

# LIGHTING

## EQUIPMENT NEWS

20 SEP 1989  
SEPTEMBER 1989

### In brief ...

● **Bridisco** has restructured its business into separate operating divisions each with its own directors. Lightning independents division, working from the bases established by BDC and Lightning Electrical, will serve independent retailers; the major accounts division will service multiple and department stores.

The formation of the Micro-mark division completes the autonomous operation of Micromark within the group. A new group purchasing division will ensure the group's purchasing power achieves optimum effectiveness.

● The Italian lighting company **Sirrah** has formed a new division called **Mirach**, which is producing a range of public lighting for export to the European market.

● The **Whitecroft** group reports a 27% increase in profits before taxation for the year ending March 1989. Moorlite Electrical had an outstandingly successful year with substantial growth in turnover and profit; Silvertown Lighting and Simplex Lighting exploited new products at some expense in profit margins, while Energy Conservation Systems made the same profit as in the previous year. The launch of Leading Edge Lighting involved heavy initial costs. MD Lighting suffered from a decline in retail sales.

● **Hitech Lighting plc** has formed a new division, **Hitech Beghelli**, which is handling a range of emergency luminaires and conversion kits. For details contact Tower House, Lea Valley Trading Estate, London N18 3HR.

● **Electrak International Ltd** has acquired **BIS BV**, one of The Netherlands' largest producers of sophisticated linear lighting systems. Details from Electrak at 45 High Street, Kingston upon Thames, KT1 1LQ.

### Hong Kong double for Thorn

Thorn Lighting's Hong Kong subsidiary has recently secured two major lighting projects in the colony. The £1m Pamela Youde Hospital contract is the largest hospital under construction in Asia. The £0.5m Pacific Place II Project is a luxury office complex planned for the heart of Hong Kong Island.

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## Emess continues to expand

Emess plc continues to expand its European operations with the purchase of the privately-owned **Profilight BV**, Netherlands and its subsidiary **Profilight GmbH** of West Germany, for an undisclosed figure.

**Profilight** brings into the company a 4500 square metre factory at Venlo in the Netherlands and showrooms in Dusseldorf and Brussels.

The Emess subsidiary, **Marlin Lighting**, will be using **Profilight's** production and distribution facilities to increase its market share in continental Europe.

The two companies will accordingly be renamed **Marlin Lighting BV** (Netherlands and Belgium) and **Marlin Lighting GmbH** (West Germany). Both will continue to be managed by **Eric Hoefnagels**.

**Profilight** sell, through specialists, a wide range of commercial

lighting fittings, including the **Marlin** range. The company's particular strength lies in the design and manufacture of products for special applications.

Commented Emess Chairman **Michael Meyer**, "The acquisition of **Profilight** will further strengthen our presence in the German commercial lighting market, the key market in Europe. The size of the German market for commercial luminaires is estimated at £200m annually".

In spite of recent large-scale purchases Emess is still fairly heavily UK weighted, the domestic market accounting for 43% of the Group's turnover; while continental Europe, in second place contributes 25%. The USA, with 23%, comes in third place, and the rapidly expanding Pacific Basin now forms 9% of Group turnover.



### Moscow lights

Officials from the Bolshoi Theatre in Moscow recently paid a visit to Manchester to sign a £61 000 order with **Lee Colortran** for lighting dimming and control equipment to be installed at the Russian

theatre. The company had won the order against stiff European competition.

The equipment ordered, a **Prestige 3000** lighting control desk, 45 ways of intelligent dimming system and an interface to control a further 380 ways of existing dimming, is to be installed in Moscow in the early autumn.

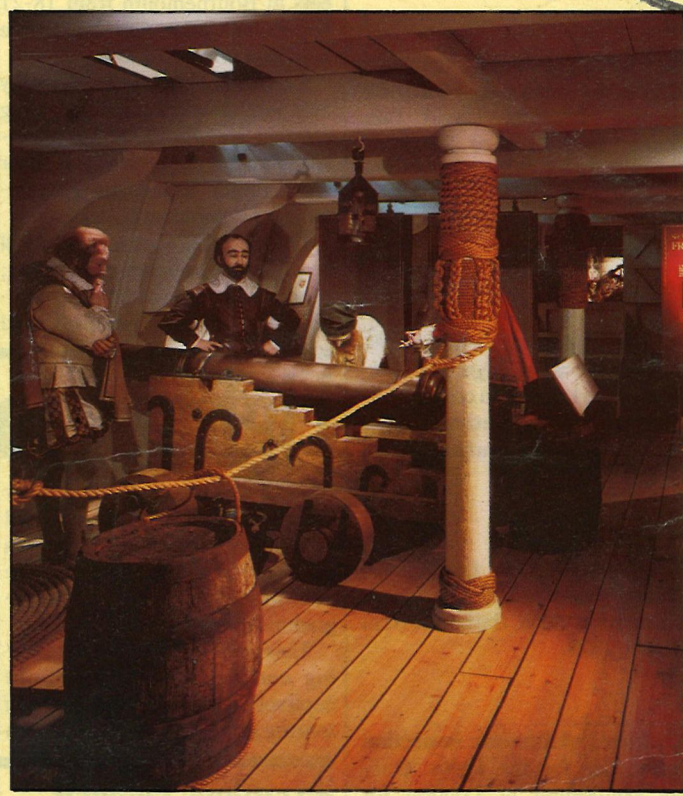
### 1989 BASEEFA List published

The latest edition of the **BASEEFA** List of certified and approved explosion protected electrical equipment is now available from the Health and Safety Executive (HSE), price £5.00.

The List, a basic reference source for those concerned with

flammable atmospheres, contains details of some 5 000 certified or approved products and components, produced by around eight hundred manufacturers.

In order to be listed, equipment must conform to a design that has been certified by **BASEEFA**, and manufacturers must have a quality assurance system to **BS 5750: Part 2: 1987** or equivalent. In addition, certain requirements specifically applicable to explosion protected electrical equipment must be met.



On the edge of the grassy slopes of **Plymouth Hoe** stands **Plymouth Dome**, a new exhibition that recounts the city's colourful past — from the time of **Sir Francis Drake** and the **Armada**, to the recent **Falklands campaign**.

Special effects have been contrived with lighting to create appropriate moods in different parts of the exhibition — such as the dappled effect of sunlight on water (achieved by means of two lights sweeping from side to side through a skylight) and lights placed beneath the deck of **Sir Francis Drake's** ship to dramatise the display.

Displays are lit with low voltage fittings by **Light Projects Ltd**. The majority of these are **Birdies**, generally with remote transformers, but a number of low voltage downlighters and remote **M16** fittings are also employed. Finally, the large diorama in the main entrance is lit with 19 twin 'graphic sticks' projecting from the back wall.

## Domestic lighting set for steady growth

Steady, but not spectacular, growth is forecast for the decorative lighting sector in a report recently published by financial analysts **Mintel**. This put the market for domestic fittings and shades for 1988 at only £355m, an increase of 31% over 1983, but further anticipated growth by 4% to £370 million by the end of 1989. **Mintel** then went on to forecast that the market was set to increase by 6% in real terms over the following 5 years if disposable incomes rose by 10% to 1993 at 1989 prices and an expected increase in the number of households of 700 000 was reached.

The effect of current high interest rates could be to depress the lighting market as they did in

1985, but the increasing tendency to regard lighting as a fashion item and an integral part of home decoration could to some extent offset this trend.

The report notes that the British consumer is still rather traditional when it comes to lighting, preferring traditional lighting effects and luminaires. Although declining in popularity, the overhead light still tops the list of desired lighting effects, with basic wall lights — not spotlights — as the second choice followed by table lamps in third place. A dimmer switch is now considered important in the living room to permit changes of ambience. But, table lamps are the only sector to have shown particularly good growth, and this is partly

ascribed to their high fashion content and ability to coordinate with furnishing fabrics in creating a style in the home.

By contrast with lighting fittings, the forecast for the domestic lamp market, worth £68m in 1988, paints a rather bleak picture of a real decline of 14% in the period to 1993. A mature market of this sort requires product development to keep sales buoyant, and the high technology lamps, which originated in commerce and industry have proved of interest only to a minority of domestic customers and have, as a result, remained a very specialised sector.

Copies of the report, **Domestic lighting**, are available from **Mintel** price £145.





# DIARY

## SEPTEMBER

10-13

**Light and Sound Show**, Olympia, London. Exhibition and conferences for the entertainment industry. Six seminars, including lighting topics. Tickets can be purchased from organisers, 3D Services, 01-994 6477.

12

**Computers in electrical building services**. Series of 13 evening sessions at the South Thames College, Department of Engineering. For details contact F S Smith, South Thames College, 01-870 2241.

18-21

**Lightex '89**. Annual conference and exhibition of the Institution of Lighting Engineers held at Bournemouth International Centre. Theme: *Lighting unconfined*. Details from ILE 0788 76492.

20

**Lighting education**. An afternoon forum in London arranged by the Lighting Division of The Chartered Institution of Building Services Engineers. Details from Karl Pike, CIBSE, 01-675 5211.

20-25

**Euroluce** International lighting exhibition in Milan. Details from organisers, COSMIT, (Italy) 02/4988361.

26

**Information technology group**. Seminar in London to mark launch

of new CIBSE group. Details from Karl Pike, CIBSE, 01-675 5211.

## OCTOBER

3-5

**Lux Europa congress** in Budapest, Hungary. Information from CIBSE 01-675 5211.

19

**The spice of light**. Inaugural address by chairman of CIBSE Lighting Division, David Loe. Venue: Institution of Structural Engineers, 11 Upper Belgrave Street, London SW1X 8BH. For details contact CIBSE 01-675 5211.

20

**Debate on property development, architecture and design**. An evening event in London in conjunction with Designers' Saturday. Tickets and details from Barbara Arent 01-892 2278.

21

**Designer's Saturday**. Open day at London showrooms for designers. Information from Barbara Arent 01-892 2278.

23

**Electrical installations: inspection and testing for the 1990s**. One-day symposium in London for consulting engineers, specifiers and electrical contractors. Event co-sponsored by IEEIE, ECA, IEE and NICEIC. Details from the conference secretary, IEEIE 01-836 3357.

# NEWS

## Lighting talks are unconfined

This year's annual conference of the Institution of Lighting Engineers in Bournemouth from 18-21 September takes as its theme *Lighting unconfined*.

Lecture subjects on the Tuesday are: Architectural digital lighting control; Relighting Tower Hamlets — an interim review, and After the lighting fitting, its complementary equipment.

On the Wednesday, papers will be presented on Inner city lighting; Modern lighting with air conditioning of retail premises, and

Floodlighting for sports stadia — some Hungarian experiences.

Topics for consideration on the final day are Residential road lighting, design and application, and A scientific approach to determining public lighting maintenance service levels.

Alongside the conference there will be an exhibition of outdoor lighting and access platforms, together with some indoor lighting.

For more details contact the Institution of Lighting Engineers on 0788 76492.

## Lighting for leisure

As well as stage, disco and other leisure lighting at the Light and Sound Show at London's Olympia from 10-13 September, for the first time there will be a programme of six seminars.

These will include one on *Moving and intelligent light*, on 10 September; a session on *Live and touring production technology*, on

12 September, and five speakers on the subject of *Installation and interior design*, on 13 September.

Entrance fee to the exhibition alone is £5. A combined ticket to all seminars is £85, with special rates for selected seminars. Contact Tim Chapman, 95 Ditchling Road, Brighton, BN1 4SB (tel: 0273 693610) for more details.

### Hazardous seminar

BEAMA is holding a seminar on electrical equipment in hazardous areas for the single market on 10 October in London. Details from David Williams on 01-437 0678.

### Chris Wray writes on Art Nouveau

A book by Christopher Wray called *Art Nouveau lamps and fixtures of James Hinks & Son*, has been published by Bracken Books.

James Hinks & Son was one of the leading lamp manufacturers of the Art Nouveau period. This volume includes a selection of designs from one of the company's most interesting trade catalogues with an authoritative text.

A major revolution in the lighting of houses occurred at the beginning of the 20th century with the development of gas and electricity. The technological growth of this period was matched by an intense interest in design. The Art Nouveau style swept through Europe and North America, changing views on architecture, graphic design and interior decoration.

Christopher Wray describes developments of the period, illustrated by 85 colour prints of classical, whimsical and ingenious lighting fittings.

The book is available through book shops price £14.95.

## Lightshow space is selling fast

Stand space at the 26th Lightshow from 7-11 January next year, is already at a premium.

The organisers, the Decorative Lighting Association, are urging potential exhibitors to contact them quickly to ensure they can be accommodated at London's Olympia.

"Demand for space is ahead of what it was this time last year and that was our most successful to date, both in terms of stand space and visitor attendance," said DLA director, John Tengwall.

# CIBSE

The Chartered Institution of Building Services Engineers

## Can lighting grasp the opportunity?

"When I use a word . . . it means just what I choose it to mean, neither more nor less."

The word "quality" is often used as a synonym for expensive, or to mean that the object is not intended for everyday use. It can infer rarity to be admired, rather like beauty. But like beauty, quality is in the eye of the beholder. If it suits the customer, it's quality.

The word "opportunity" is often a camouflage for exhortation, used by parents to children, or politicians to everybody. Objectively it is a potential way through, and like any way it has to be found, navigated and travelled along successfully.

Lighting is "going public". It is seen as a leader in energy conservation, as a reducer of risk after dark, it can help to bring health to sick offices, and make social adventures out of shopping expeditions, it is recognised as a matter of concern in European legislation.

Lighting is being raised to public awareness by world consciousness of the monetary and ecological costs of generating energy. Energy efficient lighting, it is estimated, could save 5% of generated electricity; ahead of possible savings through improved motors and other devices.

Research has shown that improved urban street lighting increases people's safety and confidence. Whilst this may have been subjectively evident, objective research has brought it to the notice of the national press and to the recognition of legislators.

Comparative test results have been published which indicate that in offices with fluorescent lighting, the use of high frequency power supplies can reduce headaches and eye strain.

The drive towards a single European market, as expressed in several Directives, has drawn attention to the essential role of lighting in health and safety at work, and to its contribution to an improved social dimension.

These opportunities to enhance public awareness are provided by the development of more efficient lamps, more versatile controls and more effective lighting fittings.

## The black wellies connection

But are these good things noticed, and their contribution to our life style publicly appreciated? After all, only lighting engineers and designers notice fittings, only maintenance men and housewives notice lamps and nobody notices control gear. Whatever opportunities 1992 reveals, regulations will deal only with essential requirements; success in markets will depend on matching customer needs for value, function and style.

So can the apparent opportunity for lighting to show the quality of its contribution to the popular environment be realised?

In the past only bad lighting was noticed. Good lighting has been effective but unobtrusive. Perhaps we should now improve our presentation, make good lighting products and applications more self-evident. Perhaps a measure of hyperbole with a few traditional measures of *litotes* would raise public appreciation of lighting in our homes, offices and factories as well as public places.

We will never have a better quality of opportunity to raise lighting from the social consciousness level of plain flour and black wellies, to that of videos and motor cars. We should design lighting to be noticed.

Ken Scott

## GET THIS CHART FOR A QUALITY START



Manufacturers of quality products rightly demand top quality lampholders to complement their products. Reeves Lampholders consistently meet these requirements with range, quality and safety.

The full colour selector chart is a complete guide for specifying and it's also a compelling sales aid.

It lists and illustrates the Reeves range of Brass, Porcelain and Phenolic holders and accessories.

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IMI



# A service to design your lighting schemes

Its lighting design service has always been important to STC Distributors Ltd since it was introduced in 1970. Now, with one eye on improving standards generally and the other on Europe, it has relaunched this facility on a larger scale with a new image to appeal to the wide variety of potential users.

Among these are: architects and interior designers, professional users such as department stores and commercial and industrial organisations, and electrical contractors.

The company is at pains to point out that the renamed Lighting Design Services (plural) are independent and expert, as well as being completely free. They are provided by 13 experienced and qualified lighting engineers headed by Howard Goodchild.

Much emphasis is being placed on innovative scheme design, with

display and accent lighting well to the fore.

For architects and designers, the benefits are advice from a qualified, experienced lighting team; complete scheme design; flexibility of approach; full modification service on manufacturers' luminaires, if required, coupled with STC's double guarantee; advice available on energy management, and total independence offering a solutions approach with no requirement to purchase from STC.

Users are offered similar benefits. As far as electrical contractors are concerned, those with their own lighting installation design capability can still make use of the product advice and wide range of stock. Smaller contractors without in-house lighting expertise will find the Lighting Design Services can fill that gap for them.

Jim Bamforth, managing director of STC, promises, "There are no catches".

Until now, these services have been provided through nine centres in England and Scotland, but three additional locations for lighting advice are about to be opened in Ipswich, the Midlands and Kent.

In essence, the Lighting Design Services are a separate technical capability bolted onto the traditional electrical wholesaling activity. Jim Bamforth sees this type of division into specialised areas as the way forward for wholesaling.

He intends to sell this lighting service into Europe as well, but is strengthening the UK base first.

More information can be obtained from STC's head office at Star House, Potters Bar, Hertfordshire EN6 2NS.



## Lights are co-ordinated

Northwick Park, in Gloucestershire, is a grade I listed building dating from the late 17th century which has been converted into a variety of individual properties while carefully conserving the elegant atmosphere and period features.

To light the grounds, D W Windsor's Victoria, globe shaped lanterns have been chosen. They are mounted on various posts, pedestals and wall brackets to meet specific lighting requirements.

The decorative metalwork has been painted on site in green and gold to harmonise with the architectural paintwork and honey coloured Cotswold stone.

Although the style is traditional, the light source is modern; each globe contains a 25W SL compact fluorescent lamp.

## EMILAS '89 forms available

Entry forms for EMILAS '89, the Energy Management in Lighting Awards Scheme, are now available.

Launched by the Lighting Industry Federation and The Electricity Council 12 years ago, the scheme is open to all UK organisations who can show a high level of efficiency in new or refurbished lighting installations. There are three sections: industrial refurbishment, commercial refurbishment and new lighting schemes.

The purpose of EMILAS is to draw attention to the user benefits that can be achieved from today's energy efficient lighting products and, by a system of awards to commend those installations that best exemplify energy management in lighting.

Recently, Friends of the Earth estimated that if all sectors were to follow the example of EMILAS winners and install modern efficient lighting, potential savings would be in the region of the combined output of Hinkley Point and Sizewell A.

Closing date for receipt of entries is 30 November 1989. Forms are available from The Lighting Industry Federation, Swan House, 207 Balham High Road, London SW17 7BQ.

# Electrex and power plant merge

Electrex will amalgamate with the Central Electricity Generating Board's Power Plant UK exhibition in July 1992 to offer over 100 000m<sup>2</sup> of exhibition space to companies throughout the world.

The new event will be organised by a joint venture company set up by the CEGB, BEAMA and Electrex Ltd. The aim is to use all eight halls at the National Exhibition Centre, Birmingham.

Power Plant UK is the shop window for power station construction, power generation, transmission and distribution equipment.

Gil Blackman, deputy chairman of the CEGB, said, "Power Plant UK and Electrex are complementary to each other and it seems an obvious and logical step to bring them together. It is fitting that the two events will come together in 1992".

Electrex chairman, Alex Robertson, believes that combining these two successful shows will reap important benefits for the

industry in the current competitive world.

Viscount Weir, president of BEAMA, stated, "It will provide a showcase for this British industry on a scale never seen before; the timing is perfect and the concept is right."

● The 25th and final solo staging of Electrex will take place at the NEC in February 1990. It is already close to being a sell out with companies from more than 30 countries taking part.

## People...

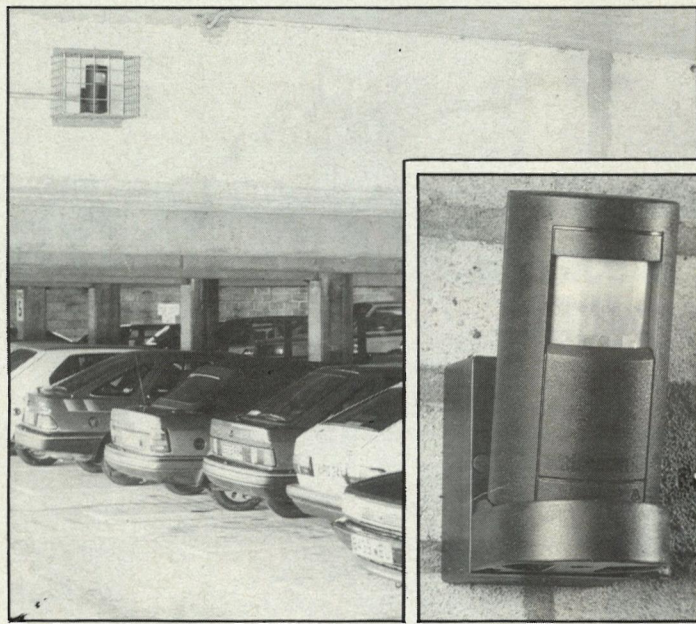
● **Bernard Hemsley** has been appointed sales and marketing director at Patrick Roberts Lighting Ltd. He was previously project sales engineer.

● **Prima Lighting Ltd** has appointed **Alan Parry** sales and marketing manager with a brief to develop the company's role as lighting solution finders. Since 1987 he has been marketing manager at Osram-GEC Ltd.

● **Martin Connor** has been promoted to marketing manager at Lampways Ltd and assumes responsibility for product sourcing, public relations and marketing services. **John Richards** has also been promoted and becomes national sales manager (retail division).

● **Peter Lawson Smith** has been elected chairman of the National Inspection Council for Electrical Installation Contracting. He recently founded his own building services engineering consultancy and represents the Association of Consulting Engineers on the board of NICEIC.

● **Roger Leverton**, chief executive of Pillar Electrical, has accepted an invitation to become president and chief executive of Indal Ltd, the North American arm of RTZ Pillar, based in Toronto. He is succeeded at Pillar Electrical by **John Ray**, previously managing director of Catnic Ltd, part of the Pillar Building Products Group.



## Infra-red control helps parking

The introduction of an infra-red movement detector to operate lighting has enabled significant energy savings to be made and improved security at a 750-space multi-storey car park in Bristol.

The City Council's specification called for a system that would ensure motorists did not have to walk to their vehicles in the dark, and which would operate automatically when cars entered the building.

The Watchman 10 system, from Home Automation Ltd, was selected.

It can easily be adjusted for both light level (from 30 to 300 lux) and for a switch-off time ranging from

10 seconds to 10 minutes after the last movement is detected. A special concave base enables the unit to be positioned to give coverage up to 15m over an angle of 90°. The system is ingress protection rated IP54.

A total of 48 units has been installed. In addition to other benefits, car park attendants can now carry out their security duties better as the lighting switching on gives warning of activity within the building.

Following the successful introduction at Berkeley Place, Bristol City Council is now installing Watchman 10 at another site, in Temple Gate.

# COMMENT

## Giving the consumer what he doesn't even know he wants

Where is the decorative lighting market heading in the next decade? The recent Mintel report (see review on page 1) puts the value of the market for consumer light fittings and shades for 1989 at around £370m and predicts that it will grow at some 6% in the period to 1993. The Decorative Lighting Association gives a 'conservative' estimate in the £608m region and notes that customers are tending to spending more on fittings.

On the other hand, in spite of growing consumer interest in home improvement, lighting is still only perceived by relatively few customers as an integral part of interior design.

In short, the lighting revolution has completely passed the vast majority of domestic consumers by.

If the market is to prosper, it cannot merely rely on an increase in the numbers of households and hope these will move more frequently. Homeowners must be persuaded to trade up market and invest in quality lighting — so that they part with more of the income at their disposal on lighting rather than on other household purchases such as consumer durables.

Technological advances such as the low voltage tungsten halogen lamp have not yet captured the attention of more than just a few innovating consumers. This produces a chicken and egg situation. The high initial costs of transformer and system installation together with the expense of replacing lamps, have meant that it has not proved possible to break through the cost barrier and give these fittings mass appeal. And, until a high level of demand permits economies of scale, lamp prices will not fall to levels acceptable to the average domestic consumer.

Manufacturers and retailers will have to put a great deal of effort into overcoming the general lack of enthusiasm about lighting and ignorance of the different types of domestic lighting available. They will also need to overcome the innate conservatism of the British domestic consumer and to make him or her see that fashion in lighting can be fun.

Overall, in the next decade the lighting industry will need to do the same sort of educational job on the domestic consumer that it did in the fields of commercial display and specifier lighting in the past. The difference lies in the challenge posed by the greater number of people involved and the fact that they are inherently more difficult to identify and target.

## LIGHTING EQUIPMENT NEWS

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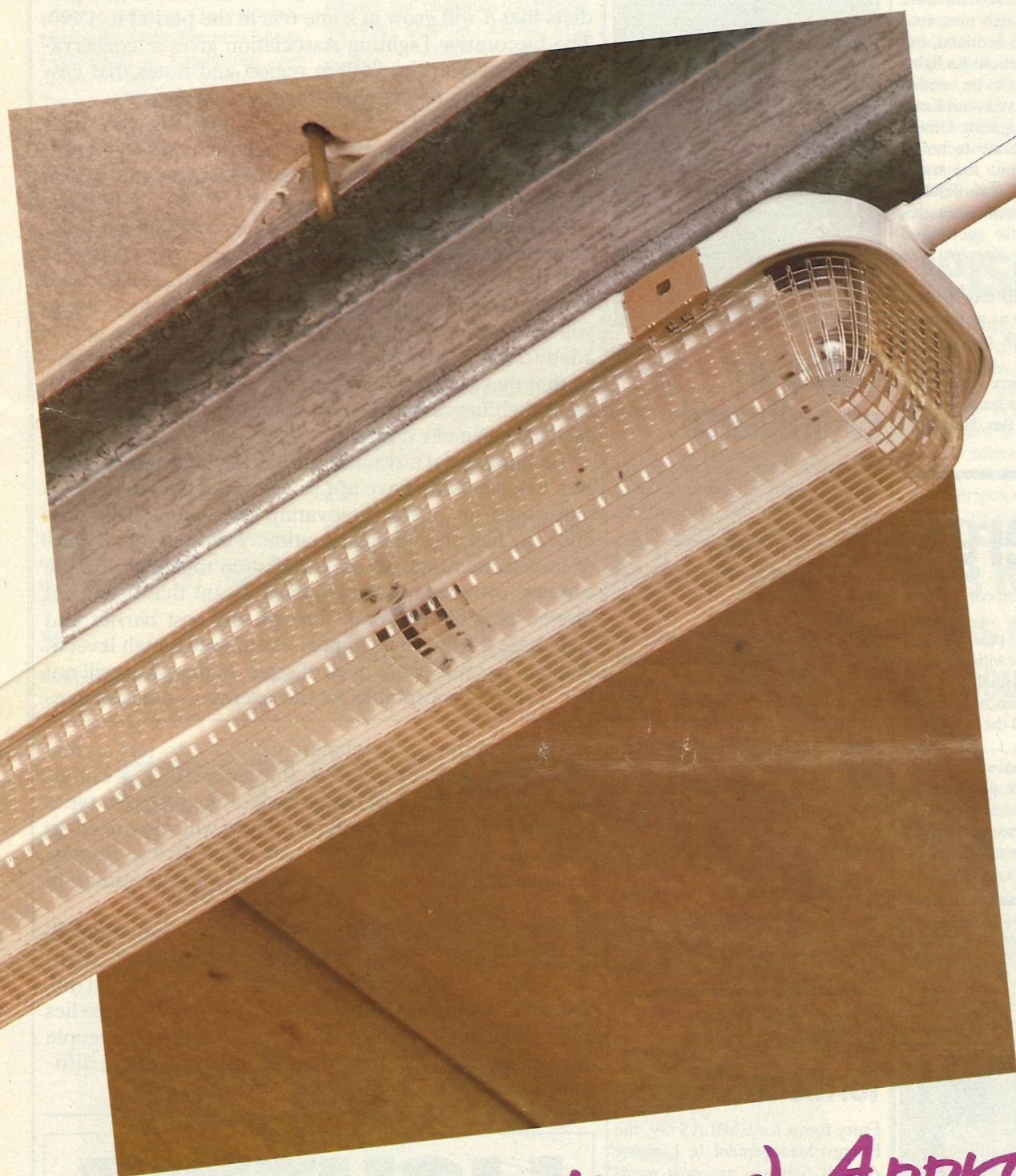


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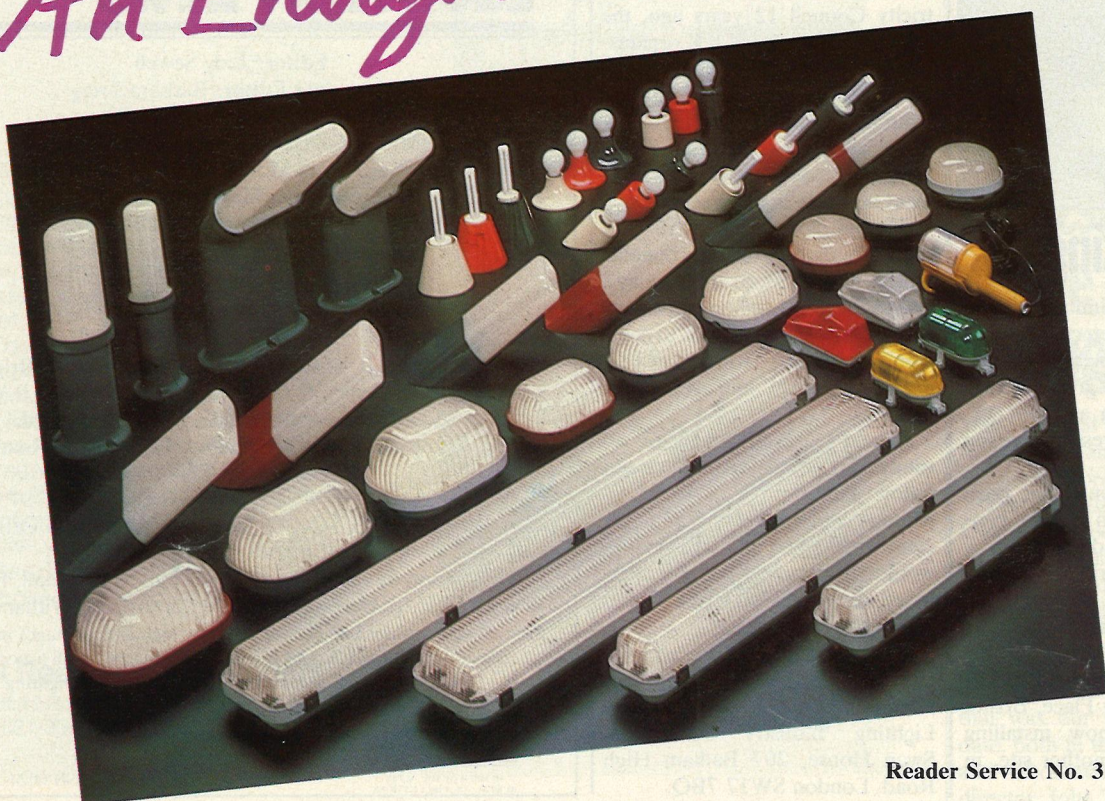


# GEWISS

## In Factory or Forecourt, Precinct or Patio



*An Enlightened Approach*



Reader Service No. 3

For safety, lighting efficiency and sheer good looks, the new range of industrial weatherproof luminaires from GEWISS is a shining example of the best in contemporary design and functional excellence.

Unsurpassed for durability, all luminaires feature a self-extinguishing polycarbonate base and diffuser that are both corrosion and impact resistant. GEWISS luminaires are easy to install, too. A full range of single and twin fittings are available and there are ample knockouts in the base to accept either conduit or cable.

Once installed, a GEWISS luminaire stays bright. The prismatic diffuser allows greater output and reduced glare. And because the outer surface is smooth, grime won't stick, cleaning is easier.

The 'ZENITH' weatherproof industrial ceiling luminaires are available in single and double lamp versions and combine a high level of lighting efficiency with anti-glare features for optimum visual comfort.

Produced only after careful design and intensive research, these advanced industrial ceiling luminaires improve safety, facilitate maintenance and enhance the working environment – in chemical plants, warehouses, tunnels, garages and many high tech situations. 'ZENITH' – Truly one of the most versatile luminaires for industry.

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# NEW PRODUCTS

# LIF LINE

## Give better lighting a chance

The Home Office announced on 18 July that it is to monitor Urban Programme funded lighting improvements in four more areas. The hope is that the results of these projects will complement the £75 000 two year study currently underway in the London Borough of Wandsworth. Home Office Minister of State, John Patten, said, "We hope that the results of this research... will better place us and the police to advice all those — in both the public and private sectors — who are keen to try to reduce crime and the fear of crime in their areas by improving street lighting". In other words, the Home Office seems hell bent on commissioning endless research projects, whose findings meet with its approval.

Does this recent announcement suggest that the Government is gradually loosening its purse strings? The four new projects were carefully chosen in areas outside London and selected for their contrasting nature. Sefton (Merseyside) will be receiving £225 000 for lighting improvements on a business park; Sandwell (W.Midlands) will be receiving £130 000 for its town centre, and residential areas in Stockton-on-Tees and Bolton will be allocated £79 000 and £30 000 respectively. Better still, these results should be available early next year, as opposed to the two year wait for Wandsworth.

The local authorities concerned receive grant at 75% from central government in support of approved projects. In a recent release from the Home Office, a figure of £1.5 million was announced as having been spent on lighting improvements in 1988/89 under the Urban Programme. Even more encouraging is the fact that, in addition to the four monitored projects, a substantial number of schemes have already been put forward for approval for 1989/90.

Other government spending has come under the Safer Cities Programme, launched in March last year and co-funded by the Department of the Environment and the Home Office. The Home Office will allocate up to £250 000 a year for each 'Safer Cities' area. To date 14 areas have accepted to take part in this programme, although there will be 20 project areas throughout England established over three years — a total allocation of £5 million. 'Safer Cities' include Birmingham, Bristol, Coventry, Hartlepool, Hull, Lewisham, Rochdale, Salford, Sunderland, Tower Hamlets, Wirral and Wolverhampton. Furthermore, we're told that Bradford applied for funding of over £48 000 to help pay for better lighting and Nottingham received £22 400 to improve street lighting.

Faced with all these impressive releases, one wonders whether the BPLG's message is finally getting through and whether the Home Office sees eye to eye with the lobby group. If indeed it does, then perhaps it should speed up any decision-making surrounding the further allocation of funds for improved lighting. 28 October would seem a suitable landmark for this action. Why 28 October? As in previous years, the end of British Summer Time is set for 1.00 a.m. GMT on the fourth Sunday in October. While for some this event merely involves the luxury of having an extra hour's sleep, for the frail and vulnerable members of our community they will be once again faced with longer spells of darkness and the fear of leaving their homes to venture onto our badly-lit streets.

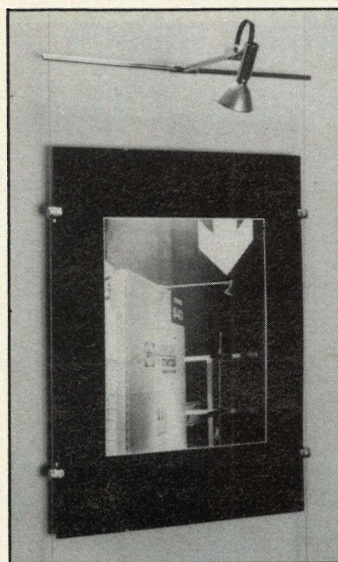
How many more Edmonton, Tower Hamlets — Fulham and Hammersmith in October — projects will the lighting industry have to present to the Home Office and how much more red tape will the government produce, before better lighting is given a chance?

## British made 12V bare wire display system

La Conch has launched a low voltage display lighting range, Concherto, made in Britain.

Included, are ceiling mounted spotlights on stems of different lengths, a recessed downlight, a wall or display rack fitting, and a desk light.

There is also a bare cable and rod version; the cables can be positioned horizontally or vertically. Tungsten halogen 20W and 50W 12V lamps are used which have aluminium reflectors complete with protective front glasses. Metalwork is black, white or chromium plated.

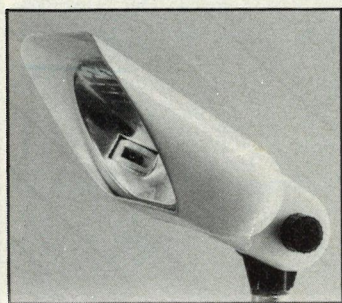


Appropriately rated transformers are also available.

Reader Service No. 163

## Modern unit for floodlighting

Braitrim Lighting Ltd has a 300W/500W tungsten halogen open floodlight for locations



where IP54 ingress protection is not necessary. It is designed for under-eave mounting or use on an extension rod in a protected position for backlighting.

This streamlined unit can also be used indoors for larger interior floodlighting applications.

Reader Service No. 165

## Control for stage lighting

Access is a sophisticated, menu-driven control system introduced by Furze Theatre Products for stage lighting.

It is in an easy-to-use portable package and has either 48 or 96 channel capacity with soft patch for up to 250 dimmers. Either 104 or 232 full size cues are provided and there is a useful plug-in cue card library.

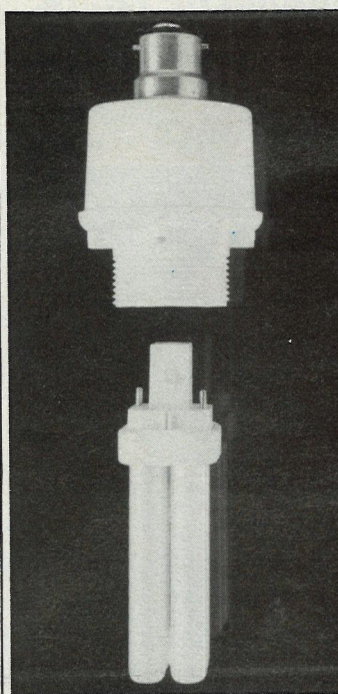
Reader Service No. 164

## Adaptor for compact fluorescent lamps

Braitrim plc has an adaptor for compact fluorescent lamps of the PL/PLC type. Both bayonet and ES versions are supplied.

A reflector is also available for use where PAR38 lamps are being replaced in downlights.

The units are cost effective



because only lamps require replacing not control gear.

Reader Service No. 167

## More choice in metal halide

A range of 70W and 150W double ended, linear metal halide lamps has been launched by GTE Sylvania Ltd for display, accent and atmospheric lighting.

Both 70W and 150W versions are available in Warm White (3200K colour temperature) giving the opportunity to mix different wattage lamps of the same type in a lighting scheme. This light source is also stated to mix well with mains voltage tungsten halogen, low voltage tungsten halogen and standard incandescent lamps.

The 150W size is also available in Cool White.

Reader Service No. 166

## Follow spot for small stages

Pursuit is a follow spot from CCT Theatre Lighting Ltd. It is rated at 650W, but with its glass reflector and condenser lens, together with a pair of zoom objective lenses, it is stated to give a lot more light over 6°/10° than many spotlights of a

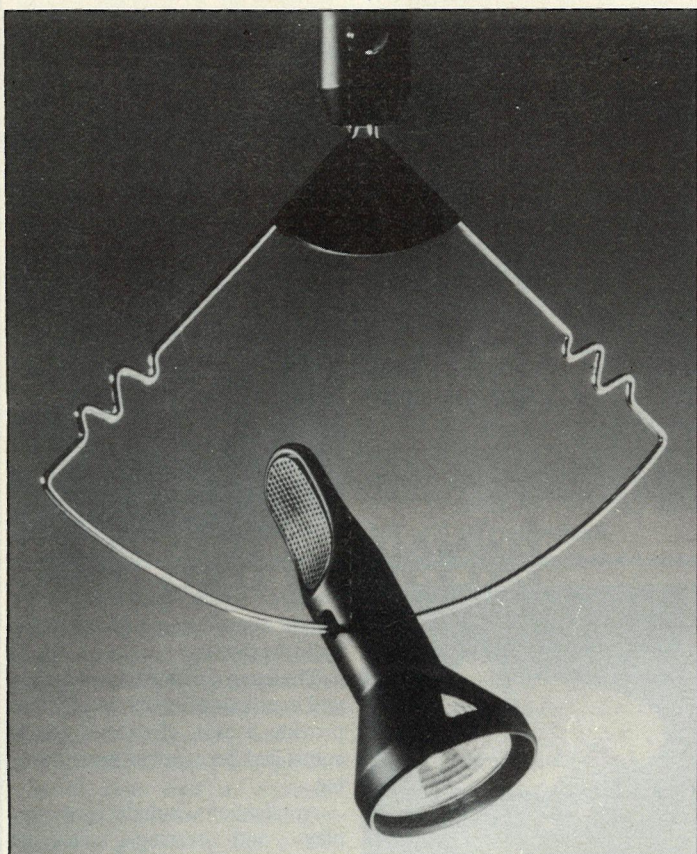
higher wattage.

Quadrant balancing and locking, along with rear and side handles, give smooth, precise pan and tilt.

A built-in iris and framing shutters are standard, as are runners for very sharp gobo projection.

Pursuit is well suited for small venues, for example, schools and clubs.

Reader Service No. 168



## New shape in spotlights

A series of low voltage modular spotlights from Candell Ltd is called Poe. The model illustrated in a fan shaped metal support is part of this range made in Italy by Luci.

There are suspended and recessed lights with diecast aluminium housings in either light grey or matt black finish with chromium plated supports and stems.

The version shown can either be track mounted or suspended with the transformer fitted in a ceiling plate.

Reader Service No. 160



## Brass plated exit sign

Thorn Lighting Ltd has launched a self-contained, slimline emergency exit sign with a brass plated finish for hotels, restaurants and any other interior where visual impression is important.

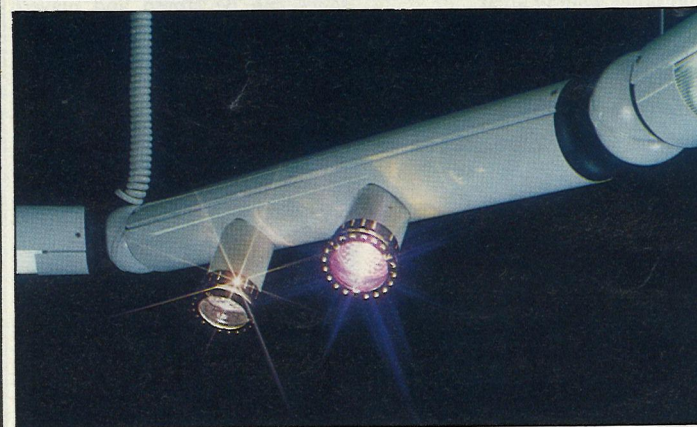
The luminaire is operated in the maintained mode and gives three hours' illumination in the event of

a mains failure.

It is supplied with an 8W White fluorescent lamp and can accept the full range of screen printed directional legends.

The brass plated body of the fitting, which is made to ICEL standards, has a protective lacquer.

Reader Service No. 161



## LV spotlight module added to system

A module incorporating two low voltage spotlights has been added to the Series 73 linear lighting system by Radius Lighting Ltd.

The system consists of tubular modules 73mm in diameter and straight or ball shaped couplers which allow a variety of configurations including three-dimensional

space frames.

The spotlights, which use 50W 12V dichroic lamps, can be rotated through 358° and tilted up to 60°. The module also houses a transformer and externally accessible primary fuse.

There is a range of standard colours; special colours can be supplied to order.

Reader Service No. 162

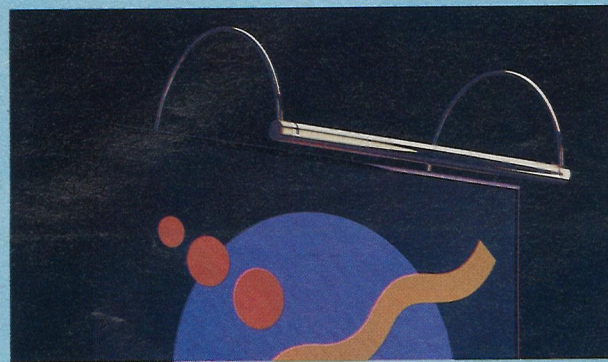
For more information on any of the products listed, circle the enquiry number on the free reader reply service card.

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Reader Service No. 4



# NEW PRODUCTS



## LV exterior lighting

Trigon is a versatile luminaire from Linolite Ltd for wall or post mounting outdoors. It is finished to match the company's new Paragon amenity lighting range. The fitting is supplied complete with 12V 50W tungsten halogen lamp and integral isolating transformer with thermal fuse.

It can be mounted to give light downwards, upwards, to left or right, providing localised lighting, general amenity or accent lighting. Ingress protection rating is IP44 and the housing is constructed of diecast aluminium finished either satin black or white.

Reader Service No. 151

## Mains voltage lighting track

With Mains Tube Track by Courtney Pope Lighting Ltd continuous runs and grid layouts are simple to achieve, using specially designed splicers and two-, three- and four-way connectors.

In addition, the use of the company's Track 35 suspension system provides a choice of either wire, rod or "stand-off" surface mounting.



Mains Tube Track has a 35mm diameter and, together with a range of accessories, is finished in white. Reader Service No. 152

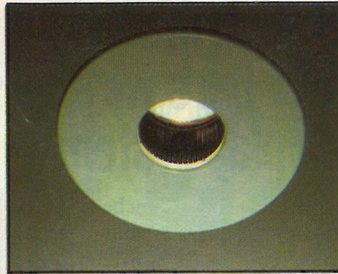
## Bulkhead is versatile

A series of robust, energy saving recessed bulkhead luminaires, suitable for interior and exterior use, has been introduced by Crompton Parkinson Ltd.

The Block range of fluorescent bulkheads is designed for recessing into walls, partitions or extended kerbs, providing safety lighting for vehicles or pedestrians, and for clear perimeter marking for access

## Small coloured domestic lamps

The success of Mazda Softglow lamps from Omega Lighting Ltd has led to the introduction of a



## Pinpoint beam from spotlight

A tiny recessed spotlight which produces a strong pinpoint beam for highlighting has been launched by Reggiani Ltd.

Only 112mm wide by 140mm deep, the fitting has a metal multi-groove insert which reduces spill light and is ventilated to lower surface temperature.

The fitting is designed to take a 20W or 50W low voltage tungsten halogen lamp with dichroic reflector which, held in a cradle, pulls down for easy relamping. The cradle additionally houses an optional safety glass positioned away from the lamp to leave a ventilation space. This maximises lamp life and reduces risk of overheating.

There is a choice of black, white and polished brass, or, to order, a gold-plated finish.

Reader Service No. 155

or parking.

Projecting only 26mm, it is unobtrusive and resistant to damage. Additional protection is supplied by a toughened safety-glass lens, which protects a 26W compact fluorescent lamp of the PLC type.

Optional extras are available to convert the standard model into a versatile amenity luminaire. Louvers can easily be attached. A rectangular supporting column 0.5m high is also available to form a freestanding lighting bollard.

Reader Service No. 153

matching range of 45mm diameter mini Decor Rounds in the same warm colours of rose white, primrose white, apricot white and apple white.

The range can help to provide colour co-ordination in the home.

Reader Service No. 154

## Mains voltage spotlight

Topspot is a range of spotlights from Illuma Lighting Ltd, with various reflector attachments. They accommodate PAR38, R80 ISL, GLS and crown silvered lamps for either track or surface mounting.

The robust lampholder housing is injection moulded in heat resistant material with a silicone rubber gasket.

A two-light bar, circular three-light ceiling fitting and various track packs are available.

Reader Service No. 156



interiors where condensation or splashes could cause ordinary glass bulbs to shatter.

The lamps, with ES or BC-caps and in ratings of 150W and 250W, provide a safe, clean and easily controlled form of indirect heating.

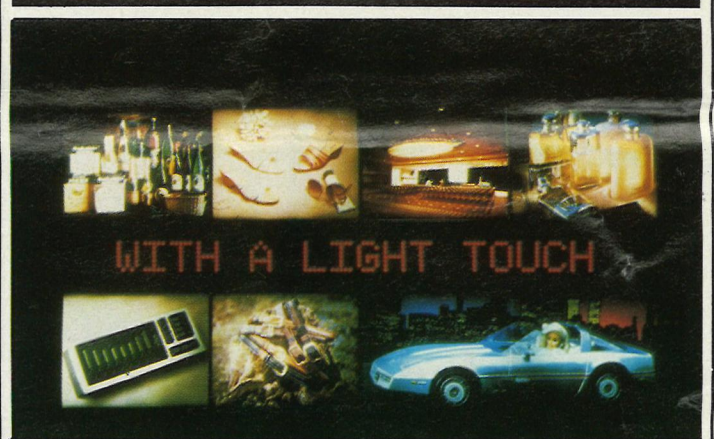
Applications include food displays and serving areas in restaurants. In the home they are useful in bathrooms. Industrial applications typically include paint, varnish and glue-drying, softening of plastics for moulding, accelerating chemical reactions, drying powders and grains, for a variety of horticultural uses and for animal husbandry.

Only fittings specially designed to accept these lamps should be used with them.

Reader Service No. 157

## Hard glass infra-red lamps

A range of hard glass, infra-red reflector lamps from Crompton Parkinson Ltd offers a combination of safe heat and light for



## Illuminated display system

Compact fluorescent lamps are being used by Lytemode Ltd in an advertising device for reception and other waiting areas.

Called Rotovision, it shows eight 250 x 200mm transparencies lit by eight Dulux type lamps which can be individually switched

to show any combination of the transparencies. There is no time limit on how long the transparencies may be illuminated.

In addition, there is a large moving message display of up to 20 characters which is programmed using the keyboard supplied. Messages can be stored and played sequentially with the transparencies. Overall size is 1.07m x 0.56m x 90mm.

Reader Service No. 158

## Versailles lanterns

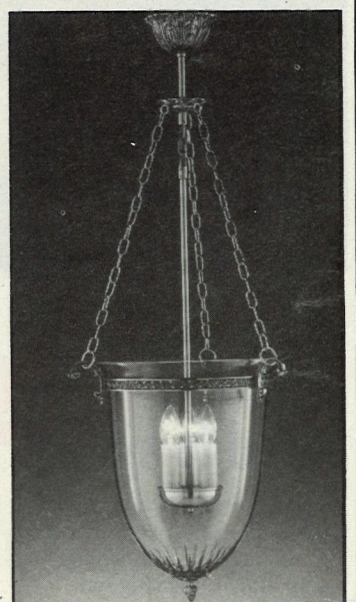
In the 18th century, the need for the safe burning of candles led to the design of the classical Versailles hanging lantern, now reproduced by Chelsom Ltd.

The characteristic deep bowl in mouthblown Bohemian crystal glass, with hand-cut pattern at the bottom, used to be filled half-way with water and have candles floating on a raft; if the candles toppled, the water prevented fire. Today, a brass rod holds electric candle lamps suspended on a tray in the centre of the bowl.

Finely detailed French gold filigree provides ornamentation on the ceiling rose, frame and acorn finial.

The Versailles lantern comes in two sizes, 360mm and 440mm diameter with matching flush ceiling fitting and wall lanterns with full glass shades on right angled brackets.

Reader Service No. 159



## THE NEW LIGHT

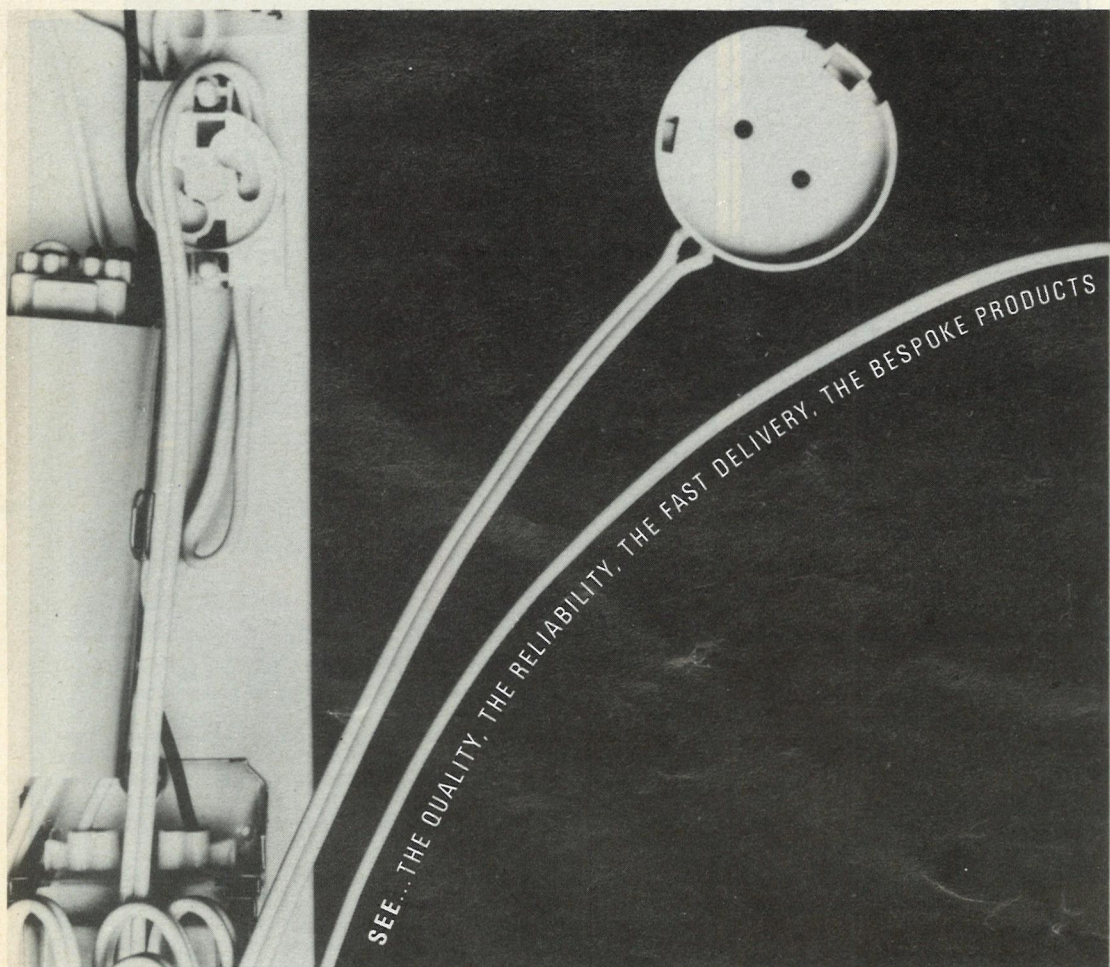


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Reader Service No. 5



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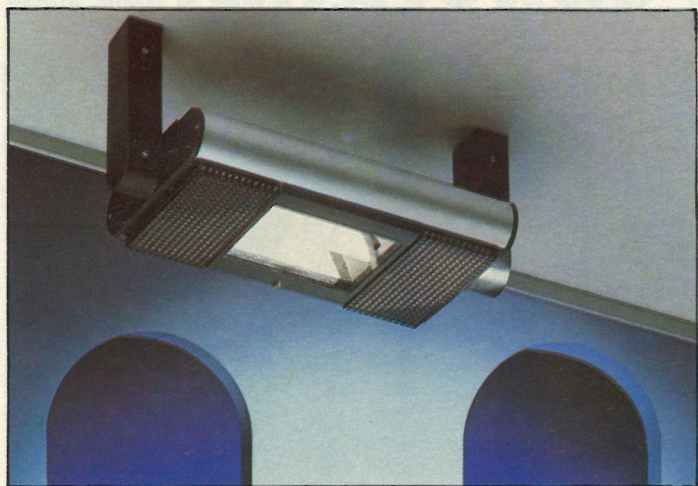
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Reader Service No. 6



# NEW PRODUCTS



## Slim and powerful

A multi-function metal halide luminaire that provides either direct or indirect lighting or wall washing is available in the UK through Prima Lighting Ltd.

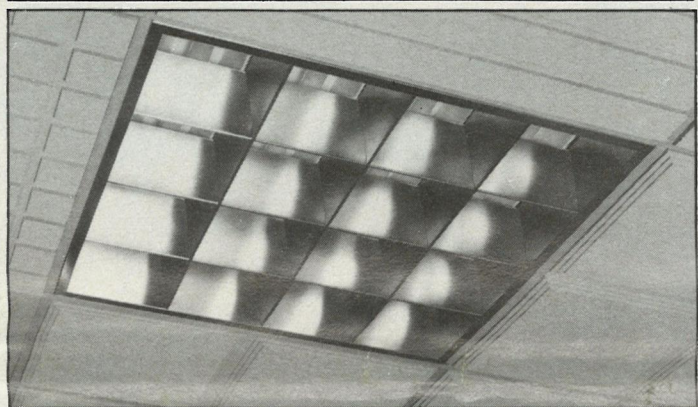
The WF Flood incorporates control gear and a computer designed reflector, either symmetric or asymmetric, in a slim, flat, rectangular housing.

As well as ceiling plate and track adaptor types, there is a swivel-

arm version that has 180° adjustment in 45° steps. The surface mounting model can be rotated through 355° horizontally.

Designed for 70W or 150W metal halide lamps, a safety glass is supplied as standard and there is an optional ultra-violet filter. The luminaire has an integral power factor correction capacitor and ignitor.

Reader Service No. 169



## Minimum glare from office luminaires

A low cost, low glare modular luminaire series for suspended ceilings, from Marlow Integrated Designs Ltd, is claimed to avoid reflection problems in VDU screens.

Fluorescent luminaires have an

aluminium trim and are either 600 x 600mm with four 18W lamps, or 600 x 1200mm with four 36W lamps. They have 16-cell, parabolic, wedge shaped aluminium louvres with a choice of semi-specular or polished specular finish.

Standard or electronic control gear is available and an air handling facility can be provided.

The luminaires are stated to integrate with practically all suspended ceilings.

Reader Service No. 170

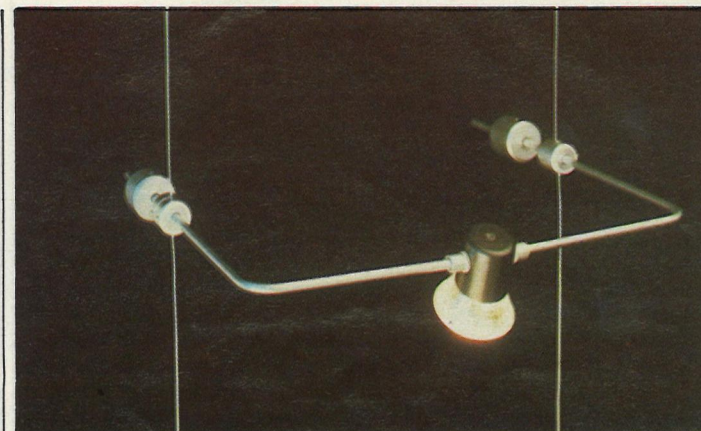
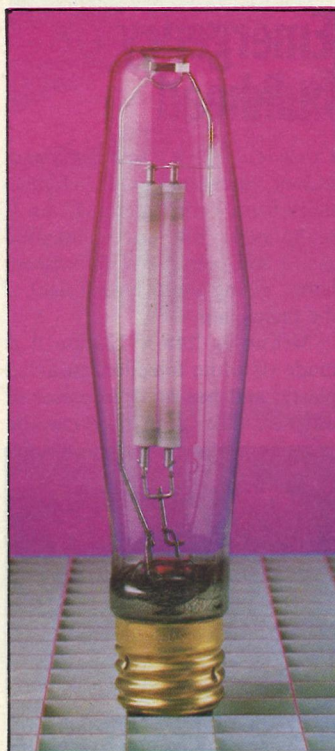
## Double arc SON lamp

GTE Sylvania Ltd has launched Son Extra, a direct replacement for standard high pressure sodium lamps, with the twin benefits of extra life and standby facility.

It features two identical arc tubes which share the working load by alternating in usage. This is claimed to ensure at least 60% longer life than standard SON lamps and to give instant re-strike after a momentary power failure or other interruption of the electrical supply.

The lamp is stated to have a life of at least 19 000 hours. It is available in 150W, 250W and 400W ratings. The long life offers major convenience and maintenance benefits in installations such as flood-lighting, streetlighting and industrial lighting.

Reader Service No. 171



## Bare cable display system

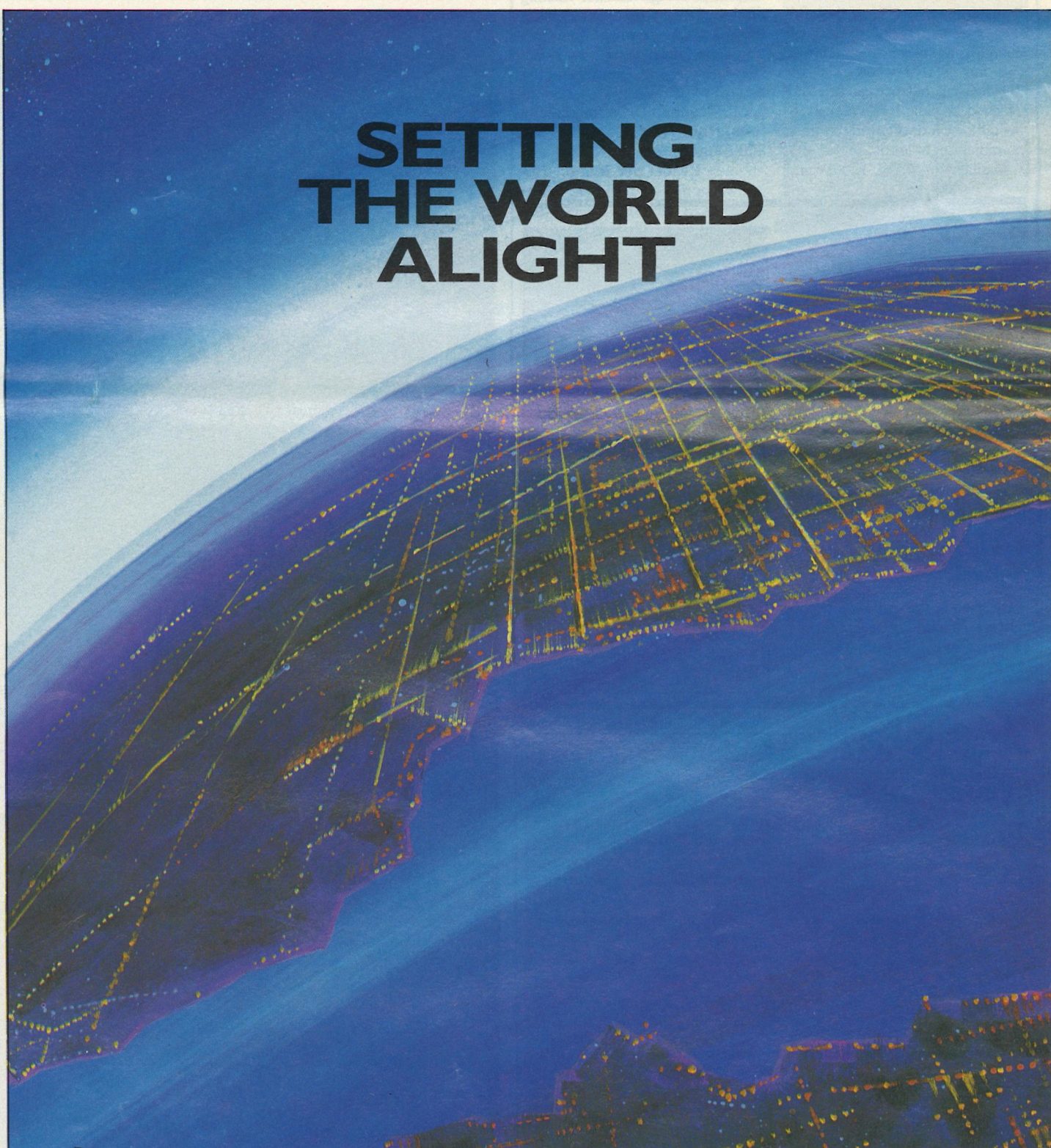
Fairfield Displays Ltd has a cable supported display system that includes low voltage lighting. Cables fixed between floor and ceiling support vertical or horizontal displays up to a weight of 120kg.

Low voltage lighting fittings clip onto these bare cables which carry the current, so avoiding trailing cables.

Among the advantages of the Mobile Cables System is that displays can be positioned at any point in an interior without the need for a supporting wall and spotlights can be placed wherever required within the system.

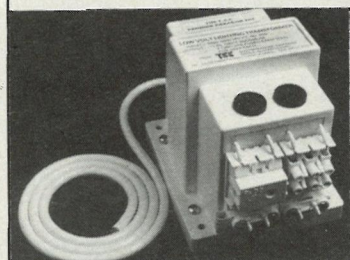
Reader Service No. 172

## SETTING THE WORLD ALIGHT



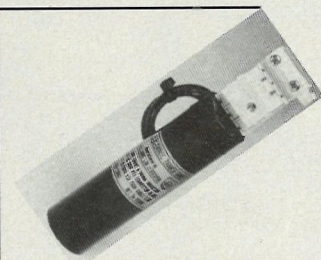
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Reader Service No. 7

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standard, safeguarding your investment in luminaires and lamps as well.

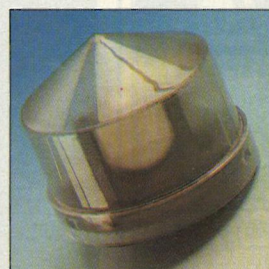
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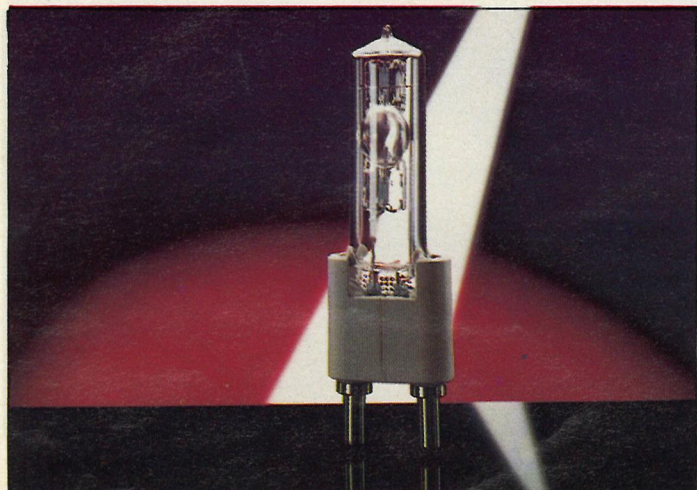
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Telephone: 0628 819207 Fax: 0628 810124  
Telex: 94017154 PACS G.



Reader Service No. 8



# NEW PRODUCTS



## Film and studio lamp

A major breakthrough in location and studio lighting is the introduction by Philips Lighting of the MSR range of single-ended discharge lamps.

MSR discharge film and studio lamps are the first that can be dimmed down to 40% of their full light output, with almost no change in colour temperature. This means that when used for "fill" lighting, balance can be easily achieved to adapt to changes in daylight, or indoors to alterations in ambient light levels.

Available in 575W, 1200W and

2500W all are designed for hot strike when used with the appropriate control gear and have a universal burning position.

Their single-ended construction allows manufacturers to design smaller housings than for existing discharge sources. This makes transporting equipment for location work much easier and also facilitates rigging, because of the lighter weight.

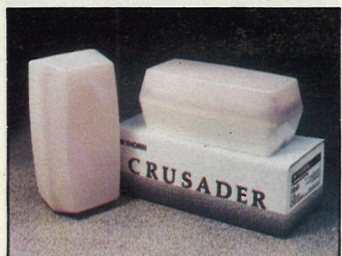
MSR lamps may be run directly from existing 575W, 1200W and 2500W gear.

**Reader Service No. 173**

## Emergency bulkhead

Crusader is a self-contained, indoor, emergency bulkhead luminaire from Thorn Lighting Ltd. It operates in the non-maintained mode and uses a 4W fluorescent lamp, giving three hours' light if the mains fails.

Measuring 245 x 125mm it is made of white injection moulded plastic and has an opal coloured diffuser. The gear tray can be



easily removed to save installation time. **Reader Service No. 177**

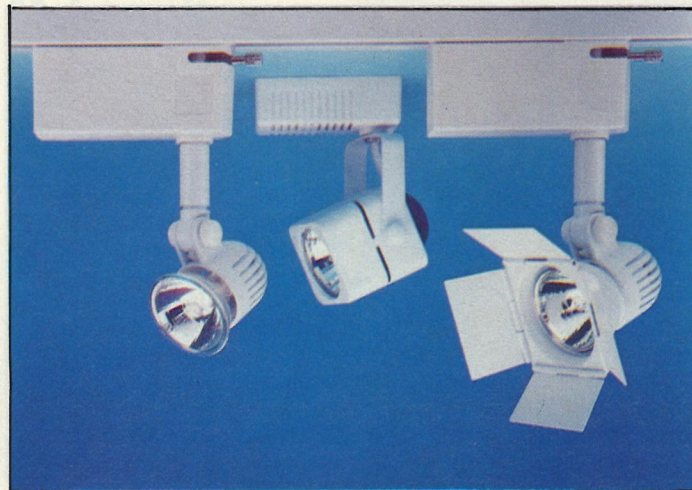
## Multi-function floodlight

Crompton Parkinson Ltd has introduced a multi-function floodlight called Promenade which offers general, medium beam light distribution from ground, wall or pole-top mountings.

The fitting, of corrosion resistant, cast aluminium construction, is finished in black and classified IP55. Promenade is supplied complete with a choice of either 70W high pressure sodium, 70W metal halide or 125W mercury lamp.

This adaptable floodlight is available with a range of accessories including single or double-headed fixing spigots, adjustable wall brackets, a protective grille and barndoors.

Applications include lighting courtyards, covered ways, parks and precincts and highlighting statues. **Reader Service No. 178**



## Low voltage spotlights

A range of 10 spotlights for use with 12V 50W tungsten halogen dichroic lamps is available from Lumitron Ltd. A transformer is

housed in the track adaptor and in the surface mounting plate. Accessories include barndoors and coloured glass filters.

There is also a projector spotlight with focusing lens, incorporating picture framing shutters and an iris.

**Reader Service No. 179**

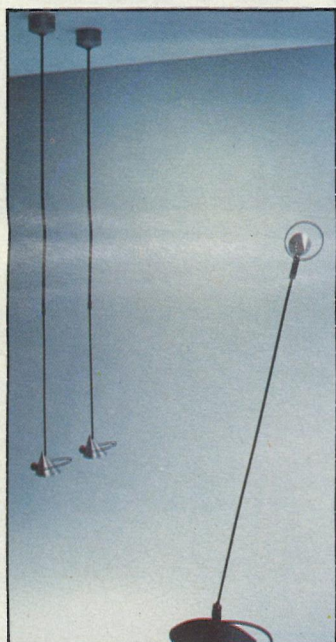
## Spotlights on long stems

Among new luminaires from Lighting Workshop is Electron, a distinctive low voltage spotlight in suspended and floor standing designs. It has a very slender black stem, topped by a cone shaped luminaire within a slim metal ring.

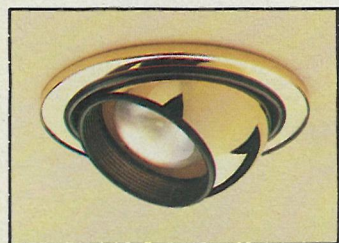
The floor standing, Electron F, uses either a 35W or 50W 12V tungsten halogen lamp. It features both an adjustable spotlight head and a base which is adjustable by 20°. A transformer is incorporated in the circular base.

Electron S, the suspended spotlight is on a telescopic arm that can be varied in length from 1120mm to 1970mm.

**Reader Service No. 174**



## Mains voltage eyeball spotlights



Two mains voltage, recessed eyeball spotlights are available from Light Years.

The 126mm diameter EB50 takes a 40W R50 reflector lamp, while the 172mm diameter EB80 uses a 100W R80 reflector lamp. The light sources are recessed into the eyeball for better glare control and to give a defined light cut-off.

Both fittings have been designed with fully-enclosed housings and are stated to be manufactured from fire-retardant materials. White and brass plated finishes are available.

**Reader Service No. 175**

## Photo-electric cell for lights

The Tamtec photo-electric cell by Tamlite switches lighting on at dusk and off at dawn for security, amenity or access.

This photocell, with its two-year guarantee, is suitable for either domestic or industrial installations.

Each unit is pre-calibrated and omni-directional, removing the need for north orientation. The conical shape of the enclosure is self-cleaning and the material is ultra-violet stabilised.

Maximum loading is 2.4kW



resistive load (tungsten) or 1.0kW inductive (discharge).

**Reader Service No. 176**



# Lighting leads the way

In a large open-plan office, a method of indicating the main circulation routes was required. A linear lighting system solved this and other problems.

**F**reemans has a new base for its massive mail order catalogue service. Sterling House, in Norbury, south west London, was built in the early 1960's and has undergone an internal metamorphosis. From having a rigid layout with small cellular offices it has become a modern, stylish, three-storey, open-plan building that houses over 500 people.

New premises were needed to accommodate staff from two branches and this, together with a rationalisation of business systems, called for a complete refurbishment of Sterling House.

The inside of the building was

opened up by constructing an atrium which, as well as creating visual impact, introduces daylight into the premises.

Because of the number of VDU screens in the offices it was decided not to have ceiling mounted lighting but uplighting. A good balance between daylight and artificial light was also a requirement.

## Individual switching

Floor standing Antena uplights by the Orgatech Lighting Division of Valor International Ltd were chosen. The luminaire heads, which are supported on two slender stems, contain SON-DL high

pressure sodium lamps.

The uplights plug into sockets in floor boxes and are run on dedicated circuits. They are individually switched, but if any are left on in the evening, security staff can turn them all off using a central override switch.

Work stations are from the Herman Miller Action Office range and each has a built-in, under-shelf fluorescent light to illuminate the working area. These are also independently switched.

To mark both the main circulation routes and emergency escape routes in the open-plan offices a tubular lighting system is suspended from the ceiling on steel



A view of one of Freemans' offices showing the BIS linear lighting system.

cables. This is the 100mm diameter version of the BIS system from Electrak International Ltd.

Sections containing 58W fluorescent lamps, screened from view by low brightness louvres, are located at intervals along the tube. It was important to select a system that would not cause glare in the VDU screens.

The system is used in pre-wired 4m lengths with 90° fixed angle corners.

Emergency lighting units incorporated in the tubes will operate certain of the fluorescent lamps for three hours in the event of a power failure.

## Stairwell

Facilities are included in the tubes to give Freemans the option of having a public address system if required at a later date.

Specially constructed rectangular sections of the BIS system light the stairwell and main foyer. Wall mounted uplights on the staircase were made by Tornado Lighting and use 26W PLC compact fluorescent lamps. They also contain emergency lighting units.

The three-storey, rectangular atrium is lit by two kinds of luminaire. At ground floor ceiling level, Marlin Lighting Ltd's D track is surface mounted around the perimeter and carries twelve



A floor standing uplight from the Antena range by Valor.

low voltage spotlights with integral transformers and barn doors.

At roof level, below the glazing, six 300W tungsten halogen indoor floodlights, also by Marlin, provide general lighting.

Architects for the project were Hulme Chadwick and Partners; electrical engineering consultants were Mott Laverack Ltd.

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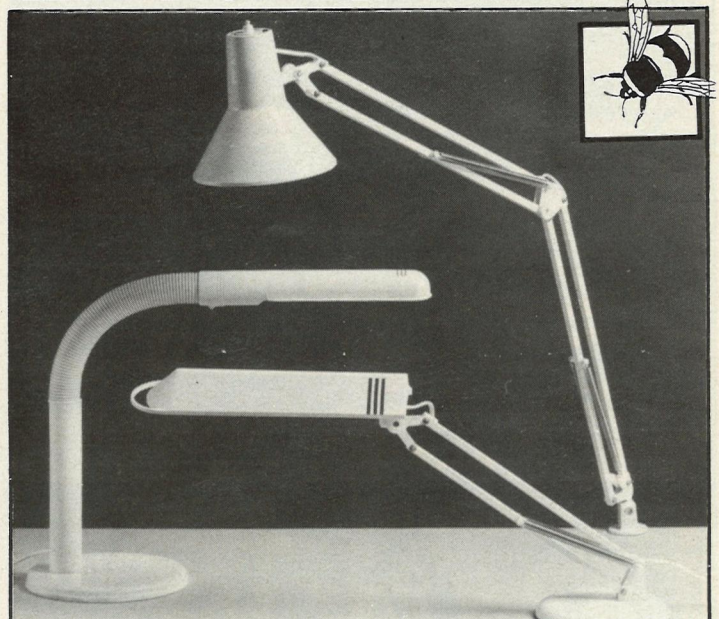
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## HAVE YOU HEARD THE BUZZ?



## Malt's new BEE label lamps for offices are here!

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# A spectrum of applications

In the field of original equipment manufacture 'horses for courses' is the order of the day. *Jenny Bywater* of Thorn EMI Lamps and Components, looks at the ever expanding range of applications for lamp technology.

There is more to lamps than light. Since the average incandescent lamp only emits about 10% of its radiation as visible light there is obvious scope for increased efficiency and the extended utilisation of electromagnetic radiation.

Indeed, many lamps originally conceived as light sources can, by their very nature, be utilised with greater efficiency in a range of other activities.

Using areas of the spectrum outside the visible range is a fairly recent growth area. Splitting the visible range of the electromagnetic spectrum to obtain small wavelength bands is a technique that is also being adopted, for instance, to aid plant growth. This feature takes a look at some of these specialist areas of lamp technology where lamps find other applications than lighting.

## Lamps for heating

One of the most obvious uses for lamps is as a heat source. Two generally available forms are those for zonal space heating and those for the cooker market. Although both are derived from halogen lamp technology they have been put to use in quite divergent roles.

With peak emission at 1.1 to 1.2 microns, halogen lamps are ideal for producing energy in the near infrared sector where large amounts of energy are neither lost to visible light nor absorbed by water particles as happens at the far area of the infrared sector (see spectral distribution curve).

Since halogen heat has all the

characteristics of light it is unaffected by wind or moisture-laden atmospheres, and can be switched on or off with immediate effect, or controlled to give varying outputs. Halogen heat lamps will radiate heat that penetrates the atmosphere and warms targeted areas.

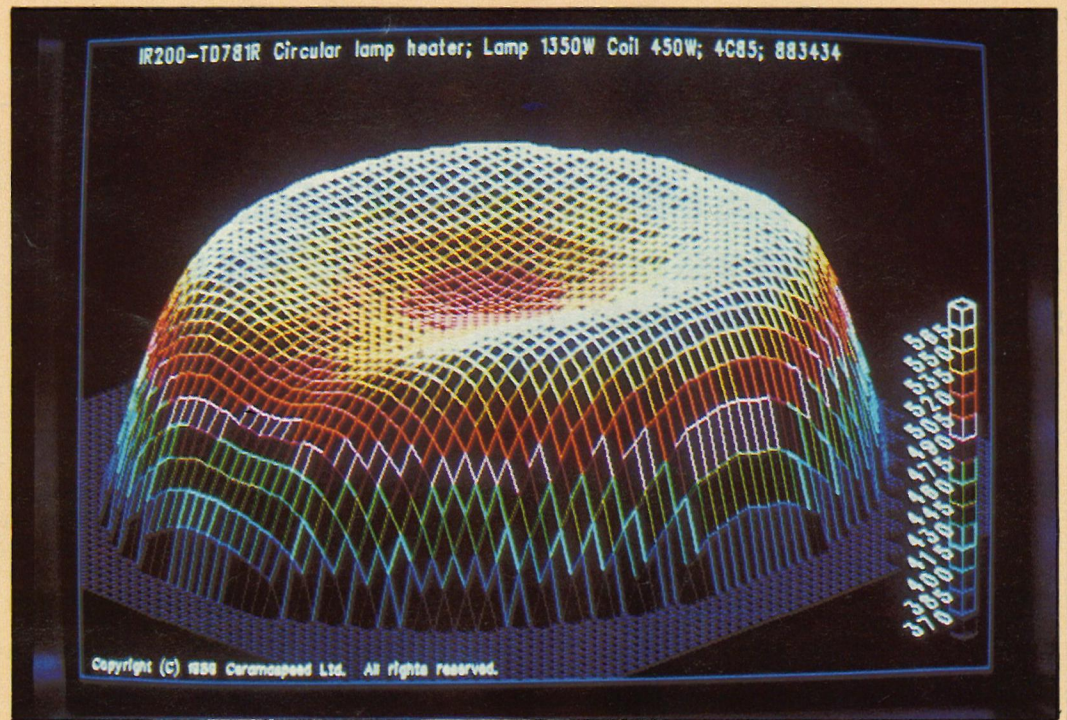
These properties make halogen heat the specifier's choice for task heating zones, whether for warming individual workers in draughty warehouses or refrigerated packaging lines, or sportsmen in leisure centres. Considerable energy savings can be made since there is no need for run up or cool down periods in buildings of short term occupancy, no need for heating large spaces when it is only the workers that require the heat, and no need to lose energy in heating surrounding air when working in buildings or marquees with low heat retention.

Clean and offering instant control, halogen heat lamps are ideal for the domestic cooker market. But, because of the intense heat given off by the lamps, the pans holding the lamps in the cooker had to be specially designed and heavily insulated to protect the cooker base. A limiter, controlling heat transfer, is placed over the lamps to prevent ceramic surfaces from overheating. Varying the amount of current through the lamps, controls the heat output.

Across the board from 0.5kW to 1.5kW linear or circular, with or without clear or ruby jackets the Thorn range is probably the largest available on the market, although other manufacturers make a variety of lamp shapes and types. The round lamp is believed to give optimum heat distribution to heat the base of the cooking utensil more efficiently.

Still on the cookery side, hot food serveries utilise clear jacketed linear halogen heat lamps. Other uses for these lamps range from paper drying in the print trade to T-shirt print curing.

Various types of heater-dryer are available from hot air driers to those utilising microwaves or ultra violet rays in print curing. However, with modern fluorescent colours a short high energy burst is needed to set the inks in garment overprinting, and the immediacy of short wave infrared halogen



Thermal image of Thorn EMI circular halogen heat lamps.

heat lamps make them the ideal solution. The process involves quick drying of each coloured ink before the next is screen printed onto clothing like T-shirts, to avoid 'pick-up' from the previous screen. To speed up the process

short bursts of heat are applied alternating with each screen. To avoid overheating machinery and workers, an instant flash of monitored duration is needed, and this halogen heat lamps are perfectly adapted to provide.

## Splitting the spectrum

Taking a totally different part of the spectrum, Thorn has recently combined its lamp expertise with two specialist companies, Interpet and ICI, to produce light sources for aquatic and terrestrial plant life, respectively.

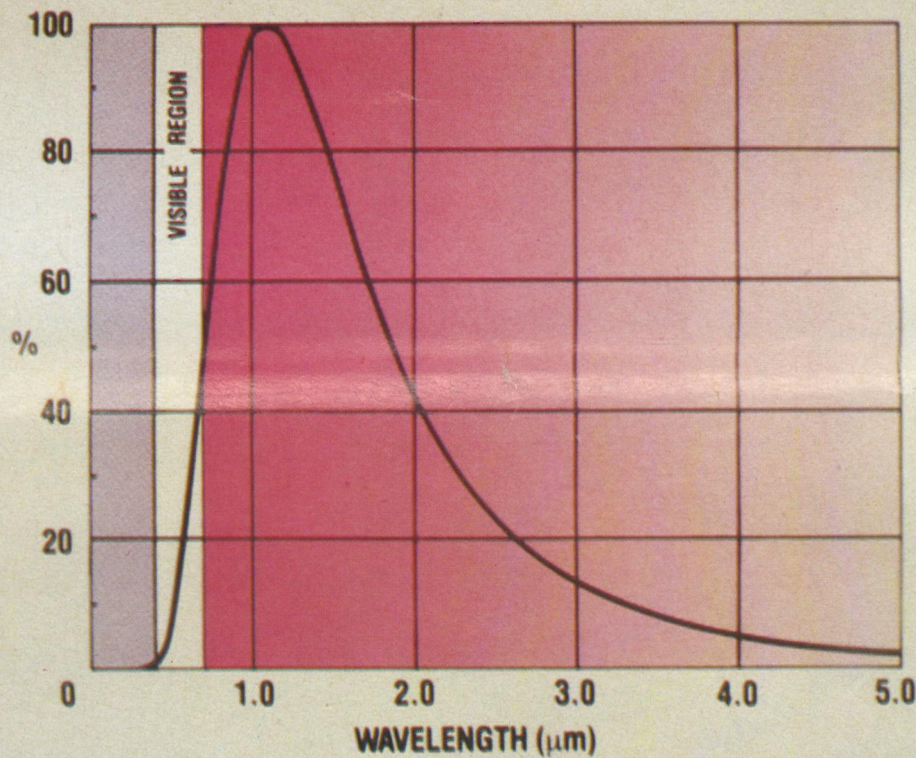
In the first case a dedicated light source had never been designed to stimulate growth while creating desirable hues in freshwater and marine aquaria. Previously experts recommended a combination of three fluorescent tubes to give the desired balance. These were Trulite, GroLux and Arctinic 0.3.

GroLux was originally developed to emit light at wavelengths normally absorbed by terrestrial plant pigments, chlorophyll A and chlorophyll B. Unfortunately, these wavelengths of light are effected by water so, when the lamp is used to light aquaria, the useful rays are unable to reach the underwater plants.

Truelite was designed to have a spectral output as near daylight as possible, thus giving a very efficient, if expensive, lamp developed specifically to accommodate the human eye.

Arctinic 0.3, on the other hand,

RELATIVE ENERGY CURVE FOR THORN EMI HALOGEN HEAT LAMPS



Spectral distribution curve for halogen heat lamps

# THE GOOD NEWS FOR FLUORESCENT LAMPS

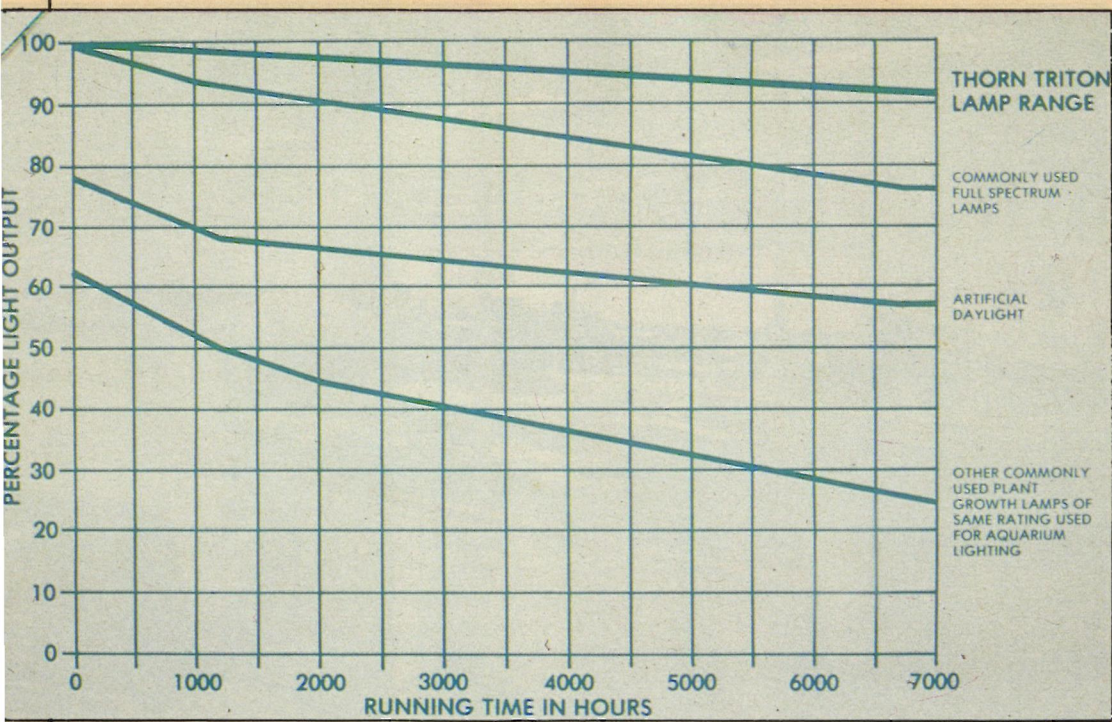


3.14 GB\*



Heating a draughty signal box.





Triton aquaria lamps.

was developed for marine invertebrates where the spectral distribution lay heavily below the ultra violet range.

It was against this background of non-dedicated aquaria lighting that Triton was designed. Aided by the expertise of marine fish keepers, a triphosphor fluorescent tube was launched onto the market early in 1989. A blend of rare earth activated triphosphors gives out a unique spectrum of wavelengths which are available to aquatic plants.

Two other characteristics have helped in Triton's early success. Light output, which is double that of existing lamps, does not significantly alter over its average life of 7500 hours and, at the point where light output falls below an effective level the lamp circuit automatically switches the lamp off, thus indicating the need for replacement.

Discharge lamps have also been developed to enhance plant growth on land. Using a special dosing of metal halides, high emission in the red and blue regions of the electromagnetic spectrum can be achieved. These are the bands in which plants absorb light while reflecting the remainder, hence their green appearance. However, it has been determined that infrared in the 700-800 nm wavelengths induces budding of seedlings. This obviously promotes growth and, in particular that of the flower and fruit bearing shoots.

With the 400 W dosed arc tube at the focal point of a special closely fitting reflector and prismatic PAR 64 lens the lamp gives an even light distribution, providing shadow-free, fill-in lighting to wintery sunlight. Growth can thus be promoted throughout the year.

This particular criterion was of special interest to the fertilizer and pest control manufacturer ICI. To test the efficiency of their products while monitoring plant reaction. ICI needs to be able to grow plants the whole year round. However, normal daylight extending lamps only fool plants' life cycles rather than actually stimulating growth. Had only the former been necessary, the more efficient high pressure sodium lamps could have been utilised.

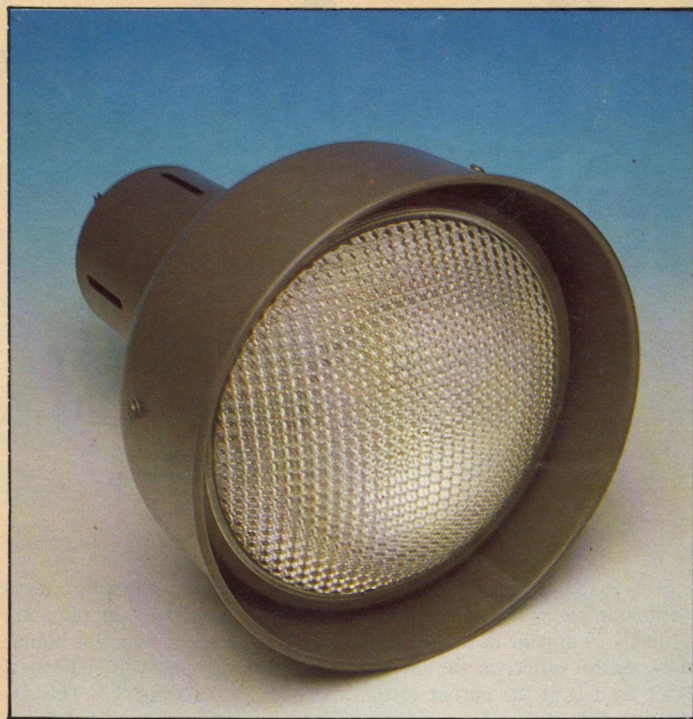
Higher energy usage means these special plant growth lamps are probably not economical for general farming use. But they could prove to be very useful for farmers interested in urging growth at the seeding stages to promote an early crop which gives increased profit margins.

#### Modifying characteristics

Changing the dose in metal halide discharge lamps can drastically affect their emission spectra, so by carefully controlling the added doses precise emission wavelengths can be tailor-made for special requirements. Thus, a different cocktail of metal iodides can be used to produce ultra violet

emission.

One particular mixture has produced ultra violet predominantly in the 380 nm and 410 nm regions, giving a lamp used in the print



Plant growth lamp with close-fitting holder.

industry to cure two types of photographic plate. Doses of iron and gallium iodide give the corresponding output to cure photopolymer and diazo coated plates

respectively.

In this instance, as with most other metal halide lamps, iodides are used in preference to other halide ions. Since metal iodides are



Blue halogen lamps cures fillings.

wavelengths ranging from ultra violet through visible to infrared. However, composites used in dental restoration are hardened only by violet and blue emissions.

Early compounds utilised ultra violet light to set them but this light reflected off patients, teeth giving dentists radiation burns. There are added advantages to using visible light. One is that it has a greater curing depth than ultra violet so that the compound can be used for posterior fillings as well as shallow anterior fillings. In addition, it gives a visible confirmation as to where the curing is taking place. Moreover, the shorter curing time is more comfortable for the patient and facilitates dental sculpting.

With the aid of glass filters, near ultra violet and lower energy visible wavelengths are eliminated from the normal spectrum. At 250mm, the focal length of the lamp is ideal for shining down a length of fibre optics to give a relatively large optic tip (7 mm) without cumbersome equipment obscuring the dentist's view.

In contrast to the above application, ultra violet has been of use in fly control luminaires. Unlike the human eye which has peak sensitivity around the green and yellow wavelengths, flies have eyes sensitive to ultra violet rays.

Modified compact fluorescent lamps have been chosen for this purpose for a number of reasons. Fluorescent lamps are energy efficient. However, the narrower the diameter of tubing used the greater is the light output. Bending tubes into various shapes gives creative as well as practical possibilities. The 2D shape, for example, lends itself to being used in fly catchers. Since it is formed essentially on one plane most of its surface area may be utilised to attract insects towards a grid carrying the fatal voltage. Because of the nature of the lamp technology ultra violet radiation is automatically emitted. Utilising a selectively blue thin phosphor mix a pleasant hue may be produced, enhancing the appearance of the fly killer unit.

In summary, diversification of lamp technology has provided specialist markets with an enormous variety of lamps, which has to grow with market demands. The basic criterion is to match the spectral output to the application.

The examples given in this feature, although limited, demonstrate there are various ways of achieving this. Different lamp types have characteristic spectra. Where only a portion of the spectrum is needed there are two options available: either to change the chemical content (dosing) of the lamp or, where this is not possible, to select the required wavelengths by the use of filters.

Which option is adopted depends as much on the knowledge of the lamp designer as on budgetary constraints. The importance of energy conservation in comparison with lumen output must also be determined. On occasion a compromise has to be made, but more often than not the manufacturer can produce a solution of mutual satisfaction to the original equipment manufacturer or end user.

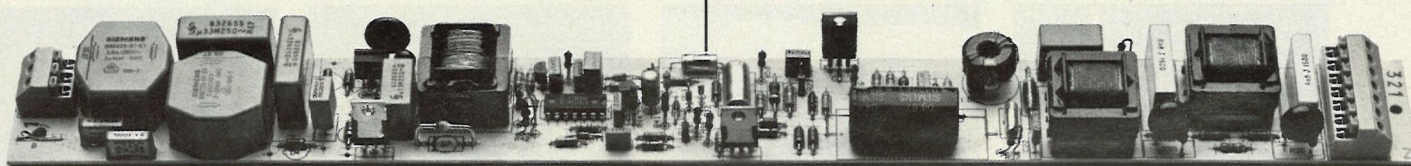
not as corrosive as bromides or fluorides they attack the lamp electrodes to a lesser extent. They also dissociate at temperatures below 300°C, making them ideal for the formation of the metal arc at running temperatures of 600-700°C.

Lamps chosen for their beam spread, lumen output or energy efficiency can also be put to specialist use by, for example, simply filtering out the undesired wavelengths.

This is the approach adopted in the case of light-cured dental fillings. An open-beamed dichroic mirror lamp, chosen for its concentrated focused beam, and constant light output over time, ordinarily gives off a whole variety of

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Flycatcher using 2D lamps.



# New solutions for VDU lighting

A new guide on lighting VDU offices is introduced here by **Paul Ruffles**, chairman of the task group which wrote the guide, and an associate with **Buro Happold Consulting Engineers**.

It is easy to imagine the modern office to be full of the latest in computer technology. A terminal on every desk and a laser printer by the filing cabinet. The truth is more modest.

Certainly many offices have changed radically. Many do now have the very latest in office automation. Many more, however, are only just starting along the road to full automation. To try to apply a common lighting solution to all these various office types is a nonsense.

Up to now lighting for VDUs was based on the requirements of the CIBSE Technical Memorandum No 6. *Lighting for visual display units*. This was a simple document with straightforward recommendations. Those who stuck to the guide lines could not go far wrong. Unfortunately the document also could not allow great innovation or much scope for individual flair.

Now this is set to change with the introduction of the new CIBSE lighting guide, *Areas for visual display terminals*, a guide that gives the designer far more freedom. Not only have the technical standards been updated, but a large body of general advice and guidance has been added.

The first thing the designer must realise is that not all VDUs are the same. Typical office machines range from simple word processors to highly sophisticated graphics work stations with digitiser boards and high resolution graphic display screens. Between these come the standard workhorses of the computer world — the stand alone PC and the dedicated terminal to a main frame computer.

## Screen use varies

These machines can be put to an immense range of uses. Some are used to display background information which is only glanced at to gain an impression of change: the information changes slowly and is not generally critical.

At the other end of the range are screens with rapidly updating or critical information, perhaps financial screens in a dealing office or the reactor status display in a nuclear power station. Problems with seeing the information on these screens could lose you a piece of the action, or a piece of the coastline!

The range of office accommodation is no less diverse. A VDU is as likely to appear in the production control office on the factory floor as it is in the corner of the design office. In each case, if the same type of information is being viewed on the same type of screen then, all else being equal, the quality of lighting provided should be the same.

There are a number of problems that can be caused in an interior by inappropriate lighting. The one that seems to worry lighting designers the most is reflections on screens.

## Reflection problems

Someone sitting in front of a screen is likely to see an image of the luminaires and room surfaces that are behind them. The lower the luminance of these luminaires and surfaces, then the lower the luminance of the screen reflections.

Putting that simple theory into practice can be difficult. The room surface luminance depends on two things — the surface reflectance and the illumination of that surface.

To keep the room surface luminances fairly constant, the reflectance and illuminance should be kept as even as possible. A sudden white painted column on a brown wall, or a bright splash of light on a partition, could show on a screen as a distinct and distracting image.

The same logic leads to the criteria for uplighting. Keep the average luminance of the ceiling and upper walls below 500cd/m<sup>2</sup>, keep the peak luminance below 1500cd/m<sup>2</sup> and ensure that the luminance changes slowly across the surfaces. This should ensure, for the typical screen and interior, that no distinct bright image will show on the screen. There will however be an overall reflection over the screen which may have to be offset by turning-up the screen character luminance.

The other main way of lighting offices is by downward light. The principal objective in selecting such a luminaire is the effective control of the luminance of the luminaire as seen reflected in the screen.

To achieve this the luminance needs to be limited above the angle that the luminaire is seen from the

screen. If all the ergonomic criteria of the terminal and operator are known and fixed, then this luminance limiting angle can be derived by simple geometry. This is explained in detail in the guide.

Because such information is not usually available to the lighting designer, and because of the multiplicity of tasks and screen types used in most interiors, three standard categories are defined.



Recessed fluorescent fittings with low brightness louvers light the drawing office at Lucas Girling Ltd.

## BDC PREMIÈRE GOLD

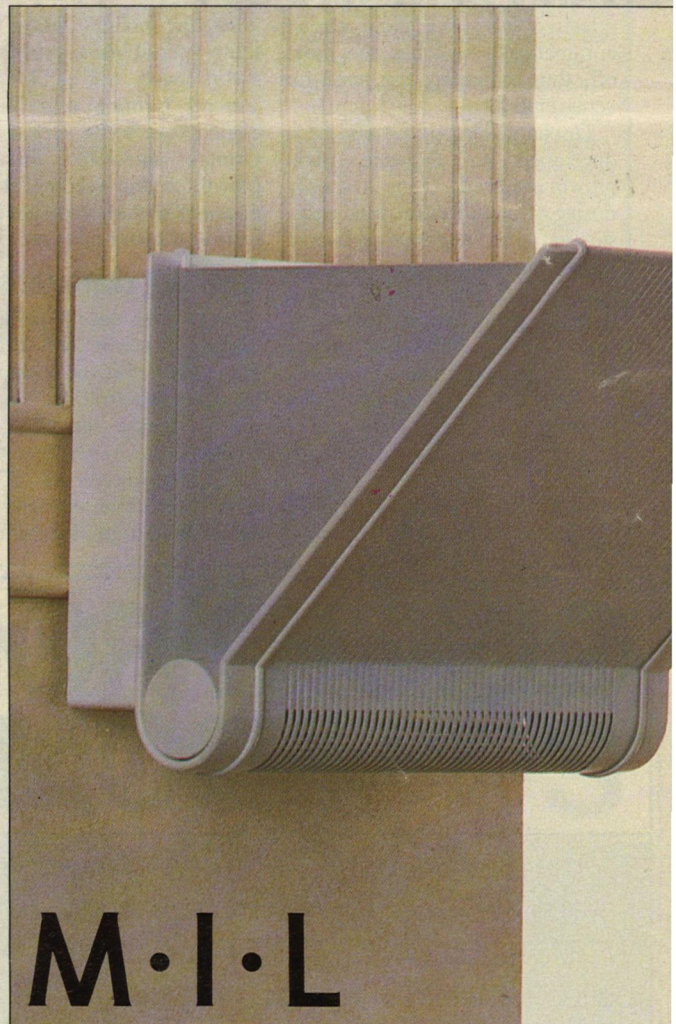
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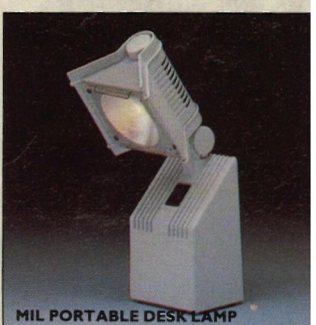
MIL CEILING-MOUNTED UPLIGHTERS WITH ROD SUSPENSION



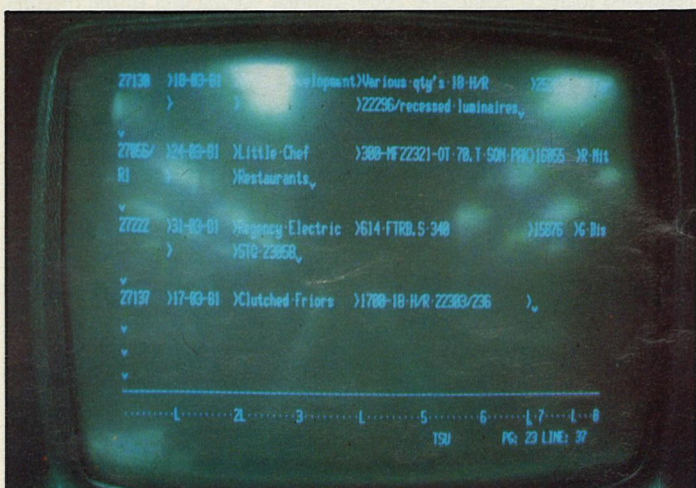
MIL TRACK-MOUNTED FLOODLIGHT WITH LOW GLARE LOUVER



MIL MULTI-PURPOSE COMPACT FLUORESCENT WITH CORD SUSPENSION & LOW GLARE LOUVER

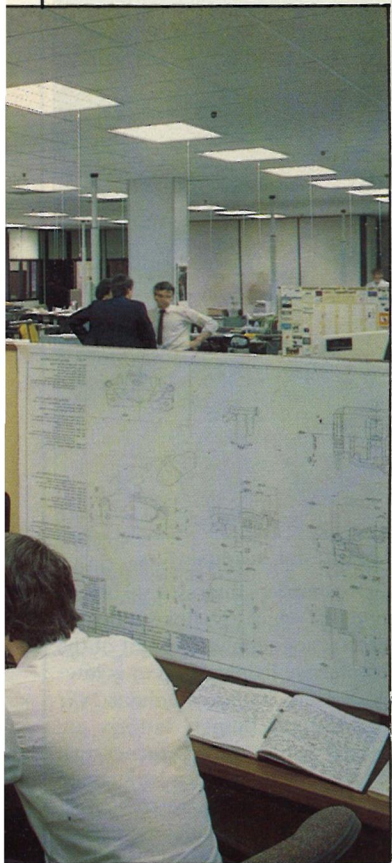


MIL PORTABLE DESK LAMP



An example of reflected glare in a VDU screen, caused in this instance by the lighting fittings.





Category 1 covers areas where screens are constantly referred to or where errors in reading screen information have severe consequences.

Category 2 covers areas where screens are used intermittently or where accuracy is important.

Category 3 covers areas where VDUs may be used occasionally or where the screen content is of minor importance.

It is anticipated that manufacturers will publish the category that each of their luminaires can achieve. This allows the simple selection from manufacturers' ranges of the appropriate type of luminaire.

### Limiting angle

Each of the three categories has a specific luminance limiting angle, above which the luminance is limited to 200cd/m<sup>2</sup>. This figure has been selected so that the luminance of a luminaire reflected in a typical screen will be low enough to avoid it appearing as a distinct object on the screen.

The specification has been chosen to align broadly with published international standards. Category 1 is designed to align



The computer controlled brew hall at Courage Ltd is lit by uplights.

for modern commercial offices.

The choice of category is something to be decided between the designer and the client. A lot of the new lighting guide is made up of material to assist this choice.

The final form of lighting described in the guide is the luminaire that combines uplighting and downlighting. These present some interesting advantages over the use of one type only. The combination tends to soften the effect of each.

Thus a good spread of light and a lit ceiling is obtained without the blandness that some uplight schemes give. Some modelling and shadowing is achieved without the gloomy effect produced by some intense downlight schemes.

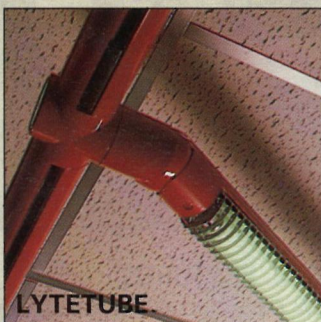
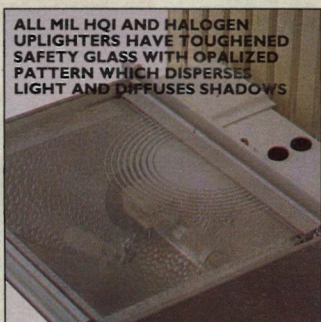
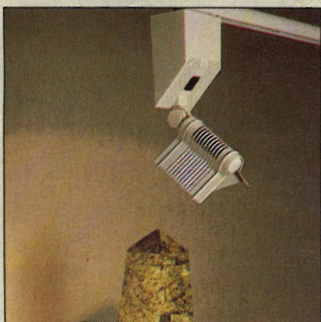
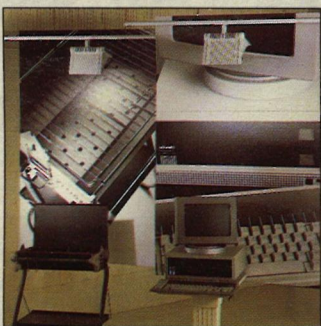
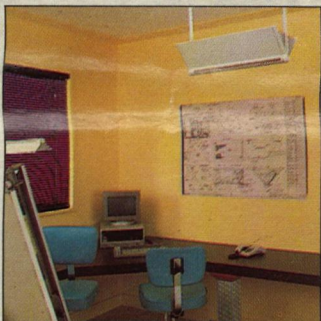
It is hoped that the new guide will encourage all designers to think more carefully before choosing the lighting style for the next high-tech office they tackle.

By looking at all the options, considering the type of screen, the use that it is put to and the environment it is used in, the designer is in a powerful position to achieve a high quality lit environment for the VDU user.

with the German DIN standard and category 2 with the old TM6 recommendations, although both are now more closely defined. The new category 3 is designed to be the minimum acceptable standard

Lighting Guide No 3 *Areas for visual display terminals*, will be published in September by CIBSE, 222 Balham High Road, London SW12 9BS. Price including postage is £12.50 per copy to members, £25 to non-members.

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Offices of the County of South Glamorgan use low brightness luminaires.

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# Lighting that's just the job

**LEN** surveys some recent office lighting installations, in both new and refurbishment schemes, and finds that economy and user comfort go hand in hand.

**C**ertain trends can be discerned in the design of lighting installations for office buildings. The old-fashioned, all purpose approach to providing blanket lighting of office areas is increas-

ingly seen as being inadequate. Low brightness lighting is increasingly being installed in offices, even where only general office work is currently being extended requirements for VDUs. Not only does this attract enhanced rental

values, but companies themselves are becoming more aware of the need to provide built-in flexibility in the case of the need to relocate departments within the building.

Employers are more inclined to beat the office blues. As staff costs

mount it makes economic sense to increase productivity by minimising stress in the working environment — and the flicker-free, instant start provided by a high frequency fluorescent installation is seen as a good investment. Controls, too, are becoming more sophisticated and installations in new buildings at least, are likely to be microprocessor controlled and may even be linked to a building management system.

The North Western Electricity Board's new headquarters building in Manchester has been lit by Thorn Lighting. The new, all-electric building has been designed to keep energy consumption to a minimum while providing maximum comfort and a wide range of facilities for NORWEB employees.

A total of one thousand 1200mm x 600mm recessed fluorescent Quattro fittings was installed. The luminaires, fitted with VDU reflectors, provide



North Western Electricity Board's Manchester headquarters.

glare-free lighting for VDU operators who carry out a large proportion of NORWEB's administrative business. Each luminaire has three fluorescent tubes operating off high frequency electronic ballasts for energy efficient flicker-free lighting. Variable lighting levels can be achieved from each luminaire by a switching system which can allow from 1-3 lamps to operate.

The Quattro fittings also accommodate the air handling system which draws air up into the ceiling cavity and returns it via the ceiling grille.

A wide variety of lighting systems has been used elsewhere in the building. The staff restaurant is lit with uplights incorporating deluxe high pressure sodium lamps which create a warm, restful atmosphere, enhancing the colour scheme. Audio visual rooms use Quattro fittings with low brightness louvres and the lighting is controlled by dimmers.

Necessary lighting levels in corridors and stair wells are provided with wall-mounted Legato uplights incorporating two 16W

2D compact fluorescent lamps, one of which is linked to the emergency supply. The rest of the emergency lighting system is integrated into 300mm<sup>2</sup> modular 28W 2D Hyform fittings. Fittings are placed over each emergency exit and operate in the maintained mode. All services are computer-controlled by a building central management system.

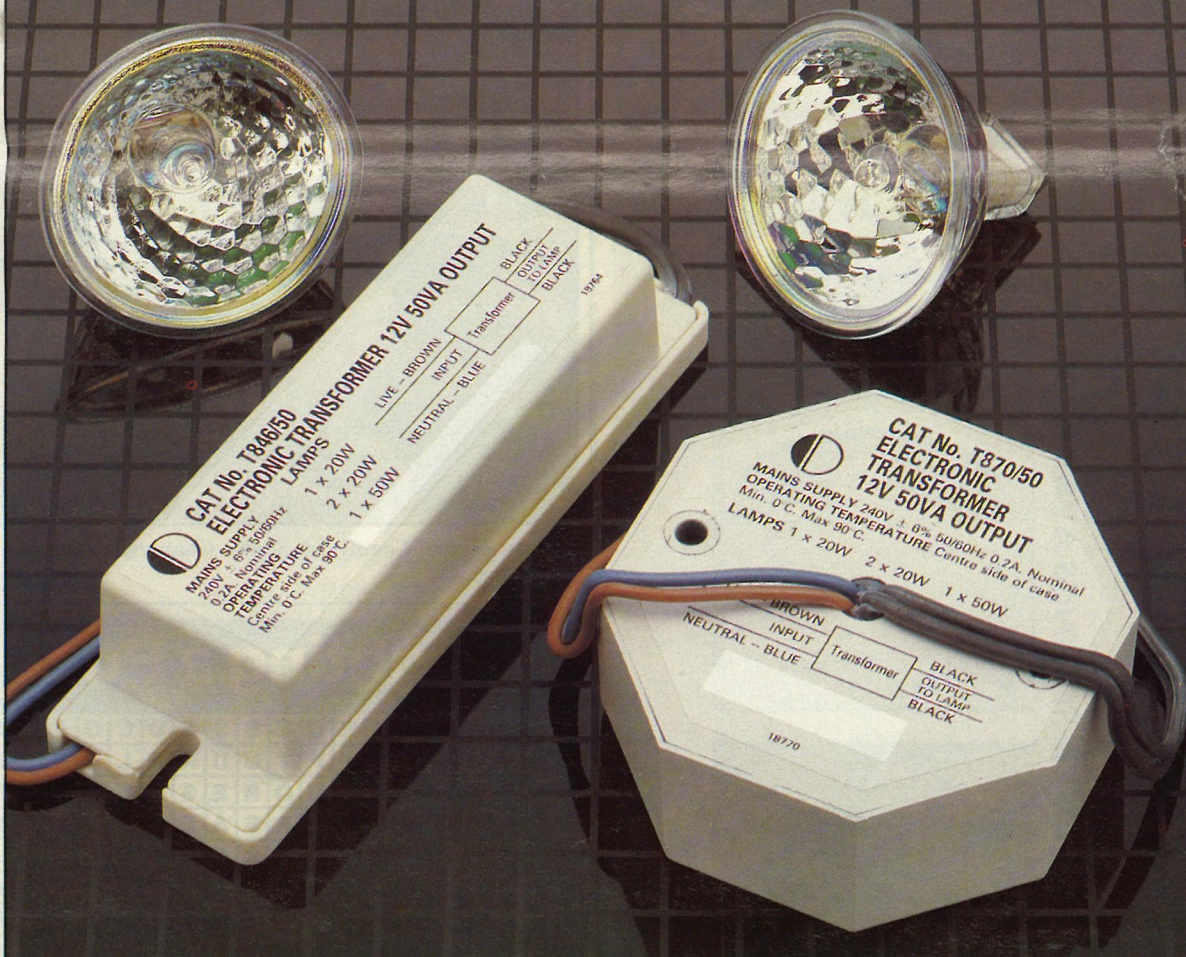
Refurbishment projects are increasingly using high frequency installations. The administration office of the Institute of London Underwriters is in Folkestone, Kent. Lighting was originally provided by surface mounted prismatic luminaires each with twin 1500mm 65W, Col 35 fluorescent lamps. This gave an illumination level of 250-300 lux with an installed load of 37.986 kW.

The lighting installation was refurbished using 270 recessed Philips TBS 300 luminaires each with twin 32W Col 84 high frequency lamps and gear. In the corridors they are used with M2 mirror but, in the working areas with many VDUs, the M5 mirror is used to give good light distribution



Offices at the Institute of London Underwriters.

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Lighting Equipment News, September 1989



without glare or reflections in the screens. The installed load has been increased by 21% to 45.96 kW but the illumination has been doubled to 500-600 lux with instant start and good colour rendering.

The office luminaires are HF regulated via light sensors so that, as daylight levels increase, the light from the luminaires is automatically reduced to maintain the original level, and vice versa. This can give a further saving in energy consumption.

The refurbished premises of Lloyd's Bank in Beccles, Suffolk have been relit using recessed luminaires from Crompton Parkinson. Recessed fluorescent lighting luminaires from the Modulux MX range were selected for use within the banking hall, customer service area and offices.

The banking hall is lit by Modulux MX 600mm square recessed luminaires, each containing four 18W fluorescent lamps. Low brightness louvres with specular aluminium curved reflectors and profiled cross blades control the lighting giving a comfortable glare-free 600 lux at desk-top level.

A 3-lamp version provides a 400 lux lighting level in the customer service area. In addition, 600mm by 120mm Modulux



New lighting at Lloyd's Bank, Beccles, Suffolk.

MX models have been used to illuminate individual offices.

Clients, Legal and General, presented a technically demanding lighting brief for their London headquarters. Attractive lighting was required for corridors and lift lobbies in the company's offices at Queen Victoria Street in the City of London, but the system chosen had to offer cost savings in both energy and maintenance. Moreover, the limited clearance allowed by suspended ceilings in the building posed an additional problem.

Lumiance Insaver Circo downlights were the solution eventually

proposed. The luminaire is available in a range of versions for 2 x 7W compact fluorescent lamps and needs a recessed depth of only 90mm. Fittings with brass coloured bezels were selected to match other fittings in the suites and to enhance the warmth of the lighting scheme.

Finally, low glare lighting was used in the offices of PHH Ltd at Swindon as the three office floors, each approximately 60 x 60

metres, were required for general office work including the use of VDUs.

Philips TBS300 recessed 1200 x 300 luminaires are installed, each embodying a GBS300 M2 mirror controller with faceted cross blades. The lamps are two 32W Colour 84 High Frequency fluorescent lamps which have high efficiency and give good colour rendering. The HF electronic gear provides instant flicker-free start and visual comfort.

Nine hundred luminaires are used at a mounting height of 2.4m to give an illuminance of 500 lux with a total installed load of 65.9kW.

High frequency regulation is also used in some of these luminaires and operated from photo-electric cells. This means that, when the lighting level is supplemented by daylight, the light output from the luminaires is automatically reduced down to 25% of the maximum. Regulated luminaires are installed in the rows close to the windows and in the open central core of the building.



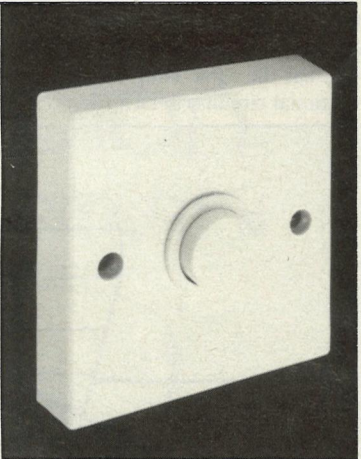
High frequency, low brightness lighting at PHH Ltd.



A corridor at the Legal and General Assurance Society.

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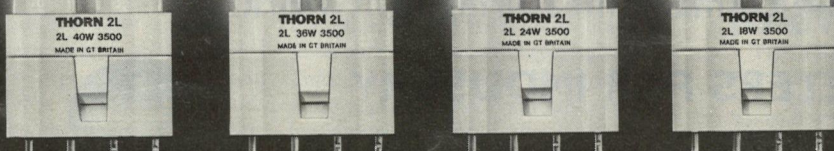
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# Trends in office lighting

**Ian Cerfontyne**, market development manager at Osram-GEC Ltd, discusses some recent developments in office lighting, and emphasises the importance of systems to control glare effectively.

**O**f all the criteria that affect the office environment, lighting has perhaps experienced the most rapid development in the last ten years and the trend is set to continue.

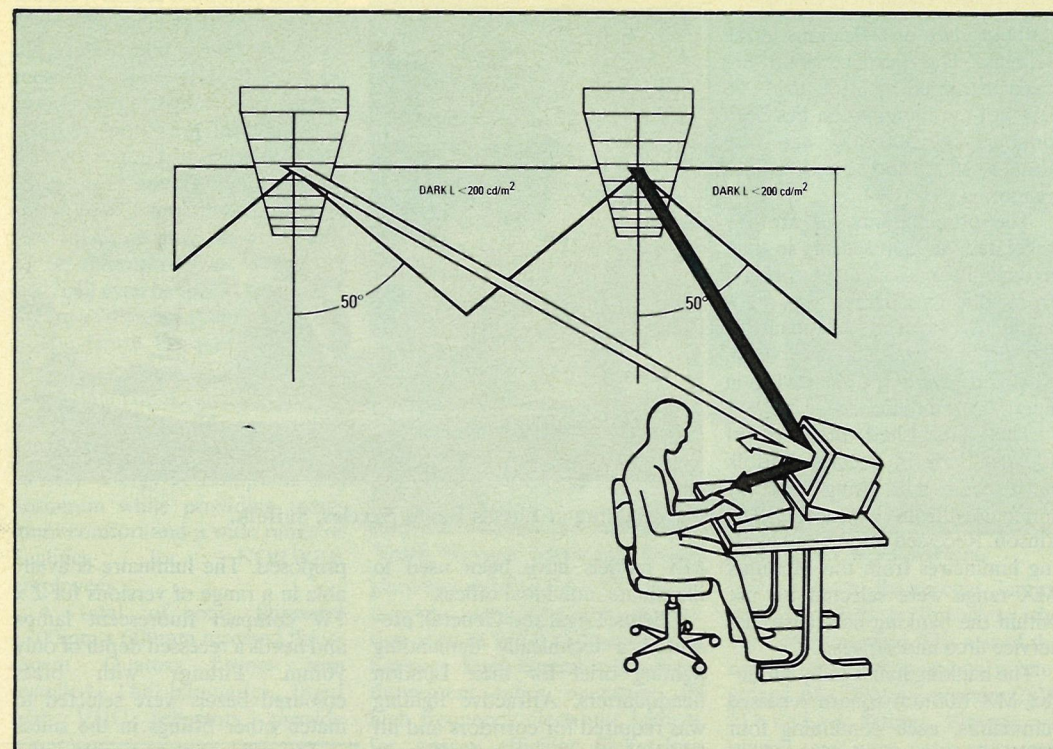
When planning any office lighting installation, the three main factors to be considered are user comfort, efficiency and cost.

Unfortunately, all too often, cost is taken as the main consideration with efficiency only partly considered and user comfort often completely ignored.

Most lighting installations are a compromise of these three factors. An installation selected purely on initial cost cannot provide any level of end-user comfort and is really false economy.

It is vital that efficiency is carefully considered, bearing in mind the cost of electricity and number of hours of operation in a typical office. The efficiency of any lighting installation is influenced by the lamp, the control gear and the luminaire.

The traditional lamp for office lighting, the fluorescent tube, has become considerably more effi-



Where VDTs are prolific a maximum brightness of 200cd/m<sup>2</sup> is permitted.

cient although UK users have been slow to see the advantages. The triphosphor lamp offers an improvement in efficacy of 20%

when compared with a T12 (38mm diameter) White tube, and 10% when compared with a T8 (26mm diameter) White tube — yet it accounts for only 5% of the combined market in the UK. By comparison, the triphosphor lamp accounts for 25% of the West German T8/T12 market.

As well as offering better efficiency, the triphosphor lamp also provides a great improvement in colour rendition, yet is still considered by many as a lamp for the retail environment, and its possibilities go largely untapped in the office sector.

The compact fluorescent lamp offers the advantages of triphosphor lamps, together with the added benefit of compact length — particularly useful when optimum flexibility is required for future partitioning.

## Control gear

The performance of the new triphosphor tubes has been further enhanced by the development of high frequency electronic control gear. This offers an improvement in efficacy by operating the tube at 30kHz rather than normal mains frequency of 50Hz, increasing the relative efficacy by as much as 12% and allowing, for example, operation of a 1500mm 58W tube at only 50W for virtually the same light output.

Use of electronic components in high frequency gear also significantly reduces the losses in the ballast so that the installed load for a 1500mm 58W lamp on a high frequency circuit will be 55W whereas the same lamp on a conventional circuit will be 71W.

The impact of the luminaire on the efficiency of any lighting installation is significant. Until recently most offices have been lit with prismatic diffuser luminaires. However, a typical low brightness reflector louvre fitting is approximately 25% more efficient and provides a broader light distribution, resulting in fewer luminaires being used.

## User comfort

User comfort is an important criterion in an office lighting installation, because lighting designed with user comfort in mind enhances work efficiency. It is influenced by three major factors — illuminance, uniformity and glare control.

To ensure comfort in the office, the average illuminance value of an installation should be sufficient to allow performance of typical tasks while being economical to run. Research has shown that the illuminance at which most people prefer to work is 2000 lux. However, high running costs have prohibited the use of such installations. The CIBSE recommended level of 500 lux enables an installation to be designed for visual comfort and to avoid weariness while still being economically viable.

To avoid possible visual distraction, a minimum to average uniformity ratio of 0.8 should be achieved in the work area.

Glare control is more complex. The number of computer screens (VDTs) installed in the commercial office has doubled in the last three years. Consequently, the need for lighting design that takes



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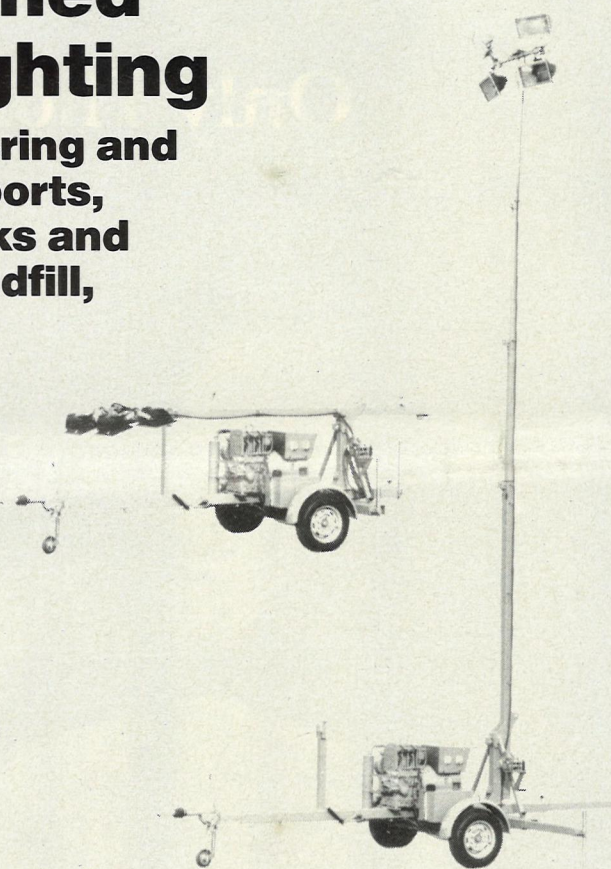
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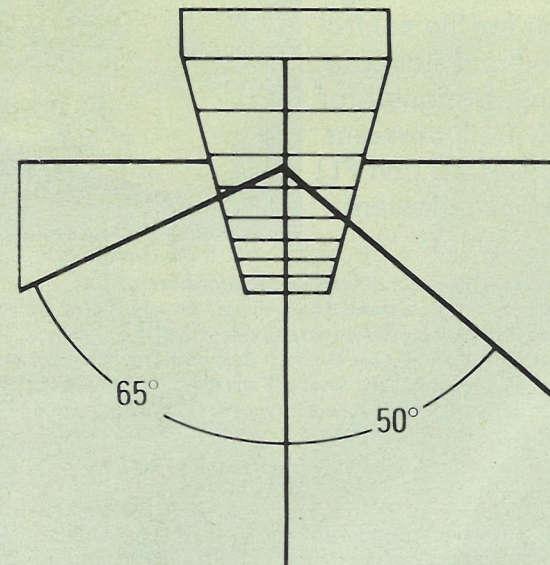
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Angles of limitation — Osram-GEC recommends 50° where VDTs are prolific, 65° for areas where they are less prevalent.



into account the requirements of VDT users has led to the identification of three different office environments, categorised in relation to the frequency of VDT use.

The high-tech office, for example data processing or accounts departments, has VDTs in prolific use, essential to the efficient functioning of that office.

A second environment is the typical modern office where VDTs are in use, but not constantly, and not on every desk. A third environment is the general office, where few VDTs are in use.

### Controlling screen glare

Where VDT screens are in use, whatever the frequency, it is important to control veiling reflections. They are caused by high luminance contrast and result in characters on screen being difficult to distinguish. Extensive research has shown that if a luminance limit of  $200\text{cd/m}^2$  is imposed on light visible on the screen, veiling reflections are minimised.

In offices where VDTs are in prolific use, it is essential that freedom of screen positioning is achieved to minimise veiling reflections. Therefore, a brightness limit and light cut-off angle are applied to luminaires.

A maximum brightness of  $200\text{cd/m}^2$  is generally agreed. As a company, Osram, in line with continental Europe, works to a cut-off angle of  $50^\circ$  from the vertical in axial and transverse planes, although Lighting Guide No 3, about to be published by the Chartered Institution of Building Services Engineers, recommends a cut-off angle of  $55^\circ$  through the full  $360^\circ$ .

However, a  $50^\circ$  angle restricts the light distribution of the luminaire and results in poor space/height ratios, necessitating a high number of luminaires. Accordingly, in the typical modern office, where VDTs are present but not in prolific use, the angle at which the  $200\text{cd/m}^2$  limit is imposed can be relaxed to  $65^\circ$ . This still provides good opportunities for screen positioning without veiling reflections occurring, and allows good space/height ratios, reducing the number of luminaires required.

Discomfort glare occurs when parts of an interior have a much higher luminance than the rest, and luminaires are an obvious source of the problem. The glare index system provides a method of calculation of discomfort glare; to



Cellular offices require luminaires that balance optimum performances with user comfort.



Where VDT screens are used, veiling reflections must be controlled to ensure user comfort.

that the direct luminaires are strictly controlled and the indirect luminaires do not create bright spots on the ceiling or on the louvers of the luminaires. The indirect luminaires can be used either to contribute to illuminance levels on the working plane, or to increase the general lighting level if it is felt necessary to offset any feeling of a gloomy environment.

Where a single luminaire is to provide both the direct and indirect component, an obvious solution is a suspended fitting. The viability of this solution is dependant on the ceiling height, as it is essential that the average luminance on the ceiling created by the indirect component does not exceed the luminance limit of the direct component.

### Direct/indirect lighting

A suspended fitting with a flux fraction ratio of 70% downward and 30% upwards provides an effective solution, although care must be taken with minimum suspension distance in order to limit ceiling luminance.

Another alternative is a free standing or furniture integrated luminaire. Here, the direct component can be used for providing

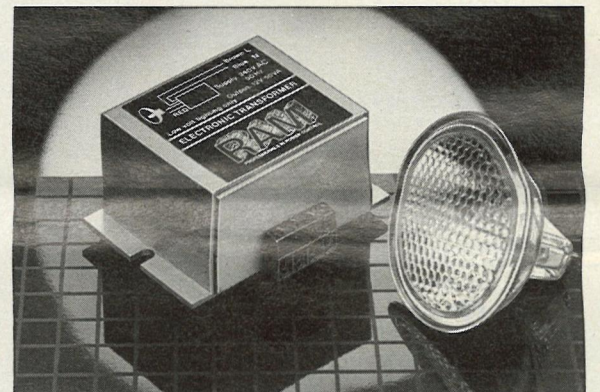
uniform illuminance on the desk while the indirect component provides general lighting. The growth in the systems office furniture market opens up possibilities for complete furniture/luminaire integration, including installation of control gear within the furniture, allowing smaller luminaire design.

Systems of direct/indirect lighting are best suited for office environments with VDTs in prolific use as they allow strict luminance control to be combined with balanced luminances on ceiling, walls and desk.

Future office lighting projects are likely to see more widespread use of compact metal halide lamps, particularly in direct/indirect luminaires, both recessed and suspended. The recent introduction of high frequency electronic control gear for these lamps, offering instant hot restrike, makes them an even more attractive proposition.

There will also be an increasing use of sophisticated daylight systems that reflect direct sunlight and refract daylight deep into a building. Such systems have great potential, providing a comfortable environment while being highly efficient.

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ensure that end-user comfort is achieved in a general office environment where no VDTs are in use, the glare index must not exceed 19.

This figure is primarily affected by the performance of a luminaire, and use of a prismatic diffuser, with its high surface brightness, usually results in a glare index reading far in excess of 19. Therefore, in such an environment, a profiled low brightness louvre designed to limit discomfort glare, should be used.

### Future developments

It is evident that currently available lighting systems provide performance suited to varied office environments. But what of the future? It is expected that the number of computer screens in use will double again in the next 3-5 years, increasing the number of offices where VDTs are in prolific use. This will require the use of more luminaires with a very strict luminance limit.

Unfortunately, as well as having relatively poor space/height ratios, such luminaires can also create the impression of a gloomy environment. This is because light distribution at such tight angles results in a high luminance contrast between walls, ceiling and

working plane.

Nevertheless, when VDTs are in prolific use it is essential that this strict luminance limit is maintained. But, the introduction of an indirect lighting component will overcome this gloomy appearance, as long as it is critically controlled.

Now, the recent development of new compact form low wattage metal halide lamps i.e 70W and 150W lamps, with a colour temperature of 3000K and excellent colour rendering (Ra 80-89), creates new opportunities for uplighting installations where ceiling luminance can be controlled. To ensure user comfort, the illuminance ratio on the ceiling should not exceed 1:3, minimum to average. Yet even with the use of efficient reflectors, this will necessitate a high number of luminaires.

A more efficient method of providing balanced luminances between walls, ceiling and working plane is an installation that gives both direct and indirect light. This can be achieved either by using separate direct and indirect luminaires, or single luminaires providing direct and indirect performance.

When direct and indirect luminaires are in use, it is important



# Task lights offer another option

This brief review of task lights for offices takes a look at some modern designs.

The trend for using energy saving light sources in task lights continues, in line with the thinking on office lighting generally. The latest designs, however, have progressed from the use of compact fluorescent lamps and are taking advantage of the miniature, tungsten halogen, low voltage lamps. These allow smaller task lights to be designed that occupy a minimum of desk space.

For more details of any of the products mentioned below, circle the Reader Service Number on the reader reply card.

**Anglepoise Lighting Ltd (No. 201)** has extended its range of task lights by the introduction of two low voltage tungsten halogen models. Both the 90LV and the 98LV use lamps with axial filaments for better control of the light.

Both have articulated arms and are available with the full range of Anglepoise brackets, including one for fixing to partitions.

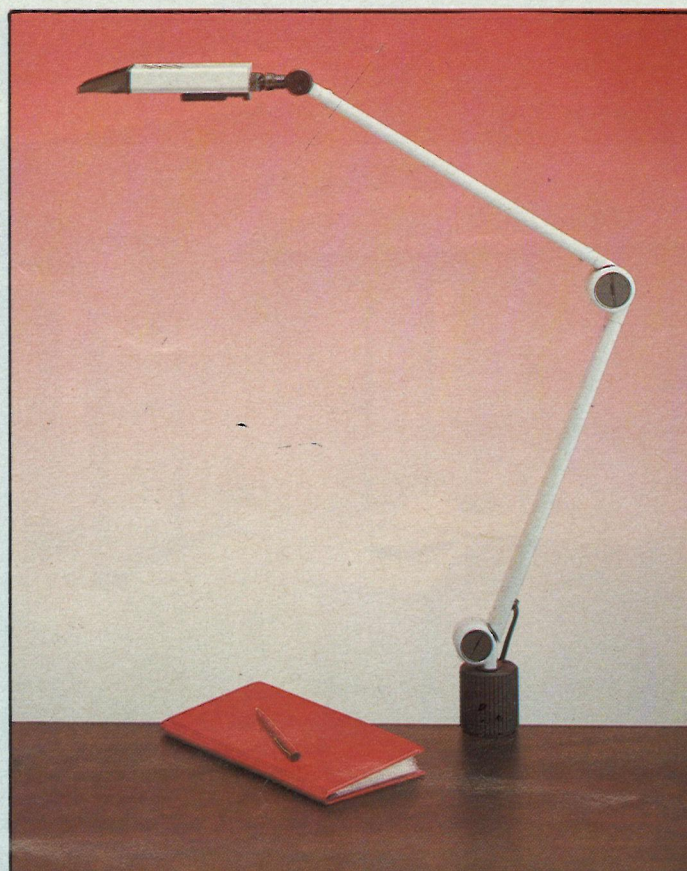
Tizio task light from **Artemide GB Ltd (No 202)** has become a classic of its kind and is on permanent display in the design collection of the Museum of Modern Art

in New York.

It uses a 12V 55W tungsten halogen auto lamp and has cantilevered, adjustable arms in plastic and metal. A special 700mm high pedestal is available to convert the desk light into a floor standing model.

The suggested retail price has just been reduced to £130 (£149.50 including VAT). This reduction was made to bring the UK price into line with that in other European countries, with 1992 in mind.

Among the task lights from **Burwood Lighting Co Ltd (No 203)** is model 228 made by SIS Licht, Germany. It uses an 18W, Dulux L, compact fluorescent



The 98LV low voltage task light by Anglepoise.

In the MIL range of co-ordinated lighting by **Concord Lighting Ltd (No 204)** there are four task lights.

One model has a double jointed arm and clamp for fixing to the edge of a desk. Another is free standing with a single jointed arm. Each is available in two versions, to take either a 20W 12V tungsten halogen lamp or an 11W PL compact fluorescent lamp.

Tablo, from **Lumiance (No 205)**, is a series of three, very slender, low voltage 20W tungsten halogen task lights. A capsule lamp is used in a very tiny reflector that can be rotated to direct the light.

The task lights are called Balance, Clip and Disc according to the type of base.

**Philips Lighting Ltd (No 206)** has a task light for the executive office. Called Harvard, it uses a 12V 50W tungsten halogen lamp which has a protective glass cover and is dimmer controlled.

An unusual suspended task light is available from **Prima Lighting Ltd (No 207)**. Hengelo, a low voltage fitting, has been added to the Trolli system. It can be slid along parallel horizontal cables and its height varied by a cantilever action.



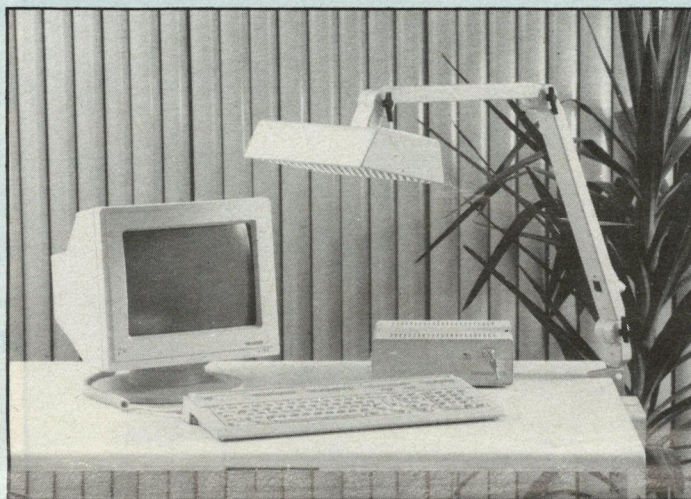
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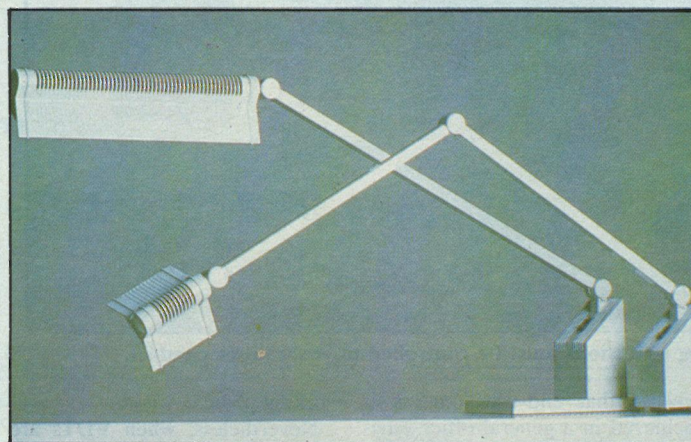
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Louvred, VDU task light from Burwood Lighting.



Two task lights from Concord's MIL range.

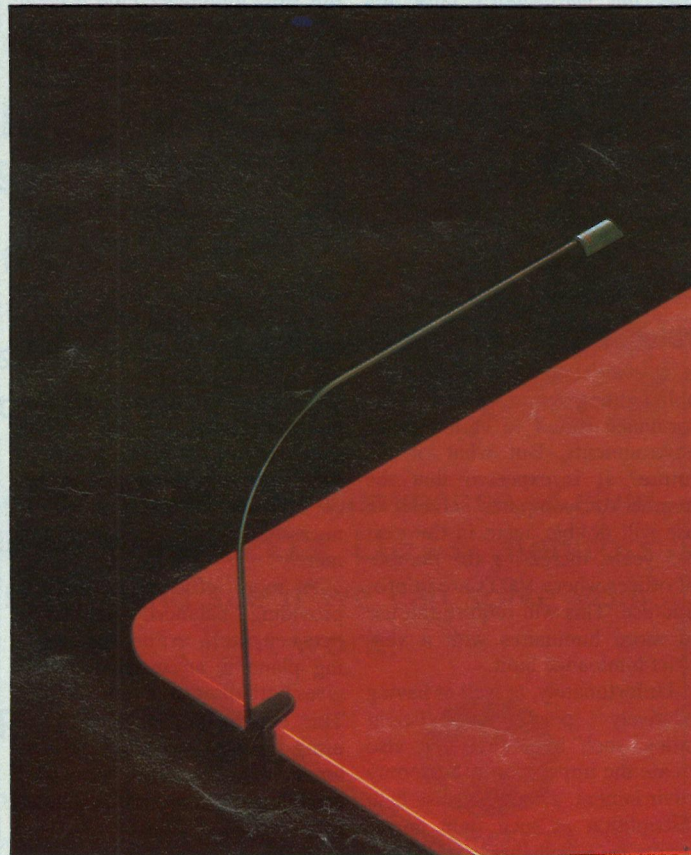
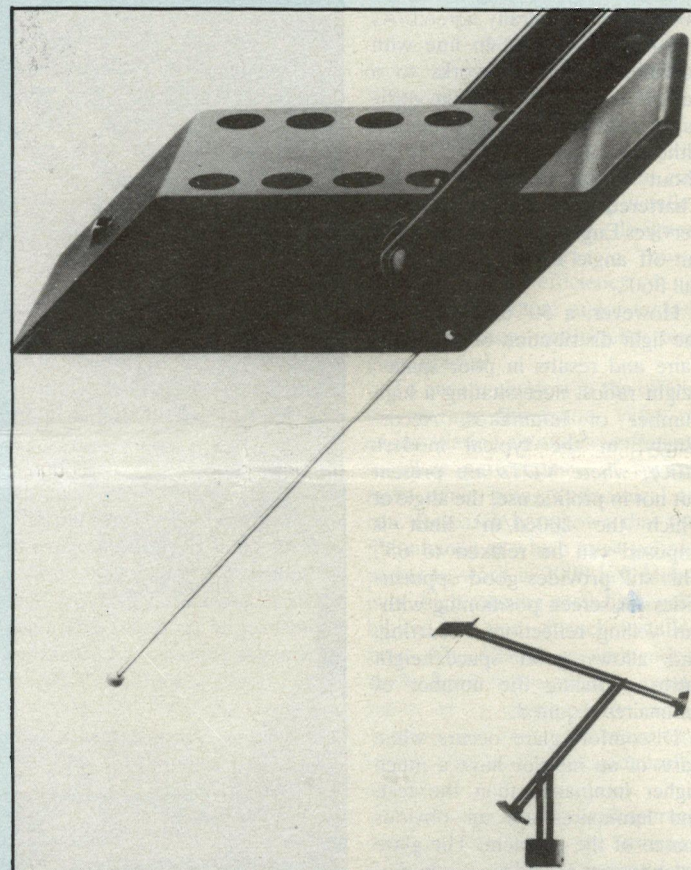
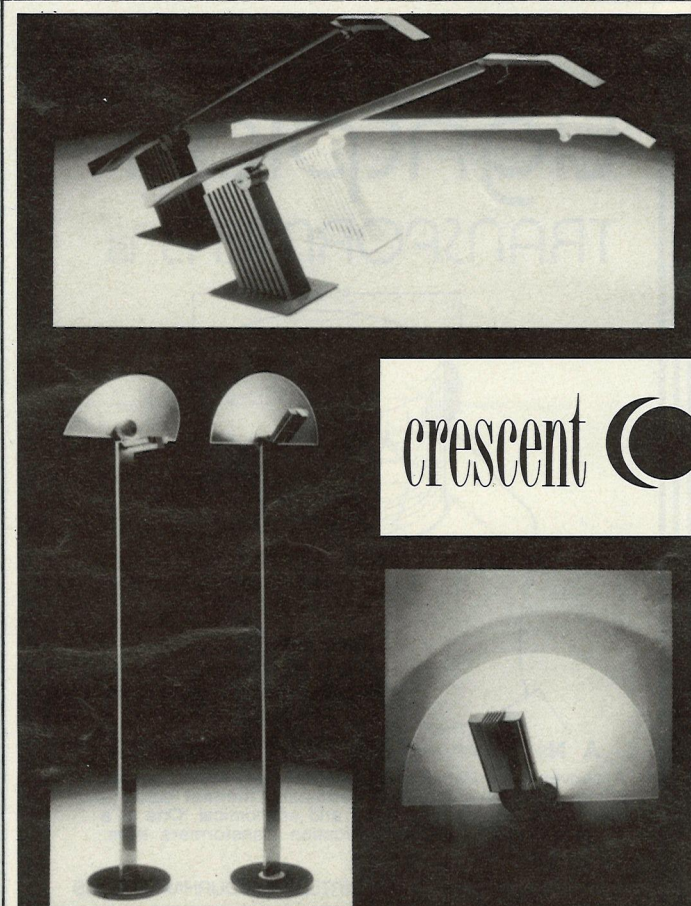


Table Clip light by Lumiance.



Tizio light from Artemide, designed by Richard Sapper.



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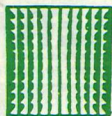
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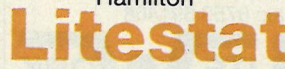
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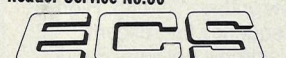
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Manufacturers of all types of  
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to the Trade.

### STANDARD & SPECIAL LUMINAIRES & FLUORESCENT LIGHTING DESIGN SERVICE

**Maxi Engineering Co.,**  
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London SE18 1SL  
Tel: 01-854 3181

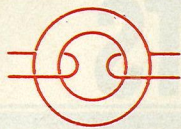
### TERMINAL BLOCKS

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Wellingborough,  
Northants NN8 3ZB  
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Telex: 312620 HYLEC G  
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### TOROIDAL TRANSFORMER MANUFACTURERS

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Sawbridgeworth, Herts.  
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## TOROID TECHNOLOGY LTD

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175a Brigstock Road,  
Thornton Heath,  
Surrey CR4 7JP  
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Telex: 8813271 Gecoms G  
Fax: 01-689 0002

### TOWER/MASTS FLOODLIGHTING

**Towermaster Steelwork Ltd.,**  
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### TRANSFORMER MANUFACTURERS

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Telex: 58646  
Fax: 0642 614178  
Manufacturer of Low  
Voltage Transformers.

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Manufacturers of low  
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Full range of low-voltage  
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**Halogen Lamp Transformers**  
NTP Series  
50VA + 100VA  
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Mitcham  
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Telex: 945414  
Fax: 01-640 6910

## LIGHT SOURCE

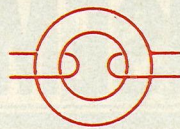
**Light Source Electrical  
Equipment Ltd.,**  
Lightsource House,  
24 Scrubs Lane,  
London NW10 6RD  
Tel: 01-960 2188  
Telex: 915506  
Fax: 01-960 8901



**Skot Transformers Ltd.,**  
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Fax: 0278 792119  
Low voltage transformers.



**Tekcon Electrical Limited**  
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Lamp Transformers (SELV)  
50VA to 600VA rating.



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**Toroid Technology Ltd**  
175a Brigstock Road,  
Thornton Heath,  
Surrey CR4 7JP  
Tel: 01-689 8002  
Telex: 8813271 Gecoms G  
Fax: 01-689 0002

## Tridonic

**Tridonic Ltd.,**  
Unit D1, Grafton Way,  
West Ham Industrial Estate,  
Basingstoke, Hampshire  
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Telex: 858137  
Fax: 0256 840113

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Full range of Toroidal  
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available Ex-Stock.

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### TUBES

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Unit 2,  
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Brass, Steel and Aluminium  
8, 10, 13mm Arms.  
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Fax: 021-6666 148

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Telex: 8951154 Starna G  
Fax: 01-599 5415

### VICTORIAN REPRODUCTION GAS AND ELECTRIC LIGHT FITTINGS

**Sugg Lighting Ltd.,**  
65 Gatwick Road,  
Crawley, Sussex  
Tel: 0293 540111

### WOOD FLOOR STANDARD LAMPS

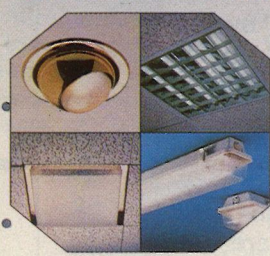
**George Wood Ltd.,**  
Laundry Street,  
Pendleton, Salford  
Lancs. M6 6WJ  
Tel: 061-736 6855

### ZONES 1 & 2 BASEEFA APPROVED LIGHTING FITTINGS

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Bootle  
Merseyside L20 8HG  
Tel: 051-922 0052  
Telex: 629135  
Fax: 051-922 0099

# CATALOGUE DIRECTORY

## CRYSELCO

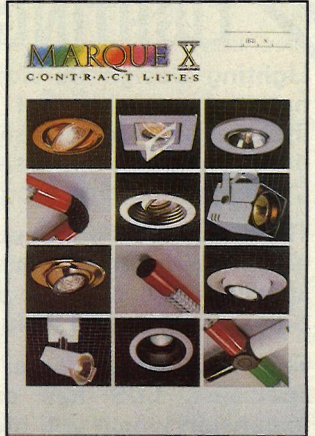


### LIGHTING FOR THE 90's

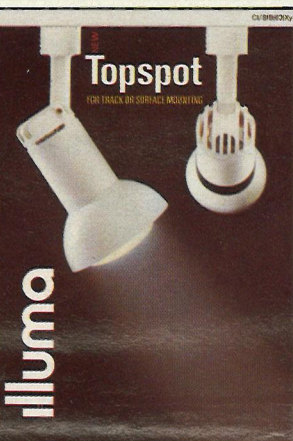
The Cryselco Lighting  
Catalogue offers a range of  
products ideally suited for the  
commercial and industrial  
sectors. Technical information  
is available for modulars,  
sealed fittings, downlights and  
other items. The Cryselco  
catalogue is your guide to  
reliable products from an old  
established lighting business:  
circle 90



Hamilton Litestat has  
revamped its catalogue on  
**MERCURY LITESTAT**  
lighting control equipment.  
Diagrammatic application  
examples have been introduced  
to assist client, specifier,  
wholesale and contractor alike  
when selecting a system for a  
project. Additionally a matrix  
table of type references and  
loads is provided: circle 91



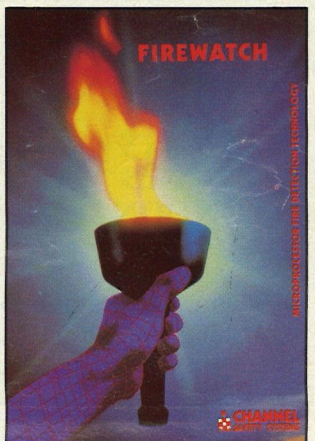
Marque X's catalogue,  
formerly loose leaf, is now  
printed in book form. To the  
available information has  
been added details on the  
new Compact Cabinet  
Downlight which is aimed at  
the display/shopfitting  
market in particular:  
circle 92



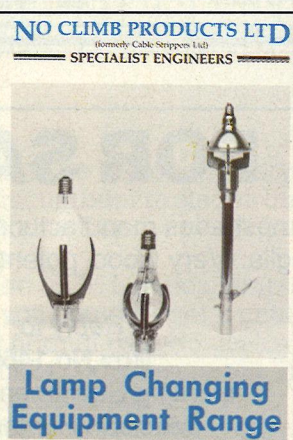
**ILLUMA Lighting**  
publish their new **TOPSPOT**  
range of injection moulded  
Compact Spotlights and  
attachments accommodating  
a variety of lamps (150W  
max) for track or surface  
mounting. The range includes  
a 2-light bar, a circular 3-  
light ceiling fitting, various  
track packs and are  
attractively packed: circle 93



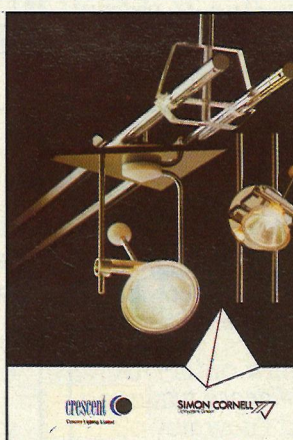
**True-Lite full spectrum  
fluorescent lighting.** These  
unique fluorescent tubes  
simulate the full spectrum of  
natural daylight, provide  
superb colour rendition and  
reduce glare, eyestrain and  
fatigue. Available in a full  
range of sizes they have an  
exceptionally long life with  
an 18 month warranty:  
circle 94



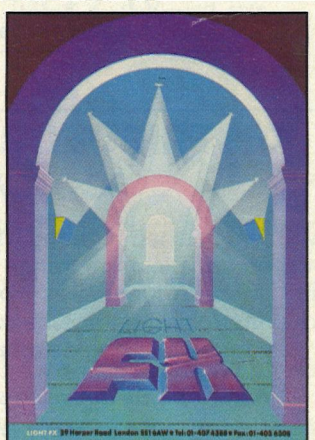
**'FIREWATCH'** is fully  
intelligent fire detection  
system capable of monitoring  
addressable fire sensors.  
Precise locational data is  
clearly displayed on all  
'alarm' conditions, and the  
selected response to each  
condition pre-programmed to  
meet the requirements of the  
site. Channel Safety Systems  
Ltd: circle 95



No Climb Products produce  
a range of lamp changing  
equipment comprising a  
series of inter-connecting  
insulated poles with three-  
fingered grabs for changing  
any lamps up to 30 feet high.  
The apparatus saves time and  
expense, avoiding the cost  
and disruption of having to  
hire/buy and set up scaffold-  
ing or platforms: circle 96



Crescent Lighting introduce  
the Simon Cornell profession-  
al low voltage system. Based  
around super-pure aluminium  
rods capable of handling up  
to 290 amps, the system is  
ideal for retail and display  
application. Corner pieces  
both horizontal and vertical  
enable virtually any design to  
be realised using up to 75W  
Dichroic lamps: circle 97



As an independent company  
**LIGHT FX** are able to offer the  
client unbiased assistance in  
fulfilling the lighting needs of a  
particular concept. Our ability  
to be flexible permits us to focus  
attention to the exact  
requirements of a project from  
low voltage downlights to  
custom designed and  
manufactured luminaires built  
to British Standards: circle 98

To advertise  
your Catalogue in this directory  
contact Joanne Barker on 01-975 9759 ext 1154.



## LIGHTING MANAGER — LEEDS

Lighting Design Services is a specialist enterprise backed by the national resources of STC Distributors. Its strength lies in its independence in advising all clients of the best solution to their lighting needs, whether this means utilising many of the franchises held by the Company, sourcing product afresh, or modifying current luminaires.

The Manager of our Leeds operation will take responsibility for a well-established lighting business based on a wide customer mix from specifier to contractor and end user. Our premises at Leeds are in a prime position and include showroom and demonstration facilities.

This is a major career opportunity for a sales-orientated lighting specialist. LDS has embarked on a substantial programme of expansion which will include new locations as well as the further development of existing operations. There can be no better time to join the industry leader and reap the career rewards. A highly attractive personal benefits package is available for the successful candidate.

Written applications should be forwarded in confidence to  
**Howard Goodchild, Marketing Manager, LDS, STC Distributors Ltd.,**  
Star House, Potters Bar, Herts EN6 2NS.  
Alternatively for further information, telephone  
Howard on 0707 51177.

**LDS**
**LIGHTING  
DESIGN  
SERVICES**

## Product Engineer (Discharge Lighting)

Philips Lighting Ltd, the World's leading lightmaker, is seeking an individual with appropriate lighting industry experience to fill this post, which has arisen as a result of an internal promotion. The prime areas of responsibility are to provide technical and commercial assistance to the Product Manager, covering all aspects of discharge products (lamps, luminaires and control gear). He/she will be required to develop and or maintain a comprehensive database/library; research product field experience; check the technical accuracy of all documentation; maintain awareness of all relevant regulations, standards and codes of practice; write instruction sheets etc. The Product Engineer must become familiar with the relevant computer systems and gain a basic understanding of the Philips accounting systems.

We offer excellent and continuous training and this post is seen as a stepping stone to a Product Management position. If you wish to be considered, please either forward your C.V. or telephone for an application form to Mrs. P.A. Hayden, Personnel Manager, Philips Lighting Ltd, City House, 420-430 London Road, Croydon CR9 3QR. (Telephone 01-689 2166 ext. 2606).

**Philips Lighting**

**PHILIPS**

## Lighting Sales Engineers

**LONDON  
AREA**
**Attractive Salary  
+ Bonus + Car**

This major, established British company is looking for high-calibre Lighting Sales Engineers to join its expanded UK sales force. Ideally, applicants will have proven sales experience in either lighting or general electrical markets, selling to architects, consultants, contractors, local authorities and electrical distributors. However, candidates with a good basic electrical background who exhibit genuine sales potential would also be considered.

*If you would like to know more about these outstanding career opportunities, write with full CV to:- Richard W. Lowe, Managing Director:*

**McCANN-RECRUITMENT**

1266, Warwick Road, Knowle, Solihull, West Midlands B93 9LH.  
Telephone: Knowle (0564) 779321.

**WANTED:**
**A LIGHTING ENGINEER**
**WHO IS LIGHT YEARS AHEAD OF THE REST**

Light Years, the fastest growing manufacturer, design specifier and supplier in the industry, is looking for a lighting engineer to cover London and the home counties who, like Light Years, is one step ahead of the pack.

Essential requirements, a natural ability to negotiate with architects and designers; to create imaginative but cost effective lighting schemes and get them specified.

The Light Years' team is professional, dynamic, enthusiastic and backed by vast experience and reputation.

The successful applicant will be a good team worker with a broad lighting product knowledge and proven customer base.

There is an exciting future in a rapidly expanding company for the right person. Excellent salary and benefits, including medical insurance, pension scheme and car. Write with your C.V. to John Barnett, LIGHT YEARS, 4 Hutton Grove, London N12 8DS. Tel: 01-446 6021.

**LIGHT  
YEARS**
**Hitech**
**CUSTOMER SERVICE  
CONSULTANT**

Are you dedicated to providing "customers" the highest levels of service? . . . We are and thus require like thinking individuals to provide a technical support level second to none.

You will need excellent communication skills and be acquainted with IEE and IEC 598 standards. Applicants will ideally have experience in technical sales within the lighting industry and possess good administration abilities.

Based at our Head Office, this position offers excellent prospects within one of the most progressive companies in this industry.

Write or fax your CV to:

**Mike Warner**

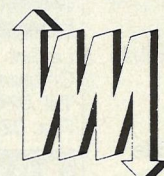
**Director of Operations**

**Hitech Lighting plc**

**Tower House, Lea Valley Trading Estate**

**Edmonton, London N18 3HR**

**Fax No: 01-807 8594**


**MARWOOD ELECTRICAL COMPANY LIMITED  
SPECIALISTS IN LIGHTING**

Has a requirement for

**A Lighting Design Engineer**

Based at Paddock Wood in Kent. Will be required to produce schemes for both interior and exterior lighting and to advise clients on technical aspects.

**A Sales Engineer**

To cover London and the South East. Must have a good knowledge of interior lighting.

Both positions offer good prospects for the right person

Write giving details of C.V. to:

**The Sales Director, Marwood Electrical Company Ltd.,  
Paddock Wood Distribution Centre, Paddock Wood,  
Tonbridge, Kent TN12 6UU**

## DISTRIBUTOR REQUIRED SCOTLAND

A well established lighting distributor is required to represent an exclusive range of award winning, high quality, modern luminaires from Europe. The company gives a first class service backed by excellent literature and a major advertising campaign.

Write with full details in strict confidence to:

**Marketing Director,  
Opus Lighting Limited  
58 Mount Ephraim,  
Tunbridge Wells,  
Kent TN4 8BB**

## FOR SALE

Small lampshades manufacturing business based in East Anglia. Very good potential. Priced for quick sale.

Reply to:

**Box No 1469**

**Lighting Equipment News,  
Maclean Hunter Ltd**

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

## SALES REPRESENTATIVE

Leading manufacturer of exterior lighting requires an experienced, energetic and highly motivated sales professional with a proven track record in sales to architectural practices, Local Authorities and electrical wholesalers.

The successful applicant will manage and develop an area centred on the East and West Midlands but extending south to Berkshire. Our client offers a competitive salary plus commission plus company car.

If you feel you have the qualities for this challenging career, please send career details to Paul Jackson at the address below.

**Jackson Pascoe Recruitment  
7 Hill Rise, Richmond, Surrey TW10 6UQ**

**GENERATORS &  
TOWER LIGHTS  
from 1/2 to 80 kW**


**BRIMOTOR LTD.**

Clarence Works, 30A Church Road,  
Tunbridge Wells TN1 1JP Kent Tel 0892 37588 Telex 95446

## AGENTS/DISTRIBUTORS REQUIRED

for all areas of the UK for Kinkeldey range of Lighting/Ceiling systems. High quality West German made products. Please write with all relevant details including geographical limits, existing agencies etc. to the sole UK representatives.

**Eurolighting Ltd, Units 13/14, Trent Trading Park,  
Botteslow Street, Hanley, Stoke On Trent ST1 30Y.**

**TO BOOK SPACE  
CONTACT JOANNE BARKER  
ON 01-975 9759**

**NOT RONALD  
DURY AGAIN?**



# LETTERS

## Lest we forget

Regarding LIF Line — **The Lighting Revolution 1969 — Onwards** (*LEN* August), is it not time that somebody threw a lifeline to LIF because of the important facts that were either omitted or understressed.

Surely the basis for 'good lighting practice' is to be found in the CIBSE Code for Interior Lighting, other CIBSE guides etc., Publications of the Institution of Lighting Engineers (ILE), the BSI and government departments, all of which are non-commercial independent bodies. There were 13 forerunners of the CIBSE Code, the first of which was published by the Illuminating Engineering Society (now merged into the CIBSE) in 1936, under the title *Recommended Values of Illumination*.

Apropos trade associations, the importance of whose activities cannot be discounted, I am amazed that no direct mention is made, in the LIF Line, of predecessors such as the Electric Lamp Manufacturers Association (ELMA), EDLAC and the British Electrical Development Association — also, last but not least, the British Lighting Council (BLC). ELMA was set up after the first world war and in 1924 it established in London and in Glasgow Lighting Service Bureaux. The one in London was housed in the original BBC — 2LO Studio (part of the IEE HQ) at 2, Savoy Hill. It was here that illumination design courses for engineers and conferences for architects on electric lighting were organised. Many lighting specialists owe their career advancement to attendance at courses and receipt of handbooks, arranged by the ELMA Lighting Service Bureaux. The premises were open for daily visits and information was dispensed by the qualified staffs, always present. The bureau were maintained by the manufacturers of British-made Electric Lamps sold under the brand names of Osram, Mazda, Royal Ediswan, Siemens, Philips, Crompton, Metrovick, Elasta and Cryselco.

Subsequently, the educational work of the ELMA Bureaux was carried out by the British Lighting

Council at Brettenham House, London, and it was sad when this demonstration centre was eventually closed. I wonder how many of today's 'leading lights' realise that just over 80 years have passed since a group of leading lighting men decided at an informal dinner held at the Criterion Restaurant on 9 February 1909, to found the Illuminating Engineering Society.

Mr Philips Honey, who served on the staff of the British Electrical Development Association, wrote a book entitled *Planning Electricity in the house*, in 1965. In it he wrote: 'Forty years ago electricity was only considered by the builder to be a novelty or what one would now term a gimmick . . . some house builders continued to provide points for gas lighting with gas switches as a concession to modernity. What will the world be like in the 1980s — let alone in 2000 AD and afterwards? What fuels will be available to mankind by then?'

During the war the role of lighting was considered to be of sufficient importance to the work of the nation as to warrant the setting-up of the National Industrial Electric Lighting Service by BEAMA, BEDA, CMA, ECA, ELMA, ELFA, IAEPA, IMEA. The Chairman was Sir Duncan Wilson and the Secretary was W J Jones (who recently died and who managed the ELAM LSB).

Much has been achieved by the joint efforts of the professional institutions, trade associations and the technical press. Long may this co-operation continue, but let all concerned be aware of how it all started — after all, history should be a springboard not a divan. For instance, why not have an Annual Lighting Awards Ceremony held at a top London Hotel, at which the results of all the many and varied lighting competitions presently held, could be announced. Such an Oscar Award type evening would bring prestige to lighting research and application and raise the status of the lighting designer in the eyes of the general public.

**J B Harris,**  
Lighting Consultant, Hove, East Sussex.

# NEWS

## Transformer launched

Economy Lighting, the low voltage lighting specialists, have launched a new range of low voltage transformers as a follow up to their ELPAR and ELRO lamps

which are now being sold in Europe, with BLV of Germany acting as main distributors. The company has also recently concluded a sales agreement for the USA, which presents a vast market for the retrofit ELPAR range. A special 50W unit has been developed to Underwriters Laboratory standards for the American market.

## Focus on lighting

Living 1990, a new home furnishings show taking place at the NEC, Birmingham, from 25 May-3 June 1990, offers the lighting industry a opportunity to consolidate its relationship with consumers according to the Decorative Lighting Association which will be producing a special feature for the show.

'Living with Light' will be designed to demonstrate the valuable contribution effective lighting can make to the overall design of homes. "Retail experts are predicting a strong move by consumers towards buying from room sets in the future and manufacturers and retailers within the lighting industry should be aware of this," added DLA director John Tengwall. The exhibition will also cover beds and bedding, textiles, furniture, bathrooms, kitchens, wall coverings and accessories.

## Trade Literature

- **LightGraphix Ltd** has a pocket sized, coloured catalogue of its low voltage decorative and commercial lighting, including illuminated room dividers, tape lights, spotlights and downlights. There is also a range of metal halide luminaires. Details from 0322 22389.
- **Chelsom Ltd** has published a new catalogue of its contract lighting. This edition, covering 70 ranges, is double the size of the previous catalogue. Details from 0253 791344.
- **Vector Lighting** has a folder that illustrates its ability to manufacture special luminaires for specifiers. For details contact 0249 814548.
- **Thorn Lighting Ltd's** brochure entitled *Q series dimmers* explains the company's complete dimming package and lists fluorescent luminaires that can be supplied with dimming gear. Details from Thorn 01-366 1166.
- **Delmatic Ltd** has a 20-page coloured brochure that describes in non-technical terms the wide range of features available from its lighting control systems. As well as being comprehensive and flexible, they are related to occupancy. Contact 01-637 3696.
- **Donn Products (UK) Ltd** describes its suspended ceilings in a new brochure and gives details of lighting that integrates with the systems. Details from Andrew Stanley 091 5861121.
- **Craig & Derricott's** latest 166-page A4 catalogue has been expanded to include a section on electronic sensing devices. Included also are rotary and a variety of industrial switches and indicator lamps. Details from 0543 375541.



## THEY'LL BE REPLACING THE PRESIDENT BEFORE YOU NEED TO REPLACE A LUCALOX

Presidents need to be replaced every four years, even if the incumbent replaces himself. Lucalox<sup>®</sup>, on the other hand, doesn't have to be replaced for five.

So if you installed a GE Lucalox lamp on inauguration day, you could forget it until 1993. Because under normal usage Lucalox has an average lifespan of 24,000 hours, eight thousand of which we guarantee absolutely.

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

The reason for this remarkable longevity is simple.

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

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

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

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

But we wouldn't want you to get the impression

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

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

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

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

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

And London Bridge.

As well as some very high powered factories.

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

Long live long life. Long live Lucalox.

**We don't just sell lamps - we sell expertise**



U.S.A.

**GE Lamps United Kingdom**

General Electric Technical Services Company Inc., Lamp Dept. 10 Prospect Way, Royal Oak Industrial Estate, Daventry, Northamptonshire NN11 5PL. Tel: Daventry (0327) 77683. Telex: 311684. (not connected with the English company of a similar name)

### Celebration Outdoor Lighting

A RANGE OF LIGHTING SETS, LAMPSETS AND HARNESES AVAILABLE IN RETAIL DISPLAY PACKS

TUNION celebration lighting products: -  
IDEAL FOR PATIOS, GARDENS, BARBECUES AND OUTDOOR CHRISTMAS TREES!

(To BSS where applicable)

**GEORGE TURNOCK LTD.**  
Green Lane, Walsall, West Midlands WS2 8HT  
Tel: 0922 24966/24365  
Telex: 336714 TUNION G



Since 1968 people have been taking to the streets to try and change the system.

The first demo took place exactly 20 years ago, in the old part of Pavia, northern Italy. It was during the XIV Triennale di Milano festival that public opinion was made aware of the need for a new public lighting system. That made the most of important inner-urban areas.

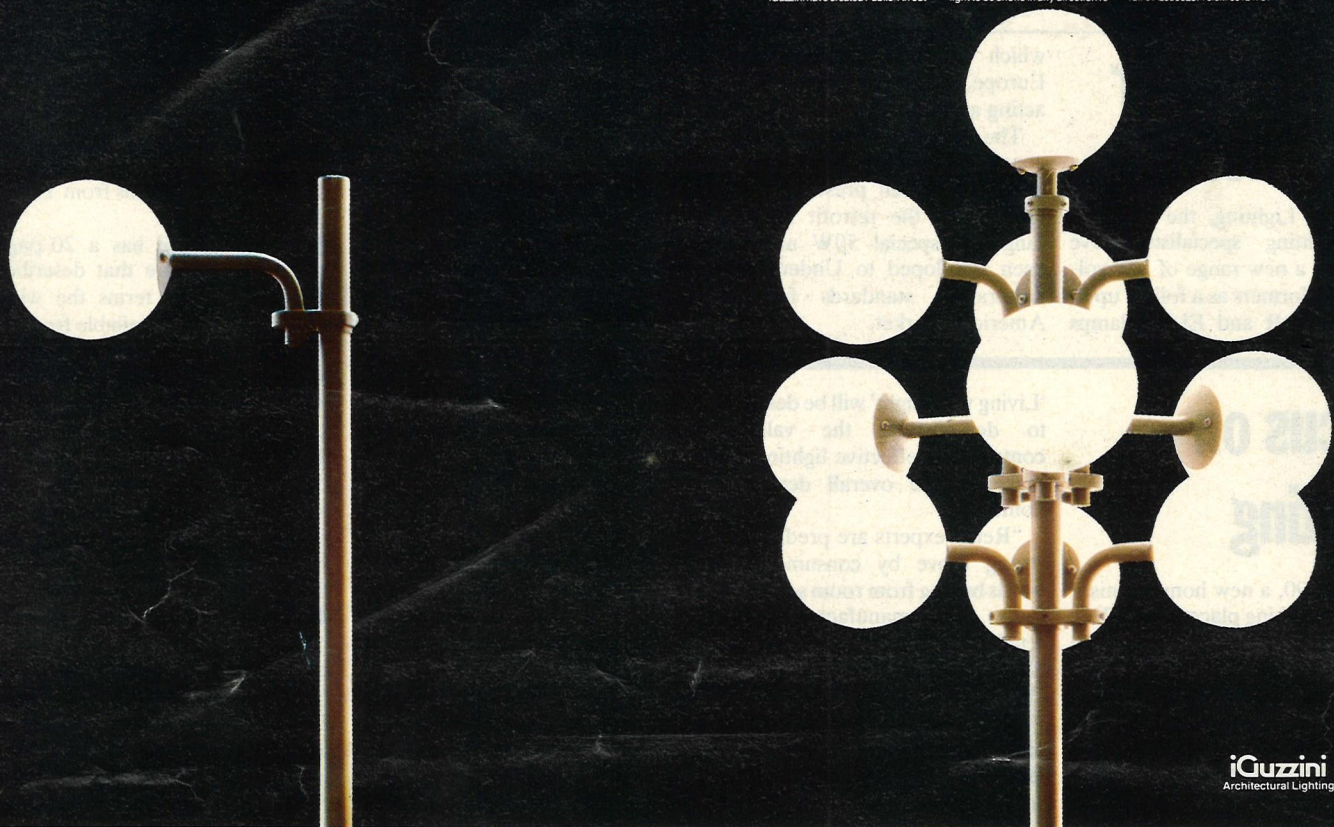
Today, to combat certain shady doings in some parts of the city, iGuzzini have created Public. An outdoor illumination system for pedestrian and mixed-use zones: crossings, streets, parks and squares.

Public is a new way of managing urban design thanks to poles that allow the mounting of single, or bunches of lamps.

The light sources are fitted with adjustable optical appliances. And their asymmetrical shades allow the light to be shone in any direction required.

The materials, production technology and dimensions of Public make it all-weather resistant and vandal-proof.

So, if you would like to see some light shed on certain aspects of urban living, write to: Forma Lighting Ltd, Units 310-311, Business Design Centre, 52 Upper Street, London N1 0QH. Tel: 01-2886025 Telex: 8812473.



## LIGHTING EQUIPMENT NEWS



## Really useful floodlighting

The Really Useful Group has cleaned up and floodlit the Palace Theatre in Cambridge Circus, London. Lighting Design Partnership designed a low voltage scheme and Light Projects made specially designed luminaires in only three weeks.

Each of the low profile, fixed focus luminaires has an integral transformer. The units are small enough to be mounted inconspicuously in pairs on each window sill. A total of 158 12V 50W PAR36

fittings has been installed.

Statues at roof level and twin cupolas, which are major features of the front of the theatre, are separately illuminated by similar luminaires mounted on the roof.

All the luminaires can be dimmed from two dimmer racks controlling 32 channels. The system can be operated either manually or fully automatically for dramatic effects. The lighting is further controlled by a photocell and seven-day timer.

### LOW VOLTAGE DESIGNED FOR YOUR CLIENTS. ENGINEERED FOR YOU.

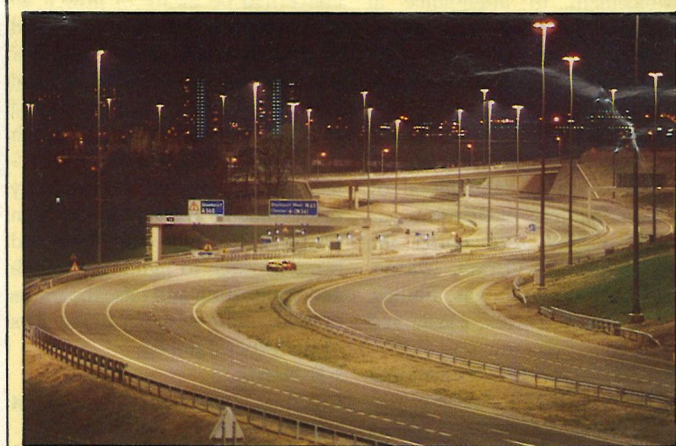
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High mast lighting for part of the new M63/M66 Portwood to Denton extension of the Manchester outer ring road has been supplied by GEC Street Lighting. This 6km length of motorway is part of a £160 million scheme to ease traffic congestion. Thirty-two 30m high masts carry from six to ten variable-optic lanterns housing 400W SONP-T Plus high pressure sodium lamps. At the request of consultant engineers Ward, Ashcroft and Parkman each mast is fitted with an aluminium skirt around the lantern array to improve the daytime appearance. Main electrical contractor was Balfour Kilpatrick.

## Ice and light

The redevelopment of Hull docklands includes a new Olympic-sized ice arena.

Since its completion in late 1988 the Humberside Ice Arena has had over 300 000 visitors. The facilities offered include seating for 2000 people, a cafeteria and bar, as well as tuition in figure skating and ice hockey.

Discharge luminaires from Crompton Lighting provide gen-

eral lighting above the rink. Approximately 90 high bay Crompton Pacemaker luminaires have been installed. Parabolic reflectors direct the light from 400W SON high pressure sodium lamps on to the ice.

A selective switching facility allows the easy control of lighting levels. Starting at an economic level of 300 lux for practice purposes, illuminance can be increased to an almost shadow-free 1000 lux for competitions, galas and ice hockey matches.

## IN YOUR NEXT ISSUE

Lighting for theatres and concert halls will be one of the principal topics considered in the October issue of *Lighting Equipment News*. Stage lighting is a speciality in itself and articles will discuss

recent installations.

There will also be another look at the implications of 1992. We will be putting the spotlight on the marketing of professional services in Europe.

# Lumiance

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