

metal halide light sources.

The system-linked luminaires are suspended either by steel wires or rods that allow each fitting to be rotated through 180° for upward or downward lighting. Fittings are joined by hinge-and-link cableway connectors, so that only one fitting need be wired through the ceiling.

Various reflector options are available, including one for general lighting control and a dark-lighter reflector assembly which is stated to be particularly suitable for areas with a high density of VDTs.

All the fluorescent versions of Nexxo can have an upper section of the fitting removed to give both upward and downward light. Luminaires using metal halide lamps all have a clear, hinged safety glass over the lamp.

**Reader Service No 166**

control gear with power factor correction.

The semi-recessed, uni-directional downlight with remote gear (supplied) is designed for use where high performance downlighting or wall-washing is required. To provide additional adjustability the fitting can be extended downwards from its

housing by up to 130mm.

Both luminaires in the Vogue range are constructed from extruded aluminium and are available with either white or black finish. Toughened safety glass is standard, although ultra-violet B absorption filters can be supplied if required.

**Reader Service No 167**

**NEW HIGH FREQUENCY BALLAST MODULES**

**ADVANCED LIGHTING INDUSTRIES**  
**HIGH FREQUENCY**  
**CONTROL GEAR**

**30% ENERGY SAVING**  
**0.9 POWER FACTOR**  
**LOW HARMONIC DISTORTION**

**THE HF BALLAST MODULE**  
SAVES ENERGY OPERATING AT HIGH FREQUENCY AND LOW TEMPERATURE WITH MINIMAL POWER LOSSES. IT IS SURGE AND TRANSIENT PROTECTED WITH ADDITIONAL SHORT AND OPEN CIRCUIT PROTECTION FOR THE LAMP OUTPUT.

THESE BALLAST MODULES ARE SPECIFICALLY DESIGNED TO 'SOFT START' A RANGE OF FLUORESCENT LAMPS USING A PROVEN ELECTRONIC INVERTER CIRCUIT TO ENSURE MAXIMUM LIGHT OUTPUT AND A LONG TUBE LIFE.

THE HF BALLAST MODULE IS SMALL AND LIGHTWEIGHT MAKING IT IDEAL FOR REPLACING ANY CONVENTIONAL 220-240 VOLT WOUND BALLAST CONTROL GEAR.

PART No.	WATTAGE	2D	PLC	PLL	LINEAR T8
BM01	10 - 13	✓	✓		
BM02	15 - 16	✓			✓
BM03	18		✓		
BM04	18 - 21	✓		✓	✓
BM05	24 - 30	✓	✓	✓	✓
BM06	36 - 38	✓		✓	✓

\* 110 VOLT UL APPROVED MODULES NOW AVAILABLE \*

Reader Service No. 7

Lighting Equipment News, September 1992

# NEW PRODUCTS



## Economical floodlights

Galaxy GA general purpose floodlights from Crompton Lighting are designed to ingress protection standard IP65.

The transparent front cover is made from ultra-violet stabilised polycarbonate.

They accept a variety of lamps in ratings from 70W to 125W: high pressure sodium, mercury or metal halide. An alternative reflector, with a hammered finish, also enables tubular high pressure

sodium lamps to be used.

The floodlights are designed for area lighting where economic energy consumption is a consideration, such as all-night security lighting, hotel and restaurant car parks, shopping centres and lorry loading points.

An optional photocell allows automatic switching. Accessories, include a universal bracket, pole clamps and a spigot.

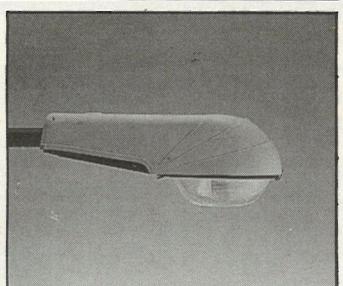
Reader Service No 151

## Spaceframe for lighting

A versatile lighting structure from Edison Halo Lighting enables three-dimensional lighting schemes to be created in stores, exhibition and conference centres, and leisure areas.

Lumistrut consists of a series of interlocking, open-framework beams and columns which accommodate virtually any type of luminaire.

It is composed of three elements: square section columns which can incorporate shelves or lighting tiles; pyramid nodes on top of the columns to house PL luminaires, low voltage downlights, or transformers, and triangular cross section beams which



## Road lantern has easy access

Mira is a road lantern from Fael Luce that uses either high pressure sodium, metal halide or mercury lamps up to a maximum rating of 250W.

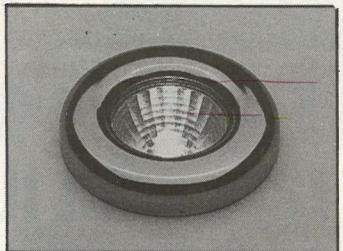
The hood hinges down for easy access to the gear tray and when it is open the current is automatically cut off. Plug and socket connections enable the gear tray to be changed very quickly. The hood has a snap-fit closure.

Reader Service No 153

## Spotlight is submersible

A rugged low voltage spotlight designed for recessing underwater has been introduced by Outdoor Lighting Supplies.

Applications include swimming pools, water parks, saunas, steam rooms, jacuzzis and whirlpools. It can also be used as a location luminaire in walls and steps, or



are fixed between the pyramid nodes to support fluorescent luminaires, track-mounted fittings, or individual downlights or spotlights.

Simple to construct, it is easily adapted to meet changing needs.

The columns are available in six heights with levelling feet to provide plus or minus 10mm adjustment and can be bolted to the floor for extra rigidity.

The triangular cross section elements come as 400mm starter beams and joiner beams in six lengths from 800mm to 2800mm. An adjustable coupling is used where corners exceed 90°.

These triangular beams can also be ceiling-suspended on single or twin wires.

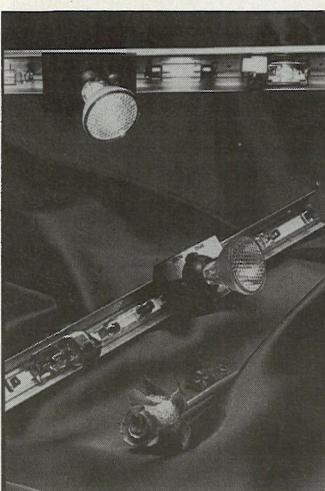
Reader Service No 152

## Miniature track for cabinets and cornice

Crescent Lighting has introduced B-Light Universal, an all-metal, low voltage miniaturised lighting track capable of housing a number of light sources.

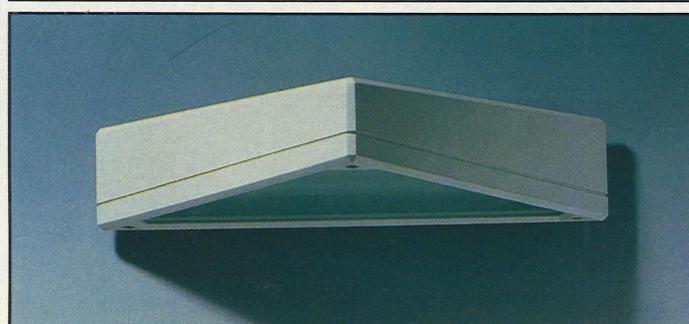
It is primarily designed for under shelves or in display cabinets or for cornice and other architectural lighting.

The system is based on a rigid, 24mm wide, aluminium track which accommodates clip-in adaptors for 12V tungsten halogen lamps including dichroic types, or spring-clip adaptors for 12V or 24V 5W-10W xenon lamps and 12V or 24V 3W-15W tungsten festoon lamps.



The track comes in six standard lengths from 5-lamp 330mm to 36-lamp 2000mm with a maximum loading of 150W. A suitable range of transformers is available including an electronic type.

Reader Service No 155



## Outdoor wall light is triangular

Trico Superlight is an outdoor wall light from Commercial Lighting Systems that uses an 18W PL type compact fluorescent lamp.

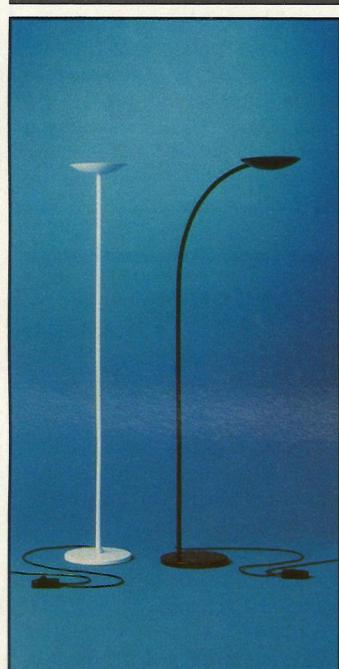
It has a triangular, diecast aluminium housing with opal coloured glass diffuser and is suitable for edge-mounting to give downward light above doorways, entrance signs, building

names and house numbers, or for use where lighting is required for a limited area.

Alternatively, it can be used in groups, mounted flat against a wall, to form a variety of patterns.

Ingress protection rating is IP54. There is a choice of black or white finish.

Reader Service No 156



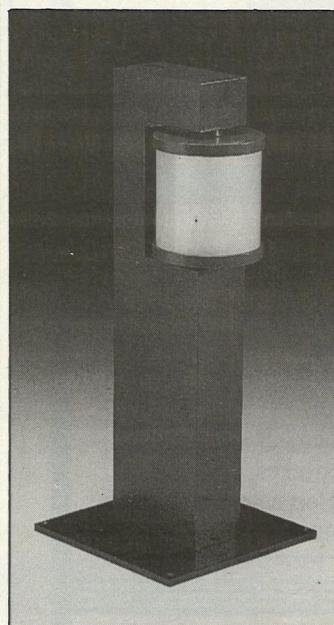
## Decorative uplights designed in France

Thorn Lighting has extended its range of uplights with the introduction of the French designed Caprice collection for prestige offices, hotels, retail interiors and reception areas.

There are two free standing versions, one with a straight and the other with a curved stem, and a wall mounted model. Available in black or white, all the uplights feature a shallow, saucer shaped head and use a 300W linear tungsten halogen lamp.

The free standing uplights have circular bases and come complete with cable and dimmer switch.

Reader Service No 157



tion and finished in dark grey epoxy powder paint. It is complete with mounting base. Ingress protection rating of the bollard is IP44.

Reader Service No 158

# LIF LINE

## Training enters a new phase

IF Certificate Courses have now been running for eight years and although the numbers of students have fluctuated, the courses themselves have nevertheless been well supported over those eight years. It was feared at first that when the backlog of training needs had been satisfied, the number would drop back but this has not proved to be the case. Credit has to go to course director, David Pritchard, for recognising the precise training needs of the industry and tailoring the courses to meet them, and to Senate Electrical and Holophane Europe for promoting the courses through their respective outstanding student award schemes: the Senate Award for the certificate course, and the David Currie Award for the advanced course.

The courses are now going through another phase in their evolution. The LIF Certificate Course and the three advanced modules at credit level have been acknowledged in the Guidance Notes to Applicants for the CIBSE Lighting Certificate and Diploma, as qualifying for the CIBSE certificate. The Lighting Industry Federation is also recognised by the CIBSE as a course provider for continuing professional development and has agreed to meet the criteria for such courses laid down by the CIBSE.

CIBSE's recognition of the LIF education programme is a positive and welcome move, and the education of the lighting professional – indeed the industry as a whole – can only benefit from such mutual cooperation.

During the early years most students came from manufacturers, many of whom looked upon the course as an induction for their new recruits and made an appointment conditional upon the successful completion of the course. Later students started to come from the wholesaling fraternity, and latterly independent engineers have been enrolling on the courses. Now that the courses are recognised for the purposes of CPD this trend is likely to increase. Meanwhile, the format continues to be attractive to manufacturers, who want to keep their lighting engineers on the road, and to specifiers who are reluctant to take time out of their practices.

Only three days are taken up by seminars during the three months of the course and the rest of the notional 60 hours' study is spent learning at a distance.

A good grasp of lighting engineering is going to be a must over the next few years as various workplace regulations come into force requiring employers to provide employees with suitable and sufficient lighting equipment 'which is properly placed, installed, protected and maintained.' In the case of offices with display screen equipment the regulations are more specific.

Room lighting and/or spot lighting (work lamps) shall ensure satisfactory lighting conditions and an appropriate contrast between the screen and the background environment, taking into account the type of work and the users' vision requirements.

Possible disturbing glare and reflections on the screen or other equipment shall be prevented by coordinating workplace and workstation layout with the positioning and technical characteristics of the artificial light sources.

There are even more requirements relating to emergency lighting.

Coupled with the regulations are the CIBSE codes, the Code for Interior Lighting currently being revamped and the Lighting Guide – areas for Visual Display Terminals, LG3.

A knowledge of all this is essential for continuing professional development and for taking advantage of the business opportunities which will follow from the new legislative interest in lighting the workplace.

# NEW PRODUCTS

## Asymmetrical lantern

Industria has added to its road lighting range a post top lantern which has the characteristics of a side entry type. It gives an asymmetrical light distribution and meets the requirements of BS5489 part 3. Recommended mounting height is up to 6m.

The high purity aluminium reflector is designed for use with a 70W tubular high pressure sodium lamp, but the 50W rating, or a 35W/26W low pressure sodium, or single or twin 24W PLL type compact fluorescent lamp can be used.

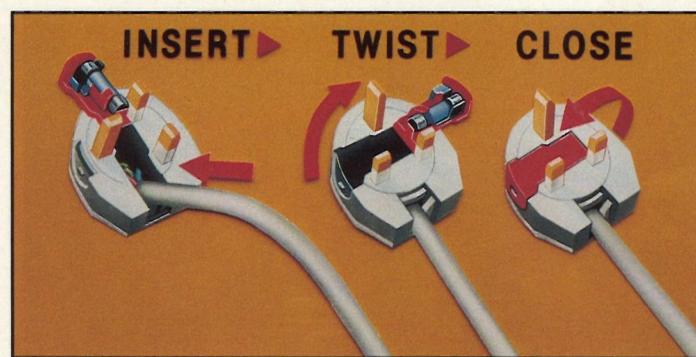


## Plug is quick and easy to wire

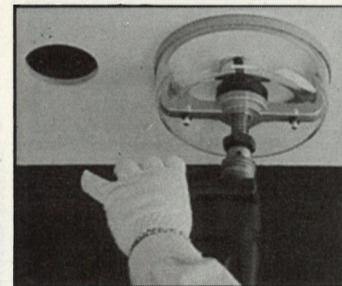
Rotaplug is a 13A plug from Rotacon that can be wired in seconds without a screwdriver and so speed up manufacture of products supplied complete with plug.

The stripped wires are inserted into the correct colour coded channels; the plug pins are twisted to secure the wires, and then the fuse cover is closed. The plug has ASTA approval.

It is stated that the screwless



terminals cannot be touched by consumers and will not work loose over time. An externally accessible fuse can easily be replaced without opening the plug. **Reader Service No 180**



## Easy cutting of ceiling holes

Bettacutter is a device from Forma Lighting for cutting circular holes to install recessed luminaires.

A transparent bowl collects flying waste material, so protecting

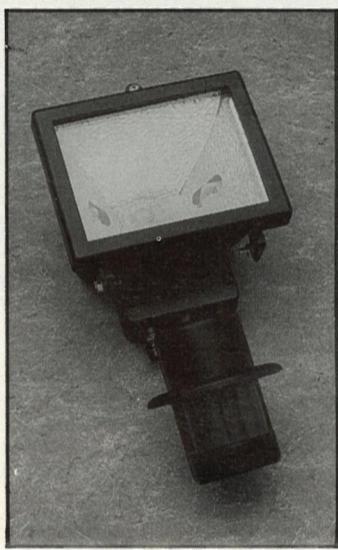
the operator's eyes and keeping the working area tidy during installation work.

It can be used with any variable speed power drill to cut holes with a diameter of from 30mm to 162mm. Plywood and plasterboard up to 24mm thick and sheet metal up to 1.00mm thick can be cut. **Reader Service No 181**

## Floodlight that protects a wide area

Gardiner Technology has launched Gardflood 180, a 300W-500W tungsten halogen floodlight with passive infra-red detector.

It provides an unusually wide 180° detection area, allowing fewer units to be used in many installations. The sensor head incorporates a pan and tilt mechanism which maximises directional adjustability.

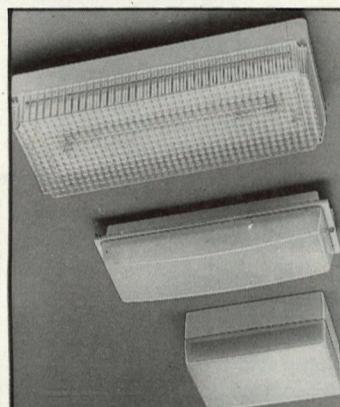


## Emergency luminaires

Micromark has introduced the Oxford range of fluorescent emergency luminaires.

There are three self-contained models, each available in either maintained or non-maintained operating mode.

The square version uses a 6W lamp and has an opal polycarbonate diffuser. For outdoor use there is an 8W model, rated IP53, also with an opal coloured diffuser. Finally, an 8W version is available with a prismatic diffuser.



The range is competitively priced and ICEL certified. **Reader Service No 182**

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# RAM

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A MEMBER OF THE AIR MOVEMENT GROUP

## Emergency lighting range

Euroglow range of self-contained emergency lighting from Bradley Lomas Electrolok is suitable for general commercial and industrial premises.

These fluorescent fittings are available in maintained and non-maintained versions.

As well as the rectangular indoor luminaire and the outdoor bulkhead, there is an emergency exit sign and a circular decorative fitting with crystal type diffuser.

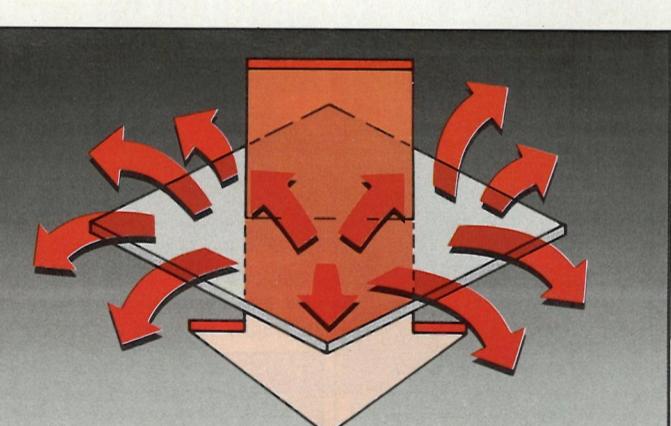
For ease of installation, the base plate only of the indoor luminaire can be fitted initially and the gear tray plus diffuser quickly installed at the time of commissioning.

The range is stated to be competitively priced. **Reader Service No 178**

## Hazardous area enclosures

Polycarbonate enclosures from Briticent, are designed for use in zone 1 or zone 2 hazardous areas. Gaskets are oil and acid resistant.

There are seven base sizes and two depths of cover. Temperature rating is from -50° to +120°C. **Reader Service No 179**



## Filter out harmful UV rays with ILLUMILENS

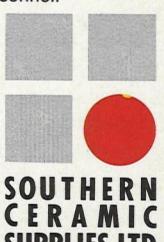
If you want the brilliance of tungsten halogen lighting without harmful UV rays, choose ILLUMILENS — a tough ceramic glass designed for safe use in modern lighting systems.

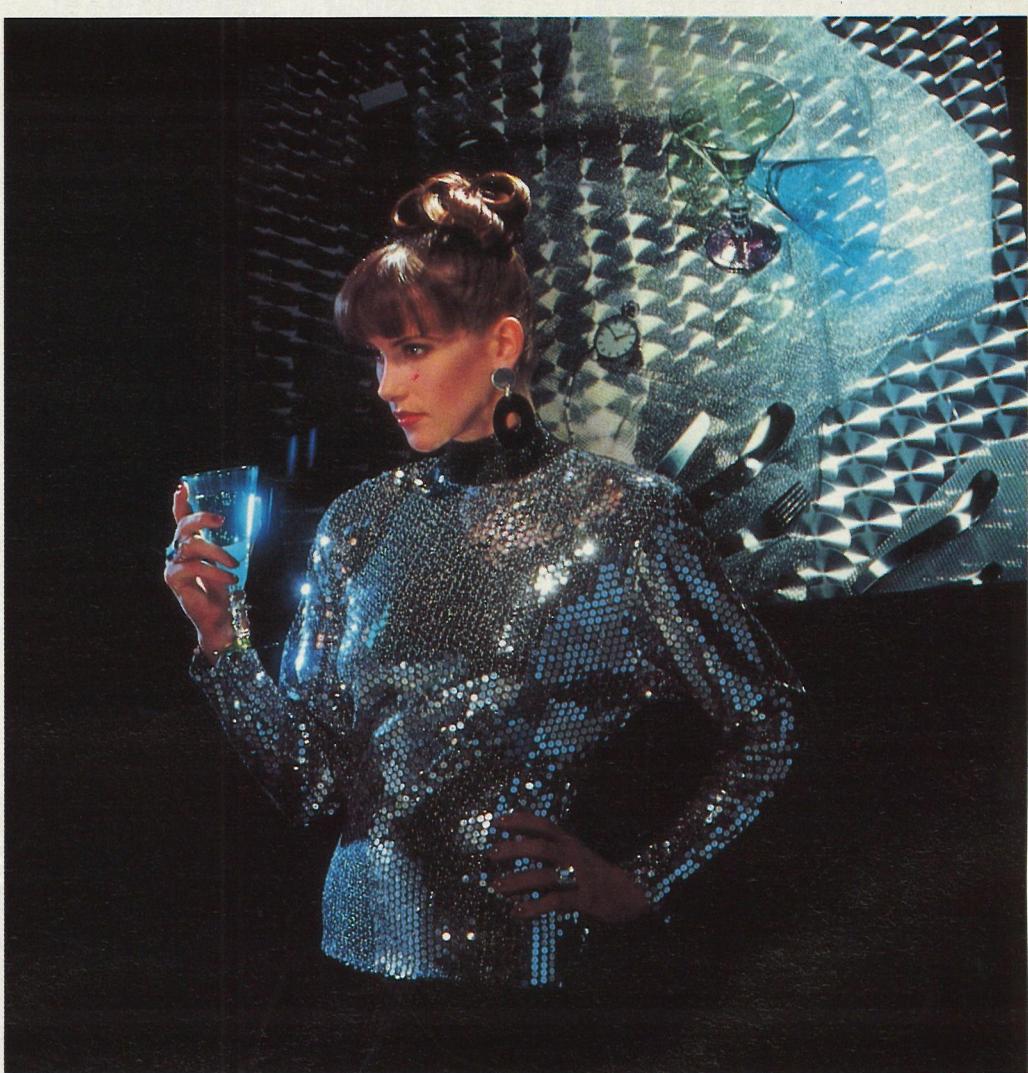
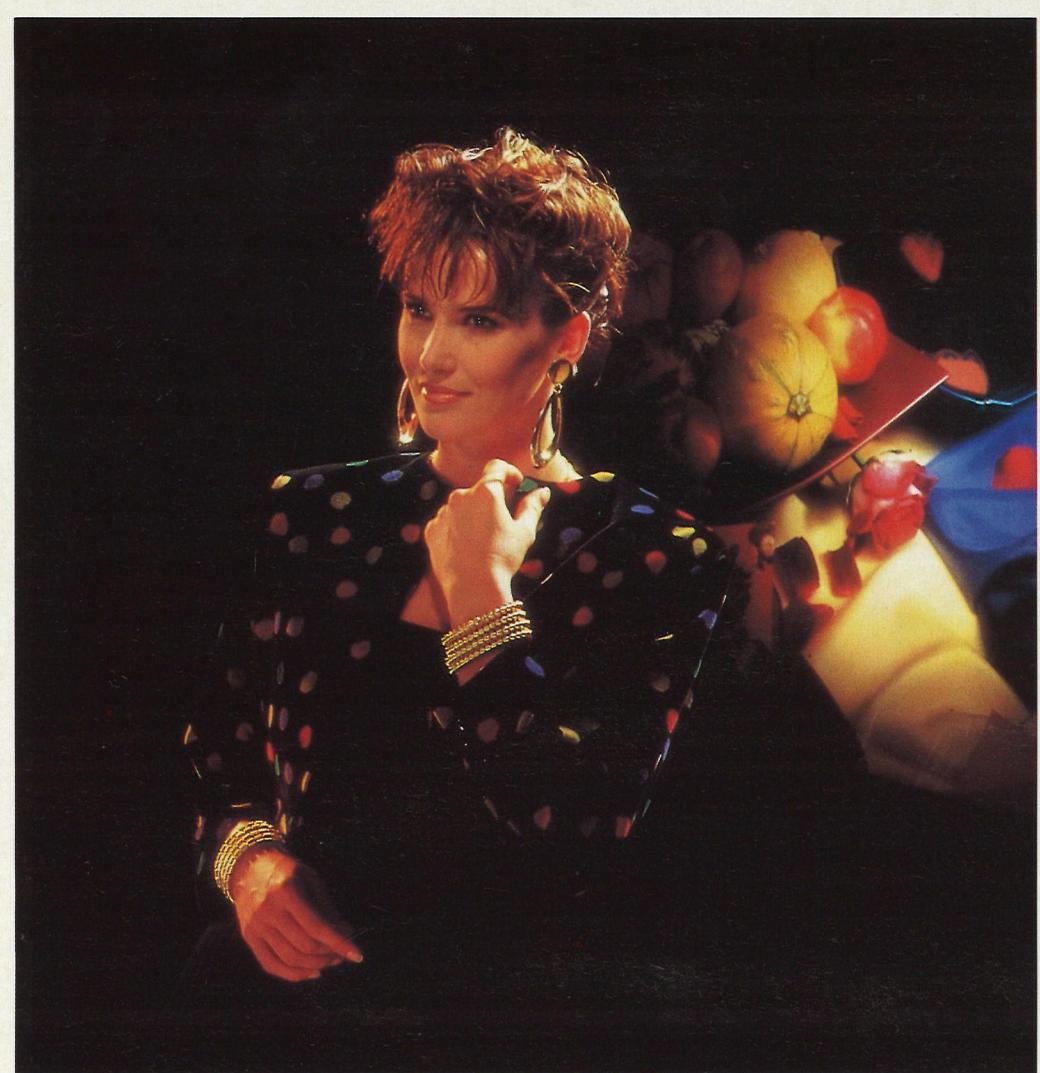
ILLUMILENS UV filters harmful UV rays thereby preventing damage to decor and merchandise and simultaneously protecting personnel.

ILLUMILENS HT has similar UV filtration properties but is particularly suitable for use in high wattage and high temperature lighting systems to withstand temperatures up to 800°C.

For efficient lighting without harmful UV rays, choose ILLUMILENS from Southern Ceramic Supplies.

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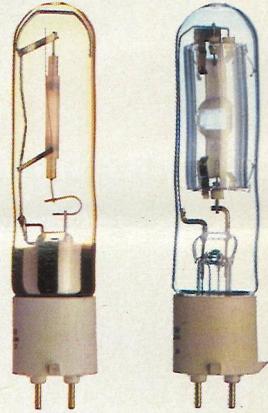
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**PHILIPS**

Reader Service No. 11

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Nature of business \_\_\_\_\_

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Postcode \_\_\_\_\_

Telephone \_\_\_\_\_

Approximate number of employees \_\_\_\_\_

Approximate annual turnover of business (please tick)

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Recent press coverage has worried many display screen workers in offices but European legislation requires certain health and safety provisions to be met. In Part 2 of this two-part feature *Bob Bell*, of Siemens Lighting, looks at the implications of the directive.

# On screen now

**S**imple surveys in the UK suggest that many lighting installations cause display screen workers to complain. Probably two out of three workstations are below standard.

The CIBSE Lighting Guide No 3 which deals with the lighting of visual displays, categorises low-brightness light fittings into three classes:

Category	Cut off angle	Luminance limit
Cat1	55°	200 Cd m <sup>-2</sup>
Cat2	65°	200 Cd m <sup>-2</sup>
Cat3	75°	200 Cd m <sup>-2</sup>

The category must match the application.

The angles of reflection that occur on VDU screens establish the correct cut-off angle and category. Although this is an acceptable approach where visual displays are fixed, it is not a practical method for most computer workstations where the displays are adjustable in angle.

Therefore, it is convenient to think of the categories as indicating the degree of severity of the task.

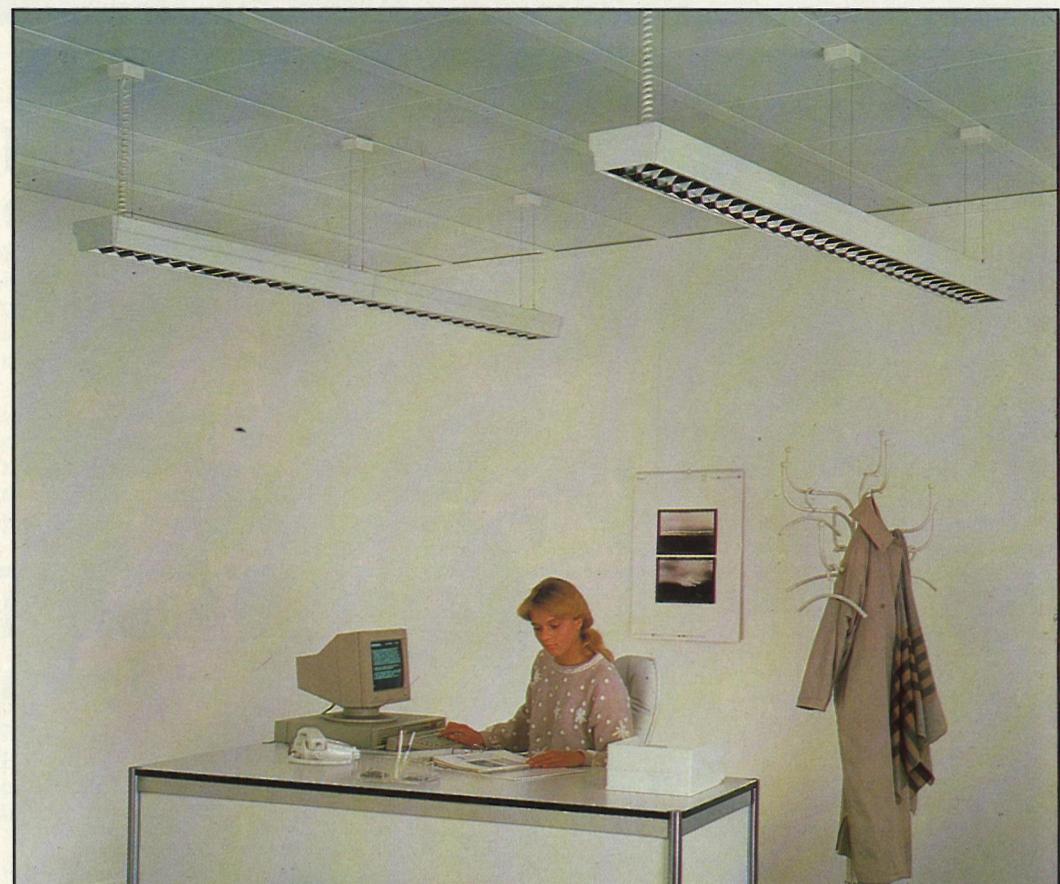
Category 3 applications are the normal type of situation, where operators do not continuously use

the workstation and where the workstations are to a good standard.

*Examples would be the terminal at an airline check-in desk, a secretarial workstation where the word-processing is not the only task, or a terminal in a manager's office. Almost 70% of all workstations will fall into this class.*

Category 2 applications are those in which the workstations are continuously used and the work is demanding.

*Examples would be terminals in an order processing office,*



Direct/indirect lighting (Siemens SiDEKO) for acceptable shielding of direct light and illumination of room surfaces.

*word processors in a typing pool or terminals in a design office. Almost 30% of all workstations will fall into this class.*

Category 1 as you can tell from the above percentages, is least common. It applies to some of the most severe situations, such as the CAD areas in silicon chip design, some control rooms or certain banking situations where VDUs are at awkward angles.

*Generally speaking these situations are special cases and include other special problems which will require attention.*

Low-brightness downlighting is not the only method of lighting in LG3. Indirect lighting is another method. In this case there are limits on the luminance of the ceiling. The maximum luminance may not exceed 1500 Cd m<sup>-2</sup> and the average luminance may not exceed 500 Cd m<sup>-2</sup>.

Uplighting can make the room look bland with flat modelling. The ceiling illuminance exceeds the recommendations in the CIBSE Code and the problems of flicker and 100 Hz modulation of light are a greater problem when viewed over a large area.

## Analysis

Some people in lighting are saying that the new legislation will adopt the recommendations given in LG3. This is not realistic. Although CIBSE LG3 is acceptable in law as good practice, the directive calls for an analysis, and the legal test will be "Is there a health and safety risk?"

For example, many specifications now call for LG3 Category 1 luminaires. This is done in the mistaken belief that the category is some sort of figure of merit and that Category 1 will 'comply' with the directive. Without correct design, the installation will have inadequate illuminance ratios within the visual field and the workstation analysis may well condemn the environment.

This is already happening. In one office the luminaires to LG3 did not cause reflections but, 68% of the occupants were complaining about 'gloomy' lighting, excessive contrasts and headaches and eyestrain. The lighting failed the directive.

The luminance of 200 Cd m<sup>-2</sup> is not a sacred figure. For some displays 50 Cd m<sup>-2</sup> may be too high, but for others 2000 Cd m<sup>-2</sup> is acceptable. As screens get better 200 Cd m<sup>-2</sup> is becoming a rather low limit. Also the maximum ceiling

luminance for uplighting is 1500 Cd m<sup>-2</sup> – much higher than the 200 Cd m<sup>-2</sup> limit – and it produces accordingly poorer screen contrasts and lower levels of visibility.

There is also nothing sacred about the limiting angles in LG3. They are based upon simple geometry. If, for example, 60° is the reflected angle from the screen, then any cut-off which is greater than this will permit reflections to encroach on the screen edge.

Extremes of brightness will cause visual difficulties and create an unpleasant environment. The wall to task illuminance ratio should be in the range 0.5 to 0.8 and the ceiling to task illuminance ratio should be 0.3 to 0.9. These are difficult to achieve with low-brightness VDU fittings – some form of perimeter treatment may be needed – and impossible with conventional uplighting.

Windows provide an important link with the outside, but can be more disruptive than luminaires as the luminances of the sky and exterior surfaces are much higher than luminaires.

Venetian blinds and vertical ribbon blinds can cause very disruptive regular patterns on the screen. Roller blinds are a good solution. They can cut off the bright sky line without eliminating the view. Daylight refractor systems across the upper part of a window can obscure the bright sky but refracting the image onto the ceiling. This improves daylight uniformity and helps to avoid disturbing reflections.

## Does the directive have teeth?

Not really. Whatever the government may say, the simple fact is that enforcement will take place under the existing Health & Safety at Work system of enforcement. Resources for enforcement are not going to be increased and are already overstretched. Furthermore, the risks in some other areas are considered to be of greater priority.

The pressure to enforce this legislation will come from unions, health and safety officers in companies and individuals. Many reputable employers are now creating health and safety policies to deal with this matter in a responsible manner. It is estimated that two out of three large companies are now doing this.

## Conclusions

To close, some do's and don'ts. Don't assume that following LG3 ensures compliance with the

## UP HERE TO STAY

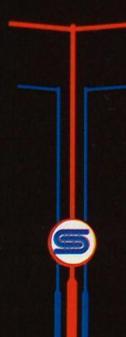


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Display Screen Directive – it doesn't, it just gives good guidance. Do encourage employers to take the directive seriously. This isn't just a matter of compliance with the law. It isn't just a matter of avoiding expensive problems or injury claims. Failure to comply means that productivity is being wasted and that's bad business sense. Get the lighting right and people can see to do the job. Why spend all that money on hardware, software and people and then waste it for the sake of getting a few details right?

#### ANNEX TO DIRECTIVE\* – MINIMUM REQUIREMENTS

##### 1. EQUIPMENT

###### (a) General comment

The use as such of the equipment must not be a source of risk for workers.

###### (b) Display screen

The characters on the screen shall be well-defined and clearly formed, of adequate size and with adequate spacing between the characters and lines.

The image on the screen should be stable, with no flickering or other forms of instability.

The brightness and/or the contrast between the characters and the background shall be easily adjustable by the operator, and also be easily adjustable to ambient conditions.

The screen must swivel and tilt easily and freely to suit the needs of the operator.

It shall be possible to use a separate base for the screen or an adjustable table.

The screen shall be free of reflective glare and reflections liable to cause discomfort to the user.

###### (c) Keyboard

The keyboard shall be tiltable and separate from the screen so as to allow the worker to find a comfortable working position avoiding fatigue in the arms or hands.

The space in front of the keyboard shall be sufficient to provide support for the hands and arms of the operator.

The keyboard shall have a matt surface to avoid reflective glare.

The arrangement of the keyboard and the characteristics of the keys shall be such as to facilitate the use of the keyboard.

The symbols on the keys shall be adequately contrasted and legible from the design working position.

###### (d) Work desk or work surface

The work desk or work surface shall have a sufficiently large, low-reflectance surface and allow a flexible arrangement of the screen, keyboard, documents and related equipment.

The document holder shall be stable and adjustable and shall be positioned so as to minimise the need for uncomfortable head and eye movements.

There shall be adequate space for workers to find a comfortable position.

###### (e) Work chair

The work chair shall be stable and allow the operator easy freedom of movement and a comfortable position.

The seat shall be adjustable in height.

The seat back shall be adjustable in both height and tilt.

A footrest shall be made available to any one who wishes for one.

##### 2. ENVIRONMENT

###### (a) Space requirements

The workstation shall be dimensioned and designed so as to provide sufficient space for the user to change position and vary movements.

###### (b) Lighting

Room lighting and/or spotlighting (work lamps) shall ensure satisfactory lighting conditions and an appropriate contrast between the screen and the background environment, taking into account the type of work and the user's vision requirements.

Possible disturbing glare and reflections on the screen or other equipment shall be prevented by coordinating workplace and workstation layout with the positioning and technical characteristics of the artificial light sources.

###### (c) Reflections and glare

Workstations shall be so designed that sources of light, such as windows and other openings, transparent or translucent walls, and brightly coloured fixtures or walls cause no direct glare and no distracting reflections on the screen.

Windows shall be fitted with a suitable system of adjustable covering to attenuate the daylight that falls on the workstation.

###### (d) Noise

Noise emitted by equipment belonging to workstation(s) shall be taken into account when a workstation is being equipped, in particular so as not to distract attention or disturb speech.

###### (e) Heat

Equipment belonging to workstation(s) shall not produce excess heat which could cause discomfort to workers.

###### (f) Radiation

All radiation with the exception of the visible part of the electromagnetic spectrum shall be reduced to negligible levels from the point of view of the protection of workers' safety and health.

###### (g) Humidity

An adequate level of humidity shall be established and maintained.

##### 3. OPERATOR/COMPUTER INTERFACE

In designing, selecting, commissioning and modifying software, and in designing tasks using display screen equipment, the employer shall take into account the following principles.

(a) software must be suitable to the task;

(b) software must be easy to use and, where appropriate, adaptable to the operator's level of knowledge or experience; no quantitative or qualitative checking facility may be used without the knowledge of the workers;

(c) systems must provide feedback to workers on their performance;

(d) systems must display information in a format and at a pace which are adapted to operators;

(e) the principles of software ergonomics must be applied, in particular to human data processing.

\*Taken from Official Journal L156/18 as corrected.



Siemens Module 3 surface mounted luminaires with Category 3 reflectors for general visual display work.

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# Expansion continues

Now entering the seventh year of its youthful existence, Luxonic Lighting plc is continuing to expand. The range of 'Alterlux' luminaires has been increased dramatically as has our product range to suit industrial areas.

Some of these new products are featured on these pages. New external sales staff have spearheaded an expansion from the south to the midlands and north, at the same time the internal facilities of the company have been increased. New production equipment for both louvres and luminaire housings has been installed. Chairman Sir John

Tavaré CBE, previously chairman and chief executive of Whitecroft plc and various Unilever subsidiaries, says the company has the capability to satisfy the requirements of both small and large projects.

#### Technical expertise

The group's Technical Director Brian Morgan has been actively

involved for the last three years in the work of the Lighting Division Technical Committee of the Chartered Institution of Building Services Engineers. He has brought over thirty years of luminaire and louvre design experience to the company which now has the ability to offer in depth technical expertise to a wide range of lighting problems.

#### Over £200,000 has been invested

This is in machinery and tooling to manufacture Alterlux louvres in house. A multi-headed press system with computer controlled coil feed can process LG3 category 1, 2 or 3 louvre components quickly. This machine allows full height end caps (a feature of all Alterlux louvres) to be manufactured economically. A computer-controlled rolling machine ensures the design profile of the louvre components are maintained in production, while dedicated tooling guarantees dimensional accuracy.

#### Air calorimeter

A new air calorimeter has been installed to test the volume of air drawn through a luminaire at a range of air velocities. The heat extracted from the lamps and control gear into the plenum can be assessed as well as the pressure drop across the luminaire. The cumulative effect of these factors on light output can also be accurately measured.

#### Personnel commitment

All three new sales staff at Luxonic are qualified in lighting design:

- Kevin Lees covers the Midlands area as Project Engineer.
- Paul Whelan joins the Southern area team as Project Engineer.
- Stuart Buckley joins as Northern Area Manager

## Alterlux luminaire for compact source (PL) type lamps



The "Alterlux" range of luminaires has been extended to include luminaires designed specifically for compact source lamps.

These include a 300 x 300 range with prismatic controller, fluted cross-blade louvre or LG3 category 2 and 3 louvre options.

There are now modular compact source luminaires to suit 500 x 500 and 600 x 600 ceiling systems as well as versions suitable for high rates of return air.

## 'Alterlux' is ideal for retail store applications

Two new 'Alterlux' products have been launched for retail store applications.

The 1200 x 1200 luminaire has a range of light control options including specular wedge cross-blade louvres and a variety of fluted cross-blade white louvres.

The 600 x 600 three lamp 40 watt compact source (PL) range has a choice of either specular or semi-specular wedge cross-blade louvres.

Both ranges have traditional 'Alterlux' radial distributions which make them ideal for providing good horizontal and vertical illumination levels in retail applications.

Reader Service No 14



#### Sealed 'Alterlux' louvred luminaires for clean rooms, laboratories and food factories

Many laboratories are now equipped with visual display terminals and correct lighting for their use is just as appropriate as general office areas with VDTs. This new range of 'Alterlux' luminaires has a clear acrylic sheet sealed into an extruded aluminium frame which hinges into the main luminaire housing and is sealed to IP54. The full range of 'Alterlux' louvres can be incorporated into this range to meet any of the categories of LG3.

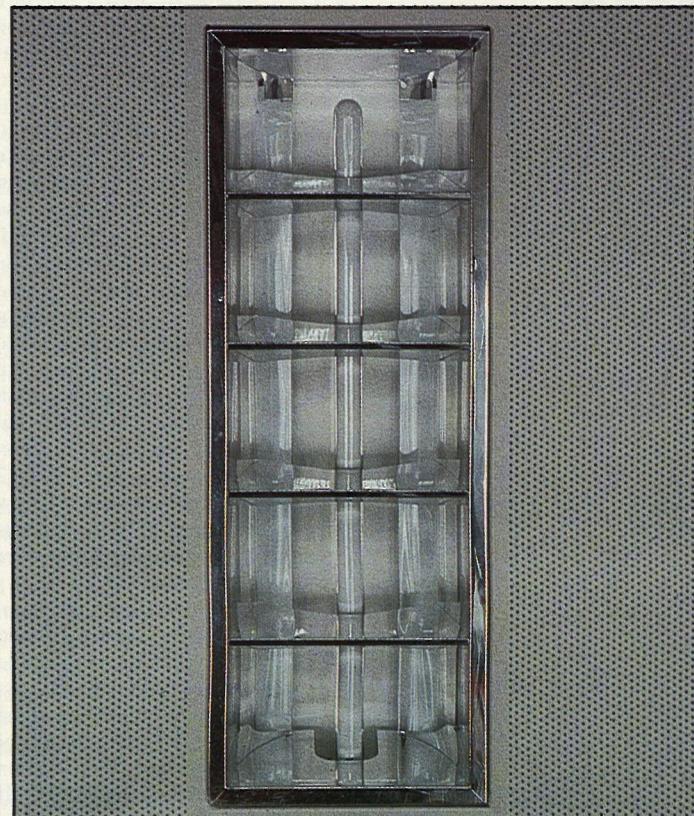
Reader Service No 15



Five floors of the recently refurbished Tolworth Tower have been lit using recessed continuous Alterlux luminaires. Where a drop beam prohibited the use of recessed luminaires then surface continuous Alterlux was specified. Both products can be supplied with LG3 category 1, 2 or 3 louvres.

# ALTERLUX®

# Single lamp compact source Alterlux luminaire



Another recent introduction to the 'Alterlux' range is a single lamp compact source luminaire for integration into a prepared aperture in a ceiling tile which usually forms part of a tartan grid ceiling system. The luminaire is supplied with four special spring clips which makes installation very fast.

The five cell louvre has been independently photometrically tested by BSI at Hemel Hempstead to confirm compliance to LG3 Category 2 and the blades are 'scalloped' around the lamp to minimise 'ladder flash' and so meet the patch test requirements of LG3.

The last cell of the reflector is effectively blanked off to damp down air movement near the 'cool spot' of the lamp. The 'cool spot' effectively determines the

light output of the lamp, and the purpose of blanking the end cell is to avoid rapid cooling of this sensitive end of the lamp by air movement and air turbulence.

#### Loss of output

This gives rise to an early rapid loss of light output at low air flow rates. With increased air movement, and depending on the inlet temperature, the lamp will be overcooled somewhere else and, as the name implies, that is where the 'cool spot' moves to.

The air flow rate is, therefore, a balance between overcooling of the lamp and the loss of light output that can be tolerated. Above this point, air by-pass of lamp compartment will be necessary. Test data is available on request.

Reader Service No 17

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Reader Service No 16



Figure 1.



Figure 2.

## Better visual environment

Many modern industrial buildings have relatively low ceiling heights, often in the region of 6 to 8 metres.

Standard aluminium reflector high-bay type luminaires, with their high direct ratio of light output can create a gloomy atmosphere, the so called "tunnel effect" (see Figure 1), and problems of shadowing caused by obstructions in the space. The use of a prismatic refractor, with a high upward light output component eliminates these and, thus, provides a better visual environment (see Figure 2).

#### Improved visual acuity

We are all familiar with lighting schemes that call for say 300 lux

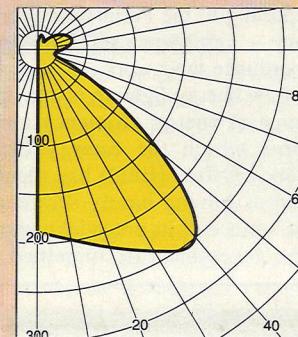


Figure 3.

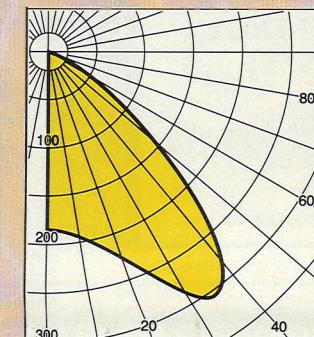


Figure 4.

be caused by luminaires with pronounced "batwing" type distributions (see Figure 4).

The upward light component when reflected off the ceiling will help to soften the shadows in the

reflectors but only 15.70 if lit with prismatic refractors. Aluminium reflector high-bay and low-bay installations generally give high values of corrected glare indices.

The 1984 CIBSE code recom-

mends that supermarkets and general factory areas have a lighting glare index (LGI) of 22 and specific task areas could need an LGI of 19 or less. The use of prismatic refractors, thus, provides a better visual environment.

#### Low luminance

In addition, the use of prismatic refractors reduces the luminance (brightness) of the light source and the additional use of a prismatic visor (Figure 5) increases the luminance control from 0 degrees to 45 degrees, making the luminaire suitable for lighting racking installations, sports halls and ice-rinks where the use of a low luminance luminaire is essential. All these points are aptly illustrated in Figure 6.



Figure 5.

on a horizontal plane 0.80 metres above the floor. However, in industrial spaces this working plane may be horizontal or vertical, or indeed, inclined. Almost certainly it will vary across the space.

Additionally, the height at which tasks are carried out will change. We, therefore, need to provide a luminaire that caters for these variables which are often unknown at the lighting design stage.

#### Radial distribution

By using a HI-MOUNT luminaire that firstly, has a radial light distribution (see Figure 3) we can eliminate any sharp peaks or troughs of illumination that can

space and increase the ability to perceive detail. This inter-reflected light will also help to raise the vertical levels of illumination and reduce the often sharp differences between vertical and horizontal levels.

#### Reduction of glare

The use of prismatic refractors greatly reduces the glare from an installation of luminaires, as calculated in accordance with CIBSE publication, Technical Memorandum No.10.

For example, an area of 24 metres by 24 metres lit with 400 watt MBF HI-MOUNT luminaires mounted at 6 metres would have a corrected glare index of 25.10 if lit with aluminium



Figure 6.

Government is giving a better lead to energy saving and what more positive example of this improvement in outlook than the relighting of the House of Commons with modern, energy-efficient lighting. 1990-91 formed the base year for the government's campaign to improve energy efficiency in the government estate. Each department is now required to achieve a target of annual savings rising to 15% over the five years from 1990-91 to 1995-96.

Departments are already making savings and nearly all have made it their policy to introduce low-energy lighting progressively where it is practicable to do so. For example, at the Ministry of Agriculture, Fisheries and Food it is the existing policy of the department to carry out in its buildings all energy-saving measures which can be shown to be worthwhile. As a result of this, a substantial investment has already been made in energy efficient lighting and this will be extended to other buildings wherever it is

practical and where resources allow.

Practically all the Department of Education and Science's buildings are equipped with low energy lighting, and the Department of Social Security has recently replaced all tungsten lighting with compact fluorescent lighting at a cost of £100 000.

The Department of the Environment's policy relating to the installation of low energy lighting is to replace all standard luminaires, both tungsten and fluorescent, with low energy consuming equivalents, wherever it is practicable and cost effective. A programme of lighting replacement was started earlier this year and low energy lighting has already been installed in six major buildings representing about 60% of the department's office estate.

#### Northern lights

The Scottish Office requires any new buildings it acquires to incorporate low energy lighting systems. In existing buildings, low energy lighting is fitted wherever possible and this will continue as resources permit when refurbishment work is undertaken. Even the Prime Minister's office at 10 Downing Street has installed highly efficient, low-energy lamps where appropriate, following a recent energy audit.

Each department of the government estate now has a designated departmental energy manager, and an energy management panel, reporting to the Permanent Secretary - has been established to coordinate their work.

Low energy lighting is one of a range of energy efficiency measures which the Energy Efficiency Office (EEO) has identified as having barely scratched the surface of its potential market. The government is committed to

**Central government is now requiring its own departments to meet energy saving targets, a signal that it is at last taking energy efficiency seriously. Siobhan Dowsey, of the Lighting Industry Federation, looks at the implications of this change of heart.**

## Leading by example



The refurbished gallery at the Royal Museum of Scotland (top) and Wood Green Crown Court (below) were both designed by PSA Projects.

breaking down the barriers which are hampering the take-up of energy efficiency measures in the market. These have been identified as market distortion, lack of information and investment priority.

The government has now incorporated the Energy Efficiency Office into the Department of the Environment, a reflection of the fact that, with the risk of global warming, energy saving has now become an imperative rather than an option as it was previously considered.

The Lighting Industry Federation has been helping the EEO to disseminate information on lighting through its programme of seminars and exhibitions. The fourth seminar for the government's own departmental energy managers took place in January this year alongside Lightshow '92. The delegates, representing all the government departments,

participated in a seminar which was the latest in a regular series which the EEO have asked LIF to help organise for them. The seminars have been backed up by EEO newsletters which give the energy managers up-to-date details of training courses and new developments in the energy efficiency field.

LIF has provided speakers for various meetings of energy managers' groups, and is also participating in a series of regional seminars on lighting organised by the regional energy efficiency officers.

Now that government departments have embarked upon this campaign they can be monitored and encouraged, and can hardly do less when Parliament reopens next month. As an industry which has toiled away for several years seeking government not just to save energy but to give a positive lead to commerce and industry, there is some real encouragement for the lighting manufacturers in the early stages of the government's energy efficiency campaign.

Of course, ideas need the right

timing and it may well be that in the greener days in which we live, public pressure is beginning to be felt, and that is why the government is starting to respond. The industry welcomes this development very much.

There have been staggering advances in the efficiency and cost effectiveness of modern lighting appliances and real cash savings are not only available but readily quantifiable. The Post Office anticipates savings of £4.2 million a year thanks to new energy efficient lighting systems which have been installed over the past two years.

There are other spin-offs too. Losses through absenteeism and sickness can often be attributed to poor illumination in offices causing people to suffer from headaches, eye strain and other recurring illnesses. All too often the industry finds that computer screens and modern equipment have been installed in offices without a thought given to updating the lighting at the time of that expenditure.

Workers who can see a reflection of a light in their computer screens ought to ask their manager to consider installing new equipment which energy bill savings will soon justify. The figures will quickly demonstrate what real savings modern lighting technology can yield.

Other Western nations have been given positive leads which their administration has fostered. In some US states, poor families are given free low-energy modern light bulbs to replace their older varieties - helping their budgets and saving energy. Similar ideas are being tried out in Sweden and Italy with government backing. Now, the British government seems to be moving in this direction and starting with its own offices first.

#### Public sector building work

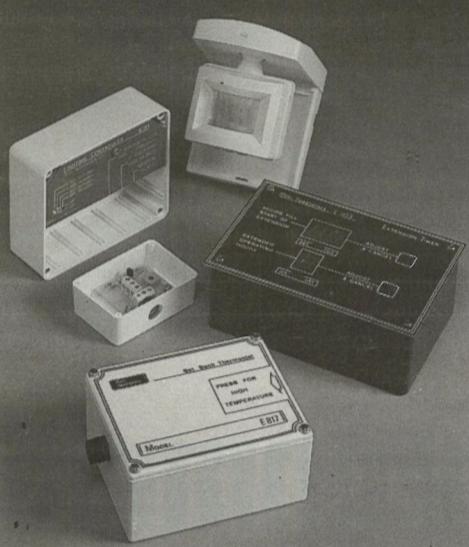
The management and development of the government estate was, historically carried out by the Property Services Agency (PSA) and real progress has been made in recent years with the installation of modern energy efficient lighting schemes in many public buildings. The buildings on the government estate vary considerably in size, construction and use. About 60% of these are offices, the remainder comprise stores, factories, laboratories - and a few special buildings, like 10 Downing Street.

Moving with the times, the Royal Museum of Scotland situated in Chambers Street, Edinburgh saved £8 000-£10 000 a year - or about 17.6% of its total energy bill - by introducing the new lighting technology that was becoming available, notably low voltage tungsten halogen. The refurbishment of the lighting was part of an overall programme of lighting improvements by PSA Projects in Scotland.

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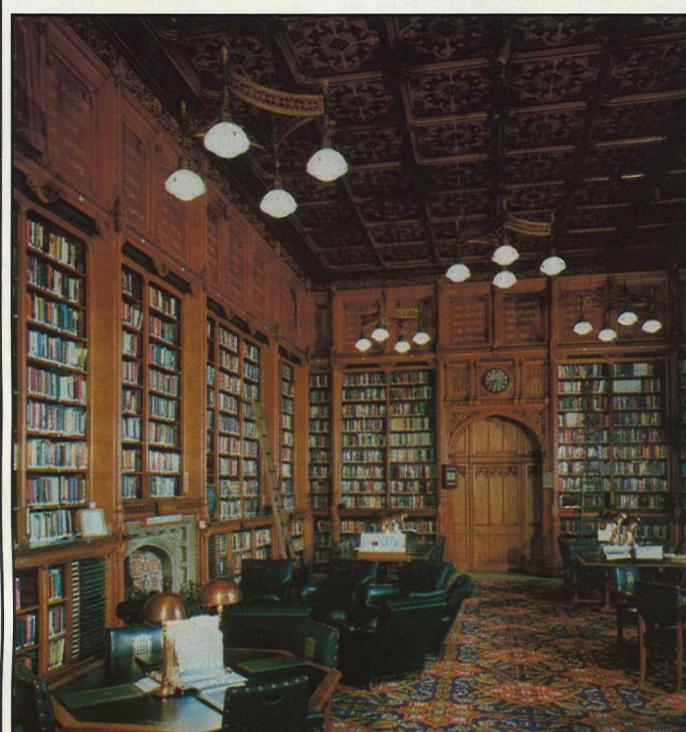
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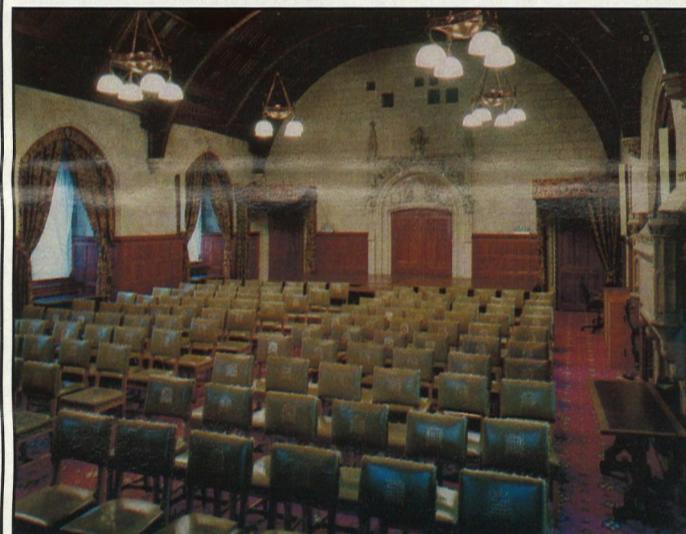
Lighting Equipment News, September 1992

# Lighting in the public eye

**A new energy-saving lighting installation in the Palace of Westminster shows that economy begins in The House. LEN reports.**



Compact fluorescents suit the restrained elegance of the Commons Library.



The PLL lamps in this committee room can be dimmed to save energy costs.

Over the past eighteen months obsolete lighting at the Palace of Westminster has been replaced by compact fluorescent lamps. The first phase has now been completed and over the summer recess lighting in the palace's vast network of corridors will also 'go compact'.

The installation - the first phase using a range of compact fluorescent lamps from Philips Lighting, including PLL, PLCE and PLC types - has produced a dramatic decrease in electrical consumption from 260 kW to just 79 kW, a reduction of 70 per cent. Because the new lamps only use a quarter of the electricity that the gls lamps they replace consumed and last eight times as long, both running costs and maintenance costs have been dramatically reduced.

Nowhere is this change more obvious than in the Commons Chamber which had to be relit to meet the demands of TV broadcast cameras. The decision to permit the permanent televising of proceedings caused considerable problems for the palace's services engineers. The lighting had to be hidden from view and yet provide 250 lux for the camera lenses.

Much attention to design detail is evident. For example, the use of colour coding of luminaires in line with area/user categories and the location of the equipment to suit architectural features. Excellent use has also been made of controls and energy management systems.

the main hall of the museum suffered from the bland lighting effect of many fluorescent lamps alleviated by a few filament spot-lamps. The objective of the new scheme was to improve the visual environment without incurring the penalty of substantially increased energy consumption. A large number of low voltage tungsten halogen lamps with dichroic reflectors was used, and these consumed only a third of the energy of the old lamps.

## Improved lighting

To provide ambient illumination, uplighters were used with metal halide lamps to blend with daylight. The result is a four-fold increase in the general illumination with significantly higher levels where emphasis is needed. A comprehensive set of controls has been installed to make the most efficient use of the new lighting installation. A photocell measures the available daylight to reduce electric lighting at appropriate times and local switches give selective control for cleaning and setting up purposes.

Modern lighting technology has revealed the magnificence of the 3-storey structure with its birdcage glass and iron roof and adjacent balconies; it has also reduced the installed lighting load by 20%. The museum was opened in 1866 and is one of Scotland's major tourist attractions with over 600 000 visitors a year. The Victorian structure is the nation's largest grade A listed building and houses the largest comprehensive museum in Europe.

## Crown Court

Another highly innovative and excellent lighting solution was provided by PSA Projects at the Crown Court in Wood Green, North London. The building was officially opened in July 1990 and the new lighting installation makes an outstanding contribution to the visual environment and function of the courtrooms, library and administrative offices.

Wood Green Crown Court is one of many court schemes designed by PSA Projects for the Lord Chancellor's department. The ten courts are housed in a new building behind a Victorian gothic facade and chapel wings of the Masonic School for Boys built in 1865.

A variety of lighting installations was designed to suit the styles and uses of the different rooms required for the administration of justice. This was a major installation throughout with complex requirements in terms of user needs where both the operational requirements of the lighting and the aesthetic needs have been achieved to a very high standard.

## Attention to detail

In the courtrooms the use of lantern light, uplighting and spotlights ensures that the correct illuminance for the working locations has been achieved and secures an effective and appropriate ambience. The lighting in the judges' library - shown opposite - was chosen to throw light upwards into the dark oak-beamed ceiling, to provide good quality light for the examination of documents and yet to be in harmony with the surroundings. The creatively styled staircase is innovatively lit using carefully profiled tube lights which follow the soffit of the staircase.

Much attention to design detail is evident. For example, the use of colour coding of luminaires in line with area/user categories and the location of the equipment to suit architectural features. Excellent use has also been made of controls and energy management systems.

Six splendid lantern luminaires, suspended from the ceiling and made of bronze, oak and steel, were fitted with 36 PLL 36W high frequency regulated colour 83 lamps. The PLs installed in side panels have been mounted vertically so that they throw illumination onto the floor of the House.

Lighting levels in the Chamber are regulated from the main computer control unit or using a remote controller pre-programmed to provide three principal settings. So lighting is only at full output when debates are being televised.

In the ceiling, rows of isolated light fittings that once housed cold cathodes lamps have been changed over to PLLs. And the magnificient chandeliers in the Lord Chancellor's office have also been modified to take PLL lamps.

## Compact fluorescents

Elsewhere in the palace, committee rooms and meeting areas have been equipped with PLCE lamps. The members' tearoom and dining rooms are now lit with 9W PLCEs, which replace 40W incandescent lamps. As the PLCEs are short enough to be hidden by the fittings, not a single MP spotted that the lighting had been altered.

In the Grand Committee Room, several dozen PLL 26W lamps have been fitted into rows of suspended chandeliers to produce subtle lighting. Wall-mounted potentiometers permit the fittings to be dimmed, which also saves on energy costs.

The ceiling fittings in the luxuriously appointed House of Commons library have been converted to take 18W SL lamps. Additional lighting at worktop level is provided by 11W PLCE compact fluorescents in the desk lamps.



Lighting levels in the House of Commons now meet broadcasting requirements.

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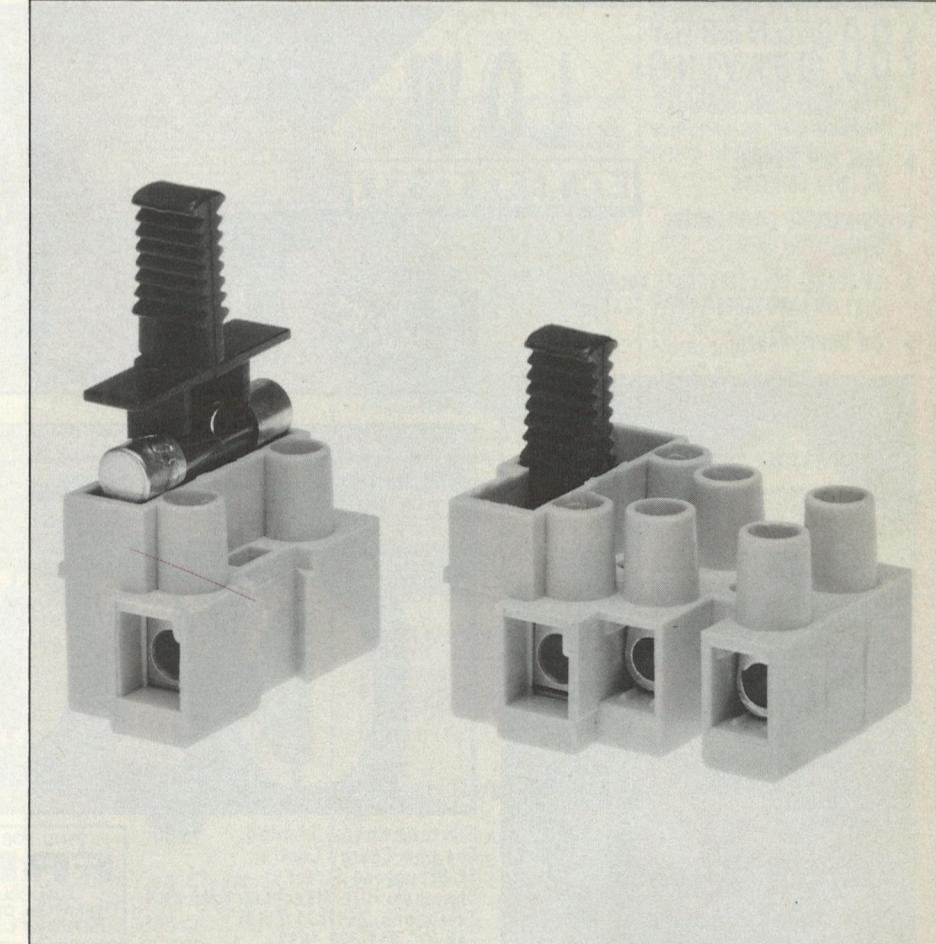
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Looking for all the world like a futuristic space observation station is the entrance of the Time Capsule Monklands, a new leisure complex in the Coatbridge area of Glasgow.

The sense of drama is heightened by a floodlighting scheme by Thorn Lighting. This uses splashproof Sunspot fittings with tungsten halogen and low wattage metal halide lamps with coloured filters.

The projectors, mounted on the structural columns, were chosen

for their high light output and the ability to provide a narrow beam of light with no unsightly striations.

A programme sequencing system operates, hence the mix of light sources with tungsten halogen for the short punchy effects and metal halide for the longer burning hours.

The Time Capsule Monklands, which caters for a wide range of ice and water based sports and social activities, is strongly themed as a journey through time from pleradons to space travel.

**The swimming pool, showing the underwater lighting and the creative use of filters.**

Internally, the lighting designer had to take into account the wide diversity of interior events and, in particular, the lighting requirements of the ice rink, swimming pools and public spaces.

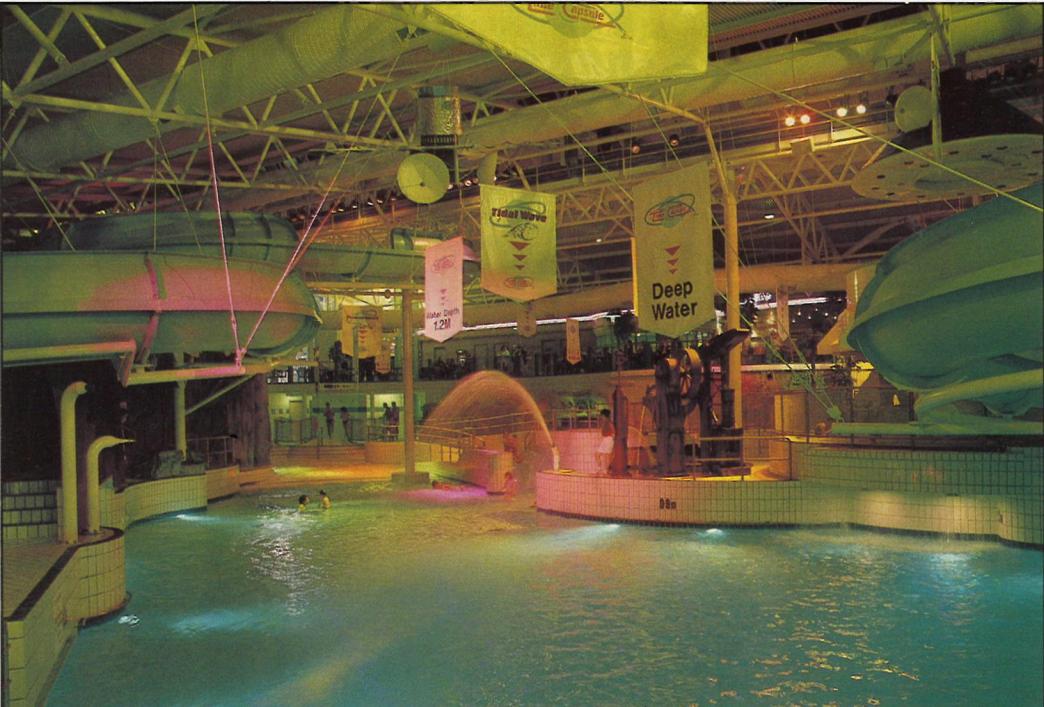
Lighting design criteria included:

- The need to provide illuminances in line with the relevant CIBSE code.
- The swimming pool presented a functional need to minimise glare to both users and spectators while paying attention to the safety of swimmers.
- Light sources had to be selected carefully to create an atmosphere that would offer a warm, exciting and friendly environment while providing a feeling of safety for both parents and children.
- The sequenced switching of luminaires was to be used to provide mood.
- Easy access was to be provided for the maintenance of lamps and luminaires at all times.

#### Ice rink

The main ice rink features an arctic landscape complete with trees, snowdrift and a giant mammoth. The lighting system here uses a conventional layout of high bay industrial reflector fittings with 400W MBIF metal halide lamps to an illuminance of 500 lux. These give a clean, white appearance with a cool feel. As the rink is also used as a multipurpose arena a sophisticated disco lighting system has also been provided, mounted on three suspended gantries. A video wall lends further excitement to the rink.

A particular problem facing the lighting designer was how to light

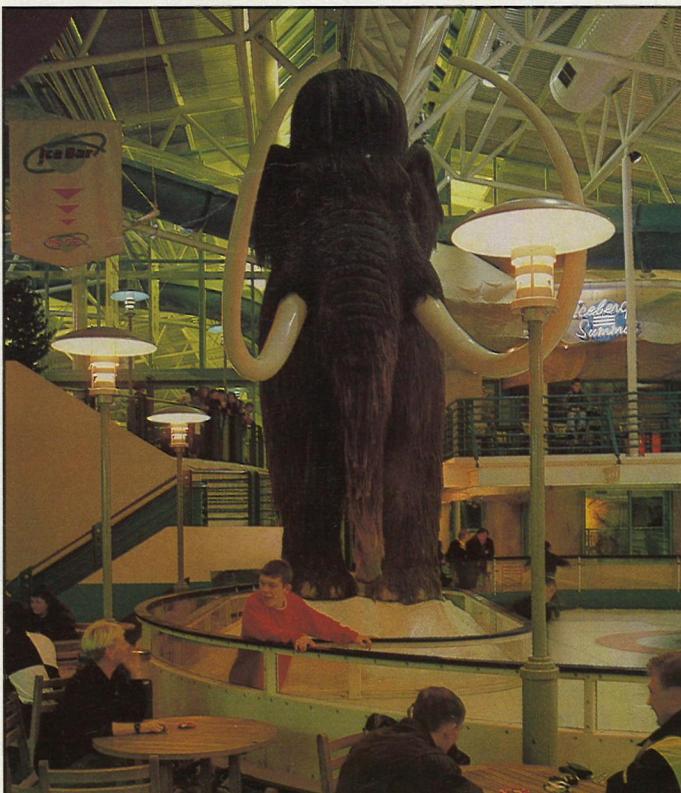


**From Arctic snows to the challenge of space exploration, Scotland's newest leisure centre adds fun to fitness. LEN looks at the role played by lighting in providing an exciting and exotic environment.**

## Back to the future



Dramatic use of lighting at the entrance to the complex.



The ice rink – a mammoth lighting task.

the wall which encloses part of the rink. This has been solved by using wall-mounted floodlights to flood the wall in light.

#### Swimming area

The swimming pool is separated from the ice rink by a giant glass screen. The pool is irregular in shape, and incorporates many features including water sprays, rapids, water surges and wave machines. Light, water and sound are all used to echo the theme the

'river of life'. In the course of a visit the swimmer can experience the history of man, starting with the prehistoric era and travelling through to a spaceship launch.

The pool provides seven experiences in all, among them a volcanic beach area and an origin of time monsoon. These are all interlinked and take place only a short distance from each other.

The primary objective of swimming pool lighting is safety: the pool attendant must be able to see

a swimmer in difficulty clearly. The design solution adopted at the Time Capsule was to use 400W SON deluxe lamps in adjustable area floodlights with fibreglass bodies to withstand the humidity and corrosive atmosphere. The fifty floodlights are mounted in uplight mode and provide 300 lux of warm white light; SON deluxe was chosen not only for its efficiency but for its pleasant golden white light. In addition, 33 underwater lighting fittings are located within the pool to provide a decorative effect, with a far lower ambience than that of the general lighting.

The themed areas are picked out using 100 custom-designed theatre style floodlights housing 1kW CP60/61 lamps. The floodlights are fitted with a variety of lenses, both clear and prismatic, and with a wide range of coloured dichroic filters.

Here too, a sophisticated computer program ties together water, light and sound effects in order to reinforce the experience. For instance, as the swimmer passes by the prehistoric cave wall, coloured lighting effects are linked to the sound of people working with flints.

All lighting in the pool hall is installed on a single, central boom, thus facilitating access for maintenance.

#### Public spaces

An unusual application for amenity lanterns was found in lighting the cafes and general walkways. Thirty post-top circular lanterns have been installed around the viewing balustrades, ten using 80W MBF lamps, and the remainder 70W SON lamps. Elsewhere the public areas are lit with a mixture of 16W and 28W compact fluorescent luminaires and low voltage tungsten halogen accent spotlights.

For the user, the high quality lighting provides a pleasant atmosphere with a high degree of visual comfort. The low energy and maintenance costs of this installation make it equally popular with those who have to manage the centre.

Lighting design for the Time Capsule was carried out by Iain Maclean of Thorn Lighting in collaboration with the project's architects Limbrieck Grayshaw Associates.

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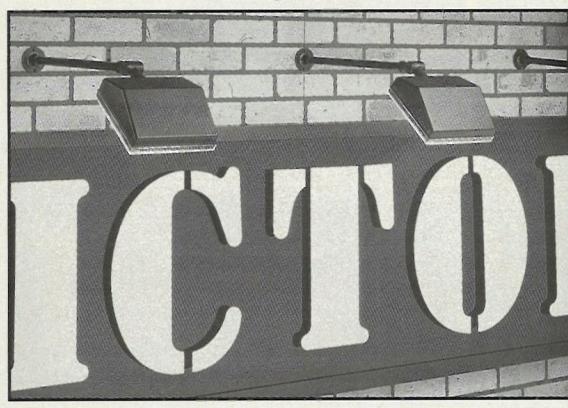
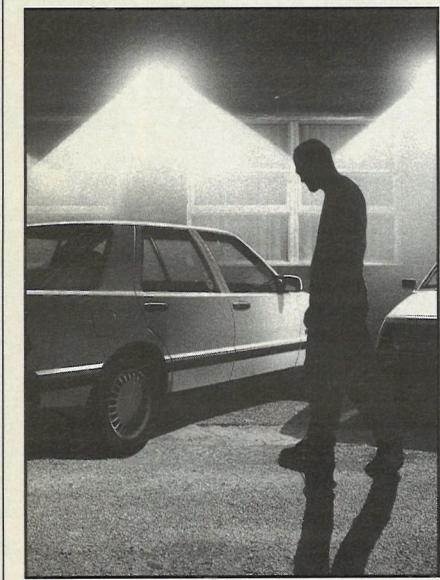


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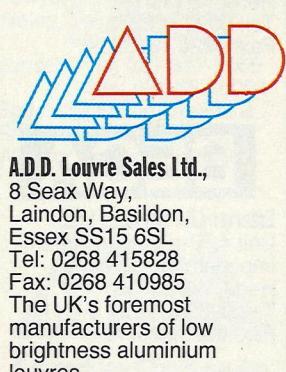
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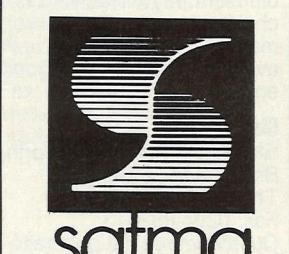


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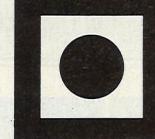
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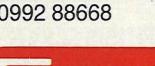
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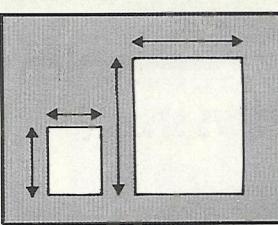
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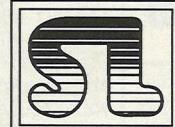
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*Applications in writing together with CV will be treated in  
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## DISTRIBUTION OPPORTUNITY IN SCOTLAND

U.K. manufacturer of energy efficient lighting products,  
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Knowledge of the lighting industry essential.

Please reply for further details to: Box No. 1528, Lighting  
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## LIGHTING DESIGNER

U.K. lighting company, manufacturing and  
marketing luminaires targeted at the commercial  
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lighting products designer to develop innovative  
product lines.

The candidate must have knowledge of industry  
suppliers, several years experience of luminaire  
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For a candidate who is self-motivated and  
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- EXCELLENT POTENTIAL -  
Interested Parties please apply to:

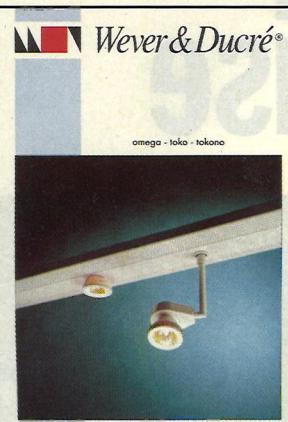
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## SALES AGENTS

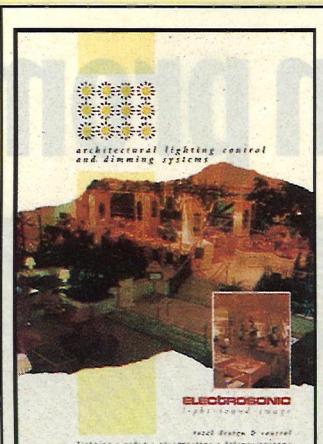
L.B. Lighting Limited specialist designers and manufacturers  
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sector specifiers in Bristol and South West, Wales,  
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Contact: Mr Don Johnson,  
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St Albans Road, St Albans, Herts AL4 9QT  
Tel: 0727 44782

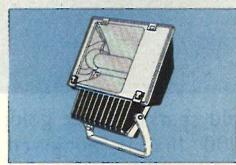


Wever & Ducré, a dynamic specialist manufacturer with over 8 years experience successfully marketing to discerning customers worldwide, offers an exclusive and comprehensive range of infinitely superior state of the art luminaires for commercial and retail applications. Products are made to perfection with only top quality traditional materials considered in a range of finishes: circle 90



Electrosonic's extensive range of architectural lighting control and dimming systems meets all the requirements for applications from hotels to museums, shopping complexes to churches. With over 25 years of experience, Electrosonic can offer simple, single channel dimming right up to a custom-built computer controlled network capable of running a major building complex: circle 92

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New from BCP Lighting an up market IP66 Floodlight at competitive prices. This class II construction flood is designed around Sodium, Halide and White SON Tubular lamps for maximum efficiency with most models available from stock: circle 91



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Close up of one of the Hewlett Packard workstations at Spennymoor.

## Paperless Engineering at Thorn

Thorn Lighting has invested more than £1 million in replacing, updating and expanding its CAD/CAM capabilities. The introduction of numerous Hewlett Packard 9000 workstations at the Lighting Technology Centre in Spennymoor, County Durham will lead to the achievement of higher standards of cost effective engineering.

Advanced computer design techniques enable Thorn to respond quickly to an initial design brief - from the company's own design engineers or a potential

customer - and translate it into a fully detailed product in the shortest possible time. Prototype products can now be produced in a matter of hours rather than weeks.

The existing CAD/CAM system has primarily been used for two-dimensional work. The more powerful Hewlett Packard system utilises advanced three-dimensional modelling facilities to enable rapid visualisation of the most complex lighting fittings and components. Designs can be analysed during development and reusable data stored for future

use.

The new system will provide three additional benefits. It will establish a common database with a library of standard parts which will enable positive rationalisation of the range of components. It will improve design links with both the toolmaking and manufacturing operations, and will allow the simultaneous interchange of ideas both at local and European level.

## Safety compliance for North America

*Product Safety Compliance in North America* is the title of a seminar by Era Technology, which will take place on 29 September 1992 at the City Conference Centre, London.

The event has been arranged to meet requests for information on North American legislation from delegates to an earlier conference on European product safety in 1991.

It provides a comprehensive introduction to the UL and CSA approvals system. Design consid-

erations and testing requirements will be included. The second half of the day will be given over to export case studies from three different British based companies and will conclude with advice from Technical Help to Exporters on the help available in the UK for those exporting to North America.

Further details from ERA Technology Ltd, Cleeve Road, Leatherhead, Surrey KT22 7SA. (0372 374151).

## Trade publications in brief

● **Freya Lighting**'s leaflet illustrates its table lamps which include a wide range of candlestick types (tel 0473 730238).

● **Moorlite** has a 6-page leaflet called *Better lighting at work - the UK legislation for new build*. Case studies show the benefits of

well designed VDT compatible lighting (tel IAS on 0625 434343).

● **The Electrical Wholesalers Federation** 1992 Year Book is available, price £19.95. It has been updated and improved and features added.

## NEWS

### Unusual lighting is specially designed

Customers' own designs of decorative lighting can be made by Fusion Lighting, a new shop in London. This is in addition to the modern lights on show designed and made by Richard Reich, the owner of the shop.

For example, a range of small table lamps suitable for restaurants have an illuminated column made of Pyrex, which contains a candle lamp, with different numbers of glass discs around the column. The glass discs are decorated with rings, a sunray design, or company logos.

A rocket shaped range of wall, ceiling and table lights also makes use of Pyrex and can be modified to use low voltage tungsten halogen lamps if preferred.

As well as selling modern lighting, there is a "recycling" service for old lights. "Restoration or repair can sometimes work out less expensive than buying modern copies," says Reich, an ex BBC projects manager who has always been interested in lighting. He can be contacted at 201 Chalk Farm Road, London NW1 8AF.

## LIGS at Wilderness

The Wilderness Golf Club was the venue for what should have been a fine mid-summer day's golf on an excellent course, but on 20 August we had very heavy rain for most of the day.

In the morning a foursomes competition was played with prizes presented by T Oram of OLC, with D Proctor of GE Lighting presenting first tee gifts.

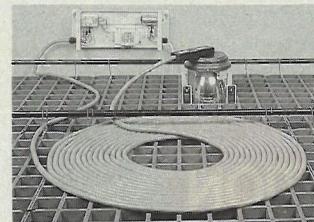
A Single Stapleford competition was played in the afternoon with prizes presented by G Jacob of Concord Lighting, and our captain Gordon Sugden of Airdale Springs presented guest prizes.

Results for the day were as follows:

Foursomes: 1 W Wilson and V McSweeney (guest). Stapleford: 1 F Sherman; 2 G Sugden

The next meeting will be at Addington on 20 September.

## SAFE STRONG AND VERY VERY . . .



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- ★ Cable runs between ignitors and Metal Halide lamps can now be as great as 25 metres.
- ★ Cable continuously rated at 5000 volts.
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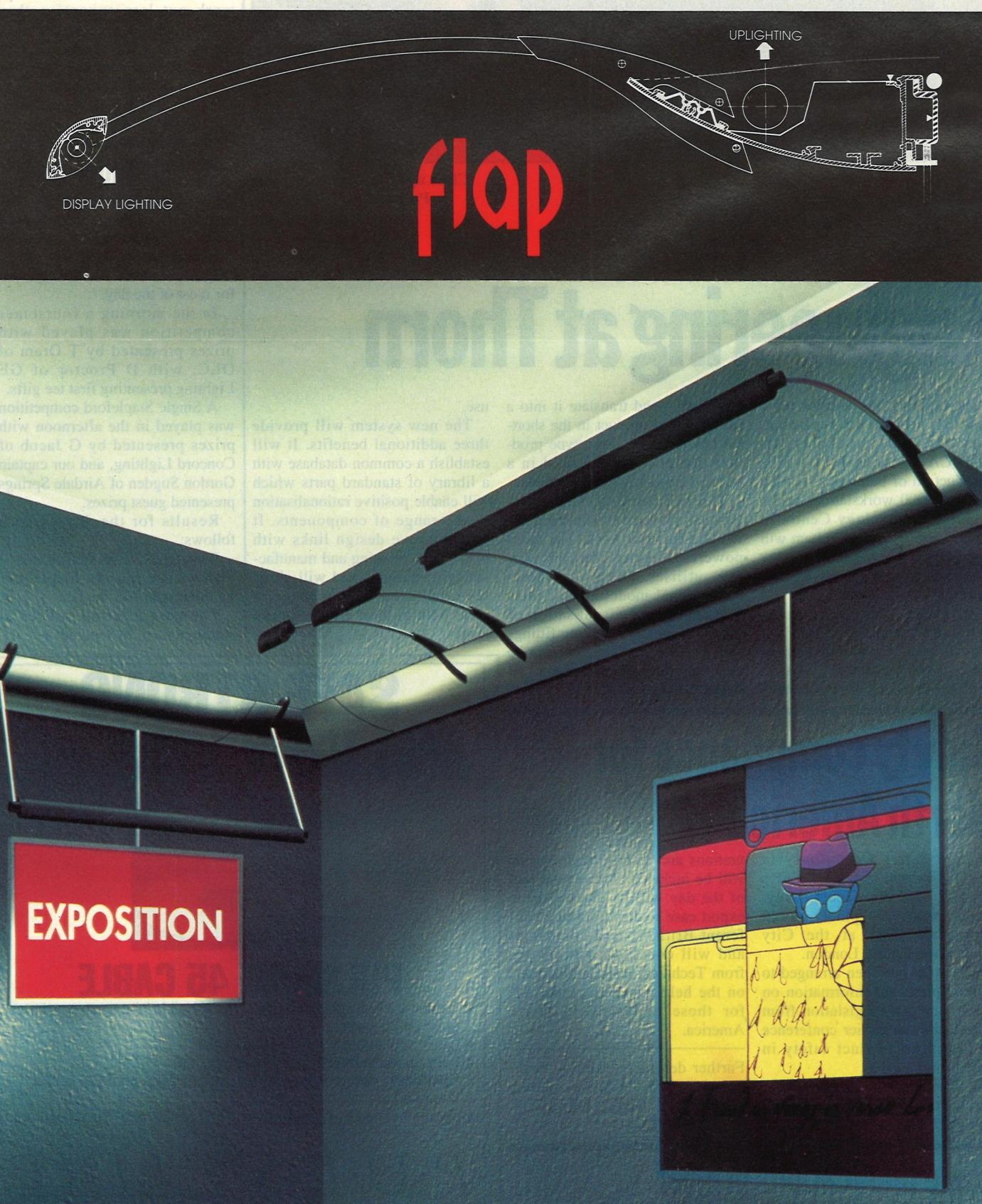
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**MEGALIT**

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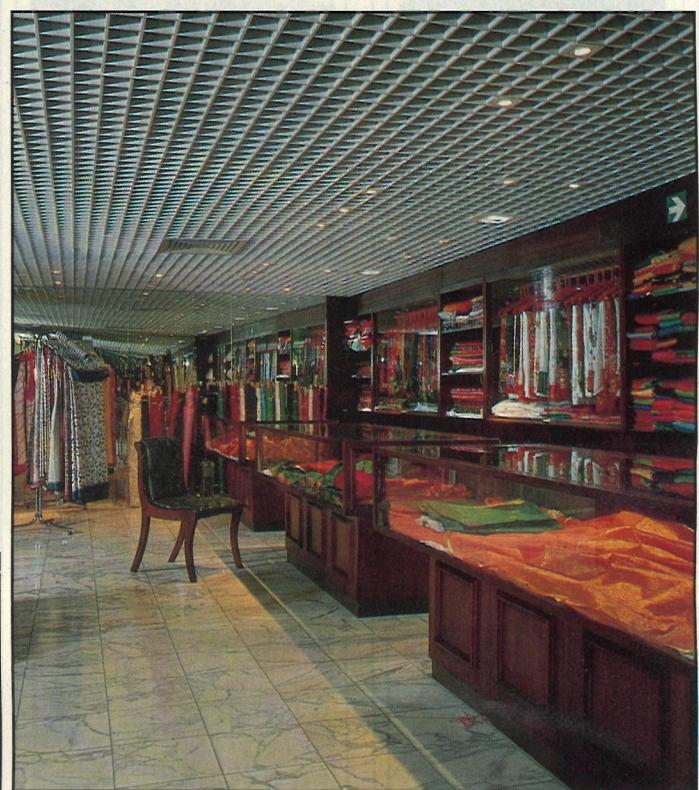
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U.K. Offices and Showrooms:  
The Chambers, Chelsea Harbour, London SW10  
Tel: 071-352 1777 Fax 071-351 7795

# Eastern promise

Creating a visual impact in an already dramatic retail environment was the main criterion when lighting Lakha, London's largest retailer of Indian jewellery and accessories. This was complicated by high natural daylight levels and the reflectance of the marble ground floor.

To attract customers into the shop, situated along a main road in Wembley, Light Years dramatised the shop windows, highlighting the peacock colours of the saris and the rich orange gold of the Indian jewellery. Surface mounted spotlights with 75W dichroic lamps interspersed with 150W recessed metal halide downlighters directly illuminate the goods on display



and floor standing mobile metal halide floodlights can be moved to suit exhibits or direct light onto the lower parts of the window display.

Over the dealer desk for precious stones, 75W low voltage downlighters provide the light necessary to display uncut diamonds.

Minute, non-maintained emergency light fittings are installed in both ground floor and basement ceilings - their size ensuring they do not detract visually from the interior design.

Brass uplighters on classical columns, with 300W tungsten halogen lamps, provide an architectural ambience and recessed low voltage downlighters give added sparkle. Low brightness downlighters mounted directly over the sales counters and in front of the wall display units project supplementary lighting onto jewellery display pads, and low voltage 20W starburst capsule lamps mounted within the cabi-

nets add sparkle to the gold. Up to 3000 lux is achieved on designer jewellery.

The lower ground sales floor receives no natural light. Metal halide fittings in the cellular ceiling provide a warm colour temperature of 3000K while angled low voltage downlighters create accent lighting enhancing the colours and varied textures of ethnic clothing and material.

In both the jewellery and sari workshops, which are adjacent to the sales areas, contrast-free illumination from wall mounted metal halide uplighters cast an indirect shadowless light providing a comfortable 1000 lux for detailed repair and alteration work.

Soft start was used on all the low voltage and mains halogen fittings throughout the interior. This reduces relamping costs and can give up to 100% longer lamp life.

## Solar-powered payphones for remote areas

A new BT Telephone kiosk near Cockburnspath, East Lothian, is the first in the UK to be powered by the latest high-efficiency solar energy system, made by Solarex.

Initially, four Solarex-powered kiosks will be established, all in Scotland, as part of a BT project to assess the efficiency and value of using natural resources to provide light for kiosks in locations where electricity connection would not be cost effective. One wind-powered kiosk is currently on trial in Wales.

BT first began experimenting with solar power in April 1989, establishing 40 kiosks nationwide. The trial went well initially - due to the hot summer that year - but

when the good weather ended some 50% of the solar panels failed. Those which did not fail were left in place.

Now the Solarex panels, the next generation of solar units, are to be used to provide light for the four kiosks at Cockburnspath, Balmoral, Llanbryde and Sandhaven.

They are considerably more efficient - needing less light to produce more electricity than their predecessors - and are fitted with a light-sensitive device which activates the light in the kiosk at dusk and turns it off at daybreak.

With the older style panels, light provisions was triggered by the opening of the door and was timed - which meant that on a longer call the user had to keep opening the door! A further advantage of the new system is that at night the illuminated kiosk is clearly visible.

## IN YOUR NEXT ISSUE

The October issue of *LEN* will look at lighting in the industrial environment with a keynote feature outlining the problems posed by factory lighting.

Fibre optic lighting is now

becoming a feasible method of display lighting, and is increasingly finding wider uses - including emergency lighting. We report on developments in this exciting field.