

# LIGHTING EQUIPMENT NEWS

22 JUN 1989

JUNE 1989

## Retailers can improve safety standards

The Decorative Lighting Association wants domestic lighting retailers to secure a written declaration from suppliers as part of its drive to improve standards of electrical safety and construction quality.

Those who do so will protect themselves against legal action from trading standards officers or from consumers who may have fallen victim to faulty fittings.

Retailers are recommended to confine their buying to suppliers who belong either to the Code of Practice, the DLA/BSI Double Indemnity Scheme, or to those who can give independent certification from an approved laboratory. This would force suppliers to improve their safety and produce luminaires to the requirements demanded by the schemes.

The DLA's recommended wording is:

"Goods supplied conform with the laws and relevant safety standards as applicable covering electrical and general safety of products."

"We are participating members of the DLA Code of Practice Safety of Lumaires Scheme and give full assurance on quality control and electrical safety."

Retailers received copies of the recommended declaration, and eight conditions, at a joint DLA/BSI meeting on safety standards for retailers held at BSI's Hemel Hempstead headquarters in May.

The conditions take in cords and cables, lampholders, switches, labels and traceability, installation

instructions, extra low voltage luminaires, and kit form luminaires.

Urging retailers to help the campaign for safer products, meeting chairman John Tengwall, the DLA's Director, said: "The retailer has absolute power to impose conditions on the supply industry and you wish to purchase safe products. We want you to use your power to the full; we know it will result in good quality control and safe goods."

The DLA was prepared to operate a training programme to teach retailers about the visual checks needed to assess incoming goods, he added.

Retailers receiving faulty goods were, further, urged to contact the DLA in confidence, with the name of the manufacturer or supplier and the luminaire model number.

BSI speakers went into the differences between the DLA's Code of Practice, the DLA/BSI Double Indemnity scheme, and the BSI's own Kitemark, safety mark and full BS 5750 registration for suppliers.

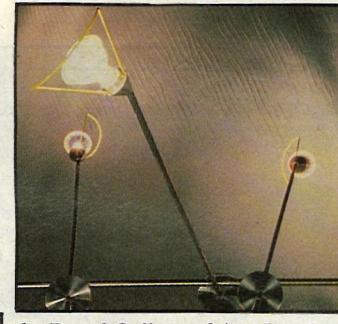
One of the most useful aspects of the meeting was a series of practical demonstrations, showing Code of Practice testing, based on BS 4533, and a 'chamber of horrors' of faulty goods.

Retailers who missed the first meeting can book for a second session, to be held at BSI, Hemel Hempstead, at 2pm on Tuesday, June 13. Free tickets are obtainable from the DLA.

## On the right track

A structural, low voltage, track lighting system has won a Newcastle-upon-Tyne student the 1989 Decorative Lighting Association National Student Designer of the Year Award.

The four-strong panel of judges selected it from over a dozen prototypes submitted at the finals, and hundreds of initial entries, at



the Royal College of Art, London.

The winning design is a track system suspended from the ceiling, and comprises end brackets which support three horizontal aluminium rails. These conduct the electricity from a transformer housed either in the ceiling, or between the rods themselves.

Dichroic halogen lamps on the ends of rods take their power from the horizontal rails. The rods are counterbalanced by offset discs, and a cool handle enables the lamps to be swivelled and adjusted for versatile lighting effects.

The judges thought the Newcastle Polytechnic student's design would be feasible for both domes-

## Winning lights of Emilia



The industrial winner: Vickers Shipbuilding's factory at Barrow-in-Furness.



Commercial winner: Leicester Society's Thurcaston superstore.



Singer-Link Miles' Lancing offices, winner of the new installations section.

## INSIDE THIS ISSUE

News	1,2,3,19,20
New products	5,6
Lighting technology	8,9
Sports buildings: Uplighting indoor sports arenas	10,11
Demountable squash courts	12,13,14
Where to buy directory	15,16,17
Catalogue directory	17
Classified advertising	18
Letters to the editor	19

tic and commercial lighting applications.

Fellow Newcastle Poly student Michael Mailling took the runners-up spot with an attractive uplighter, which provided very effective uplight and ambient downlight using a 150W halogen quartz iodide lamp. The inventive use of materials — ash uprights and ceramic lamp housing and base — particularly impressed the judges.

A wooden desk lamp from Jonathan Ryder-Richardson, a student at Ravensbourne College, London, took third place. The lamp used a 12volt, 50W tungsten halogen lamp. The judges liked the sculptural quality of the design.

The rise in quality and design standards over last year's entries surprised and delighted the judges, who noted an increasing trend towards use of natural materials, and detected an interesting Scandinavian influence in much of the students work.



Reader Service No. 1

Philips Lighting swept the board in the 1988 Energy Management in Lighting Award Scheme, taking the top awards in each of the three categories: industrial, commercial and new lighting schemes.

The competition, which attracted a total of 140 entries, recognises lighting projects that most effectively integrate a high level of lighting performance and outstanding energy efficiency. A particular feature of this year's entries is the number of high frequency fluorescent schemes that have either won an award or been highly commended.

Winner of the industrial section was the new installation for the Vickers Shipbuilding's factory at Barrow-in-Furness, where the new lighting comprising 400W SON lamps in Hermes 3 luminaires, has raised the lighting level in the 17 700m<sup>2</sup> factory by five times without any increase in the installed load of 126 kW.

## Commercial

Leicester Co-operative Society's Thurcaston superstore won the commercial section. Here, the use of 1200 50W colour 83 HF lamps has more than doubled the lighting level while halving energy costs.

In the new lighting section the award winner was the offices of Singer-Link Miles, at Lancing in Sussex. Singer-Link Miles carry out work for the Ministry of Defence. Low glare lighting is provided by the use of HF colour 84 lamps and gear in mirror reflectors with louvres. The most interesting feature of this project is the incorporation of an integrated function system that uses a computer program integrating the particular requirements of the user into the basic program.

We hope to review the winning schemes and the highly recommended installations at length in the July issue of *LEN*.

**HELVAR**  
PRODUCTS  
THAT SOLVE  
PROBLEMS

01-568 6205

## Looking at theatre lighting

A recent one-day symposium in London on *Lighting for the theatre* attracted over 70 people to hear stage lighting experts talk about their work. The audience included those concerned with amateur and professional theatre lighting, engineering consultants and delegates from lighting equipment companies.

Francis Reid was the opening speaker. Francis, without slides or demonstrations, proceeded to capture the imagination of the audience by graphically describing the aims of the stage lighting designer.

He went on to explain that "stage lighting is a fluid, selective, atmospheric, dimensional illumination, appropriate to the style of a particular production".

In the remainder of the first session, two designers, David Taylor



## MAX EFFICIENCY

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

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

Just look at the benefits:

- COMPACT - ONLY 56 x 50 x 28mm
- LIGHTWEIGHT - JUST 100 grams
- RUNS 40% COOLER
- MORE ECONOMICAL - USES 15% LESS ENERGY
- SOFT START EXTENDS LAMP LIFE
- FULLY AUTOMATIC FAILSAFE
- IMPROVED SCREENING
- MORE RELIABLE
- DIMMING VERSION AVAILABLE

### RAM ELECTRONICS

THE PROFESSIONALS IN POWER CONTROL  
Ram Electronics (UK) Limited, Wharfdale House, Iron Row, Burley-in-Wharfdale, West Yorkshire LS29 7DB  
Tel: (0943) 863884 Telex: 578285 RAM(G) Fax: (0943) 862630



AMEMBER OF THE AIR MOVEMENT GROUP

from Theatre Projects and Chris Ellis from Covent Garden and the Theatre Royal, Leicester, talked about particular productions. These ranged from a small scale and intimate production of *Look Back in Anger* to a gloriously extravagant production of Stockhausen's *Donnerstag Austlicht*.

This session indicated the range of possibilities that lighting could provide and served to enforce the message given by Francis Reid. Some of the more recently introduced stage lighting equipment was then demonstrated and explained by Bob Anderson, independent theatre consultant.

This ranged from some of the basic lanterns with remote control colour changers (some quieter than others), through to control boards with an electronic memory

and a VDT. He considered light control media which would diffuse or change the shape of the light beam and stationary and moving gobos; a range of equipment that would make most lighting engineers' mouths water.

The day concluded with André Tammes, of Lighting Design Partnership, explaining the value of stage lighting experience to an architectural lighting consultant. André explained how he started lighting plays and had moved on, through his practice, to lighting hotels, churches and museums.

Lighting for the stage, he claimed, had taught him many things about the lighting of buildings and not least that he should use his eyes and not depend too heavily on an illuminance meter. There were differences too, for example in the theatre the appearance of lighting equipment was not usually a problem.

He went on to describe some of the lighting installations he had been responsible for where stage lighting techniques had been used. These included an hotel reception area where he had used slowly changing lighting to alter the appearance of the space with respect to time of day and natural light, and gobos to project light patterns that created a dappled light effect.

The event, organised jointly by the International Philips Centre for Lighting Education and Research together with the Lighting Division of the CIBSE, the Association of British Theatre Technicians and the Association of Lighting Designers, provided a most enjoyable opportunity for lighting designers from the theatre, and those involved in the more everyday areas of lighting to hear about each other's work.

When the Bartlett School of Architecture and Planning set up the International Philips Centre for Lighting Education and Research in 1987, its aim was to address all areas of lighting and to this end it organises one-day meetings on different lighting topics.

This report was provided by David Loe, director of the Bartlett School of Architecture and Planning.

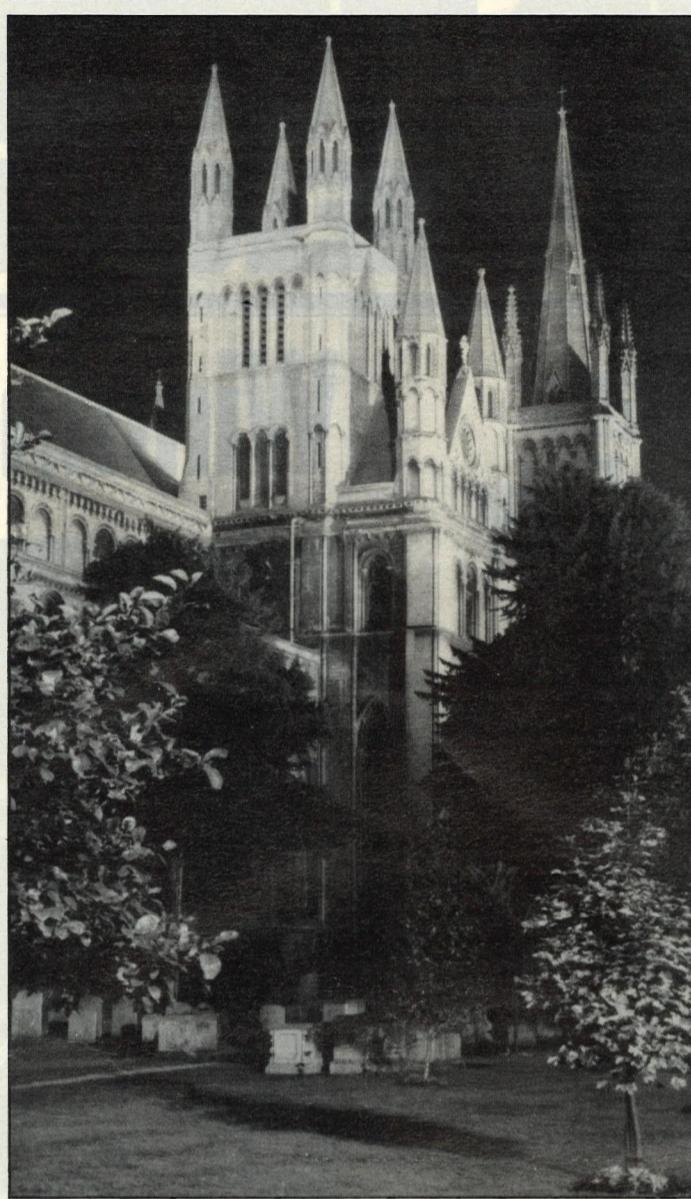
## New batteries help airport

In the event of a mains power failure the airport supervisory system at Birmingham International Airport can now run for up to 16 hours on standby batteries. This is due to Alcad's new Vantage technology. Moreover, the batteries will need no maintenance for the next 20 years.

The supervisory system includes a mimic display in the airport electrical engineer's office showing the state of the airfield's lighting, e.g. items like landing and emergency lights.

The role of the standby batteries is to make sure this vital information is still available in the interval before the airport's standby generators come on-line.

Vantage batteries work on the recombination principle where gas given off during operation is recombined within the cell. Under the non-abusive conditions of the airport's standby system, water loss is negligible and no maintenance is required.



A view of Peterborough Cathedral, floodlit by Osram luminaires fitted with SON deluxe lamps.

## Light years

Peterborough cathedral recently celebrated its 750th anniversary — and a new floodlighting scheme. The anniversary coincided with the completion of a development programme by the former Peterborough Development Corporation, including a new ring road which revealed spectacular views of the cathedral, prompting the floodlighting scheme which was the corporation's parting gift to the city.

Osram luminaires fitted with SON deluxe lamps are used to create a spectacular after dark appearance for Peterborough's famous cathedral. The installation involves Euroflood, Solarflood, Sonstar and general purpose floodlights.

The scheme was chosen by the Dean of Peterborough, the Very Reverend Randolph Wise who, after evaluating several options, judged the attractive golden white light produced by the Osram system as most suitable to complement the sandstone of the Cathedral.

To emphasise the cathedral's architectural features, Osram's engineers used a combination of the long narrow beams produced by tubular lamps with the wider spread of elliptical ones.

The luminaires used for the installation, 52 in total, are rust and windproof, and designed to allow easy routine maintenance. Their contoured shape and neutral colours make for an unobtrusive appearance.

## Kitchens factory uses Crompton lighting

International kitchens and bathrooms manufacturer, Spring Ram, has recently opened a £15 million factory at Scunthorpe, South Humberside. Indoor, outdoor and emergency lighting is by Crompton Parkinson Ltd.

General lighting throughout the manufacturing areas is provided by Pacemaker luminaires. Mounted below the steelwork, the luminaires give approximately 350 lux at floor level using 400W high pressure sodium lamps.

In racking storage areas, Crompton pack battens fitted with single 70W fluorescent lamps and rack lighting reflectors, give downward light angled to improve visibility on the lower shelves.



Lighting in factory area.

Recessed modular fluorescent lighting fittings from the Modulay MY series are installed in offices and corridors. These luminaires have prismatic controllers.

Emergency lighting is by Convex conversion modules fitted in selected luminaires. Exits are illuminated by single-point, non-maintained fluorescent luminaires from the Albany range.

Outside the factory, loading bays are lit by 70W high pressure sodium Galaxy general purpose floodlights.

Office and factory buildings are floodlit using Gladiator fittings containing 400W high pressure sodium lamps.

Watson Norie Ltd designed and installed the lighting scheme.



Currys' Stevenage superstore lit by low brightness fluorescent luminaires specially made for the project by Courtney Pope Lighting. The fully recessed fittings, each with two White 58W lamps, have louvres that give a wide light distribution. Average illuminance is 900 lux. The lighting creates a bright, airy atmosphere for the display of electrical goods while keeping energy costs to a minimum.



## Lighting to suit

Lighting played a major role in the design of Moss Bros' new Regent Street store.

Store design had to take into account two lines of products. First, the traditional Moss Bros business, built on an established image of formal wear, sale and hire; and secondly, Suit Co which sells suits to businessmen of all ages.

Design Consultants, Addison, opened up the shopfront and entrance area, creating two separate trading areas at ground and basement levels, both of which are clearly visible from the street. Suit Co, on the ground floor, is reached by a bridge over the entrance void, and Moss Bros, in the basement, is approached down a full-width staircase that sweeps under the bridge. The eye is drawn immediately to the back of the store by the brightly lit suspended ceiling which encourages customers to enter and explore further.

Luminaires from Reggiani UK were used for both ambient and accent lighting throughout the store. High lux levels were needed

for Suit Co as goods are highly light absorbant. Good colour rendition was also essential as variations in the colouring of most suit cloths are slight. So low-voltage lighting was used throughout the off-white interior to provide a good ambient level of light.

Fittings were to be unobtrusive, with a concentration on effect, so the designers specified Reggiani TE7711 recessed downlighters, which are ventilated to reduce surface temperature, for the suspended ceiling raft. TE3714



Lighting for Suit Co.

recessed adjustable fittings were used for the suspended ceiling circle to provide illumination for the cash and wrap area below.

In the Moss Bros basement, a lower lux level was needed, and accent lighting techniques were used to provide atmospheric lighting for the more formal environment. Reggiani TE3714 fittings provided ambient lighting recessed downlighters which save perimeter lighting to the sale area, finally, semi-adjustable TE3703 eyeball fittings provided sparkle to the display area under bridge.

In the hire department, screens provide partitioning for quiet periods, and can be drawn back during busy periods before society events. A series of photographs depicting the styles of formal wear on hire enable customers to make a speedy choice. Reggiani downlighters were chosen to provide general lighting and adjustable recessed fittings highlight the photographs and provide contrast. The department is sufficiently welcoming to be approachable but does not invite customers to linger.

## Guidance on emergency and security lighting

The recently published *Emergency and security lighting handbook* by Michael Neidle is aimed at all those in industry who have any degree of responsibility for safety and security. Generally, the text is at technicians' level.

The book first lays the foundations of these two subjects by covering fundamentals of light and lighting units, then follows with chapters on lamps and power supplies.

A chapter on emergency lighting describes the different systems, including conversion units, and gives advice on wiring.

The section on security lighting starts with burglar alarms, continues to lighting fittings which directly apply to security lighting and goes on to passive infra-red detectors and closed-circuit television.

Advice on maintenance of lighting equipment, batteries and generators is included in the last chapter, as is emergency treatment for electric shock.

*Emergency and security lighting handbook* is published by Heinemann Professional Publishing Ltd, Halley Court, Jordan Hill, Oxford OX2 8EJ. This hardback book has 120 pages including an index. Price including postage and packing is £17.

## Making light of ceilings

Siemens and metal ceiling manufacturer SAS Holdings have concluded an agreement making Siemens' luminaires available in SAS projects worldwide.

The potential of such a partnership has been recognised since the two companies cooperated on the Lloyds Building in London, a project which required careful design coordination.

## COMMENT

### How green is my castle

EMILAS is about energy saving and, increasingly, about quality of environment. In the words of this year's president of LIF, Barrie Hurst, it implies, "better light for less energy consumed, and a much improved working or leisure environment".

Potential energy savings are considerable, a distinct bonus in these environmentally conscious days. According to an estimate by the Friends of the Earth, if the public sector installed modern lighting systems, followed by industry and commerce in the private sector, and with some knock-on effect in households, these savings could well be in the range of 13-34 TWh. The lower of these figures alone, approximates to the combined output of Hinkley Point and Sizewell A power stations!

So, EMILAS is 'green'. In the long term its success could enable us to get by with less power stations, less acid rain and less in the way of carbon dioxide emissions.

But EMILAS is essentially cost effective, as well befits a trade association with its limited resources. It is aimed at the thousands of major users who consume some 80% of the electricity used annually for lighting in the UK — a government estimated figure of £1.2 billion a year.

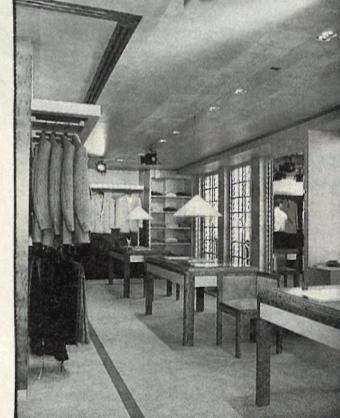
Unfortunately government policy has recently followed suit. In presenting the EMILAS Awards, energy minister, Baroness Hooper, pointed out that the introduction of energy efficient lighting wherever possible could save British business up to £240 million a year.

She then went on to stress the fact that the Energy Efficiency Office would now be targeting its efforts "in areas of key energy use". In other words, other than offering pensioners and others on a low income grants towards insulating their property, it sadly seems that little will, in the future, be done to draw upon the goodwill of thousands of environmentally conscious households — the sort that make weekly trips to the bottle bank and decline to purchase aerosol sprays regardless of convenience.

But, is it the role of government to confine its environmental aspirations merely to the most 'cost-effective'? Shouldn't it rather begin the process of education where most of us spend the greater part of our lives — at home?

And, in the absence of government commitment in this area, is there no-one to point out that energy saving — like charity — begins at home?

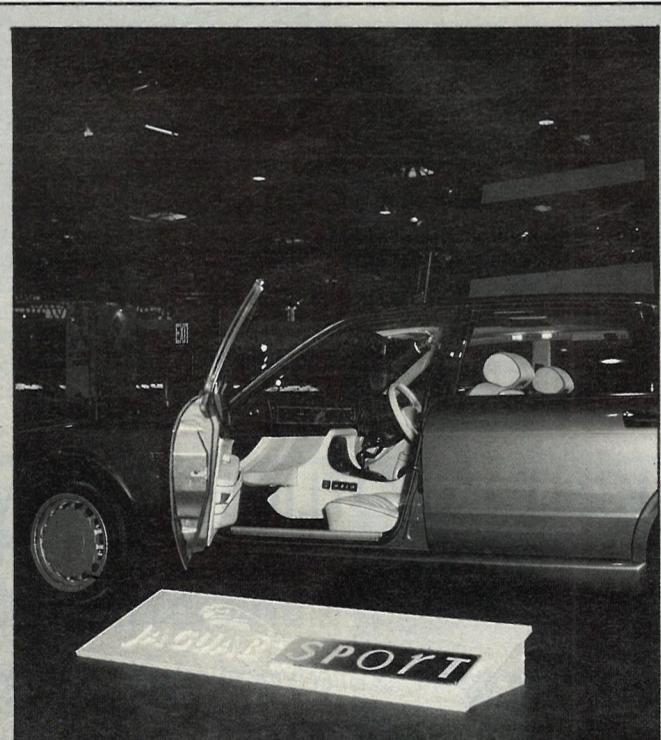
## Highlighting high fashion



Armani chose low voltage.

ing lamps or altering beam angles of fittings. Semi-elliptical holes have also been cut at regular intervals so that additional fresnel fittings can be used to add to the lighting possibilities.

The window lighting scheme provides four fully lit vertical columns highlighting the window display. These columns, 3m high, contain 80 small twinkle fittings utilising 20W low voltage halogen lamps.



When Jaguar Cars were faced with the problem of lighting up vehicles on display at motor shows all over the world, they chose Tru Aim professional low voltage dichroic display lamps from GTE Sylvania. The compact lamps were specified as a safety feature because they are enclosed and there is no possibility of red hot contents showering the interior of the vehicle in the event of lamp failure, putting people at risk and causing very costly damage.

## LIGHTING EQUIPMENT NEWS

Editor: Judy Sewell

Associate Editor: Barbara Trigg

Art Editor: Lorna Francis

Midlands Area Manager: Jim Hughes

Northern Area Manager: Robert Ditchfield

Southern Area Manager: Jim Hughes

Classified Sales: Joanne Barker

Production Manager: Lee Hibbert

Circulation: Kirtee Parmar

Associate Publisher: John Bull

Publisher: Nigel Foster

Directors: R W Osborne, Canadian (Chairman), G J F Brigg (Managing Director), N C G Foster, D L Jones, D B Wright.

Published monthly by Maclean Hunter Ltd,

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

Telephone: 01-975 9759. Facsimile: 01-975 9753

Telex: 299072 MACHUN G. Northern Area Office,

Tel: Cannock (05435) 72771.

Origination by Facsimile Graphics Ltd, Coggeshall, Essex.

Printed by E. T. Heron (Print) Ltd, Silver End, Witham, Essex.

Annual subscription £36 (£3.00 per copy including postage) but free to executives in the UK and Ireland concerned with all aspects of commercial, industrial, public and decorative lighting.

ABC



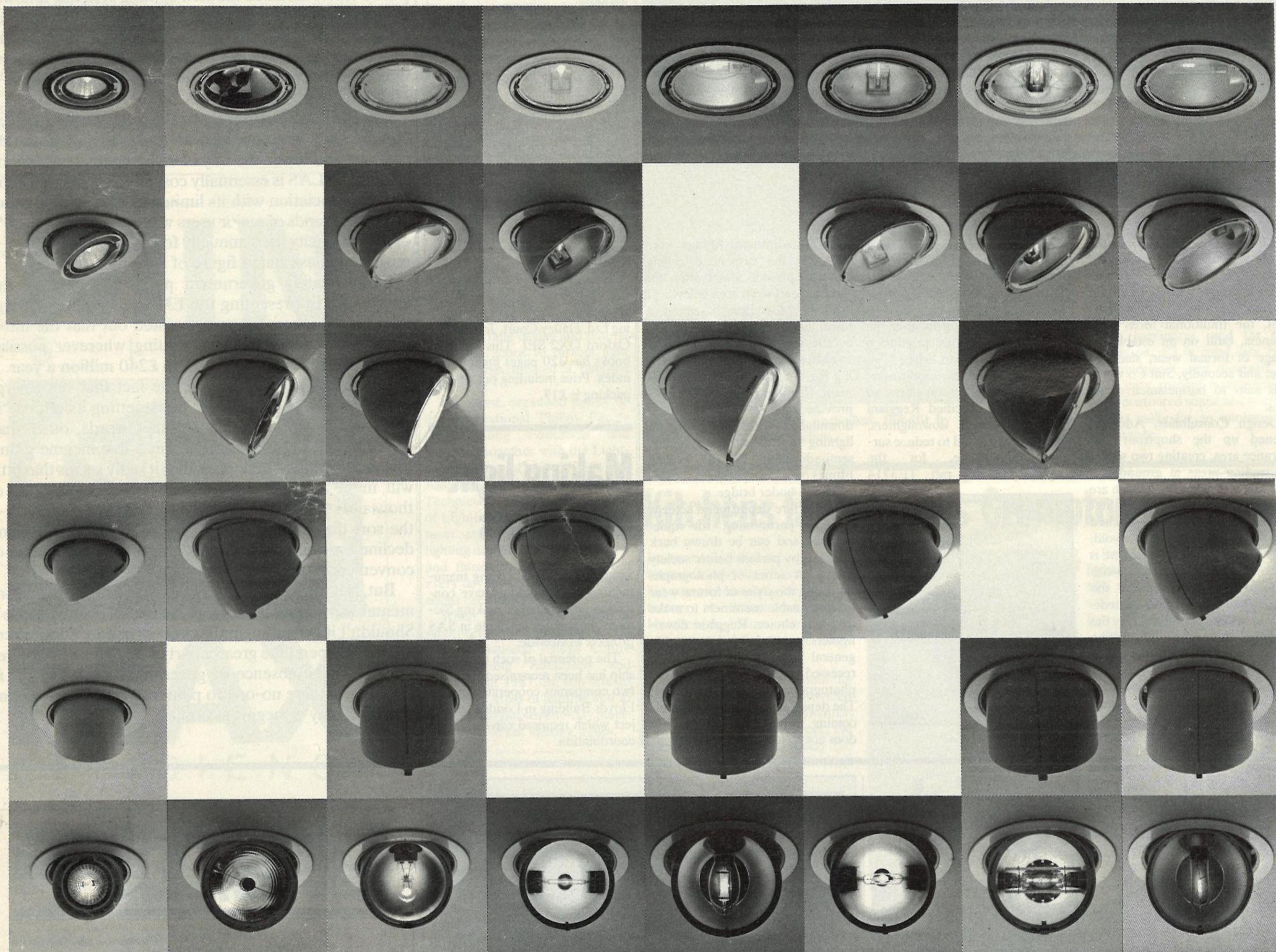
A Maclean Hunter Publication

© 1989 ISSN 0024-3418

# DOWNSPOT

by REGGIANI

Design Fabio Reggiani



Low voltage halogen lamp with dichroic reflector

Low voltage halogen lamp with 111mm metal reflector  
SUPERSPOR

Single ended metal halide lamp  
HQI-T 35/75/150W

Linear tungsten halogen lamp  
200/300W 240V 117mm

Single ended metal halide lamp METALARC,  
100W clear or pearl

Double ended metal halide  
HQI-TS 75-150W

Linear tungsten halogen lamp  
150/250W 240V 78mm

Single ended high pressure sodium lamp  
SDW-T 35/50W white SON

## DOWNLIGHT + SPOTLIGHT = DOWNSPOT

FULLY ADJUSTABLE  $\nabla$  VERTICAL FROM  $0^\circ$  TO  $60^\circ$   $\phi$  HORIZONTAL FROM  $0^\circ$  TO  $356^\circ$



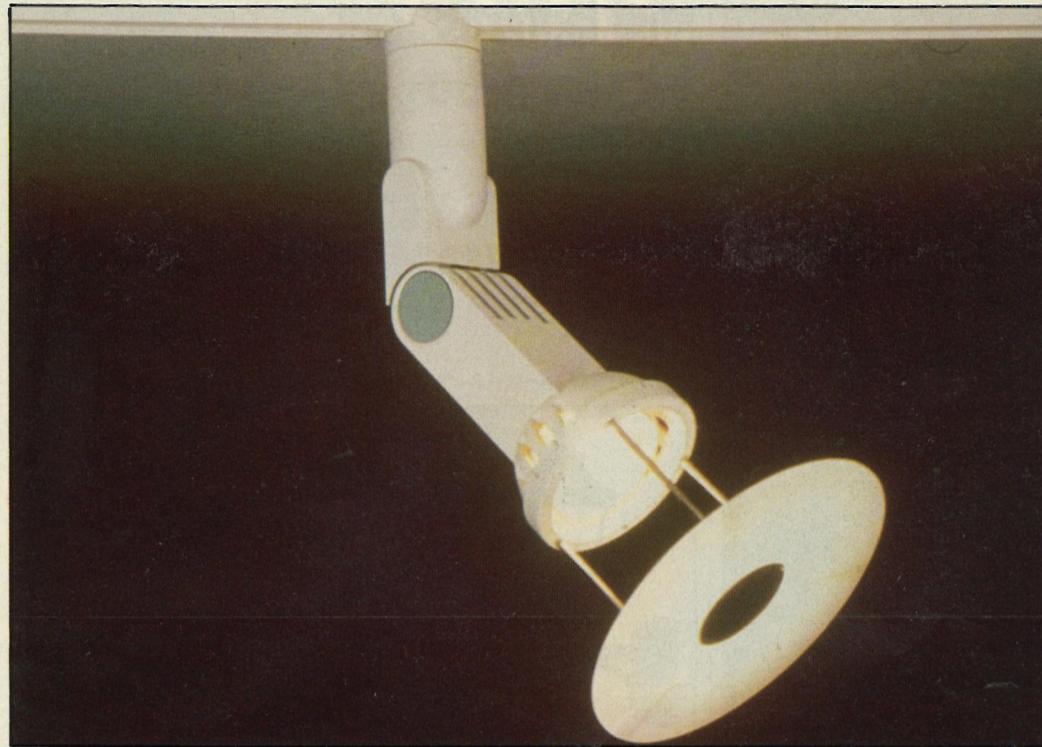
POLYBLOC: new system for mechanical retention of lamp and safety glass.

by REGGIANI  
One model, four sizes, 220 lightsources. Full catalogue containing all technical data available upon request.



ORIGINE DI LUCE

# NEW PRODUCTS



## Miniature low voltage spotlights

Thorn Lighting Ltd has added a third range of products to its Lightstream low voltage series.

Lightstream Aria consists of three products. Aria 50 and Aria 35 are tungsten halogen spotlights supplied respectively with 50mm and 35mm diameter sealed lamps.

Aria electronic completes the range and has an integral electronic transformer for efficient,

cool running. It weighs only 0.5kg.

Surface mounting and track versions of all three are available. They can be used on Concord's Lytespan track as well as Thorn Lighting's track.

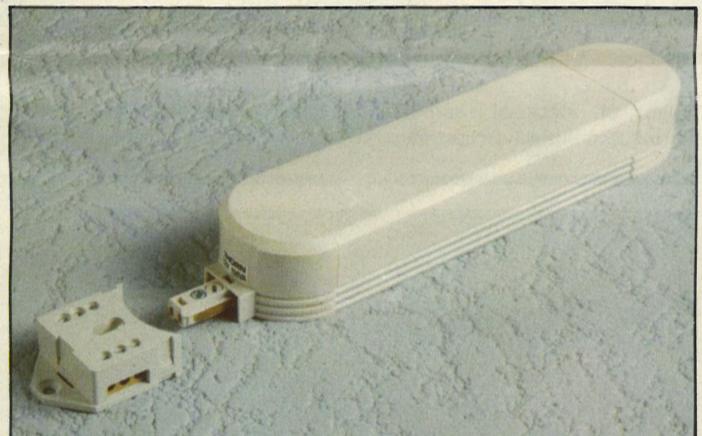
A selection of cowls and attachments change or control the light distribution and add visual interest.

The Finned Cowl screens all

backlight, while the Slotted Cowl allows a gentle wash of light at the back of the fitting. The Cowl Extension, Twin Disc and Half Cowl are for use with Aria 50, and for Aria 35 there is a Dish Flare, Diffuser Disk and Catchlite.

Installation is easy because the surface plate is of two-part construction and snaps together.

Reader Service No. 151



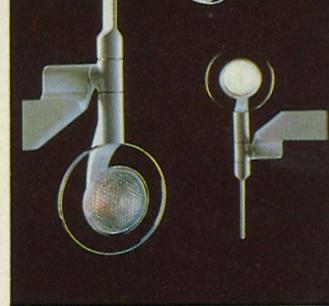
## Plug-in slim transformer

Thorn Lighting Ltd has added a 150W electronic transformer to its range of low voltage products. It is a neat, streamlined, surface mounting design which plugs into Thorn's low voltage track in place of the normal live end.

Reader Service No. 152

Three 50W or four 35W luminaires can be operated off each track length and mains input can either be taken into the back of the transformer case or surface wired. Re-settable overload and short circuit protection are safety features.

The company's low voltage track can now be installed even where there is no convenient void in which to conceal a remote transformer.



## Spotlight has electronic transformer

Erco Lighting Ltd has added to its Optec low voltage spotlight range a model with a built-in electronic transformer.

This transformer has been developed and made by Erco. The lamp can be dimmed down to 10% of light output by a small button on the transformer; it can also be operated from an ordinary dimmer switch on the wall. The transformer is stated to comply with all European test house requirements in respect of radio interference suppression.

The cast aluminium housing of the spotlight is available in a choice



of black or white. Various filters and lenses can be used with the spotlight.

Reader Service No. 153

## LV downlights have decorative glass trim

LightGraphix Ltd has a range of low voltage downlights called Sapphire II which is available in fixed and adjustable versions for dichroic lamps up to 50W.

They have circular bezels in a choice of white, black, silver, brass or gold coloured finishes.

Decorative coloured glass attachments are also available in

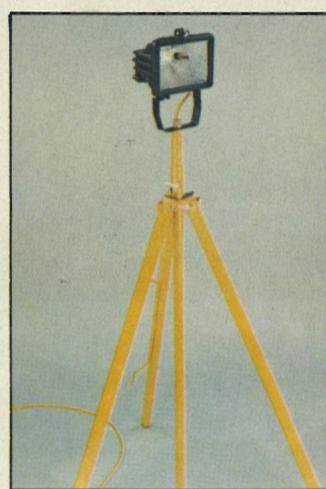
## Floodlight on a tripod

A portable floodlight with telescopic tripod is available from Tamworth Electrical Engineering Co. It is suitable for applications such as building sites, sports events, for agricultural use and factory maintenance.

The Tamworth Site Lite tripod extends from 1300mm high to 2200mm. It is supplied with either a 300W or 500W tungsten halogen floodlight. On request, a 1500W luminaire can be provided. There is also a choice of optional mounting brackets.

As standard, 10m of cable is fitted and a CEE type plug for 110V power supply. A 10m extension cable is available.

Reader Service No. 155



## Photo-electric switch plugs in

To facilitate on-site wiring, Photain Controls Ltd has introduced a plug-in photo-electric switch complete with three-pin "twistlock" socket with weatherproof housing and mounting bracket. Inclusive retail price is £20 (plus VAT).

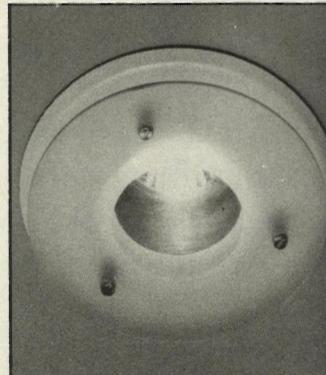
The photocell and associated circuitry, together with contacts capable of switching 5A at 250V a.c. resistive load, are contained in a translucent weatherproof plastic housing complete with three-pin plug.

The housing plugs into the socket to which the mains supply and lighting load are wired and therefore can be removed for maintenance or repair without affecting the wiring.

When daylight falls to 70 lux ( $\pm 15\%$ ) the artificial lighting is switched on automatically. When the level increases to 150 lux ( $\pm 15\%$ ) the artificial lighting is switched off. To prevent switching taking place too rapidly a 60 second time delay is incorporated.

Several lighting points can be controlled by one switch unit.

Reader Service No. 156



pastel shades of pink, blue, green, yellow and white with either single or twin glass.

Reader Service No. 157

# LIF LINE

## Lighting an expanding market

LIF believes that the unprecedented demand for office space in London will continue, just as demand is now increasing in other parts of the country, with supply shortages being reported in all major office centres.

The 3 million m<sup>2</sup> of additional office space planned for the City and the further 2.8 million m<sup>2</sup> planned for Docklands over the next 3-4 years will in turn generate demand for new lighting technology, as will the continuing refurbishment of older premises to accommodate high-technology offices. Changes in office design and technology dictate that more traditional methods of lighting be exchanged for modern methods such as uplighters, HF fluorescent and low-brightness luminaires.

The construction of retail parks as well as town centre schemes will provide ample sales opportunities. Such developments showed a record level of activity during 1987, and the signs are that the trend will continue. The market for superstores (over 5000m<sup>2</sup> sales space) looks buoyant; in 1987 two such developments were completed, the Metro Centre in Gateshead and the Merry Hill Centre, Dudley. Other similar classifications include out-of-town developments, district centres, retail parks and speciality centres such as the Hays Galleria on London's South Bank.

Current developments, or those awaiting planning permission, include 12 sites in central London (130 000m<sup>2</sup>), and 52 suburban sites amounting to 540 000m<sup>2</sup>; 87 sites around the South East, totalling 1.35 million m<sup>2</sup>; 34 South Western sites (540 000m<sup>2</sup>); 21 in East Anglia (240 000m<sup>2</sup>); 50 in the Midlands (740 000m<sup>2</sup>); 17 in Wales, totalling 180 000m<sup>2</sup>; 41 in the Northern areas 560 000m<sup>2</sup>; and 45 in Scotland (530 000m<sup>2</sup>).

Nationwide, that's a total of over 4.8 million m<sup>2</sup> of office space.

Leisure centres, malls, tourist attractions and municipal amenities can be expected to develop in higher-than-GDP expenditure terms over the next five years and it is fairly certain that growth will exceed the current construction industry figure of 8%. Scope for expanding sales within amenity lighting can be described as promising in the short and medium term.

The Sports Council recently assessed growth in civic sports amenities, drawing encouraging conclusions for the future. Some 347 halls have come into use over the past five years, together with 144 swimming pools, 75% of which are of conventional design and the remainder leisure pools. Overall, there has been a net increase of 120 indoor pools, bringing the current total to 1032.

### Local Government spend

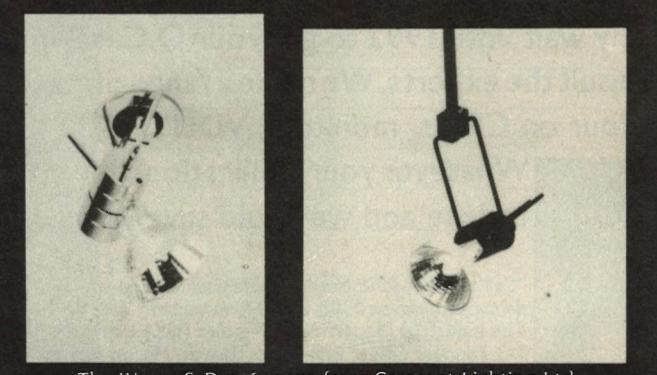
Another reason for optimism is work which the LIF is undertaking on behalf of the industry in promoting security lighting. Under the aegis of the British Parliamentary Lighting Group, the Federation is encouraging the UK's 531 district and county councils to invest more of their annual £7bn capital expenditure in public lighting, not just street lighting but the lighting of precincts, subways, alleys, car parks, and recreation areas.

The object is to ensure that all public areas are lit properly and appropriately to their use. This should augur well for the sale of vandal-resistant bulkheads, floodlights, and illuminated bollards, as well as street lanterns.

In addition to the trends outlined, opportunities will be afforded by the cross-channel rail link planned to open in 1993, the government's programme of urban regeneration, and the fact that we are now entering preparations for a single European market in 1992 with a total catchment of 320 million people. All these will provide strong, real growth in the lighting market over the next few years.



crescent

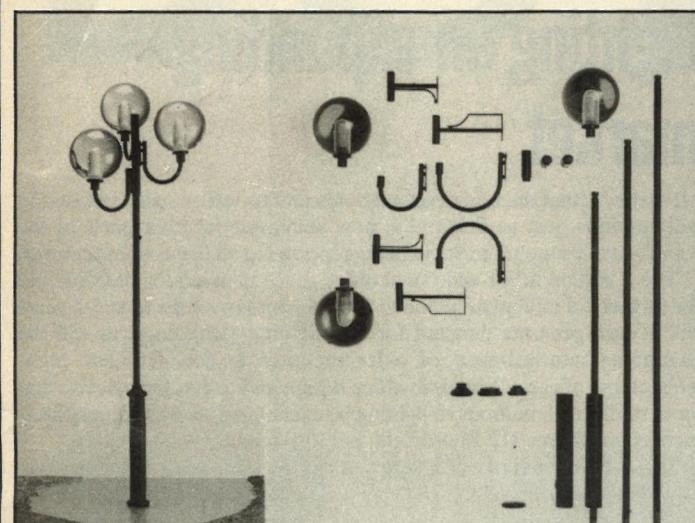


The Wever & Ducré range from Crescent Lighting Ltd.  
8-10 West Mills, Newbury, Berkshire Tel: 0635 36111 Fax: 0635 38090

Reader Service No. 4

# NEW PRODUCTS

## Mix and match columns



Thorn Lighting Ltd has designed a range of aluminium columns as part of its Cityscape amenity lighting collection. From only 19 components, 1800 configurations can be achieved.

Cityscape columns consist of three factory-assembled components: base, finial and shaft. The bases are either fluted or smooth and are attached to the shaft by a decorative finial.

Three finial designs are available, the rounded Town style, geometric City and the Step.

Reader Service No. 158



## Low voltage track system

After Dark Lighting Ltd has a low voltage track lighting system from Switzerland called Yuma.

The wide range of track components using bare rods includes curved corners and level changers, and suspension rods. The tracks simply clip into each other.

Seventeen, miniature, tungsten halogen luminaires are available for use with the system, including pendants, uplights and downlights, as well as a choice of spotlights. They clip onto the track wherever required.

The price of track starts at £18.95 and spotlights at about £24. A range of transformers is also available at prices from £22.95.

Reader Service No. 159

# 1992

## 1990

## WE MAKE MEASURING LIGHT WORK!

Why wait until 1992 to get your Q.C. sewn up? When it comes to measuring light or colour, consult the experts. We make a range of meters to measure Illuminance, Luminance, Kelvin and colour on CRT's, monitors, VDU's, LCD's, LED's, luminaires, fibre optics and much more.

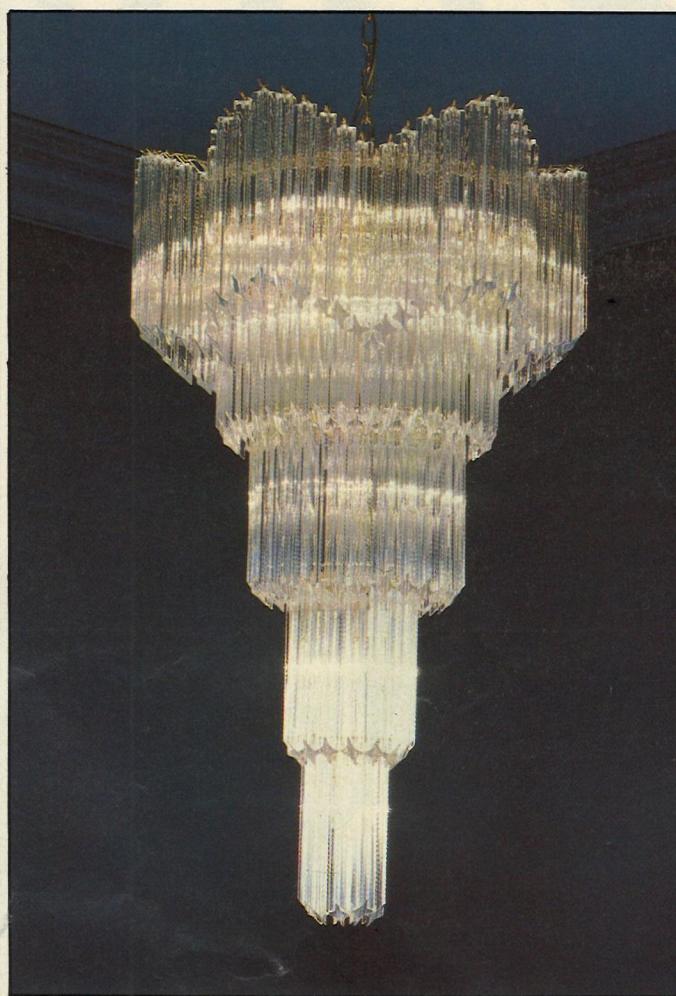


Whatever your application, the chances are we can help you — try us, you've nothing to lose and we could save you pounds!

"Call me now, for a free literature pack or a no-strings demonstration, on 0908 211211, extension 216, or write to: The Industrial Department, Minolta (UK) Limited, 1-3 Tanners Drive, Blakelands North, Milton Keynes, Buckinghamshire MK14 5BU

Reader Service No. 5

Page 6



## Venetian crystal

A hand crafted range of Venetian crystal chandeliers and wall lights has been launched by Chelsom Ltd.

Cruciform, solid, clear or amber glass rods are cut at an angle of 45° creating a star-shaped design for maximum light refraction. These rods are polished and hung on 24ct gold plated frames forming spectacular cascades of crystal and light.

Alternatively, more economically priced fittings in the range consist of Tronchi drops, wide,

hollow glass rods with gently fluted ends.

The range comprises flush fitting chandeliers with glass rods hooked directly onto gold plated square or round ceiling plate reflectors, and hanging fittings in various shapes suspended from ceiling plates by chains. Standard chandeliers come in three- to 17-light sizes and have accompanying two- or three-light wall brackets.

Special shapes and sizes can be made.

Reader Service No. 160

## Spotlamp replacement saves energy

A replacement for Ro80 spotlamps has been introduced by

Economy Lighting Ltd. It uses a replaceable 12V 20W tungsten halogen lamp with dichroic reflector and incorporates a toroidal transformer.

The ELRO-80H unit is made of high temperature resistant plastic and has an ES cap to screw straight into standard lampholders.

Reader Service No. 161

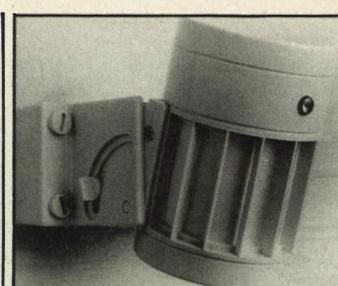


## Mini lanterns for mini patios

Mini versions of four classic Noral lanterns are available for the smaller patio, entrance or garden.

Princess Mini (shown here) is 270mm from bracket arm to top, in either matt black, matt white or patinated green with an aged copper effect. It can also be post-mounted.

Reader Service No. 162



## Infra-red detector has wide span

A passive infra-red detector which covers a 200° protection zone has been introduced by Tasley.

Sentry 200 eliminates blind spots and creep zones associated with some infra-red detectors, offering almost twice the span of protection of most other sensors for a distance adjustable up to 15m.

The unit uses a 48-segment optical system, resulting in 192 detection elements.

A separate wiring box is pre-wired for ease of installation. Corner mounting is possible. The unit is made of vandal-resistant polycarbonate.

Reader Service No. 163

## Central battery systems are versatile

The Menvier-Amberlec range of central battery emergency lighting has been further improved to provide more flexibility in design and operation.

Many years' experience has led to the company's modular design concept, allowing each system to be fully tailored to customers' specifications.

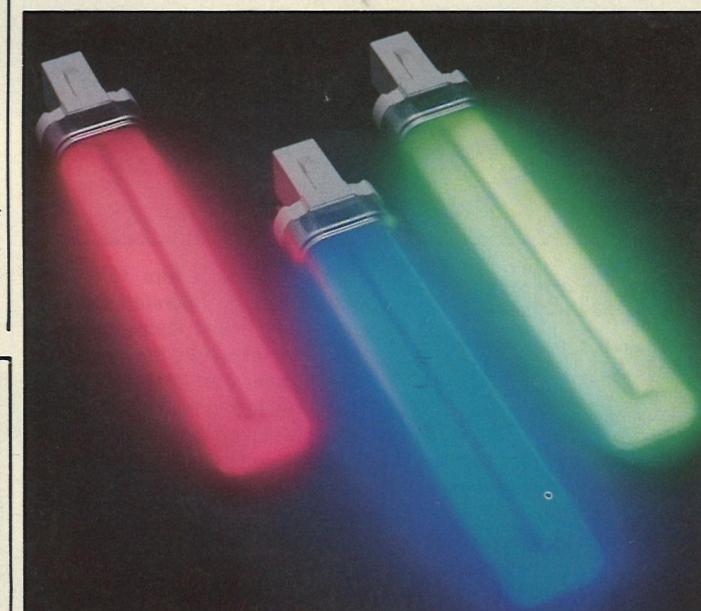
Systems are built up from one of two basic units, each with a choice of six battery types and a wide range of optional additional modules. In this way, a customised

system is assembled quickly at a competitive price.

The Guardian range gives high integrity systems to meet BS2526 Part 1 requirements economically. The Loadstar range has additional features to comply with ICEL 1001, Part I.

Optional features can be built into either range if required. These include static inverter and uninterruptible power systems.

Reader Service No. 164



## Adding jazz to the atmosphere

Osram-GEC Ltd has enlarged its range of compact fluorescent lamps marketed under the name

Opus.

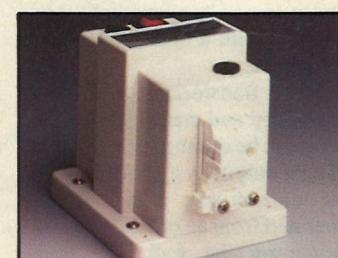
The 9W version is now available in red, green and blue colour options. Called Opus Jazz, these are suitable for creative and decorative lighting in pubs, restaurants and discos.

Reader Service No. 165

## LV lighting transformers

A range of low voltage lighting transformers from J M Clarke Ltd is stated to combine higher than average specification with economic prices.

The transformers are available in 50VA and 105VA continuous ratings. The 105VA unit can be supplied with two sets of output terminal blocks, each with its own



fuse. Replaceable output fuses and inbuilt thermal fuses are standard; input fuses and switches are optional extras.

Reader Service No. 166



# Only Thorn go to such Lengths!

**2L**

The new 2L 40W close parallel compact tube is unique. In four ways.

The *only* compact fluorescent that fits perfectly into a 600 x 600mm luminaire. No gaps. No end boxes. No shadows.

The *only* 40W available in the ever popular polylux phosphor 3500K (plus 3000K and 4000K).

The first and *only* 40W to work on the economical 50Hz standard control gear.

The *only* close parallel compact 40W with a smooth, rounded end-profile that offers attractive design opportunities.

This extraordinary tube joins with its 36, 24 and 18 Watt companions to provide an exciting new dimension in commercial lighting.

Send the coupon for full-colour leaflet and a detailed data sheet.

NOW OPERATES ON  
STANDARD 50Hz  
CONTROL GEAR  
AS WELL AS ON  
HIGH FREQUENCY

WINS OUTRIGHT OVER  
600 x 600mm  
Designed specifically for the modern luminaire, the 2L 40W fills the space edge-to-edge in two, three or four tube configurations to give the most efficient light output.

**THORN LIGHTING**  
TRUST THORN TO MAKE IT RIGHT.

Please send me the colour brochure and data sheet on The 2L Linear Compact Fluorescent range.

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Postcode: \_\_\_\_\_

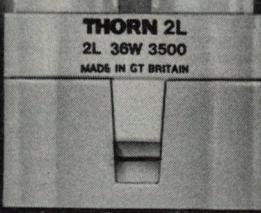
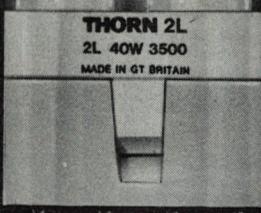
Position: \_\_\_\_\_

Tel. No: \_\_\_\_\_

To: Filiz Azim (Dept. LEN.2.)  
Thorn EMI Lamps & Components, Miles Road,  
Mitcham, Surrey CR4 3YX.  
Tel: 01-640 1221 (ext. 267)

**THORN LIGHTING**

Reader Service No. 6



**2L. THE ULTIMATE IN LINEAR COMPACT FLUORESCENTS.**

# Making energy effective

Compact fluorescent lamps were, in part, a reaction to the energy crisis of the seventies. Jeremy Ling of Philips Lighting traces the history of these lamps and looks at their new markets.

Prior to the escalation of electricity costs following the 1974 energy crisis, the running costs of filament lighting formed a relatively insignificant part of the operating costs of a business, and it is unlikely that a market would have existed for an alternative to the coiled-coil gas-filled GLS lamp, despite its relatively poor luminous efficacy and short life.

Following the energy crisis, the cost of lighting became a significant factor in business and domestic operating costs. Today, for example, the true cost of buying 1 000 hours of light from a 100W GLS lamp is £6.20: 50p for the lamp itself and £5.70 for the

energy it uses before it is thrown away. An energy-effective alternative, thus, became highly acceptable as a means of reducing operating costs.

Before beginning any discussion on compact fluorescents, it is helpful to list the *benefits* of GLS lighting, since any replacement for the filament lamp must also possess an



The SL, a direct replacement for GLS and display filament lamps, used in the Barbican Centre.



## TIME TO CHANGE

With 14 years of experience behind us we are fully familiar with all aspects of lighting from high street showrooms to stadium flood lighting. Now we are relaunching LDS on a larger scale to bring you an even better service.

**LDS**  
LIGHTING  
DESIGN  
SERVICES  
AN ISTD DISTRIBUTOR COMPANY

Head Office Potters Bar 0707 51177  
Birmingham 021 236 9911 • Bristol 0272 716463 • Dorchester 0305 65955 • Dundee 0382 819595 • Gateshead 091 477 5488  
Leeds 0532 432854 • London 01 803 8003 • Manchester 061 865 6474 • Paisley 041 848 1551 • Preston 0772 51577

acceptable number of these benefits. They are:

- 1 The GLS lamp is a full spectral radiator, so that its colour rendering index is 100.
- 2 The GLS lamp has a colour temperature of around 2700K, so that it is a warm light source ideally suited to leisure and relaxation areas.
- 3 The lamp is small, light in weight, cheap to make and easy to use, as it runs directly from the mains.
- 4 The power factor is unity, so that the lamp causes no tariff problems for bulk users.
- 5 The light source is very easily dimmed, either by rheostat or by energy-effective thyristor 'chopper' circuits.

### First compact lamp

In 1980, Philips introduced the SL, the first alternative to the GLS lamp capable of producing light of comparable quality without the drawbacks of short life and low luminous efficacy, and offering the same convenience of use. The lamp uses a miniature fluorescent tube which is given a double fold to enable it to fit into an acceptably small outer envelope. The built-in iron-cored ballast and glow switch starter are also miniaturised, and the lamp terminates in a standard ES or BC cap to fit directly into most GLS luminaires. The tube is coated with a rare earth triphosphor which simulates the colour temperature of the filament lamp and provides a colour rendering index on the Ra scale of 82, which is in the deluxe class.

At its launch in 1980, the SL had a rated service life of 5 000 hours, and needed only a quarter the energy to produce the same amount of light as the GLS lamp it directly replaced. Today, the SL

has been improved to increase the service life to 8 000 hours. Taking running and purchase costs together and, again, ignoring maintenance/relamping labour costs, the SL has always been capable of halving lighting costs. Several thousands are used in the Barbican Centre and are saving around £24 000 a year in energy costs alone.

A fair comparison of retrofit compact fluorescents such as the SL against their GLS equivalents shows up some drawbacks. Although colour rendering and colour temperature are comparable, the lamps are larger and heavier than their filament counterparts, and cannot, therefore, be used in all GLS fittings. They cannot be dimmed, and require external power factor correction when used in bulk. Moreover, they are subject to the temperature limitations of all fluorescent lamps: starting can be slow at temperatures much below zero, and light output falls off at high temperatures.

However, they have a benefit not possessed by GLS. Little energy is wasted in the form of heat, and the heat produced is in the form of conducted or convected rather than radiant energy, and therefore much easier to dispose of. Lumen depreciation, at around 4% per thousand hours, is slightly higher than GLS.

In most applications these limitations were either unimportant or were overturned by the economic benefits of the lamp. The SL has enjoyed a huge commercial success. Many millions are now in use throughout Britain, Europe and the USA and the compact fluorescent formula has been adopted by nearly all major lamp manufacturers.



The PLS lamp, used in corridor lighting at the Gatwick Hilton Hotel, cut maintenance from a continuous business to a simple relamping every two years.

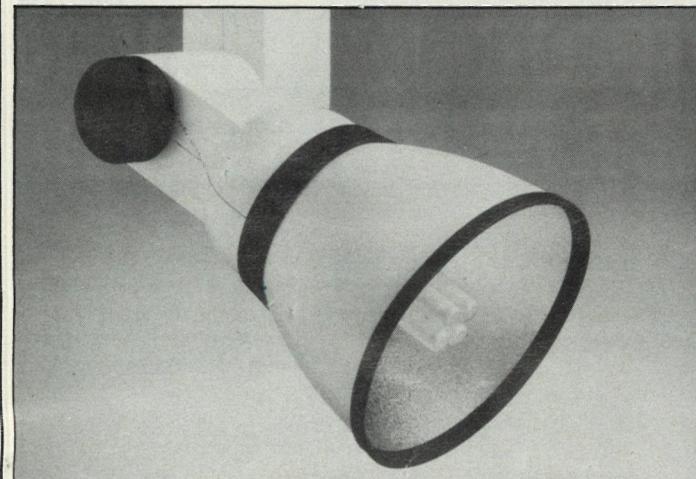
Marketing experience has shown that the long life of the lamp, which takes it from the realm of the consumables to that of the semi-durables, is a factor of great importance to customers in many cases more important than the energy-saving benefits. One London borough, considering the SL as a replacement for GLS in sheltered housing, discovered that each lamp replacement was costing them no less than £13.50 in maintenance labour — forty times the cost of the new bulb! The savings in labour costs dwarfed energy savings completely. For continuous burning applications, in lifts and hotel corridors for example, the SL's rated life was extended by the absence of switching to the point where users were obtaining three or four years' continuous use from the lamp without replacement.

### Embodiment lamps

The weight and size burden of the retrofit compact fluorescent is substantially due to its iron-cored ballast, which is a component that has a virtually indefinite life. Embodiment applications permit the ballast to be mounted as a permanent part of the luminaire,



The PLC-E, representing a new breed of retrofit electronic lamp, is lightweight and even slimmer than a GLS lamp.



The four-limbed PL-C is compact enough to permit optical control in wide-angle spotlights such as this Lita 828.

and this created a demand for a new breed of ballastless lamps which are not only smaller and lighter than the retrofit but less expensive to replace.

The first of these was the PL now called the PLS. It consists of a double-limbed fluorescent tube with triphosphor coating, terminating in a special lamp cap, G23, to prevent accidental connection direct to the mains. A starter is retained in the cap, both to simplify embodiment wiring — the external ballast is simply connected in series with the lamp — and also to improve reliability by ensuring that the starter is replaced at each lamp change. The success of lamps like the PLS is proved by the fact that there are now well over 600 luminaire types, other than those made by Philips, designed around the lamp.

The limbs of the PLS are joined by a bridge weld near the top of the lamp, which is not easy to make but confers an important benefit. It creates 'cool spots' above the weld which serve to control the gas pressure, extending the useful temperature operating range of the lamp. The PLS has been widely used by electrical contractors as a GLS replacement in existing, modified fittings as well as OEMs. Its low heat emission has permitted a new generation of low-energy, low-maintenance amenity luminaires with slimline dimensions that would be quite impossible using filament lamps.

Both the SL and the PLS lamps have been used successfully in downlighters, extending the potential market for compact fluorescent to include the booming display market. The PLC four-limbed embodiment lamp was produced for this market, to provide a light source compact enough to lend itself to optical control in display luminaires. The PLC has the

same G23 cap and integral starter as the PLS, and is subject to the same limitations: it cannot be dimmed and, because of the suppressor capacitor incorporated in parallel with the starter, cannot be operated on high-frequency supplies.

### Electronic lamps

Philips' launch in 1986 of commercial high-frequency fluorescent luminaires opened the door to the development of an entirely new breed of retrofit compact fluorescents. These have lightweight integral control gear running the lamp at 45kHz to provide greatly improved, flicker-free light quality and improved luminous efficacy and starting.

The retrofit PLC-E lamp is even slimmer than a GLS lamp, weighs only 130 grams and requires only one-fifth the energy to produce the same amount of light. Its slimline, hi-tech look opens up interesting design possibilities, and it is available in a range of wattages with light outputs comparable with the commonly-used GLS ratings. The electronics start the lamp quickly and without flicker even in the cold, and at the high operating frequency, the phosphor decay time removes any trace of light output ripple; the light is completely steady. As an added bonus, power factor is near-unity so that external capacitive correction is not required when the lamps are used in bulk. Electronic operation of compact fluorescent lamps can be regarded as a major step forward in the technology.

### The market takes over

The SL, the PLS and the PLC-E were manufacturers' innovations produced to meet perceived market needs. Today, the market itself is in the driving seat, and Philips is

producing new lamp types to meet actual market demands. Both the PLS and the PL-C, for example, are now available with 4-pin caps without internal gear components, which enables them to be used on any type of control gear, including dimming, high frequency with light output regulation and low-voltage dc.

The SL-D is a 120mm decorative globe lamp, physically identical to its filament counterpart and replacing it in nearly all luminaires; an electronic version is now available, the SL-DE. The SL Aqua is a waterproof globe lamp which can be used outdoors in an open luminaire with a suitable lampholder. The SLD-ER 20W electronic reflector lamp is a 120mm globe which provides more light on the working plane than a 150W GLS lamp. Finally, the 18W SL-R is a specially tough lamp primarily intended for greenhouse use, where it replaces a 150W GLS lamp and has a spectral distribution better suited to promoting blooming without undue stem growth.

Compact fluorescent lamps, therefore, have moved on from their role as a GLS replacement

and have become a new light source in their own right, with applications reaching well beyond the scope of the filament lamp. One such market is security, where the lamps can provide the insurance of low-maintenance light throughout the hours of darkness, for a remarkably low energy premium.

They have even influenced the development of commercial fluorescent lamps; the new single-ended PLL lamps, for example, the only lamps available which fit inside the dimensions of a 600mm ceiling module and produce nearly twice the light for length of conventional linear lamps, are developed from PLS technology.

Because development is now market-driven, it is impossible to predict what will be next on the scene, although the benefits of high-frequency operation are so great that we are likely to see more of these on the market and, because of the superb light quality produced by HF lamps, many new products will be aimed at the display market.

What is certain is that we are at the beginning rather than the end of the compact fluorescent story.

## METAFLOOD METAL HALIDE FLOODLIGHTS



The Powerlite range of Metaflood luminaires offer the cost effective lighting solution to today's lighting designers, where colour rendition and economy are paramount.

The high luminous efficiency and long life of the Metal Halide lamp, along with accurate colour rendering, make them ideal for the lighting of parks, buildings, monuments, sports grounds and road traffic installations.

The Powerlite Metaflood range includes four fittings, from 70 watts to 400 watts. You can choose from CPW 70, CPW 100, CPW 250, CPW 400 and a range of accessories to suit all floodlighting applications.



Available from  
electrical wholesalers  
throughout the UK.

# Lighting up for leisure

**The sports sector is increasingly having to compete for our leisure time — and a spending money — and consumers are demanding a more attractive lit environment. Tim Newton of GTE Sylvania describes an innovative approach to lighting indoor sports arenas.**



The ceiling, a dominant element in the bowling centre, demanded a new approach to lighting.

**L**ighting for leisure offers more possibilities as we move towards a leisure orientated society, and our propensity to spend more on leisure increases.

Recently, the most striking examples have been in the sports sector. New facilities are springing up all over the country, under both private and public control.

The Sports Council report 'Sport in the Community — into the 90's' stated that a total 347 halls have come into public use in the past five years, of which 282 are the larger multi-functional type of hall and 65 the smaller type. In addition, 144 swimming pools have come into use, 75 per cent of conventional design and the remaining quarter leisure pools.

As sports and recreation centres spring up and compete for our leisure time, so these centres have become more adventurous in their design. There seems to have been a shift in emphasis — no longer is it just a sports industry, but rather part of the entertainment business.

This shift has brought with it the need to employ specialists to produce innovative ideas. Interior designers, lighting engineers, and manufacturers all contribute to produce exciting sports environments to provide a more attractive ambience for both participants and spectators.

Among the more adventurous design solutions, one of the major innovations has been in the use of lighting which might not have been considered even five years ago. Increasingly, considerations like

the suitability for television coverage and the creation of the right aesthetic feel form a major part of the brief.

Correct lighting is a crucial element in any sports arena. For this reason it is essential that designers and luminaire manufacturers are involved in a building design project at the very earliest stage. Not can they simply provide the correct lighting levels, but they are in a position to discuss the options open

to the team and make the lighting scheme as versatile as necessary.

How much daylight is the interior exposed to? Too much might cause distraction and glare to the players. Should all surfaces be light coloured to maximise light reflection? If the area is used for many sports functions, how much should the walls contrast with the different balls and targets?

The main problem facing the lighting designer of a multi-purpose sports facility is the different set of circumstances that each sport presents.

For instance, aerial sports like badminton need good lighting especially around the net area, yet glare must be eliminated since the line of sight is so high. On the other hand, sports like basketball need high levels of illumination and a degree of glare is tolerated. Finally, some sports, like bowls need excellent uniformity and shadowless light, providing good modelling.

Thus, the lighting designer can be left to face one compromise after another until the system installed does not fully satisfy anyone part of the lighting brief. On the other hand, if the visual requirements of the sport and other environmental factors are known, then an exciting lighting solution is still achievable.

GTE Sylvania were concerned with a number of these issues when, with design consultants Fitch Benoy, we became involved in a new ten-pin bowling concept.

The brief was to avoid the often cliched references to the 1950s and to create a modern bowling centre with a universal appeal. The aim was to integrate a high quality sporting atmosphere with catering and amusement facilities to attract players of all ages and standards. It also needed to appeal to non-bowlers.

The designers divided the space, a simple steel-framed structure of approximately 3000m<sup>2</sup>, into catering and retail facilities. A curved wall, shaped like a wave, sets a nautical theme which is reflected in architectural and interior features to create an interesting and innovative space.

The space has been animated by placing a colourful abstract mural on the two flank walls, showing freeze frames of a bowler in action.

We found we needed to develop a completely new system of lighting to meet the considerable demands of indoor bowling.

Bowling alleys have traditionally been lit by rows of fluorescent

lighting mounted on a stepped ceiling to shield the bowler's eyes from direct contact with the light source.

Distracting highlights and sheen can be caused by the fluorescents reflecting off the timbers. They are in any case not particularly cost effective because of the large number of fittings necessary to ensure even illumination.

Moreover, when mounted on a high ceiling they become expensive to maintain as scaffolding towers have to be used, disrupting play and causing loss of revenue. They can also damage the lane surface. In terms of quality of environment, fluorescent battens also offer very little in the way of visual interest.

The sculpted ceiling is one of the most interesting features of the interior. To enhance its effect, Fitch Benoy envisaged a radical departure from fluorescent strips; they chose, in fact, to investigate

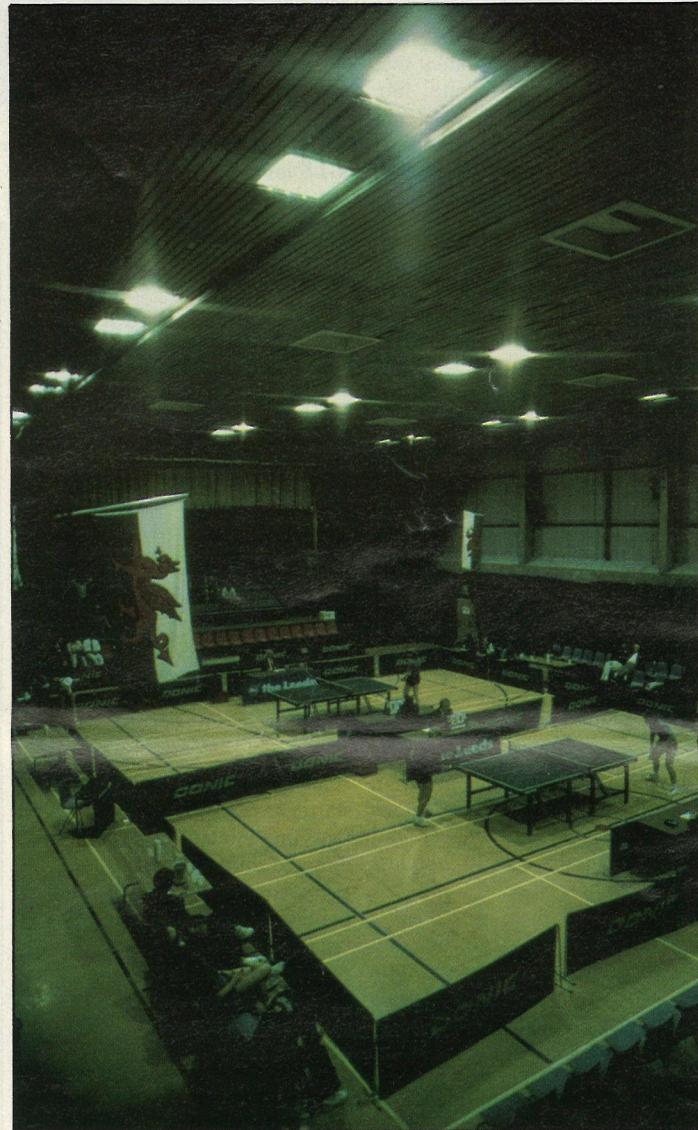
the possibility of uplighting the area.

The design team approached Sylvania for specialist advice in selecting the best choice of light source, luminaire and layout of the lighting scheme.

Our task was to eliminate glare and create a uniform light level on the bowling surface. Longevity of lamp life and ease of maintenance were also key factors.

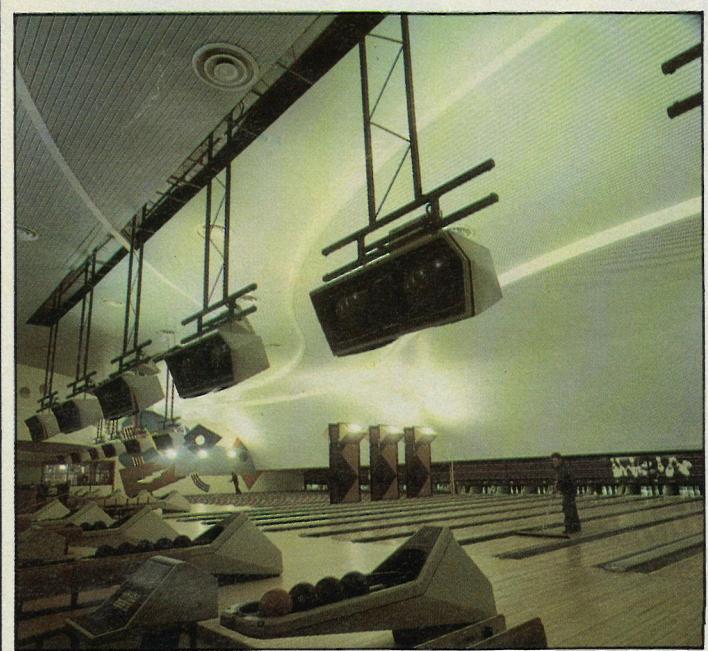
To provide the required amount of efficient and stable white light, we advised the use of a unique light source. The ideal solution proved to be a 400W Super Metalarc high performance metal halide.

Super Metalarc generates approximately 36 000 lumens and has an average rated life of 20 000 hours (50 per cent survival). It is available in three types — cool white, neutral white and warm white — but we chose the 3K



Plasmadoc Leisure Centre, Wrexham, uses Super Metalarc lamps in a suspended latticed ceiling.

## THE GOOD NEWS FOR FLUORESCENT LAMPS



Uplighting, as used here, minimises glare and provides a uniform lighting level on the bowling surface.

coated lamp (3200K, CRI 70) for its warm appearance and excellent colour rendering properties.

The area to be illuminated is 22 metres wide and 45 metres long. The challenge of achieving an even illumination of 125 lux minimum proved to be a tough one, especially since all uplighters were required to be wall mounted around the perimeter of this large area.

The uplighter had to project light in an extremely asymmetric pattern in order to achieve the necessary distribution. We used the Superkat floodlight with an asymmetric reflector and designed a special louvre attachment to control angles of cut-off.

The floodlight itself is a compact wedge shape, blending well with the score monitors, positioned at the seating end of the bowling lanes. One Superkat is mounted behind each of the 12 monitors

and projected away from the players onto the ceiling towards the pin end. This ensures that the light does not provide a source of direct glare or produce distracting sheen on the bowling surface.

Additional Superkats are mounted on the side walls and central aisle to complete the scheme. In total, 24 luminaires were required, achieving an average illumination, on final adjustment, of 200 lux.

So, the innovative use of lighting has brought significant benefits to this sporting centre with no loss of performance. In fact, there has even been some degree of improvement of the bowling environment.

Advantages include the fact that there are only 24 luminaires to maintain, and the 20 000 hour average rated life of lamps in itself minimises maintenance. All luminaires are mounted in readily

accessible places. This reduces maintenance time and damage, nor is it necessary to close down for maintenance. Finally, the appeal of the sport is greatly enhanced by creating a better ambience.

The same light source, 400 watt Super Metalarc, was used for the refurbished Kelvin Hall indoor sports arena in Glasgow. In this application, it was accommodated in a special drum-like housing adapted to an FW Thorpe High-Bay fitting, to give the visual effect of a downlighter.

The choice of the Super Metalarc coated lamps was made by the Glasgow City Architects' Department to facilitate the televising of major events within the hall without the need for extra lighting. The light levels achieved are in excess of 750 lux.

Another indoor stadium which has recently hosted an interna-

tional event is the Plasmodoc Leisure centre in Wrexham, north Wales. Here, fifteen 400W Super Metalarc lamps were introduced into an existing scheme of 36 fittings.

Arranged in three rows of five in a suspended latticed ceiling, these lamps alone produce a lighting level of 300 lux. The centre operators calculate that during everyday use they can achieve adequate lighting levels using only the Super Metalarc lamps, and they expect to make savings of about £2000 per year.

The switch to quality lighting over this period has provided the industry with some very useful projects to tackle, and will see more demanding requirements from, increasingly, private sector operators.

So, we can expect to see more innovations of the kind I have referred to in this article.



Metalarc was used in the Kelvin Hall indoor sports arena in Glasgow to provide the high levels of lighting — in excess of 750 lux — required for the televising of major events.

## QUICKTRONIC® DE LUXE FROM WOTAN

The good news for fluorescent lamps: from now on our fully electronic high frequency ballast WOTAN QUICKTRONIC® DE LUXE gives even better protection against overvoltage. All the original advantages of the QUICKTRONIC® DE LUXE such as economy, compact size and superior quality of light remain the same.



This is because the WOTAN QUICKTRONIC® DE LUXE is fully electronic and operates at high frequency. As a result, lamps start without flicker in only 0.1 second. They continue to work free of flicker and hum, and without stroboscopic effects or radio interference. There is also a reduction in heat generation.

Even when the mains electricity fails the lamps can keep going. This is because QUICKTRONIC® DE LUXE can operate on a DC emergency supply. It simply doesn't matter whether it's direct or alternating current.

Furthermore, when a lamp reaches the end of its life there is no more flashing, it is immediately

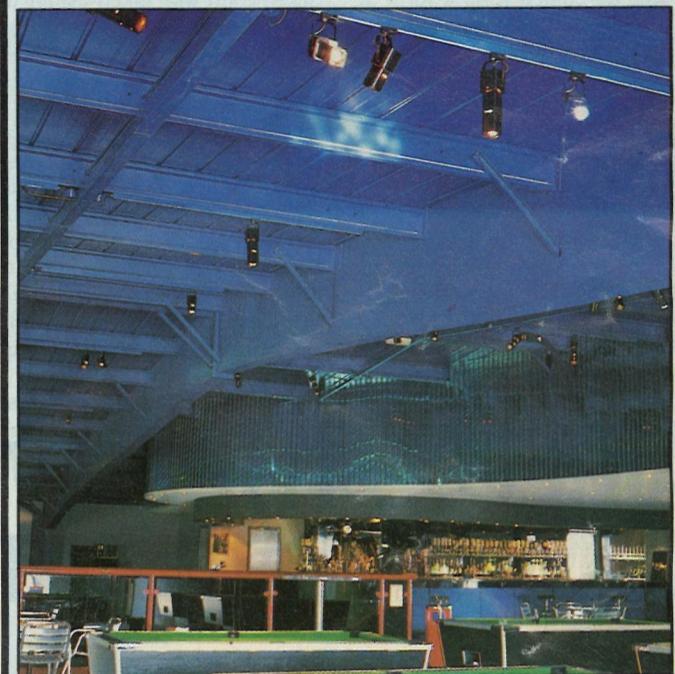
and automatically switched off.

WOTAN QUICKTRONIC® DE LUXE not only pays for itself, it commands itself in every possible way.

# WOTAN

# Case Studies

## Theme lighting for Rollers



Leisure facilities aimed at younger age groups have become increasingly theme orientated. The Rollers rink, opened to the public in December 1988, adopts this approach, aiming to capture the attention with a whole range of lighting devices, largely using Microlights low voltage lighting.

The majority of the work is centred on the bar and leisure area on the first floor. One of the principal effects is the projection of the Rollers logo in three different locations. Specially designed gobos were made from glass, thereby avoiding the stencil supporting arms of metal gobos.

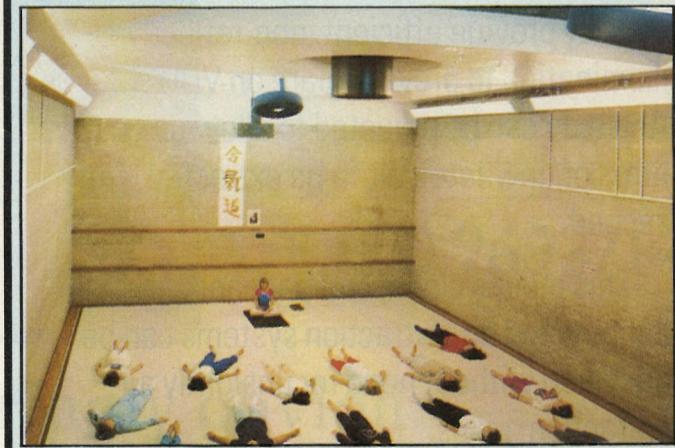
Sixty stainless steel gobos were also supplied in a variety of designs for projection onto walls and carpets. These chemically etched light masks can be projected in either hard or soft focus. They have been fitted into 16 Microprofile fittings which provide a focusing spotlight whose beam shape can be changed by means of four fully adjustable shutters.

For those who prefer a game of pool, the tables are lit using Microfloods. Light control from a 90° even wash of light to a narrow strip can be achieved using rotating barn doors.

The majority of the fittings used are equipped with 75W tungsten-halogen low voltage lamps. These provide a high intensity of concentrated light in an area with very high ceilings, while avoiding the excessive heat and glare of conventional fittings.

The overall effect is to create a sports centre with a high level of visual interest, to appeal to the teenage market.

## Sports centre uses piped light



The Munrow Sports Centre at the University of Birmingham makes use of the latest approach to sports lighting — a type of piped light called Conductalite, by Simplex Lighting Ltd.

There are four bays in the sports hall: two are used as dance studios, one as a multi-gym and another as a martial arts studio. Each bay is lit by six luminaires which are each 5.1m long and mounted in a continuous line at the top of the walls at an angle of 45°.

Conductalite uses a combination of lens and tapered reflector to distribute the light from a 400W high pressure sodium lamp at one end. A prismatic polycarbonate diffuser completes the fitting, which has a uniform light appearance and gives minimum glare, a necessary requirement in sports halls where players or dancers must sometimes look upwards.

# Lighting demountable squash courts

Adrian Wills describes work carried out on lighting a prototype plastic walled squash court which is making squash into a spectator sport.

**S**quash or 'squash rackets' to give it its proper name, developed from a form of the older game of rackets played at Harrow School, and in 1886 was recognised as a new ball game.

In recent years participation in the sport has increased considerably, leading to the sport now receiving television coverage of international venues.

Initially, it was impossible to treat this game as a spectator sport because of the solid construction of the court, but gradually this state of affairs has altered.

Firstly, viewing windows above

the rear of the court were introduced, followed by the glass-backed court with raked seating to cater for up to around 100 spectators. These installations were normally a permanent feature in sports centres or squash clubs.

To enable larger audiences to view a game and allow limited television coverage, the 1970s saw the emergence of the first portable all glass court. Now, with the introduction of the Perspex wall court spectators and television alike will have what must be the best view ever of world and championship games.

The client company first

approached Thorn Lighting in June 1982, having tried unsuccessfully to find a lighting company able to meet their requirements. The clients explained that previous glass courts had suffered from draw-backs, including:

- An extremely heavy structure, supported by a large quantity of steelwork, forming obstructions to viewing.
- Poor visual performance caused by strong reflections from high intensity discharge and tungsten sources on the glass. It had been common practice to use banks of discharge or fluorescent lamps over the court, with vertical

illumination levels boosted by projectors shining into the court. The luminaires were bulky, potential sources of glare, and produced a lot of heat.

□ Glass walls were easily damaged and the suspension system for the lighting installation was difficult to manoeuvre and erect in certain venues.

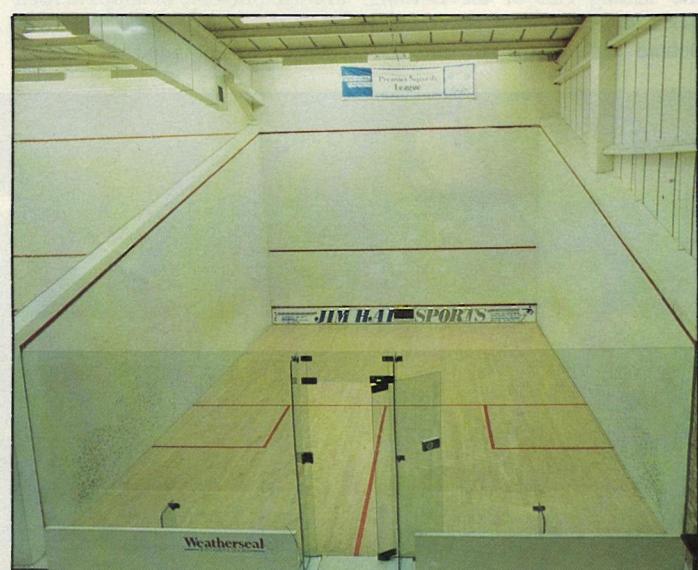
□ Perhaps the greatest single drawback was the erection and dismantling times of the whole structure. These two operations took nearly 36 hours each, increasing non-productive hire charges at every venue.

The client company first became involved in the development of transparent walled courts in 1976. It has worked closely with ICI Petrochemicals and Plastics Division to develop a court which is unique in the following ways:

- The four transparent walls are not obstructed by steelwork frames. Structural stability of the walls is dependent upon integral plastic fins which do not represent an obstruction to vision.
- The transparent Perspex walling is embossed with tiny white dots superimposed in exact registration upon black dots. This pattern is protected by a layer of plastic on



Conventional permanent court installation, showing viewing balcony.

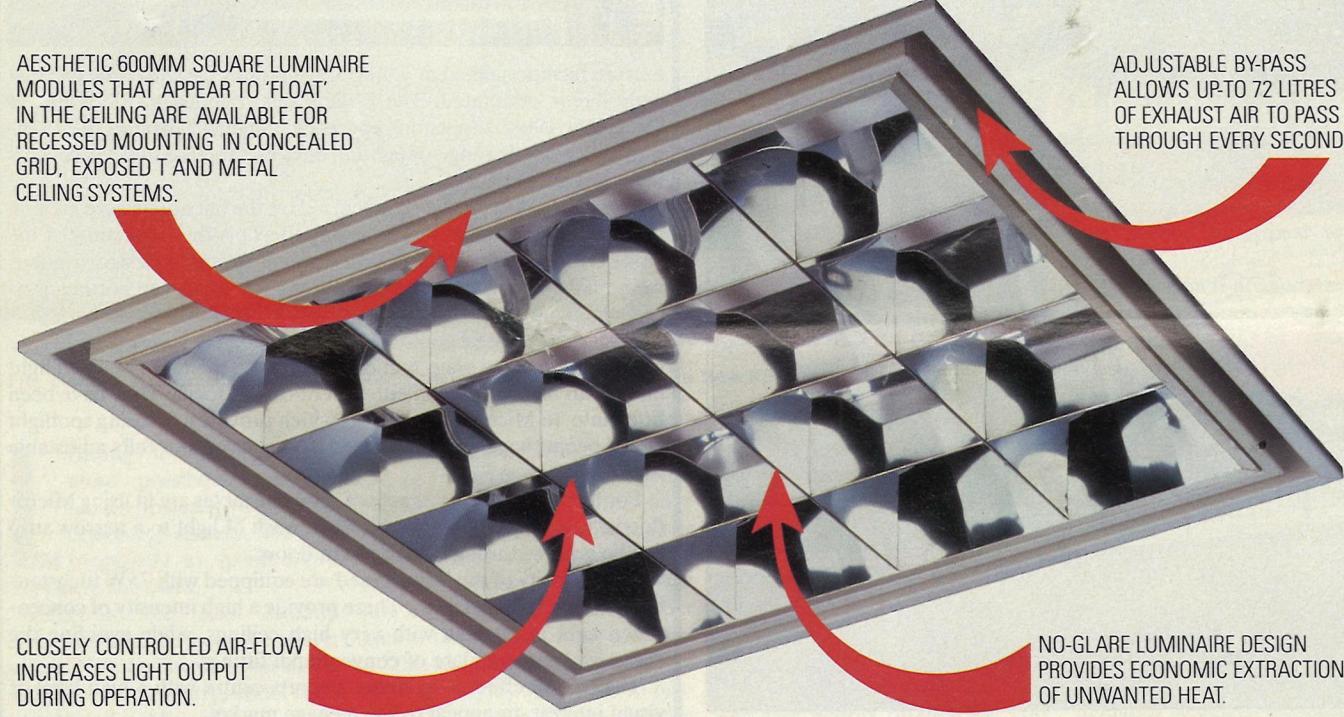


View of typical permanent glass-backed court.



Typical permanent glass-backed court showing raked seating for about a hundred spectators.

AESTHETIC 600MM SQUARE LUMINAIRE MODULES THAT APPEAR TO 'FLOAT' IN THE CEILING ARE AVAILABLE FOR RECESSED MOUNTING IN CONCEALED GRID, EXPOSED T AND METAL CEILING SYSTEMS.



The brilliant (but not dazzling) new Airlux Luminaires from Rada successfully solve two problems.

They provide efficient, non-reflective illumination to prevent glare on VDU screens. And they can be adjusted to allow up to 72 litres of unwanted air to be extracted every second.

This means clean, compact and modular lighting and air-extraction systems can be designed without need for unsightly air-extraction grilles.

And that's not all. While air handling, the light output of the compact, energy-saving lamps is actually increased and the life of control gear is prolonged.

So one way and another, when it comes to brighter lighting, Airlux is a breath of fresh air.

Send the coupon for the full facts.

**AIRLUX** **RADA**  
LIGHTING

HOLLIES WAY, HIGH STREET, POTTERS BAR, HERTS EN6 5BH. TELEPHONE (0707) 43401.

To: Rada Lighting, Hollies Way, High Street, Potters Bar, Herts EN6 5BH. Please send me the new Airlux Brochure.

Name \_\_\_\_\_ Company \_\_\_\_\_

Address \_\_\_\_\_

Post Code \_\_\_\_\_ Telephone \_\_\_\_\_

gent specifications, both in terms of uniformity of illumination and also comply with the limiting levels for spill lighting into the audience.

The following problems had to be overcome:

1 The dots in the plastic walling provide a mark-space ratio of 50/50, so the reflection coefficient of the 'white' plastic cannot exceed 50% and the transmission factor 50%. This would require more than twice the normal average lighting level of a conventional white wall. A further 50% would be required to counteract the viewing loss through the wall. Since the movement of both player and ball is very rapid; a high level of light is

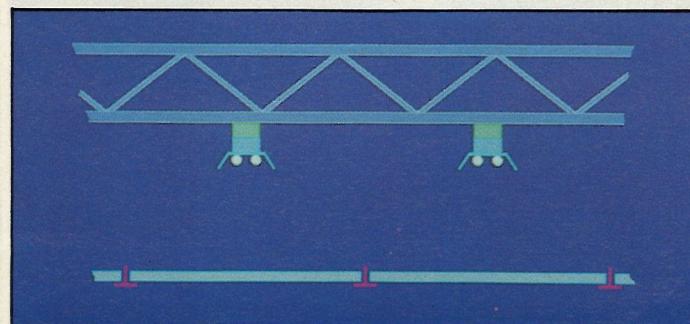
also necessary for the human eye and for the TV camera, to enhance definition, depth of field and minimise image trailing.

2 Nearly 50% of the light could, if it were not controlled, pass through the walls and illuminate the audience, thus reducing the effectiveness of the one-way system, so the angle of incidence of light to the wall had to be such that it would not significantly light the auditorium beyond 3m.

3 The floors and walls of the court had to be lit in such a way as to appear as uniformly illuminated as possible. The ISRF specification stated that "the level of illumination

- ▶ Reflection
- ▶ Transmission
- ▶ Illumination Level
- ▶ Uniformity
- ▶ Non-stroboscopic
- ▶ TV Compatable
- ▶ Robust
- ▶ Portable

Parameters which the Perspex court had to meet.



Section through roof structure of court (not to scale).

tion 1000 mm above finished floor level should not vary at any point more than 15% from the average level of illumination".

4 Lighting had to be shadow-free and free from any stroboscopic effects.

5 The ISRF stated "the average illumination on the ceiling shall not be less than 25% of the average illumination at a level of 1000 mm above the floor of the court".

6 The ISRF suggested a design illumination figure of 1300 lux average, 1000 mm above floor level on the horizontal plane. After consultation we opted for a design figure of 1500 lux.

7 The colour temperature of the light sources proved a bone of contention. When we consulted several television companies, colour temperatures ranged from 3000K to 5000K. We eventually opted for a mixture of Polylux 3000K and 3500K tubes.

8 The ceiling of the court is likely to receive indirect hits from a squash ball, so equipment had to be designed with this in mind.

9 Lighting equipment had to be capable of being assembled and adjusted at floor level and hoisted to the required height. The overall erection time of a court was of paramount importance, so we looked at a system with a speedy erection time.

### Proposed solution

It was decided to consider forming the ceiling from thermalucent panels after the customer was shown samples and illustrations of a working installation in a gymnasium. Concern was expressed as to the strength of the skin when struck by a ball. We actually carried out a test on a 1200 x 600 panel and were surprised to find the skin returned to its usual form after impact with no indentation.

The luminaires chosen were Thorn twin 8 foot 100W Clipper type, each fitting operating a Polylux 3000/3500K tube. The luminaires were also supplied complete with a non-slotted metal reflector to increase the DLOR. This was also important, because the thermalucent ceiling has a 70% transmission factor with quite a large 'bounce' of reflected light which was lost to the surroundings.

Luminaires were arranged in 8 rows of four running parallel with the court axis. The choice of 8 foot luminaires was further justified in the fact that the luminaires fell nicely in between the transverse cross bracing.

Luminaires were mounted on standard FCM galvanised Clipper trunking, the trunking supported on the ceiling steelwork and tied in at the ends. The Clipper system



Thermalucent ceiling in sports hall. This type of ceiling was used in the Perspex court.

## A bright idea from Simplex Lighting



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

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

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

#### MINIMAL GLARE -

For increased user comfort and safety.

#### BETTER ILLUMINATION -

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

LOWER INSTALLATION COSTS - from reduced numbers of wiring points, less wiring, less switchgear.

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

#### IMPROVED EFFICIENCY -

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

Fill in the reply paid coupon, or

PHONE FREE

-0800 269371 -

TODAY

## Lightplan TRANSFORMERS

A New Concept  
Lightplan Mini-Series

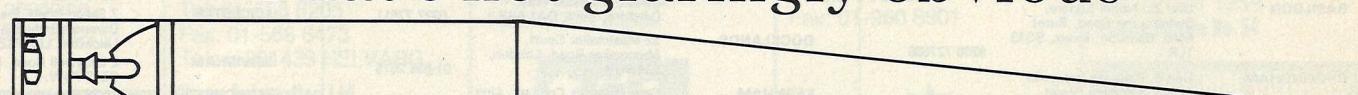
A conventional transformer small enough to fit through a 65mm hole, complete with terminals, thermal cutout, and fuse, installation is safe, easy and economical.

One of a range of robust, high specification transformers from Lightplan

LION HOUSE DURHAM ROAD BIRLEY  
CO. DURHAM DH3 1LS  
TEL:(091)410-9919 FAX:(091)410-0056

Reader Service No. 11

That's not glaringly obvious



CONDUCTALITE®

Please send me the Conductalite brochure

Please ask my Simplex Lighting representative to make an appointment

NAME

POSITION

COMPANY

ADDRESS

TEL NO.

**SIMPLEX**  
LIGHTING

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

Reader Service No. 12

Page 13

has proved beneficial when transporting the court, because of the ease of removing fittings from trunks when disassembling.

The complete system can be assembled at ground level and then hoisted into position.

Finally, as requested, the electrical contractors were asked to split the electrical supply over three phases, primarily to satisfy the TV companies' requirements.

The lighting design was fairly straightforward, using the lumen method with modifications to allow for ceiling transmission factors and also the influence of the

wall characteristics.

To justify the theoretical results I achieved, it was decided to prepare some computer predictions. After consultation with Lou Bedocs and Peter De in the Thorn Laboratories, we prepared several computer runs using the Program MN89 at the Leicester computer. The results looked very promising. Having shown these to the client and received approval, the equipment was delivered and installed for a trial run.

#### User comments

When a visit was paid to site, the

result was impressive. The client was satisfied and the guest players found the court easy to adjust to and were in no way distracted by the lighting system, finding it easy to sight the ball.

A guest operating a video camera, found no problems with the vertical contribution to the court exterior. The pictures had a good colour quality and were very crisp.

The court was checked with a light meter, and the results were found to tally closely with the computer predictions.

A check was also made on the spill light to the audience viewing

area, the light fall-off was rapid and, beyond 3m, the figures were negligible.

The court has since been used for the World Masters Championship, and has met with much British and overseas interest.

#### Conclusions

The client has since undertaken a promotional campaign both in Europe and North America where much interest was shown.

Bearing in mind this project was a complete prototype, several problems were met in both the court walling and structure and, with

hindsight, one or two improvements would certainly have been made to the lighting. Any future models will incorporate these improvements and we hope to see Thorn's involvement in promoting this court.

Quite clearly the all-transparent court will bring squash into wider view, enabling thousands of spectators to watch the sport and provide exciting new viewing angles for TV cameras.

The most satisfying part in being involved personally in this project, is that I am quite a keen squash player and it was very satisfying to

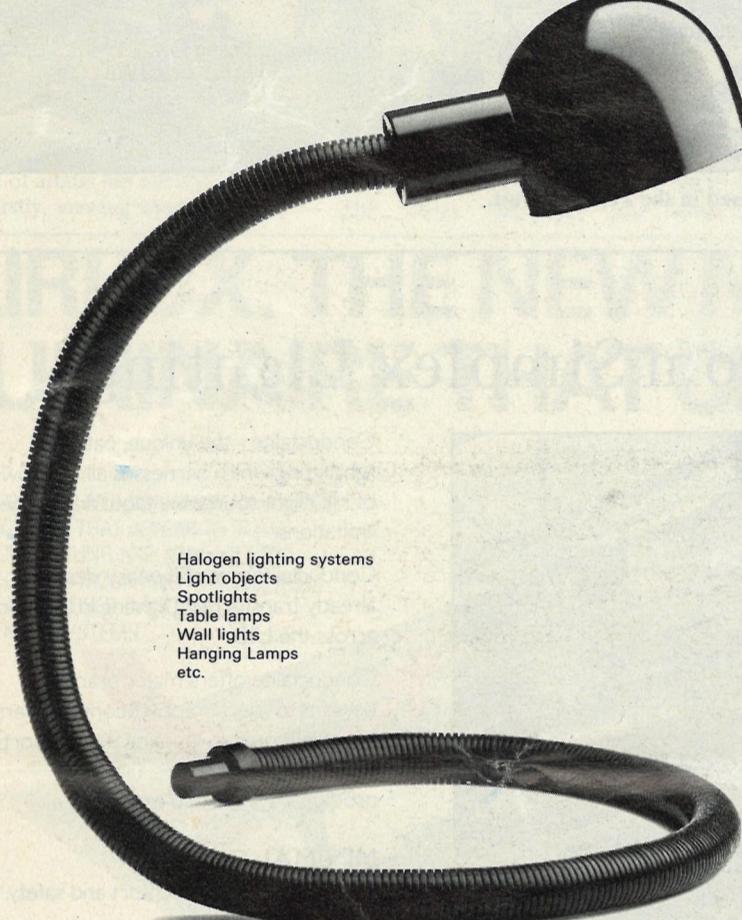
see the results.

The only drawback is that I have not yet had the opportunity or good fortune to play Geoff Hunt on this court!

Adrian Wills is employed by Thorn Lighting, and the study described above was carried out for Campbell, Reith and Partners in 1982. This partner won its author the 1989 Miller Award.

## Internationale Frankfurter Messe Herbst autumn automne

GGK



Halogen lighting systems  
Light objects  
Spotlights  
Table lamps  
Wall lights  
Hanging Lamps  
etc.



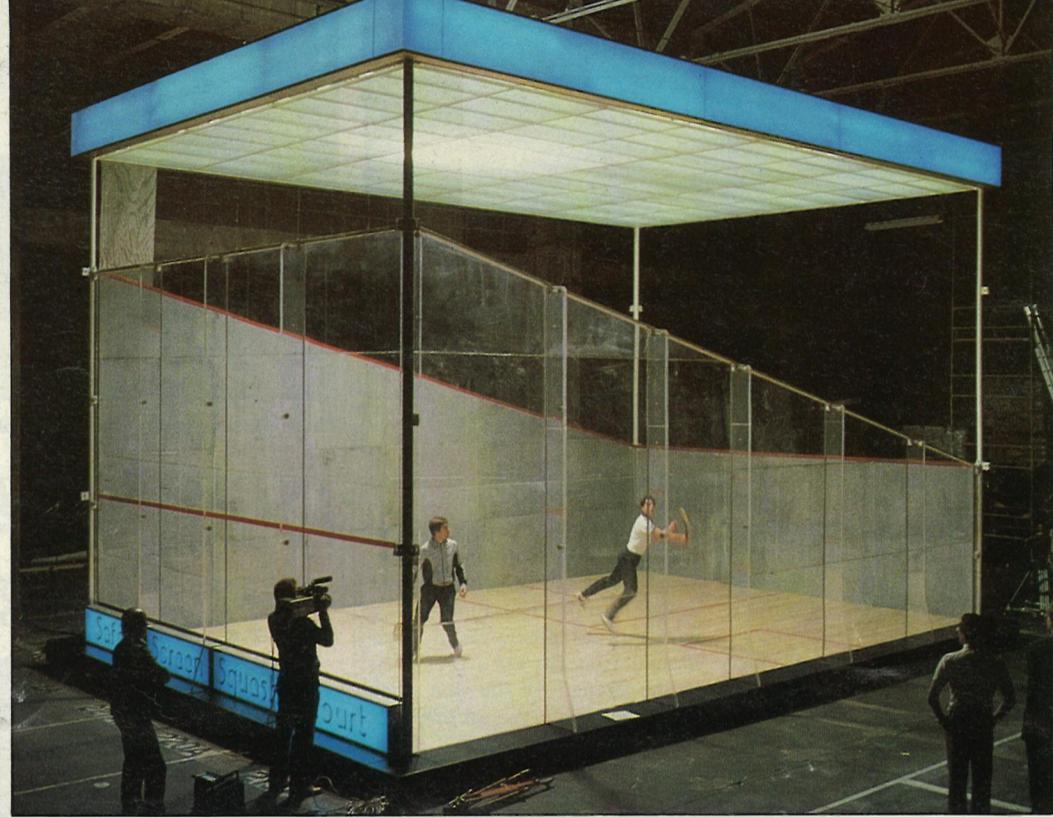
Fair and travel information, admission tickets:  
Messe Frankfurt  
U.K. Representation  
Collins & Endres  
18 Golden Square  
London W1R 3AG  
Tel.: 01-73 40 543  
Telex: LOP G 26 22 36  
Telefax: 01734 45 61

Messe Frankfurt

From 26th-30th August, 1989

you will find the Trade Fair for Domestic Lighting at the world's biggest consumer-goods fair.

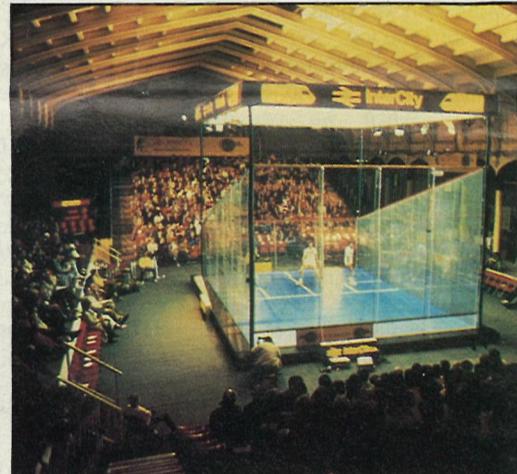
Reader Service No. 18



Trial installation of court, showing clearly the effect of the walling.



Close up view of the court during a tournament.



Long range shot of the court during a tournament.

## The Concord Service...



**IMMEDIATE OFF-THE-SHELF DELIVERY FROM OUR NATIONWIDE NETWORK OF  BRANCHES**  
The Wholesale Fittings plc, main distributor and stockists of Concord Lighting Products.

ASHFORD	Unit 1, Brunswick Industrial Centre, Brunswick Road, Cobbs Wood Industrial Estate, Ashford, Kent, TN23 1EH. 0233 39041	CRAWLEY	Unit 5, Church Road Industrial Estate, Lowfield Heath, Crawley, Sussex, RH11 0PW. 0293 515211	IPSWICH	Farthing Road, Ipswich, Suffolk, IP1 5BL. 0473 48431	SOUTHAMPTON	Units 14B & 15, Central Trading Estate, Marina Parade, Southampton, Hants., SO1 1JP. 0703 638111
BALHAM	Unit 14, Zenor Road Industrial Estate, London, SW12 0PP. 01-673 2225	DAGENHAM	313-333 Rainham Road South, Dagenham, Essex, RM10 8SX. 01-517 7000	KINGSTON	Unit 6, St. George's Industrial Estate, Richmond Road, Kingston-upon-Thames, Surrey, KT2 5BQ. 01-546 7787	SOUTHEND	51 Tailors Court, Temple Farm Industrial Estate, Southend-on-Sea, SS2 5SX. 0702 461611
BASILDON	Unit 22, Nobel Square, Swinburne Road, Burnt Mills, Basildon, Essex, SS13 1LR. 0268 727666	DARTFORD	Unit 1, 3 Riverside Industrial Estate, Riverside Way, Dartford, Kent, DA1 5BS. 0322 77611	LEEDS	Unit 3, Matrix House, Goodison Street, Leeds, LS10 1NZ. 0532 429311	STEVENAGE	Unit 1, Hyatt Trading Estate, Babbage Road, Stevenage, Herts., SG1 2EQ. 0438 728411
BIRMINGHAM	Unit 6, Parkway Industrial Estate, Heneage Street, Birmingham, B7 4LY. 021 359 5111	DOCKLANDS	22 Mastmaker Court, Mastmaker Road, London, E14 9UB. 01-538 2615	LEICESTER	7 Ealing Road, Freemans Common Industrial Estate, Leicester, LE2 7SZ. 0533 540174	STOCKPORT	236 Wellington Road South, Stockport, Cheshire, SK2 6NR. 061 480 6111
BOLTON	Unit 1, 180 Bark Street, Bolton, BL1 2AZ. 0204 31631	FARNHAM	Gray Dallen & Co. Ltd., Unit 2B Grovebell Industrial Estate, Wreclesham Road, Wreclesham, Farnham, Surrey, GU10 4PL. 0252 725977	LEWISHAM	2 Ladywell Road, London, SE13 7UW. 01-690 9915	SWINDON	Unit 6, Cobham Centre, Westmead, Swindon, SN5 7YI. 0793 542111
BOURNEMOUTH	Gray Dallen & Co. Ltd., 4-5 Dominion Road, West Howe, Bournemouth, BH11 8JG. 0202 571333	FULHAM	Unit 6, 92/104 Carnwath Road, Fulham, London, SW6 3HW. 01-731 1315	MILTON KEYNES	27 Clarke Road, Mount Farm Estate, Bletchley, Milton Keynes, MK1 1LG. 0908 648822	TELFORD	9a Stafford Park 12, Telford, Shropshire, TF3 3BJ. 0952 293111
BRISTOL	Unit 4, Kings Business Park, Kings Park Avenue, Feedar Road, Bristol, BS2 0TZ. 0272 724111	GILLINGHAM	6 Chieftain Close, Gillingham Business Park, Gillingham, Kent, ME6 0PP. 0634 373881	NORWICH	Burton Road, Norwich, Norfolk, NR6 6AU. 0603 788000	THORNTON HEATH	51 London Road, Thornton Heath, Surrey, CR4 6AR. 01-684 0191
CHARLTON (London SE7)	Unit 6, Maritime Industrial Estate, Woolwich Road, Charlton, SE7 7AY. 01-293 4111	GUILDFORD	90 Walnut Tree Close, Guildford, Surrey, GU1 4UJ. 0483 503533	PARK ROYAL	304 Elveden Place, London, NW10 7TG. 01-965 8799	TOTTENHAM	Forster Road, Tottenham, London, N17 6OQ. 01-801 0041
CITY (London E1)	50-54 Commercial Street, London, E1 6LU. 01-247 4356	HARLOW	50-51 Burnt Mill, Harlow Enterprise Centre, Harlow, Essex, CM20 2HU. 0279 417171	PETERBOROUGH	Unit 1, Vicarage Farm Road, Eastern Industrial Estate, Peterborough, Cambs., PE1 5T. 0733 555511	WATFORD	Shakespeare Street, Watford, Herts., WD2 5HD. 0923 39532
				READING	54 Milford Road, Reading, Berks., RG1 8LG. 0734 587221	WELLINGBOROUGH	Unit 1, Trinity Centre, Park Farm Estate North, Wellingborough, Northants., NN8 3ZB. 0933 679009
				REDDITCH	84 Heming Road, Washford, Redditch, B98 0EA. 0527 510100	WEST END (London W1)	13 Berners Street, London, W1P 4BY. 01-637 5393 (Also Lighting Showroom)

Reader Service No. 13

Page 14

Lighting Equipment News, June 1989

To advertise  
in this Directory  
contact Joanne Barker.

# WHERE TO BUY DIRECTORY

Telephone:  
01-975 9759 Ext.1154

## ACCESSORIES — BRASS PRESSED AND TURNED

S. Lilley & Son Ltd.,  
80 Alcester Street,  
Birmingham B12 0QE  
Tel: 021-622 2385  
Fax: 021 6666 148

## ACCESSORIES — CEILING CUPS/ CORD-GRIPS/PLUGS/ SWITCHES



Hylec-Elettro Gibi (UK) Limited  
Unit 4, Trinity Centre  
Park Farm Industrial Estate,  
Wellingborough,  
Northants NN8 3ZB  
Tel: (0933) 677633  
Telex: 312620 HYLEC G  
Fax: (0933) 675771

## 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

## ACCREDITED SAFETY TESTS



Albury Laboratories Ltd.,  
Albury, Guildford,  
Surrey GU5 9AZ  
Tel: (04641) Shere  
2041/4  
Telex: 859336 Albury G



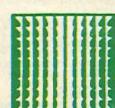
BSI Testing  
Maylands Avenue  
Hemel Hempstead  
Herts HP2 4SQ  
Tel: 0442 230442  
Contact: David Price  
Safety testing and  
photometry.



SGS Quality Control Int.  
Alperton Lane,  
Wembley, HA0 1WU  
Tel: 01-998 2171

## ALUMINIUM LOW BRIGHTNESS AND VDU LOUVRES

A.D.D. Louvre Sales Ltd.,  
8 Seax Way,  
Laindon, Basildon,  
Essex SS15 6SL  
Tel: 0268 415828  
Fax: 0268 410985  
The UK's foremost  
manufacturers of low  
brightness aluminium  
louvres.



Maxi Engineering Company,  
26/32 Plumstead High St.,  
London SE18 1SL  
Tel: 01-854 3181

MBM Plastics Ltd  
Aluminium Division



204 Oldbury Road,  
West Bromwich,  
West Midlands B70 9DE  
Tel: 021-553 7551  
High quality louvres for the  
lighting industry.  
Also — a wide range of  
plastic light controllers.

## ANODISED ALUMINIUM COIL AND SHEET



Alanod & Garfield Lewis  
Middlemore Road,  
Birmingham.  
Pre-anodised strip-blanks  
for louvres and reflectors  
available from stock to  
your precise requirements  
telephone or fax for more  
information and details of  
our 9 UK service centres.  
Tel: 021 554 5242  
Fax: 021 551 9315



Anocoil pre-anodised  
aluminium coil, sheet and  
blanks available ex-stock  
from the following service  
centres.

Tipton 0902-880881  
Uxbridge 0895-444554  
Leeds 0532-450304  
Glasgow 041-647-9222  
Southampton 0703-611471  
Bridgend 0656-559811



Ano-Coil Ltd.,  
Bilton Road, Bletchley,  
Milton Keynes MK1 1HT  
Tel: 0908 75642  
Telex: 825031  
Fax: 0908 643956  
Pre-anodised aluminium for  
reflectors, louvres and  
decorative uses.

## BATTENHOLDERS/ CEILING ROSES/ JUNCTION BOXES

Rock Electrical Accessories  
Ltd.,  
Commerce Road,  
Brentford,  
Middx. TW8 8LN  
Tel: 01-560 8151  
Telex: 264803

## BATTERY BASED EMERGENCY STANDBY SYSTEMS

Colbere Eng Ltd.,  
Church Lane,  
Caldwell, Burton on Trent,  
DE12 6RT  
Tel: 0283 761267

P. B. Design/Dev  
Batteries, Chargers, U.P.S.  
Emergency Lighting  
Systems, Service and  
Sales.  
Unit 7  
Riverside Business Park  
St Annes Road  
Bristol BS4 4ED  
Tel: 0272 723880 (5 lines)  
Fax: 0272 723879  
Reader Service No. 53

We are Specialist  
Consultants in Cold Cathode  
and Neon Lighting. Our  
company undertakes  
design, supply and  
Installation. Contact Mr  
Beecroft or Mr Watts on 01-  
720 2650/01-720 4305

## BEGA LIGHTING STOCKISTS LIGHTING COLUMN SUPPLIERS UNDERWATER LIGHTING



Exterior-Lite Services Ltd.,  
Unit 4, The Empire Centre,  
Imperial Way, Watford,  
Herts, WD2 4YH  
Tel: 0923 247254  
Telex: 916196

## BRASS PLATED LAMPS AND FITTINGS

Newtown Manufacturing Co. Ltd.  
Rear of 116 Aldridge Road  
Perry Barr  
Birmingham B42 2TP  
Tel: 021-356 8151  
Manufacturers of brass  
plated and powder coated  
metal components for the  
lighting industry.  
Specialising in traditional  
and modern designs. Made  
in Birmingham, cast from  
our own dies.

## BULKHEAD LUMINAIRES — TUNGSTEN AND ENERGY SAVING



BG Electrical Accessories  
Arlen House,  
808 Oxford Avenue  
Slough, Berks  
Tel: 0753 37921  
Telex: 847194  
Fax: 0753 691468

## CABLE ASSEMBLIES

Front Line Cables  
Tel: 0483 506433  
Fax: 0483 505029  
Any type of connector  
assembled and wired to any  
type of connector — Try Us!



WIRING TECHNOLOGIES  
Peel Road, West Pimbo,  
Skelmersdale, Lancashire,  
WN8 9PT UK  
Tel (0695) 51833  
Fax: 0695 50084  
Wires, Cables cut to length  
Crimp and Solder  
Terminations Wire Harness  
Assembly.

## CABLES/SILICONE

Technical Silicones Ltd.,  
3rd Floor,  
Stamford House,  
Stamford New Road,  
Altrincham,  
Cheshire WA14 1BL  
Tel: 061-941 5766

## COLD CATHODE

National Signs Ltd.,  
1 Hampshire Street  
London NW5 2TE  
Tel: 01-485 3363  
Fax: 01-284 1700 —  
Cold Cathode/Lighting  
installations \* servicing  
nationwide. Wide range of  
colours.

## S.W.1.

We are Specialist  
Consultants in Cold Cathode  
and Neon Lighting. Our  
company undertakes  
design, supply and  
Installation. Contact Mr  
Beecroft or Mr Watts on 01-  
720 2650/01-720 4305

## COLOURED SLEEVES FOR FLUORESCENT TUBES

## “COLORAP”

E.C. Hinton & Co. Ltd.,  
225 Cannon Hill Lane,  
London SW2 9DB  
Tel: 01-540 5813  
Fax: 01-543 9395

## COMBINED MAINS AND EMERGENCY LUMINAIRES



The Brightest Solution

Existalite Ltd.,  
Project House,  
18 Tallon Road, Hutton,  
Essex CM13 1TZ  
Tel: 0277 263600  
Telex: 996770 Apex  
Fax: 0277 263592

## DECORATIVE OUTDOOR LIGHTING

D.R. Illuminations  
Whitegate, Broadway,  
Chadderton, Oldham  
Lancs OL9 9QG



George Turnock Ltd  
Green Lane  
Walsall, West Midlands  
WS2 8HT  
Tel: 0922 24966  
Fax: 0922 25521

## DECORATIVE WIRE

Arthur Bridgens Ltd.,  
Tel: 0742 21477  
Fancy, decorative wires  
rolled in brass to  
customers design

## DIMMERS



DFP Electronics Ltd  
Meadow Road,  
Apperley Bridge  
Bradford, BD10 0LY  
Tel: 0274 616395

## Hamilton

R. Hamilton & Co. Ltd.,  
Unit G, Quarry Ind. Estate,  
Mere, Warminster,  
Wilts. BA12 6LA  
Tel: 0747 860088  
Telex: 41416 HAMILT G  
Fax: 0747 861032

## Strand Lighting (Environ)

Grant Way (off Syon Lane)  
Ilewsworth  
Middlesex TW7 5QD  
Tel: 01-560 3171  
Telex: 27976  
Fax: 01-568 2103

## Helvar

Helvar Ltd.,  
1 Ealing Road Trading Est.  
Ealing Road, Brentford,  
Middlesex TW8 0QY  
Tel: 01-568 6205  
Fax: 01-568 6473  
Telex: 291439 HELVARG

## Home Automation Ltd.

Bumpers Way,  
Chippenham,  
Wiltshire SN14 6LF  
Tel: (0249) 443422  
Telex: 444474 (Halco G)

## Polaron Controls Ltd.

21 Greenhill Crescent,  
Holywell Ind. Estate,  
Watford, Herts WD1 8XG  
Tel: 0923 40272/5  
Telex: 934191

## S.W.1.

We are Specialist  
Consultants in Cold Cathode  
and Neon Lighting. Our  
company undertakes  
design, supply and  
Installation. Contact Mr  
Beecroft or Mr Watts on 01-  
720 2650/01-720 4305

Strand Lighting (Environ),  
Grant Way (off Syon Lane)  
Ilewsworth  
Middlesex TW7 5QD  
Tel: 01-560 3171  
Telex: 27976  
Fax: 01-568 2103

## United Automation Ltd.

Heat Lamp Dimmers  
Liverpool Road,  
Southport PR8 4PJ  
Tel: 0704 65713  
Telex: 67464 UNITAM

## ELECTRONIC CONTROL GEAR



Tridonic Ltd.,  
Unit D1, Grafton Way  
West Ham Industrial Estate,  
Basingstoke, Hampshire,  
RG22 5HY  
Tel: 0256 843232  
Telex: 858137  
Fax: 0256 840113

## DECORATIVE OUTDOOR LIGHTING

Ram Electronics (UK) Ltd.,  
Iron Row,  
Burley in Wharfedale,  
West Yorks LS29 7DB.  
Tel: 0943 863884  
Telex: 518285 RAM G  
Fax: 0943 862630

Transformers. Electronic for  
low voltage lighting. High  
frequency fluorescent  
electronic ballasts. Panel  
dimmers.

## EMERGENCY LIGHTING CONTROL GEAR



ORBIK Electronics Ltd.,  
ORBIK House  
Northgate  
Aldridge  
Walsall  
West Midlands WS9 8TH  
Tel: 0922 743515  
Telex: 339612  
Fax: 0922 743173

## EMERGENCY LIGHTING EQUIPMENT

D.C. Emergency Systems Ltd  
Wharf Street, Dukinfield  
Cheshire SK16 4JG  
Service and Sales  
Tel: 061 343 1189

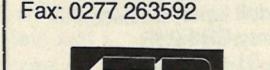
Ensura Systems Ltd.,  
Farrington Road,  
Burnley, Lancs.  
Tel: 0282 29261/2/3  
Telex: 63300 (Ensura)

Erskine Systems Ltd.,  
Lee de Forest House,  
Eastfield,  
Scarborough,  
Yorkshire YO11 3DU  
Tel: 0723 583511  
Telex: 52562

## existalite

The Brightest Solution

Existalite Ltd.,  
Project House,  
18 Tallon Road, Hutton,  
Essex CM13 1TZ  
Tel: 0277 263600  
Telex: 996770 Apex  
Fax: 0277 263592



JSB Electrical Ltd.,  
Manor Lane,  
Holmes Chapel,  
Crewe, Cheshire  
CW4 8AB  
Tel: 0477 37773  
Telex: 36526  
Fax: 0477 35722

## TRANSTAR

Transtar Ltd.,  
Victoria Industrial Estate  
Victoria Road West  
Hebburn  
Tyne and Wear NE31 1UB  
Tel: 091-4832797  
Telex: 537234 Transtar



## Mattalex

West Side Old Stables,  
Birlingham,  
Pershore, Worcs.  
WR10 3AA.  
Tel: 0386 750900  
Telex: 334066

## Menvier (Electronic Engineers) Ltd

Southam Road, Banbury  
Oxon. OX16 7RX  
Tel: 0295 56363/273939  
Telex: 837829 MENVIG

## Plasmold Safety Systems,

To advertise  
in this Directory  
contact Joanne Barker.

# WHERE TO BUY DIRECTORY

Telephone:  
01-975 9759 Ext.1154

## LAMPHOLDERS

**Golden Peacock**  
A-143 New Friends Colony  
New Delhi — 110065  
India  
Tel: (91-11) 635322, 529545  
Telex: (031) 62324 LITE IN  
Cable: Lightwest  
All items meet BS 5042  
Part 1: 1981.

**AGH**

**A. G. Hackney & Co. Ltd.**,  
Westport Road, Burslem,  
Stoke-on-Trent ST6 4AP  
Tel: 0782 577575  
Telex: 36674  
Fax: 0782 575230

**IMI Reeves Lampholders**  
Holdford Road, Witton,  
Birmingham B6 7ES  
Tel: 021-356 7369  
Telex: 335959  
Fax: 021-356 7987

## 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

**S. Lilley & Son Ltd.**,  
80 Alcester Street,  
Birmingham B12 0QE  
Tel: 021-622 2385  
Fax: 021 6666 148

**LINDNER**  
Bereich Installationstechnik  
Sole Agent and Distributor  
**HYLEC-Elettro Gibi (UK) Ltd**  
Unit 4, Trinity Centre  
Park Farm Industrial Estate  
Wellingborough  
Northants NN8 3ZB  
Tel: (0933) 677633  
Telex: 312620 HYLEC G  
Fax: (0933) 675771

## BENDER + WIRTH



**C. Quitman Ltd.**,  
Sole Agent and Stockist for  
Bender and Wirth  
Ullswater Crescent,  
Marlpl Lane, Coulson,  
Surrey CR3 2HR  
Tel: 01-668 5295/6  
Telex: 945809  
Fax: 01-660 2589

**Rock Electrical Accessories Ltd.**,  
Commerce Road, Brentford,  
Middlesex TW8 8LN  
Tel: 01-560 8151  
Telex: 264803

**Studen Products Ltd.**,  
Villiers Street,  
off Cobden Street,  
Pendleton, Salford,  
Manchester M6  
Tel: 061 736 8855  
Bakelite and brass wired  
holders.

**Tridonic**

**Tridonic Ltd.**,  
Unit D1, Grafton Way,  
West Ham Industrial Estate,  
Basingstoke, Hampshire  
RG22 5HY  
Tel: 0256 843232  
Telex: 858137  
Fax: 0256 840113

**Vossloh**  
**Vossloh Ltd.**,  
122 Tanners Drive,  
Blakelands,  
Milton Keynes MK14 5BP  
Tel: 0908 611060  
Telex: 825606 LIVO G  
Fax: 0908 613131

## LAMP COLOURING



**Lampcolors Ltd.**,  
Wiseman Street,  
Burnley,  
Lancs BB11 1RU  
Tel: 0282 56231/2  
The largest independent  
lamp spraying company  
in Europe, with the fastest  
turnround of orders in the  
business.  
**Lampspray (Lampcolourers)**  
Unit 41/42,  
Cromwell Industrial Estate,  
Staffa Road, London E10  
Tel: 01-539 7785

## LAMP SHADE FRAMES

**Brendon C. Hoarau**,  
149 Tideswell Road,  
Eastbourne, Sussex  
Tel: 0323 37096  
Frames plastic coated  
delivered anywhere in  
England. Good quality, good  
prices, fast and reliable  
delivery.

**Wards Coatings**  
Sheffield S2 3DA  
Tel: 0742 580963  
Manufacturers of quality  
frames in round or flat wire.  
Coated or plain wire.

## LAMPS AND LIGHTING

**American Lamps and Lighting Ltd.**,  
367 Uxbridge Road,  
Acton, London W3 9RH  
Tel: 01-993 3181  
Telex: 894452



**Chadwell T.S.M. Ltd.**,  
Unit No.2  
Southbrook Mews,  
Southbrook Road, Lee,  
London SE12 8QL  
Osram-Thorn-Philips-  
Omega-Wotan.  
Tel: 01-318 5071

**H. J. Rose**,  
84 Boundary Road,  
London E17 8JU  
Tel: 01-521 5845  
Coloured lamps a  
speciality.

## TUNGSRAM

**Tungsram Lighting Ltd.**,  
35-37 William Road  
London NW1 3ER  
Tel: 01-388 8889,  
01-722 6611  
Telex: 266086  
Fax: 01-387 4071

## LIGHTING ACCESSORIES/CONNECTORS

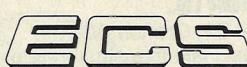
**Rock Electrical Accessories Ltd.**,  
Commerce Road,  
Brentford, Middx. TW8 8LN  
Tel: 01-560 8151  
Telex: 264803  
The revolutionary new  
KLICK connector makes a  
mechanical and electrical  
connection simultaneously.

## LIGHTING COMPONENTS/LAMPHOLDERS/SWITCHES CABLE/BRASS/GLASS



**Collingwood VLM Ltd.**,  
17 Stilebrook Road,  
Olney,  
Bucks.  
Tel: 0234 712121  
Telex: 826207  
Fax: 713673

## LIGHTING CONTROLS



**ECS Energy Conserv. Systems Ltd.**,  
Enterprise House, North  
Feltham Trading Estate,  
Feltham,  
Middlesex TW14 0RX  
Tel: 01 751 6514  
Fax: 01 890 7438

## LIGHTING DIFFUSERS

**Diffuser Replacement Services**,  
197 Eade Road,  
London N4 1DN  
Tel: 01-802 1429  
Fax: 01-800 9819  
Manufacturers of all types of  
diffusers and metal louvres.

**Panelservice Ltd.**,  
Wycliffe Works,  
Wycliffe Road,  
Wimbledon SW19 1ER  
Tel: 01-540 7172

## LIGHTING DIFFUSERS/PLASTICS

**Arrow Plastics Ltd.**,  
Arrow Works,  
Hampden Road,  
Kingston-upon-Thames,  
Surrey  
Tel: 01-546 6258  
Telex: 8955343

**MBM Plastics Ltd.**,  
204 Oldbury Road,  
West Bromwich,  
West Midlands B70 9DE  
Tel: 021-553 7551  
Extruded, fabricated and  
moulded diffusers for the  
lighting industry.  
Also — aluminium louvres.

## LIGHTING GLASS

**Glastics Ltd.**,  
Common Lane,  
Wath-upon-Dearne,  
Rotherham, S63 7DY  
Tel: 0709 878721  
Telex: 547455



## LIGHTING ACCESSORIES/CONNECTORS

**Alectralink Distributing Company**  
Unit 5, Popin Building,  
South Way, Wembley,  
Middlesex HA9 0HB  
Tel: 01-900 2322  
Fax: 01-903 3403

Only 1/2" wide uses new  
type of miniature Halogen  
lamps, runs bright, white,  
cool (low heat emission).  
It is new it is amazing.

## LIGHT MEASURING INSTRUMENTS

**Bentham Instruments Ltd.**,  
2 Boulton Road,  
Reading,  
Berks RG2 0NH  
Tel: 0734 751355  
Telex: 848686 BENTMG



**Hagner International (UK) Ltd.**,  
Itchenor, Chichester,  
West Sussex PO20 7DA  
Tel: 0243 512387

**Megatron Limited**,  
165 Marlborough Road,  
London N19 4NE  
Tel: 01-272 3739

**Micron Techniques Ltd.**,  
Representing (Photo  
Research, Optronic Labs,  
LMT, Berlin)  
15 Riverside Park,  
Wimborne Minster,  
Dorset BH21 1QU  
Tel: 0202 841261  
Fax: 0202 884353  
Telex: 417204 MICRON G



**Minolta UK Limited**,  
1-3 Tanners Drive  
Blakelands North  
Milton Keynes  
MK14 5BU  
Tel: 0908 211211

## LIGHT SOURCES & COMPONENTS TO OEM MANUFACTURERS



**EFA Ltd.**,  
Arlen House,  
808 Oxford Avenue,  
Slough, Berks.  
Tel: 0753 37921  
Telex: 847194  
Fax: 0753 691468

**Thorn EMI Lamps & Components Ltd.**,  
Miles Road, Mitcham,  
Surrey CR4 3YX  
Tel: 01-640 1221  
Telex: 25534 TELC.G  
Fax: 01-685 9625

## LOW BRIGHTNESS VDU LOUVRES

**ALC CELLITE LIMITED**  
AMERICAN LOUVER COMPANY

**A.L.C. Cellite Ltd.**,  
Unit 16 Adler Ind. Est.,  
Betam Road, Hayes,  
Middlesex UB3 1ST  
Tel: 01-848 1881

## MANUFACTURERS OF SPECIAL AND PURPOSE MADE FITTINGS

**Maxi Engineering Co.**,  
26/32 Plumstead High St.,  
London SE18 7SL  
Tel: 01-854 3181

**Shawe Metal Spinners Ltd.**,  
Injection Moulders &  
Component suppliers. The  
complete Lighting Services.  
Tariff Road, London,  
N17 0EJ  
Tel: 01-808 1271  
Telex: 25545



**Vector Lighting Ltd.**,  
Porte Marsh Estate,  
Calne, Wiltshire SN11 9PU.  
Tel: 0249 814548  
Telex: 445966 TEKCON G

## SYMONDS

**Symonds Engineering plc**,  
High Street, Cheshunt,  
Herts EN8 0BU  
Tel: 0992 262222  
Telex: 28725  
Fax: 0992 37738  
Luminaires/louvres, major  
trade suppliers.  
BS5750 part 2.  
Contact: Lee Freeman.

## METAL FINISHERS

**Aspects Polishers**  
13 Long Lane,  
Ickenham, Middx.  
Tel: 0895 672515  
Brass polishing and  
lacquering.

## METAL PRESSWORK AND POWDER COATING

**Colmore Pressings Ltd.**  
40-41 Macdonald Street,  
Birmingham B5 6TQ  
Tel: 021-692 1701/1702  
Wide range of standard  
parts for domestic and  
industrial light fittings.

## METAL SPINNERS

**A. L. Munro (B'ham) Ltd.**,  
29 Hunters Road  
Birmingham B19 1DP  
Tel: 021-554 0424  
Fax: 021-523 0617  
Metal Spinners for the  
Lighting Industry.

**Anglia Spinners**,  
Spinners, presswork,  
spraying & finishing,  
Unit 115a,  
Little Staughton Airfield,  
Little Staughton, Beds  
Tel: Colmworth  
0230 62 398

**H.D. Collins Ltd.**,  
Delamare Road,  
Cheshunt,  
Herts EN8 9TB  
Tel: 0992 25981/24936  
Fax: 0992 36915  
Auto and manual spinners,  
presswork and assy.

**E.G. Sheet Metal Works**,  
Metal spinners and  
general sheet metal  
workers. A complete service  
to the lighting industry.  
Third Way,  
Exhibition Grounds,  
Wembley, Middlesex  
Tel: 01-902 2153  
01-903 3171

**Jacksons General Metal Spinners**  
Prototypes and small  
quantities a speciality  
Unit 1  
Noke Lane Business Centre  
Noke Lane, St. Albans  
Herts AL2 3NY  
Tel: 0727 46038

**Moore Metal Spinners Ltd**  
3 Sussex Place  
London W6 9EA  
Tel: 01-748 6061  
Comprehensive service to  
the lighting industry from  
prototypes to batch  
production.

**METAL SPINNING/ASSEMBLY ANODISING/PRESSWORK METAL WORK/SPRAYING**

**Tornado Lighting**  
235 Upper Richmond Road.  
Putney, London SW15 6SN  
Tel: 01-788 2324  
For top quality wall lights in  
T/Halogen GLS and PL.  
Phone or write for brochure

## MODULAR LUMINAIRES, ENERGY SAVING & EMERGENCY LIGHTING

## ADLITE

**ADLITE**  
Unit 242J Redwither  
Complex  
Wrexham Industrial Estate,  
Wrexham,  
Clwyd LL13 9UG  
Tel: 0978 661083

## NATURAL LIGHT LAMPS NULITE AND SUNGRO LITE

**Sungro-Lite**  
Sungro-Lite Limited  
Tel: 01-459 2636  
City Electrical Factors Ltd.,  
(Branches throughout U.K.)

## NEON TUBES, ELECTRONIC AND HT TRANSFORMERS AND ACCESSORIES

**P. J. Mason & Co. Ltd.**,  
36 Second Avenue,  
Chatham, Kent ME4 5AX  
Tel: 0634 812751 (4 lines)

## ORIENTAL LAMPS AND SHADES

**50-STEPS**  
WE SELL THE HOTEL LIGHT

**50-Steps Lighting International Ltd.**,  
5th Floor  
Federal Centre  
77 Sheung on Street  
ChaiWan, Hong Kong.  
Tel: 5 897 1060  
Telex: 78049 FIFTY HX  
Fax: (852)-5-897-0509

## PETROL FORECOURT UNDER CANOPY LIGHTING UNITS

**National Signs Limited**,  
1 Hampshire Street,  
London NW5 2TE  
Tel: 01-485 3363  
Fax: 01-284 1700

# WHERE TO BUY DIRECTORY

## STANDARD & SPECIAL LUMINAIRES & FLUORESCENT LIGHTING DESIGN SERVICE

Maxi Engineering Co.,  
26 Plumstead High Street,  
London SE18 1SL  
Tel: 01-854 3181

## STEEL LIGHTING COLUMNS

Concrete Utilities Ltd.,  
Lower Road,  
Great Amwell,  
Ware, Herts.  
Tel: 0920 2272/6  
Telex: 81398

## TERMINAL BLOCKS



HYLEC-Elettro Gibi (UK) Limited  
Unit 4, Trinity Centre,  
Park Farm Industrial Estate  
Wellingborough,  
Northants NN8 3ZB  
Tel: (0933) 677633  
Telex: 312620 HYLEC G  
Fax: (0933) 675771

## TOROIDAL TRANSFORMER MANUFACTURERS

Airlink Transformers Ltd.,  
Unit 6, The Maltings,  
Sawbridgeworth, Herts.  
Tel: 0279 724425



Toroid Technology Ltd.,  
175A Brigstock Road,  
Thornton Heath,  
Surrey CR4 7JP  
Tel: 01-689 8002, 684-4217  
Telex: 8813271 Gecoms G  
Fax: 01-689 0002

## TOWER/MASTS FLOODLIGHTING

Francis & Lewis Ltd.,  
The Runnings,  
Kingsditch Estate,  
Cheltenham,  
Gloucester GL51 9NJ  
Tel: 0242 513882  
Telex: 43428

Towermaster Steelwork Ltd.,  
Braintree,  
Essex CM7 7YN  
Tel: 0376 24809  
Telex: 987312 TOWERS G

Padnall Structures Ltd.,  
27 Cheyne Walk, Horley,  
Surrey  
RH6 7PE  
Tel: 0293 784168

## TRANSFORMER MANUFACTURERS

Burrows Electrical Ltd.,  
Railway Street,  
Chelmsford, Essex  
Tel: 0245 267428



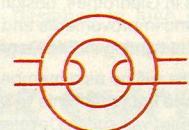
Carroll & Meynell Ltd.,  
Portrack Grange Road,  
Stockton-on-Tees  
Cleveland TS18 2PH  
Tel: 0642 617406  
Telex: 58646  
Fax: 0642 614178  
Manufacturer of Low Voltage Transformers.

Cumbernauld Transformers Ltd.,  
18-20 West Lenziemill Industrial Estate,  
Cumbernauld,  
Glasgow G67 2XT  
Tel: 023-67 25914  
Telex: 777350  
Full range of low-voltage transformers available.

J. M. Clarke Ltd.,  
64/66 Percy Road,  
Leicester LE2 8FN.  
Tel: (0533) 833321  
Fax: (0533) 830730  
Manufacturers of low voltage wound and electronic transformers.



Tekcon Electrical Limited  
Porte Marsh Estate  
Calne, Wilts. SN11 9PU  
Tel: 0249 814548  
Telex: 445966 TEKCON G  
Lamp Transformers (SELV)  
50VA to 600VA rating.



Toroid Technology Ltd.  
175A Brigstock Road,  
Thornton Heath,  
Surrey CR4 7JP  
Tel: 01-689 8002, 684-4217  
Telex: 8813271 Gecoms G  
Fax: 01-689 0002

## TRANSFORMERS

### WLA

P.O. Box 524  
Lostock Hall, Preston  
Lancs PR5 5HZ  
Tel: 0772 626900  
Fax: 0772 627729

## TUBES

### Cobham Engineering

Unit 2,  
Upper Conybere Street  
Birmingham B12 0YP  
Brass, Steel and Aluminium  
8, 10, 13mm Arms.  
Brazing and Spot Welding  
Stampings and Luminaire parts.  
Tel: 021 440 1690  
Fax: 021 446 4197

### F.B. Products

Mill Street Salford  
Tel: 061 834 7356  
Tube bending, fabrication work.  
Polishing and Lacquering.

### S. Lilley & Son Ltd.

80 Alcester Street,  
Birmingham B12 0QE  
Tel: 021-622 2385  
Fax: 021 6666 148

## ULTRA VIOLET FLUORESCENT TUBES

### Eastmead Electronics Limited

Lavant  
Chichester PO18 QDE  
Tel: 0243 527922  
Fax: 0243 531537

## ULTRA VIOLET/SPECIALIST LAMPS & EQUIPMENT

### Starna Ltd.

33 Station Road,  
Chadwell Heath, Romford,  
Essex RM6 4BL  
Tel: 01-599 5115  
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

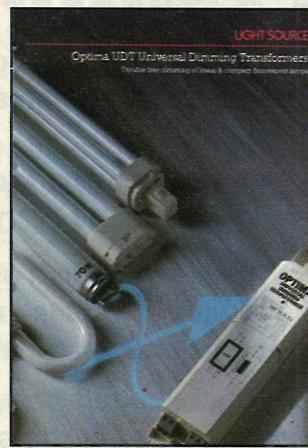
### B.V. Industria

52-62 Brasenose Road  
Boote  
Merseyside L20 8HG  
Tel: 051-922 0052  
Telex: 629135  
Fax: 051 922 0099

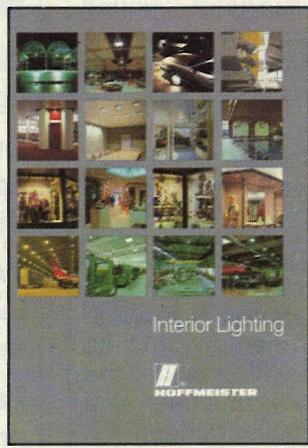
### Communication & Control Engineering Co. Ltd.

Park Road, Calverton,  
Nottingham NG14 6LL  
Tel: (0602) 652574  
Telex: 37362 comcon G

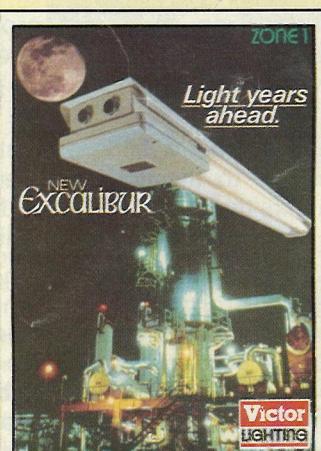
# CATALOGUE DIRECTORY



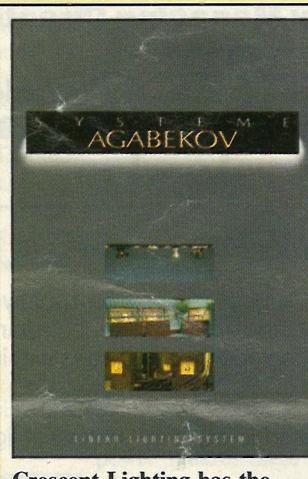
The UDT 70 Dimming Transformer from Light Source operates T12 and T8 linear lamps, and compact fluorescent lamps, in ratings from 18 to 75W. Lamps may be dimmed from 100% down to 5%, with instant restrike at any point across the range: circle 90



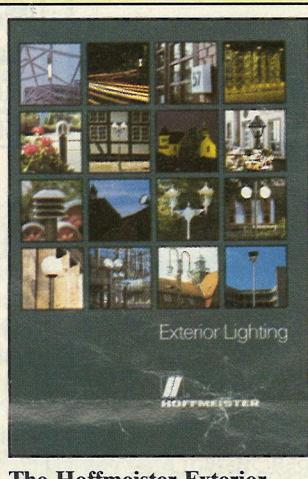
The Hoffmeister Interior Catalogue of 272 pages features double page presentation of luminaire groups with photographs, descriptive text, photometric data and technical drawing detailing to enable precise assessment of design and performance with clarity: circle 91



Available in standard and emergency versions, the Excalibur is fast becoming the first choice when ex 'E' luminaires are required. The Excalibur is slim and lightweight but well able to withstand the rigours of zone 1 or zone 2 and the harsh offshore environment: circle 92



Crescent Lighting has the exclusive distribution for Systeme Agabekov. This new catalogue details this low voltage linear lighting system which is used for display cabinets, cornice lighting and undershell lighting in retail applications. A wide variety of lamps can be used from 3W Festoon to 35W Dichroic lamps: circle 93



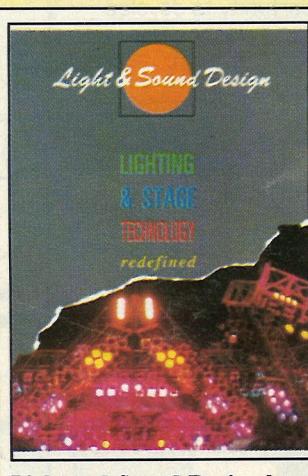
The Hoffmeister Exterior Catalogue of 250 pages features Pathway Luminaires, bollards, 100mm tubular system, street luminaires etc which enable illumination of public, office, church or private garden lighting, from this extensive exterior luminaire programme: circle 94



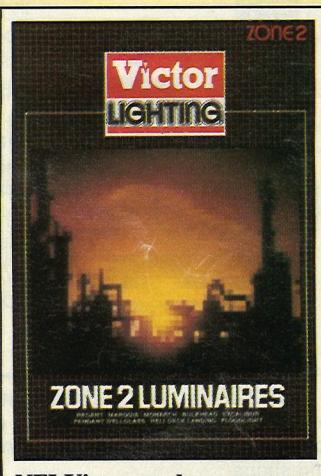
'FIREWATCH' is a fully intelligent fire detection system capable of monitoring addressable fire sensors. Precise locational data is clearly displayed on all 'alarm' conditions, and the selected response to each condition pre-programmed to meet the requirements of the site. Channel Safety Systems Ltd: 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 scaffolding or platforms: circle 96



Light and Sound Design have many years experience in designing Lights, Trussing, Electronics and stage sets for some of the most spectacular rock shows. Their product range is now being distributed by Presentation Consultants Limited: circle 97



NEI Victor produce a range of Zone 2 luminaires featuring floodlight, pendant bulkhead and tubular fluorescent designs, as well as general purpose variants offering the same quality manufacturing materials: circle 98

# WHERE TO BUY DIRECTORY

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

01-975 9759

# CLASSIFIED ADVERTISEMENTS

01-975 9759

## MARKETING MANAGER

Jerrard Bros. is a fast growing specialist lighting manufacturing company based in Croydon, Surrey. A new position has arisen for a person to be responsible for the company's marketing function.

There are many niche market opportunities presently available to the company, and we wish to formally evaluate their potential. In addition, we wish to develop our export distribution channels.

Responsibilities will cover the evaluation of markets and the preparation and implementation of market penetration strategies. A 'hands on' approach, through close liaison with the sales department, would be expected. Further responsibilities will include the development of client product information, and administrating the company's advertising budget.

A formal training in marketing would be preferred, as would previous experience in industrial marketing. A knowledge of the non-decorative lighting industry would be a real bonus.

This is a very important role, as the successful candidate will be directly influencing the future direction of the company. As such, the remuneration package will be attractive enough to lure the highest calibre of applicant. Future prospects are excellent, as the company does not presently have a marketing director.

Please send your cv to:

Mr S H Jerrard,  
Managing Director,  
Jerrard Bros. PLC,  
Arcadia House, Cairo New Road,  
Croydon CR0 1XP.

Lighting Growth

ERCO

- Lighting Design Engineer
- We have a vacancy for a qualified, innovative Lighting Engineer experienced in all aspects of Architectural lighting design and specification work.
- The person that we are looking for will be sophisticated and perform to the same exacting standards as our products and clients — architects, consulting engineers, government departments and major retail chains.
- We are intent on employing the very best and offer salary and company benefits accordingly. If you are interested in the opportunity to develop your career in conjunction with our rapid growth, please contact.
- Mark Rowling  
Technical Manager  
ERCO Lighting Limited  
Unit 1  
Silver Road  
White City Industrial Park  
London W12 7SH

"We manufacture an environmentally friendly fragrance and aromatherapy systems for homes, offices and work places that compliment the table lamp trade and is already selling via retail lighting shops.

We are interested in hearing from independent commission agents/companies directly involved in supplies to the retail trade.

The product is highly innovative and offers substantial returns for the agent and the retailer.

Interested parties with proven track record only, please contact:

Almavale Limited,  
22 Upper Montagu Street,  
London, W1H 1RN  
Telephone: 01-409 1777  
Fax: 01 224 8558

**SENIOR SALES/MARKETING EXECUTIVE** with 25 years experience at the highest level both in lighting manufacturing and electrical wholesaling seeks challenging position commensurate with experience and ability, no geographic restriction.

Reply to: **Box 1470, Lighting Equipment News,**  
**Maclean Hunter House, Chalk Lane,**  
**Cockfosters Road, Barnet, Herts EN4 0BU**

## Lampways

Lampways is one of the largest independent lighting distributor companies in the UK.

Due to continued expansion we are seeking to appoint a KEY ACCOUNT MANAGER to cover the SOUTH EAST AND LONDON.

**TASK:** To further establish our position as the leading supplier of replacement lighting into the commercial end user markets.

**Person:** Probably aged between 25-45 with a proven track record in the sale of lighting to end users and who has the necessary sales/negotiation skills to succeed in the competitive commercial market place.

The position attracts a highly competitive renumeration package which includes: negotiable basic salary + company car + performance related bonus OTE 20K.

Apply with CV in strict confidence to:

**Mr. J. D. Anderson,  
Deputy Managing Director,  
Lampways Ltd,  
Knowles Lane, Wakefield Road,  
Bradford, W. Yorkshire BD4 9AB.**

## LIGHTING DESIGN ENGINEER

As a highly successful and rapidly expanding privately owned electrical wholesale company, we wish to build upon our considerable success within the lighting market.

We seek an experienced lighting sales engineer of a high calibre based in our new specialist lighting showroom.

The successful candidate will have to be self motivated and experienced in the lighting and design fields, with excellent contacts in the architects and specifier markets and has the ability to see projects through from conception to the final stages.

The chosen applicant will be highly rewarded.

Contact: **Mr. S. Nahum  
Massgrove Ltd  
6 Central Circus  
Hendon Central  
London NW4 3LB  
Tel: 01-202 3477**

## AT LAST . . . RONALD DURY HAS BEEN FOUND!

You can find him at:

**Manlight Lighting Ltd  
22 Nursery Place  
Sevenoaks, Kent  
TN13 2RH  
Tel: 0732 451744**

*(soon moving to bigger premises)*

## LIGHTING SALES EXECUTIVES

Sell quality luminaires to today's specifier.

Growing success has created opportunities for additional sales executives to join the sales team at RADA Lighting Limited.

The ability to communicate with enthusiasm, authority and technical credibility to Architects, Consulting Engineers, Contractors, Large Users and Public Authorities is an essential qualification for the Company's sales executives.

Effective selling skills and some technical knowledge of commercial lighting will be an advantage.

Successful candidates will operate in London and the Home Counties and be rewarded with a competitive salary plus a bonus/commission scheme designed to secure earnings well above the industry average.

Please reply with a full CV to:



**Brian Burfoot,  
Sales Director.**  
RADA LIGHTING LIMITED  
Hollies Way  
High Street  
Potters Bar  
Herts  
EN5 4AR  
Tel: 0707 43401



FIFE • REGIONAL • COUNCIL

## SENIOR TECHNICIAN/ TECHNICIAN ENGINEER

Up to £12,333

The Street Lighting Section, which is based at Roads Division Headquarters in Glenrothes, designs and supervises new lighting installations and improvements and formulates the policies for maintenance of lighting in Fife Region.

Your key role will be as a member of our team designing new installations and improvements to Motorways, Trunk and Regional Roads. The team will check Developers' new lighting schemes and supervise all new works by Developers, Contractors and the Direct Labour Organisation.

You must have an HNC in Electrical Engineering, preferably have broad experience in Street Lighting Design, Installation and Maintenance and be a Corporate Member of the Institution of Public Lighting Engineers. Incorporated Engineers will start at not less than £11,106.

The post carries an essential Casual Car User designation and you must possess a current driving licence.

Application forms and further details are available from the Director of Manpower Services, Fife House, North Street, Glenrothes KY7 5LT, to whom completed forms should be returned not later than Wednesday 21st June 1989. Telephone Glenrothes 754411. Ext. 3822. Reference DMS/48/A/95.89/LEN.

AN EQUAL OPPORTUNITIES EMPLOYER.

## PRODUCT DEVELOPMENT MANAGER

Eterna Lighting is engaged in an exciting programme of range expansion. We need an enthusiastic manager to see new products through from concept to the market place in the shortest practical time.

A good salary package and a car will be provided. Write in confidence to R Almond Managing Director.



**Eterna Lighting Limited**

EMILY PLACE, QUEENSLAND ROAD, LONDON N7 7DQ

**TO RESERVE  
SPACE IN THE  
CLASSIFIED  
COLUMNS**  
call:  
**Joanne Barker  
01-975 9759**

**AGENTS  
REQUIRED**  
for Decorative lighting  
Please write to:  
Newtown Manufacturing  
Company Ltd  
Rear of 116 Aldridge Road  
Perry Barr  
Birmingham  
B42 2TP

# LETTERS

## Floodlighting: a designer comments

The recent controversy on your letters page between the representatives of Philips and Thorn in respect of their floodlighting systems for TV sports production amused me more than somewhat.

The esoteric nature of some of the manufacturers' comments show a disregard for the basic practicalities of producing adequate TV pictures. What is needed is high luminance level evenly spread across the pitch, for modern TV cameras can be tweaked to produce acceptable images from any non quasi-monochromatic light source.

The problems with discharge light sources become much more apparent in critical applications where substantial colour rendering variations are not masked by the number of luminaires directed onto a single surface.

The most commonly used discharge light source, the HMI day-light balanced lamp, which is widely available in powers ranging from 200W to 12kW, is moderately consistent between samples and has a predictable change in colour rendering with age. Even so visible excursions in output, particularly on the green/magenta axis are not uncommon. Your readers may be interested to learn that measurable variations in the red/blue output occur when these lamps are used in focussing luminaires, this being associated with the change in the physical arc temperature as the lamp is moved from the spot to flood position.

The Thorn CSI lamp, which is widely used in follow-spot applications, can be somewhat troublesome in terms of its colour rendering. It starts with a maverick correlated colour temperature (rather bluer than conventional filament studio lamps), and unfortunately the variation between some batch samples of the same burning age, can be extremely time consuming to correct.

It must be said, however, that while the CSI may have its quirks,

Thorn's contribution to TV lighting worldwide has been very significant and is perhaps best seen in the development of the CP32 dual filament 2½-5kW lamp and its later derivatives, which have made fast turn-round studio operations more feasible than they otherwise would have been.

**John Burgess**  
Lighting Design Consultant  
Trowbridge, Wilts.

## Lighting St Martins in-the-field

I read with interest your article entitled 'Making Light of History' in the April edition of *LEN*.

With reference to the floodlighting of St. Martin-in-the-Fields, it should be noted that this was funded by the Westminster City Council who, in turn, instigated the trial comparison schemes of high pressure sodium and mercury lighting. All concerned are, as you report, pleased with the result, the main point being that in urban areas the whole night-time scene needs to be taken into account and not just the subject building to be lit.

St Martin's was originally designed in high pressure sodium

which would have been perfectly acceptable had it not been flanked by buildings already lit by the same source and surrounded by street lighting of the same source. The suggestion to use high pressure mercury was, hence, made to create a more interesting nighttime 'picture' of one of our great city squares rather than purely floodlight one of London's most beautiful churches. The result speaks for itself.

**Nigel E Pollard**  
Principal Engineer  
(Public Lighting)  
City of Westminster

## CIBSE launches specialist IT Group

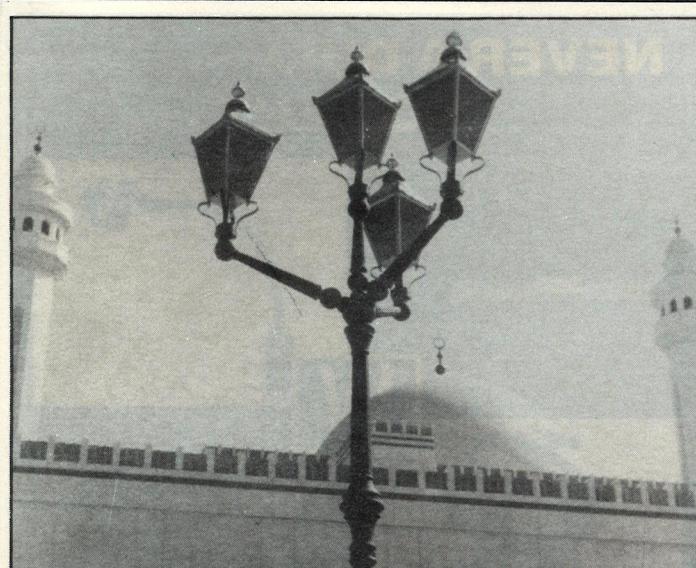
The Chartered Institution of Building Services Engineers is to launch an Information Technology Group on 26 September 1989.

Specialists from major consulting firms, who have over recent months been meeting as a steering committee, have defined the new group's terms of reference as "communications technology and

its effect on buildings". This includes space requirements, power requirements, temperature constraints, electromagnetic compatibility, networks and common use.

The new group will enable expertise to be shared by CIBSE members through meetings, newsletters and publications. Initial

Further details can be obtained from Peter Scurry, CIBSE technical secretary on 01-675 5211.



## Lighting the Gulf

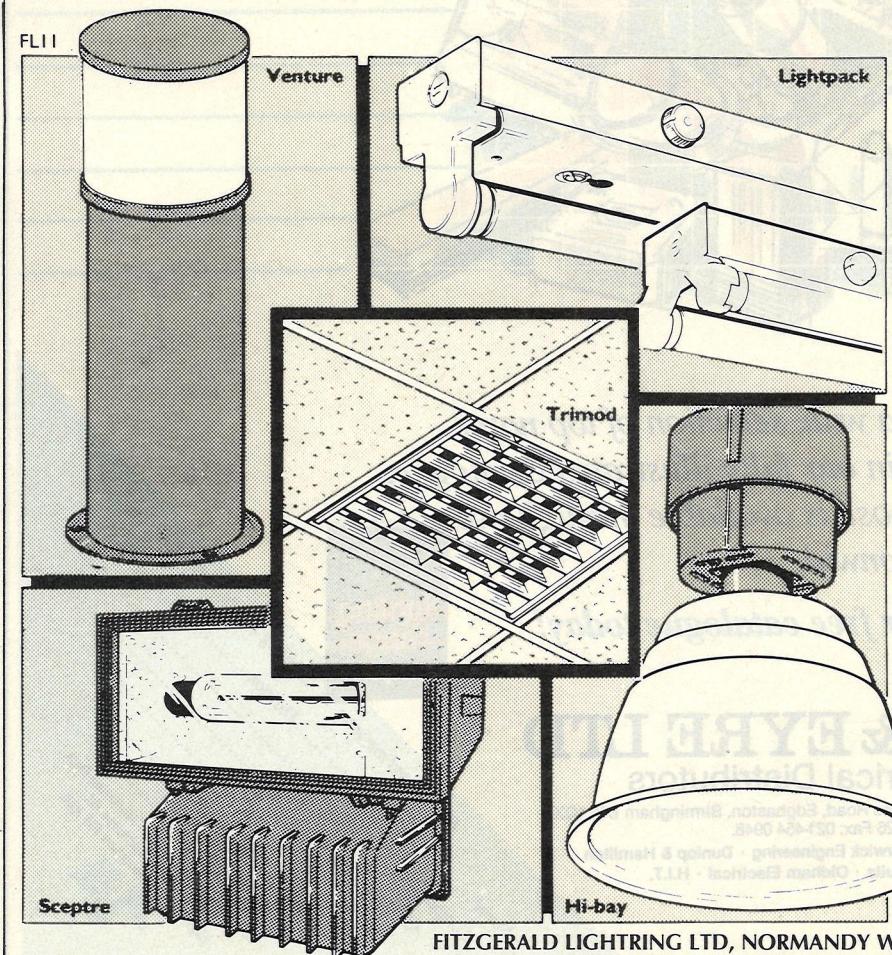
Exterior lighting worth nearly £100000 has been supplied by Abacus Municipal for the new Grand Mosque in Bahrain.

The Bahrain Grand Mosque is a massive project designed not only to provide a beautiful new place of worship, but also to give an added tourist attraction to the country.

The exterior lighting contract

alone has taken over 3 years to complete. All exterior lighting has been supplied by Abacus in the form of purpose-designed lighting columns.

Forty-five of these columns hold 4 Ed Walton lanterns manufactured in copper and brass. An additional 90 columns are each fitted with a single lantern.



Reader Service No. 14

# NEWS

## New skills required in building services

A report entitled *New technology, employment and operative skills in building services* has been prepared for the Science and Engineering Research Council by David Gann.

It states that technological change in building services is rapid and training is inadequate. A new pattern of skills is emerging.

Firms need to plan to identify and satisfy their skill needs clearly in the context of their markets and technology. Skill shortages open the way to employment of "cowboy" labour.

Building services, the report says, are poorly understood and the building industry has a poor image. All concerned need to develop and promote a credible modern image.

It concludes that there is an urgent need to create a growing, innovative and prosperous industry equipped with the necessary skills. The central thrust of a coherent training strategy must be to address the extensive changes the industry is experiencing.

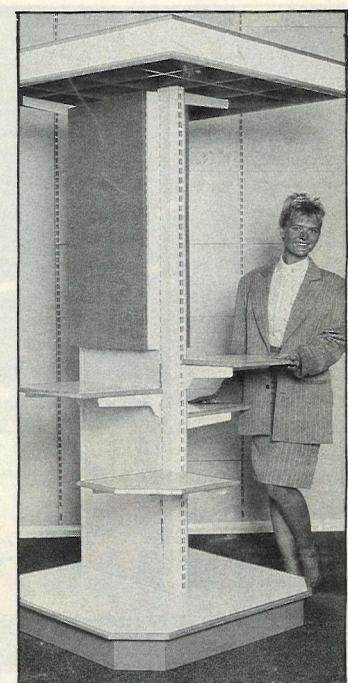
The report, price £30, is available from the Science Policy Research Unit, University of Sussex.

## Strike a light

A lighting pod, designed to make shoppers in a departmental store aware of the lighting department, has been developed by Railston Design, retail design and shopfitting specialists.

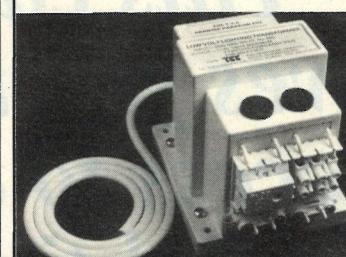
The pod can display a range or suite of lights, and comprises specially designed shelves, a wall display board to take wall fittings and a mini canopy from which to suspend ceiling lights. All wiring is hidden.

Lighting departments are usually tucked in the darkest part of the store, somewhere at the rear, so the lighting pod positioned near the front of the shop serves to draw the customer's attention to the facility.



## THE POWER BEHIND THE LIGHT

Two Important Additions to Our LOW VOLTAGE LIGHTING Transformer Range.



### 105 V.A.

A beautifully designed Low Voltage Transformer by J M Clarke with many safety features "locked in" have resulted in a product which will be a market leader in the low voltage lighting field.



### 50 V.A.

The culmination of over 3 years exhaustive design and development and merciers field trials have produced this advanced product of undisputed reliability. Made for T.S.S. in Great Britain by J M Clarke Ltd, we offer this superb product with confidence.

AVAILABLE NOW FROM STOCK  
Technical Assistance — Literature Available

### WRITE—RING—FAX



Technical Sales and Services (Saddleworth) Ltd  
Electron House, Sam Road,  
Diggle, Oldham OL3 5PU  
Tel: 0457 876131 Fax: 0457 873319

## LIGHTING The Way Forward

Fitzgerald Lighting is the largest independent lighting company in the United Kingdom selling their products Worldwide.

The Fitzgerald name has been made popular through **Lightpack**, a range of Quality Batten Luminaires, at highly competitive prices. This is achieved by In-House Design and efficient production facilities, utilising Computer Aided Systems, with rigid Quality Control under a B.S. 5750 part two system.

These principles have been applied to many new products over recent years, now giving a comprehensive range of quality products including: ■ **Highbay** ■ **Lowbay**  
■ **Floodlighting** ■ **Tungsten Halogen**  
■ **Recessed Lighting** ■ **Surface Modules**  
■ **Emergency Lighting** ■ **Amenity Lighting**  
■ **Ballast Trays** ■ **Passive Infra Red**  
■ **Photo Electrics**

Manufacturing and storage facilities amount to over 100,000 sq ft including an additional factory completed in 1988 specifically for Lo-Bay and module production. A further 18000 sq ft of storage and distribution depots are located in Edinburgh, St Helens and Basildon.

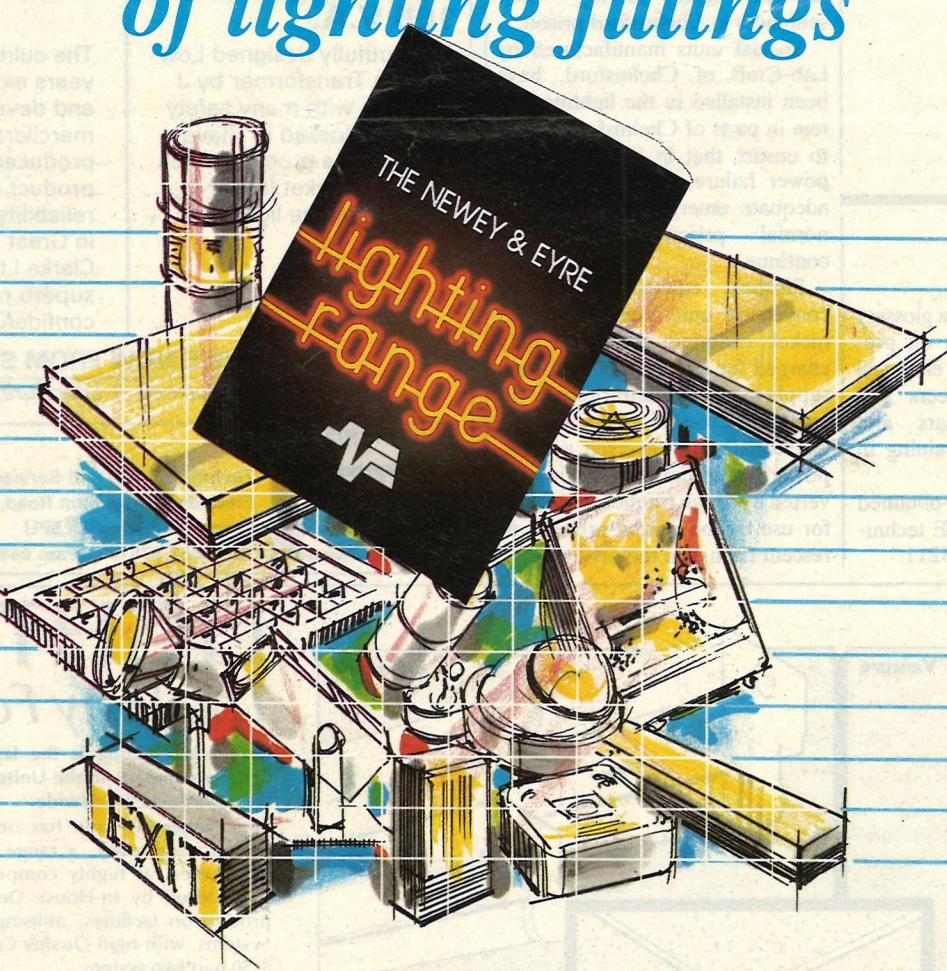
**FITZGERALD**  
LIGHTING

FITZGERALD LIGHTING LTD, NORMANDY WAY, BODMIN, CORNWALL PL31 1HH ENGLAND.  
TELEPHONE: 0208 75611 Telex 45389 FZLTBN G. Fax No. 0208 74893



High ceilings called for the use of specialist lighting fittings at JCB.

## This catalogue gives you immediate access to over £10m of lighting fittings



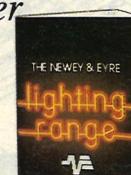
You will find a wide selection of top name lighting products in our fully illustrated catalogue. Whatever you choose is available through over 180 branches nationwide.

Send for your free catalogue today!



**NEWEY & EYRE LTD**  
Nationwide Electrical Distributors

Head Office: Donne House, Calthorpe Road, Edgbaston, Birmingham B15 1QX.  
Telephone: 021-455 9727 Telex: 337726 Fax: 021-454 0948.  
Newey & Eyre · Ross Electrical · Lerwick Engineering · Dunlop & Hamilton  
Eastern Electrical · Electrical Conduits · Oldham Electrical · H.I.T.



Please send me your  
'Lighting Range' catalogue  
Position  
Local Branch  
Post to Newey & Eyre Ltd., Marketing Dept.,  
Donne House, Calthorpe Rd.,  
Edgbaston, Birmingham B15 1QX.

## Digging for compliments

Building plant manufacturer JC Bamford, universally known as JCB, has recently extended its factory to provide a new entrance hall and machinery showroom, illuminated by Marlin Lighting.

The brief given to consultants Fitch and Co was to create an impressive reception, reflecting style and quality, for the many international visitors the company receives.

Special requirements for size and height had to be catered for in the design to accommodate fully extended earth moving equipment. The combined entrance hall and showroom has a 15m ceiling and covers some 1500m<sup>2</sup>.

The large scale of the scheme necessitated specialised lighting equipment to illuminate the

exhibits, as ordinary spotlights are not powerful enough. Lightstar fittings with integral transformers using 75W dichroic reflector lamps, from Marlins' High Accent range, were installed to give a concentrated light output. The Lightstar fittings give over 30% more light than equivalent designs using 50W lamps and can light the exhibits without resorting to expensive theatre style projectors.

The fittings are mounted on stainless steel tubes, using purpose designed clamps, to allow for easy adjustment.

A lighting programme adds further flexibility to the scheme, allowing for various scenes to be created, by illuminating different exhibits in turn or focussing on just one in particular.

## Reaching new heights

The Torre Picasso, a prestige office block in the modern centre of Madrid now shines out at night like a silvery-white torch thanks to Philips, Arenavision.

The Torre Picasso, at 41 storeys, is Spain's tallest building, and the second highest in Europe. Philips Lighting, working in close co-operation with the architect, Sr Alas of PER Gestión Inmobiliaria, designed the lighting for the building.

The system used for the tower comprises groups of three luminaires. Both the front and rear of the tower are lit by six of these groups, and the sides have four groups each. This gives a total of 60 lamps, with an electrical capacity of 112kW, producing an average illuminance of 100 lux on each face of the building. The luminaires have been placed just 9 metres from the building in order to accentuate the fluting of the design, and, although this is just one eighteenth of the height of the tower (160 metres), the light still spreads evenly on each face.

The entrance hall is also illuminated by Philips, using a combination of 400W high-pressure sodium and 400W metal halide lamps. In each of the SNF 011 luminaires which are situated on 4 metre high columns, one lamp of each type is used, resulting in an indirect illuminance of 150 lux in the hall. In order to accentuate the entrance, which is done out in red granite, 80 semi-recessed Lita luminaires have been fitted, using 50W white SON lamps.

## Plug in to safety

Plug-in KLIK lighting units have been used to provide emergency lighting at Warwick District Hospital. The hospital has been fitted with KLIK units in five wards, an intensive therapy unit and four operating theatres for both recessed and emergency lighting.

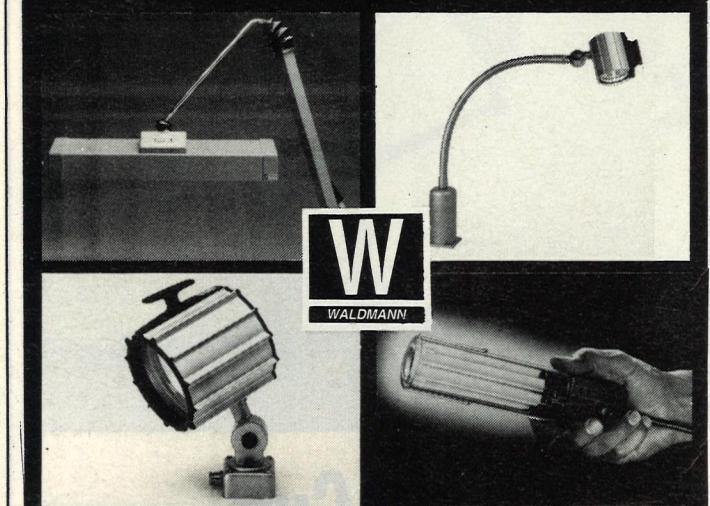
The four pole KLIK AX connects the fitting through a flexible cable and into a conduit box. The fourth pole is then used as a feed to the emergency units both to charge individual battery packs within the unit and to monitor the live conductor in the event of power failure.

## ■ IN YOUR NEXT ISSUE ■

In the July issue of *Lighting Equipment News* road lighting will be featured, with the emphasis on the link between lighting and crime prevention.

There will also be a report on the lighting content of the Interior Design International exhibition and conference.

## NEVER A DULL MOMENT ...



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



MIDLAND MACHINERY SERVICES

12 LOW FARM PLACE  
MOULTON PARK  
NORTHAMPTON NN3 1HY  
Tel: Northampton  
(0604) 44875  
Fax: 0604 790016