LIGHTING EQUIPMENT NEWS

APRIL 1991

The Clock Tower on the Croydon Town Hall building was floodlight so that it would stand out against other high buildings in the neighbourhood.

The main body is lit with narrow beam Philips HNF 003 projectors each with one 400W SON lamp. The bell housing is lit from SNF projectors with 100W and 250W SON lamps.

The top cupola is lit by Philips MSB18 luminaires each with one 18W SOX lamp. As a contrast, the top of the tower is floodlit from MVF 406 Arenavision with a 1 860W metal halide lamp. The upper tower is lit by a ring of weatherproof fluorescent battens each with two 36W Col 35 lamps.

UK's largest lamp company formed

GE (USA) and Thorn EMI consolidated the UK Light sources operation of Thorn Lighting, Thorn EMI Lamps and Components (Mitcham) and Omega Lighting (New Malden) from 1 February. The new operation is adopting a new single company name GE Thorn Lamps Limited.

Wealth of experience

Commented Andrew Osmond, head of commercial operations for GE Lighting Europe, "As the largest manufacturer of lamps in the UK, GE Thorn will be able to provide a unique level of service to the lighting industry. With the wealth of experience and resources drawn from both GE and Thorn, the new company will be able to offer the widest possible choice of innovative products, together with the highest quality service to its customers."

The company has established a new sales team to cover the wholesale light sources business transferred from Thorn Lighting. The new structure includes four regional managers covering the north, west, east, Scotland/ Northern Ireland. Scheduled deliveries will continue to be made from Thorn Lighting's distribution centres situated at Romford for the South, Normanton for the North and Belfast for Northern Ireland.

Product development

Stress will be placed on new product development and a heavy investment programme is planned.

CIBSE launches research initiative

CIBSE has launched a fundraising campaign to support research within the building services industry. The initial target for the first year is £500,000.

It is generally acknowledged within the construction industry that current research is inadequate and building services engineering is no exception, so the Institution plans to co-ordinate the industry in this respect.

Launching the initiative, Lord Ezra expressed his concern about the country's inconsistent approach to energy efficiency, one of the subject areas for research identified by CIBSE.

At the launch, Jerome O'Hea of the Colt Foundation announced that trustees of the foundation had agreed to give £100,000 over three years to cover the administrative overheads of the initiative so that all money raised from industry could go directly on research.

Funds raised will be controlled by the CIBSE Research Committee which will be responsible for deciding which projects should be financed. Topics for research will be identified by CIBSE committees and task groups as well as from external sources. Task groups will be established to control and monitor projects.

Individuals and companies who support the initiative will be able to illustrate their support by use of the Research Initiative logo. Donations will be acknowledged by gold, silver and bronze awards which will be given to those investing £2,000, £1,000 and £500 respectively.

Lighting experts meet in Montreal

Montreal will be the venue for the 1991 conference of the Illuminating Engineering Society of North America. The event will take place from 11-15 August.

Subjects covered in technical papers will include design theory, applications, light sources, VDT lighting, road lighting and vision.

In addition, there will be seminars on topics such as international design considerations in lighting, fluorescent ballasts and lamps, and liabilities in lighting design.

For further details contact the IES at 345 East 47th Street, New York, New York 10017.

Brightening up Belfast

During 1991 Belfast is staging a celebration of the city's history. One of the events will be a competition to find the best floodlit building.

Buildings will be judged in three categories. The first category consists of smaller premises such as restaurants; the second covers larger commercial premises, while the third group will consist of non-commercial buildings such as churches and historic monuments.

Applications must be received by 1 September.

Entry forms can be obtained from Northern Ireland Electricity, PO Box 2, Danesfort, 120 Malone Road, Belfast BT9 5HT.

● The Department of the Environment is introducing a temporary grant scheme to assist new floodlighting projects in Belfast. Entrants may, therefore, be eligible for a grant.

Fitzgerald expands into Europe

Fitzgerald Lighting has formed a German subsidiary Fitzgerald Light GmbH based in Cologne. VDE approval is being attained to ensure products comply with the necessary German standards.

The new company will be formally launched at the Hanover Fair where a number of the new products are being exhibited.

In brief . . .

● **Crompton Lighting** is re-organising the distribution system for Crompton Raak luminaires. A network of 15 specialist distributors will each carry the full range and provide faster delivery.

● **JEL** Building Management Systems and ISS Clorius, both owned by Thorn EMI, are now trading as Thorn Security Ltd, Building Management Systems Division. They continue to operate from Stockport.

● **Sirrah**, Italy, has appointed a new agent for the UK, Colin Greenslade Agencies, 31 Wesley Close, Taunton TA1 4YA, tel 0823 279183. A three day delivery service is being promised.

● **Celco** has joined the Electrosonic Group to form a new division, Celco Live Entertainments Division.

● **Claude Lyons** has acquired the Zenith Electric Company. Zenith and Powerstay products are now being marketed from the Hoddesdon address.

INSIDE THIS ISSUE

Targetti sets up in UK

Following a year of discussions, Crompton Parkinson and Targetti Sankey SpA have formed a new company in the UK to act as sole British distributor of Targetti products.

The company will market, sell and distribute these products through a network of selected specialist lighting distributors. It will initially concentrate on building UK sales of Targetti products and developing the use of Targetti's computer lighting packages.

The sales and marketing office will be located in Doncaster where orders will be processed and delivered via specialist stockists covering the UK.

The general manager of the company, Steve Ballantyne, commented "I believe there is an opportunity to establish a small, professional team dedicated to re-confirming Targetti's presence in the UK market and achieving a market share which corresponds to Targetti's position in the rest of Europe."

NEWS

European event on how to save lighting energy

European countries use 15-30% of their total electricity consumption on lighting and this could be halved without sacrificing either lighting quality or comfort, according to the Swedish National Energy Administration, organiser of the First European conference on energy efficient lighting. This event will take place in Stockholm, Sweden, from 28 to 30 May, 1991.

The conference will be an important forum for the exchange of ideas, information and 'know-how' at a time when rapid change-over to more efficient lighting could bring considerable benefits to society as a whole.

There will be a pre-conference workshop for utilities who have already conducted campaigns to promote energy efficient lighting. The latest developments in lighting design and technology will be on display at an exhibition concurrent with the conference.

All aspects of lighting efficiency will be covered and possibilities and incentives for greater electricity savings in delegates' own spheres of activity will be explored.

Papers will be grouped into sessions such as technology, economy, lighting quality, marketing and the planning of energy efficient lighting campaigns.

Participants are expected to come from all branches of industry, with strong representation from the construction, consulting and contracting sectors, property administration and maintenance, specifying authorities, national and local government, and the energy utilities.

Further information is available from Swedish National Energy Administration, Department of Energy Efficiency, S-117 87 Stockholm, Sweden.

Commercial lighting show to be held in Milan

Light Pavilions is a lighting exhibition to be held in Milan from 25-29 May. Lighting technology for industrial, commercial, sports, streets, transportation and living space will be featured.

The products will be divided into four groups: lighting fittings, lamps, components, and software and instruments for designing lighting schemes.

Some 130 companies from Italy and other countries have booked stands. The event is being held in the grounds of INTEL '91, the International Electrotechnics and Electronics Exhibition.

For more information contact Associazione INTEL, Via Algardi 2, 20148 Milano, Italy.

CIE seminar on computer programs

Following the successful CIE seminar on light measurement the next CIE seminar is scheduled for 1992 in Vienna. Theme of the seminar will be computer programs for light and lighting.

The intention is to foster direct contact between vendors and users of illuminating engineering computer programs.

Producers of lighting programs interested in co-operating in workshop sessions and demonstrations should contact the CIE Central Bureau, Kegelgasse 27, A-1030 Vienna to find out more about how they could participate in the event.

The seminar will provide opportunities for discussing the use of programs with the producers, checking different programs and finding out more about their capabilities.

London's Greenwood theatre, the television studio that is home to Channel 4's Tonight with Jonathan Ross, has a twin lighting installation. It was planned to install a Strand Galaxy 3 lighting control system, but the production company, Channel X, felt it might not be sufficient for live rock acts. The solution was to mount Strand's latest MX24 board next to the Galaxy 3. MX24 can introduce chases and flash channels individually, as well as acting as a back-up to the Galaxy if necessary.

DIARY

APRIL

9

Opportunities for consultants and contractors in the single European market. Evening meeting in Cardiff held by South Wales region of CIBSE. Details from A D Jones 0792 641172.

10-11

Building environmental performance '91. Conference at Canterbury organised by the Building Environmental Performance Analysis Club. Details from Elaine Baker 0923 664132.

10-17

Hanover Fair, Germany. Commercial lighting exhibition. Details from A Rustemeyer, 081-688 9541.

16

Photographing lighting installations. Evening meeting in London held by CIBSE Lighting Division. Details from CIBSE 081-675 5211.

18

One-day technical conference in Clydebank on public lighting, arranged by ILE Scottish region. Details from D G McNair 041-227 2454.

18-22

The lights of Spain. International decorative lighting exhibition in Valencia. Details from PO Box 476, 46080 Valencia, Spain.

24

Emergency lighting. One-day seminar and exhibition in London held by CIBSE. Information from CIBSE 081-675 5211.

MAY

1

Lighting basics 1: Light and vision. One-day seminar in Manchester arranged by Mid Career College, 0223 880016.

7

Innovative lighting techniques. Evening meeting at Godalming, Surrey, held by CIBSE London and South East region. Details from Carl Sandford 071-387 4442.

8

CIBSE Lighting Division AGM followed by Lighting Division lunch and presentation of lighting awards. Tickets from CIBSE 081-675 5211.

CIBSE

The Chartered Institution of Building Services Engineers

Trends in office furniture

Since the advent of the original IES Glare Code in 1963 when GEC launched their "comfort in lighting" luminaires, and the introduction of suspended ceilings in the UK, the recessed cut-off reflector luminaire has been developed into the most widely used office lighting luminaire in major speculative office developments and elsewhere. It has proved to be a popular luminaire and today the prismatic alternative is very rarely used.

Accompanying this trend and, under the influence of the Scandinavians and the Americans, we came to adopt very much lighter colours for our office surface decorations and our office furniture. In the 1960s desk tops were generally very dark greys, greens and even black, or they were dark highly polished stained oak. Walls were usually cream and below dado height were often dark painted and occasionally dark stained panelling. Floor surfaces were also very dark lino and dark polished wood.

Gradually over the years these surfaces have been lightened and, in particular, the highly polished dark desk tops and dark office furniture have gone and floors are usually carpeted.

These changes brought about a significant improvement in the visual environment in which we work. They were of course necessary before the introduction of the cut-off reflector luminaire for, with the rapidly increasing illuminance levels of the 1960s when levels in excess of 1000 lux were planned and used, discomfort glare from diffuser luminaires was becoming a major problem. The cut-off luminaire solved all of that, only to replace it with the problem of dark ceilings caused by lack of lightness in the lower part of the room space, mainly due to the dark desk tops, furniture and dark floor finishes. Indeed, against these dark ceilings even the so called low brightness luminaires were viewed in strong contrast and became significant glare sources in themselves.

With the highly vertical distributions, contrast rendering became a problem, and paper on the dark desk tops became a serious glare source, particularly with the high illuminance levels then in use. And while developments in widening the distribution (batwing luminaires) made significant improvements, it wasn't until the whole space was lightened and illuminance levels started to fall that real improvements were made.

Over the years we have introduced spaces with large open plan offices, and more recent times have found the smaller cellular spaces much more workable. Integrated office furniture has gradually developed alongside these changes and, whether by good fortune or just by fashion, the surfaces have been kept light and rather matt. Computers have arrived and after initial skirmishes with dark colours, are today invariably very light.

In very recent times and in particular in London's Docklands, the Americans have been noted to be asserting a strong influence in how new buildings are designed and constructed and how the office spaces may be laid out. After initial trials with typical European specular reflector luminaires, they have now tended to adopt the typical American recessed semi-matt (lustre) reflector ceiling mounted luminaire, which of course is fine so long as the surface finishes remain light and luminaires aren't overspaced.

Unfortunately American integrated office furniture trends are going in the other direction and many recent mock-ups have shown that we may be going back to the days of dark wood surfaces and highly polished finishes. In addition, some American firms have really taken the cellular office to their hearts and some of these new integrated layouts are little short of pigeon holes or, to be more honest, rabbit hutches. The 'rabbit' or worker, faces a shallow depth desk top with a vertical wall immediately ahead and surrounded by vertical walls formed by adjacent units to either side. Because little overhead light can reach the working area there is usually a very well designed fluorescent fixture immediately ahead and parellel to the desk top. With American integrated furniture, contrast rendering is not a problem because these fixtures are always designed to bring light in from either side. In the UK, where price is so often the determining factor, it is doubtful whether the elaborate designs to avoid the contrast rendering problem will be used by the furniture manufacturers.

In the more open layouts the screens used to separate the space usually prevent more than one overhead luminaire lighting the area so that obstructions from the furniture and screens introduce fixed shadows into the working space with obvious loss of illuminance and poor uniformity as a result.

Add to this the use of dark furniture and vertical wall panelling and all the problems of the strong contrasts, dark ceilings, and high veiling reflections are with us once again. If these American ideas do become a fashion, then apart from complaining, we are going to have to light them, so we ought to face the problems and find a way of tackling these developments before they get out of hand.

Brian Morgan,
CIBSE Lighting Division Technical Committee

NEWS

Storage causes a lighting problem

Lawyers generate a lot of paperwork, so in any legal practice ample storage space is a must. In lighting a leading law firm in the City of London, one of the major problems was, therefore, to provide satisfactory ambient lighting levels, while coping with the need for high levels of illumination for vertical storage systems housed in the corridors and library of the office building. Design contractors Udasplus, went to Light Years with this problem.

New lighting

City lawyers Lovell, White, Durrant recently obtained a nine-floor building in London's Holborn Viaduct. The whole building was totally refurbished and new lighting designed and installed throughout. Fully recessed low brightness fluorescent fittings were installed in the office spaces, but specific requirements needed to be met to allow good illumination of the filing systems which lined the corridors, and in the reference library on the fifth floor.

The corridors are 1.8m wide and contain floor-to-ceiling built-in filing systems. Because the company is paper-based, the corridors are activity areas in which people tend to congregate. Any lighting system has to prevent these areas from appearing tunnel-like, as well as providing an equal amount of illumination on the higher and the lower filing shelves. Fully recessed low voltage square downlighters adjustable to 32° and with remote transformers, were specified with wide beam lamps and installed in groups of six, interspersed with groups of two, throughout the corridors on each floor, ensuring an even level of illumination on the files as well as creating visual interest and an overall vertical illuminance of 350 lux.

Emergency lighting

The corridors house a non-maintaining emergency lighting system which revolves around tiny low voltage 'starburst' fittings using 10W capsule lamps without reflectors to obtain the maximum spread of light. One transformer services ten fittings, which are spaced 5m apart, covering up to a 50m run on one 100W battery pack. As an average of 2 lux has been achieved at floor level for emergency lighting, this system has proved cost effective and still provides illumination well in excess of the levels required by BS 5266.

The reference library was more of a headache. It houses floor to ceiling racking at 1m centres. Moreover, the ceiling is staggered, reaching 2.5m at its highest point and 2.3m at its lowest. Lit with straightforward recessed fluorescent fittings, the top shelves would be brightly lit leaving the bottom shelves extremely dull. An 'hourglass' lighting effect was achieved using a suspended elliptical fluorescent lighting system to solve the problem. Lytetube fittings have been positioned in a series of seven parallel lines between the lines of racking. The louvred fronts to the fitting are directed at an oblique angle to light the shelves from the floor to middle height while slots in the rear of the fittings provided uplight which is reflected off the ceiling, thus lighting the upper shelves. Although the direct light travels further to the lower shelves, it produces the same brightness levels as the indirect light on the upper shelving, thus achieving even vertical light distribution.

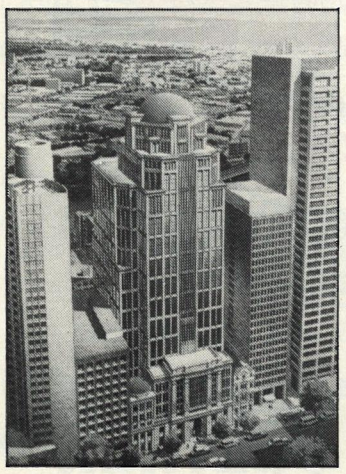
Decorative scheme

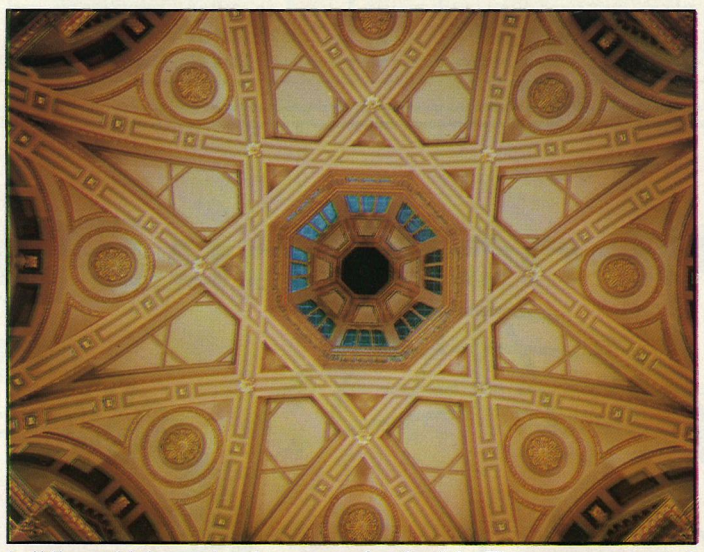
The ground floor reception areas and conference rooms needed a more decorative approach. Fully recessed low voltage pinhole downlighters have been used in the centre of these rooms, supported by recessed directional low voltage mini wallwashers which provide perimeter lighting. In the most important meeting rooms, circular wall-mounted uplighters taking 200W linear tungsten halogen lamps provide an appropriate ambience.

Banking on art deco down under

A new commercial development in Melbourne, Australia's commercial centre combines art deco features with the latest in building technology.

The development at 333 Collins Street, also saves a small part of the city's architectural heritage in the form of a ground floor banking hall preserved within the new 29 storey structure. This was salvaged from the building which previously occupied the site.





The banking hall, acknowledged by the National Trust of Australia as historic importance, features a domed ceiling ringed by what were formally skylights.

To preserve the visual impact of the hall, lighting engineers Lighting Sciences Australia and Simpson Kotzman Pty Ltd were commissioned to recreate the effect of daylight streaming in through the skylights.

Lighting consultant Kevin Poulton specified 24 Thorn ALI CSI series sealed beam floodlights, equipped with 1kW compact iodine daylight Par 64 lamps, for the job. These were mounted on a 12m diameter steel ring supported above the domed ceiling by a pulley system.

The floodlights, with a colour temperature of 4000K and a rendering index of RA80, shine down through the former skylights.

Designed primarily for high tower installations where good illumination and excellent colour rendering is required, the floodlights are excellent for lighting high buildings.

The northern and southern facades of the development employed some 60 sealed beam CSI floodlights.

Opportunity for retailers

A training course for lighting retailers, organised by the Decorative Lighting Association, will start in May.

It is a correspondence course in six units. Designed for sales staff, it will help them to answer questions from customers, such as "Exactly how much light do I need in the kitchen?"

Places are limited, so contact Caryolynn Shaw as soon as possible at the DLA, Bryn House, Bryn, Bishop's Castle, Shropshire SY9 5LE. Tel 05884 658

Young designers forum: Lighting Group

The Young Designer Forum is a recently formed platform for young people (under the age of thirty), working within the construction industry to dicsuss topical issues and air their views to the relevent professional institutions such as CIBSE and RIBA.

A discussion group has been set up within the Forum, to highlight current issues and problems, and hopes to cover all aspects of the visual environment.

Anyone interested in joining this group should contact Mark Ayers on 081-784 5768.

COMMENT

A licence to lose money?

It seems you're okay in this country as long as you're not successful. How very British! The background to my tale is as follows. A 1968 report by the Monopolies Commission expressed concern that three companies — in those days called Thorn (UK owned); GEC-Osram, (UK); and Philips (Dutch) — controlled some 80% of the UK light sources market. As a result they had to agree to be good boys and not fix prices to their advantage or give preference to their parent companies when it came to supplying products.

Well, you'll be delighted to hear that after all this time they are not to be released from these promises as, and I quote: 'The Secretary of State is now satisfied that the undertakings are no longer necessary in view of the changed circumstances of the lamp market. This market is now competitive with actual and potential competition from imports. There is no evidence of excessive profitability or prices.' However, in case these firms revert back to their bad old ways, the Director General of Fair Trading will continue to keep a close watch on the market.

In reality, over twenty years later so successful have these companies with the overwhelming market share been that GE-Thorn is well on the way to being completely American owned, and Osram is now run from Germany.

By contrast, a real success story in the lighting field has been the parliamentary pressure exerted by LIF and the British Parliamentary Lighting Group on the issue of lighting and street crime. 'Now, what I want is Facts', was the perpetual cry of Dickens' schoolmaster Thomas Gradgrind. And, like his pupils, those organisations have set out to supply the government with the facts. First came the groundswell of public apprehension about safety on the streets of inner London Boroughs. Studies currently being carried out in provincial centres including Manchester, Birmingham and Glasgow seem set to produce results as spectacular as the London surveys.

Now, following the carnage on the M4, the Secretary of State for Transport, Christopher Chopes, has been forced to admit to BPLG activist Ian Twinn that installing road lighting leads to an average reduction in night-time accidents of 30%, and that this figure is used by the department in cost assessments for motorways and trunk roads. So the battle for decent lighting appears to be extending into the field of lighting major routes.

For sheer, dogged determination these organisations take some beating. We can only hope that the private member's bill, 'The Local Authority's Street Lighting Bill', aimed at forcing local authorities to assess their street lighting needs and invest an adequate amount of money in this sector meets with equal success.

LIGHTING EQUIPMENT NEWS

Editor: Judy Sewell
Associate Editor: Barbara Trigg
Art Editor: Lorna Francis
Advertisement Manager: Jim Hughes
Northern Area Manager: Robert Ditchfield
Classified Sales: Alastair Moyes
Production Manager: Mark Sevel
Circulation: Kirtee Parmar
Group Publisher: John Bull
Publisher: Nigel Foster

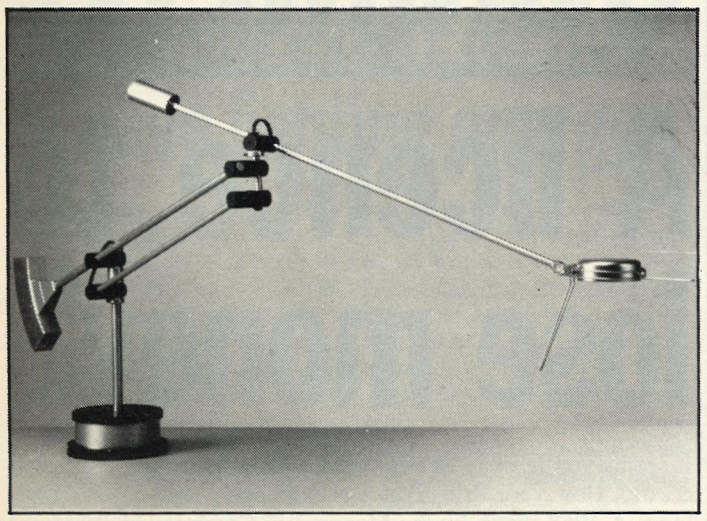
Directors: R W Osborne, (Chairman), G J F Brigg (Managing Director), N C G Foster, D L Jones, D B Wright.
Published monthly by **Maclean Hunter Ltd, Maclean Hunter House, Chalk Lane, Cockfosters Road, Barnet, Hertfordshire EN4 0BU.**
Telephone: 081-975 9759. **Facsimile:** 081-975 9753
Telex: 299072 MACHUN G. Northern Area Office,
Tel: Cannock (05435) 72771.
Origination by Facsimile Graphics Ltd, Coggeshall, Essex.
Printed by E. T. Heron (Print) Ltd, Heybridge, Maldon, Essex.

Annual subscription £50 (£4.50 per copy including postage) but free to executives in the UK and Ireland meeting the terms of control.

ABC MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS
A Maclean Hunter Publication
BBP Member — British Business Press

 ISSN 0024-3418

NEW PRODUCTS



Task light is balanced

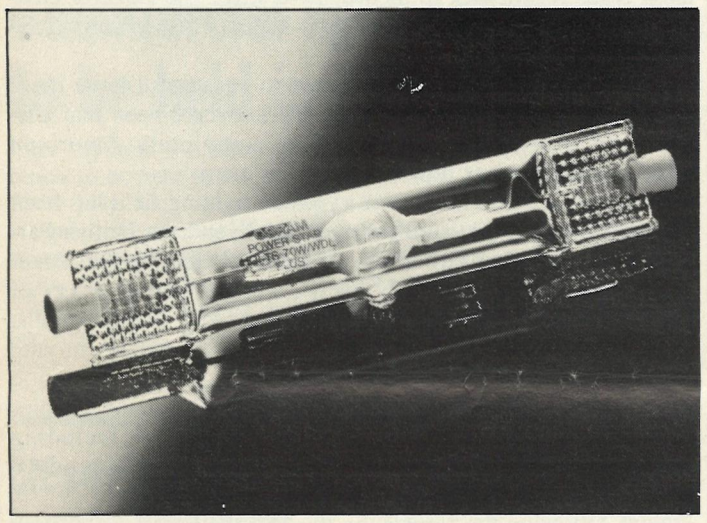
Precision balanced for easy adjustment, the Isis task light from Crescent Lighting responds to the slightest touch.

The circular base houses a transformer and incorporates a dual switching facility. By twisting the base plate, light output from the 12V 50W tungsten halogen lamp is reduced by half.

It is suitable for domestic and commercial applications.

Isis is made of aluminium and black polycarbonate and comes in a choice of silver and black, bright blue and black, or red and black finishes.

Reader Service No. 162



Wider range of metal halide

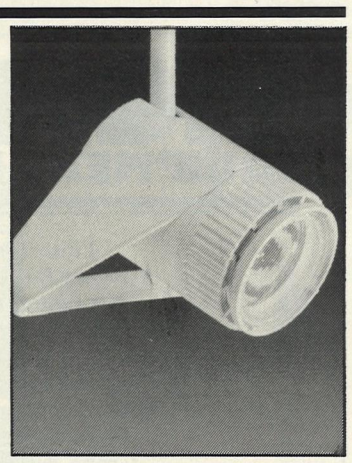
Osram has introduced three more double-ended metal halide lamps to its Powerstar range. They are designated WDL Plus 70W, W/D 1000W and W/DS 2000W.

The WDL Plus is designed to fit small luminaires and is stated to have an increased light output and improved colour rendering properties.

Both the W/D and W/DS are suitable for small floodlights. They are short lamps giving good beam control with minimal stray light. Applications include outside TV broadcasts.

Reader Service No. 163

Geometric low voltage spotlights



Troll's Delta range of low voltage spotlights consists of models for either dichroic or aluminium reflector lamps. The design is based on geometric shapes and includes a heat resistant positioning handle.

The fittings operate either off the company's mains voltage lighting track or are individually surface mounted. Transformers are housed in either the track adaptor or ceiling plate.

There are two types of connector, Troll's universal connector and an automatic jack system.

Reader Service No. 164

Gold plated wall washer

Panorama Lighting has a recessed, tilting, low voltage luminaire that can be used either as a wall washer or as a straight forward downlight.

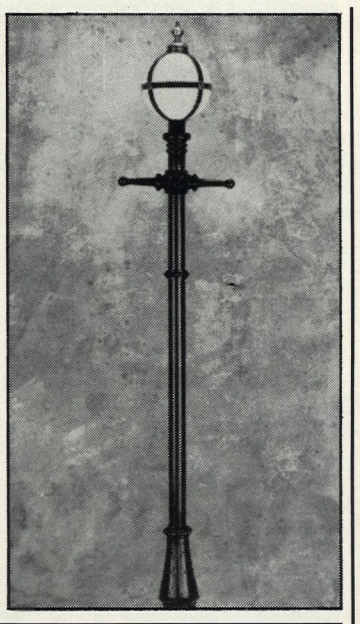
It uses dichroic lamps rated at up to 50W and is re-lamped from below. Installation is simplified by the use of springs.

The luminaire is gold plated and mounted in a square bezel.

Reader Service No. 165

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

Street lighting has emergency facility



Lighting columns in the Parliament range are the latest addition to Andy Thornton Architectural Antiques' street lighting.

The Parliament range of classical designs are made of cast iron. Vandal resistant polythene globes are held in place by a steel frame with brass rosettes and copper finials. A cast iron root is available for fixing.

All models can be adapted to use compact fluorescent lamps or be fitted with emergency lighting facilities.

Reader Service No. 166

Dimmer makes scene setting simple

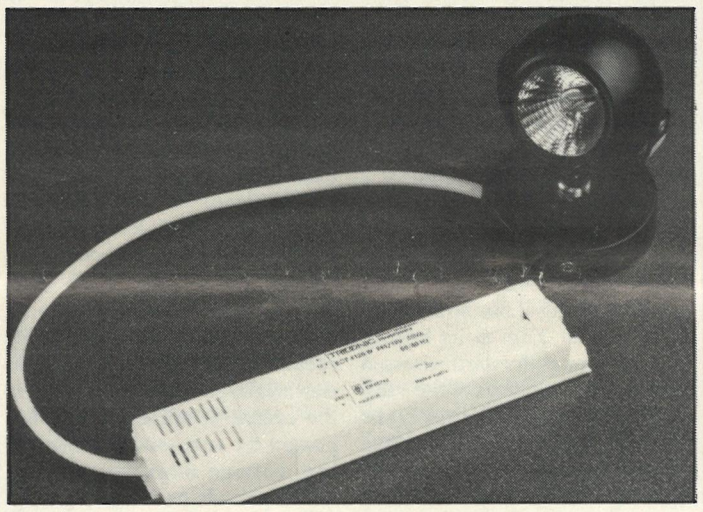
Multi Dim is a programmable scene control for four MCB-protected dimmer channels and is available from Electrosonic.

The four channels can be allocated to the lighting of more than one area and controlled either remotely or from the wall mounted module itself. No additional equipment is required to programme lighting scenes.

Any dimmer channel in any scene can be assigned an intensity between 0 and 100. Other facilities include variable fade rates and memory retention for up to a month without external power.

Once programmed, operation is by pressing a single button.

Reader Service No. 167



Transformer for lighting

Lovotec 50 is a transformer from Tridonic using state-of-the-art wound transformer technology.

It is thermally protected and the cut-out only re-sets after the power has been turned off and on again. Its capacity is 50VA.

Attention has been paid to characteristics such as cool running, compact size and easily protected terminals.

Reader Service No. 168

Spotlights have curved arms

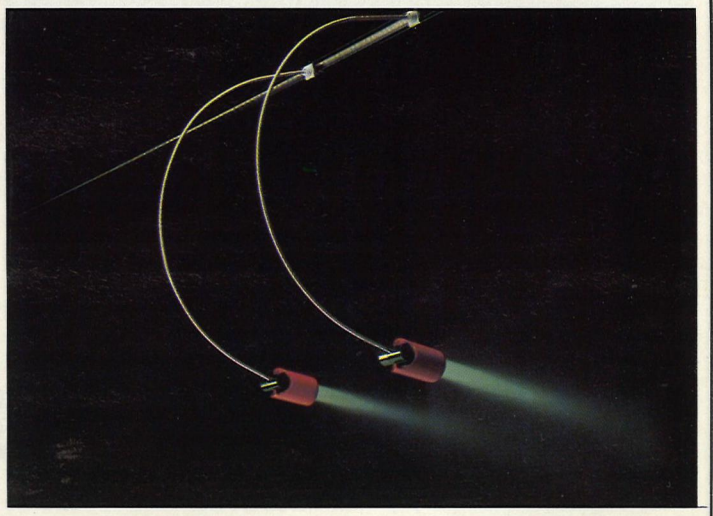
Limelight is a low voltage track lighting system from Guzzini. It has a range of different connecting rods to support luminaires.

Zoom luminaire, illustrated here on a curved rod, has a cast aluminium cylindrical housing and uses a 50W dichroic reflector lamp. Coloured filters and barn-doors can be fitted. An articulated joint allows the spotlight to be adjusted.

Focus also uses a 50W dichroic lamp and can be fitted with a circular diffusing glass which is held in front of the lamp on an aluminium rod.

Wing has an elongated, wing shaped reflector, while Disc has its housing fitted into a V-shaped cut-out in a plastic disc.

Reader Service No. 169



Warmer light for the home

Omega Lighting has a range of fluorescent luminaires for the home which feature Warm White lamps for a softer lighting effect in kitchens and utility areas.

Called Mazda Slim Fluorescent, they have joined the Mazda Interiors range.

The 600mm size has a built-in switch; the 1200mm model is suitable for either wall or ceiling mounting, while the 1500mm version is for ceiling installation. The 1200mm and 1500mm types can also be used in bathrooms.

A slim opal coloured diffuser is completed with grey end caps. The range retails from about £21.50 for the 600mm size.

Reader Service No. 170

Arrowslim is even better

Thorn has updated its longstanding Arrowslim range of single-lamp fluorescent luminaires with U-shaped diffusers.

They now have an all-white finish and rounded profile end caps. At 37mm wide they are well suited for retail display areas such as shopfitted cabinets and gondolas. They are also widely used in other commercial and domestic interiors.

Reader Service No. 171

I-R controls light and air

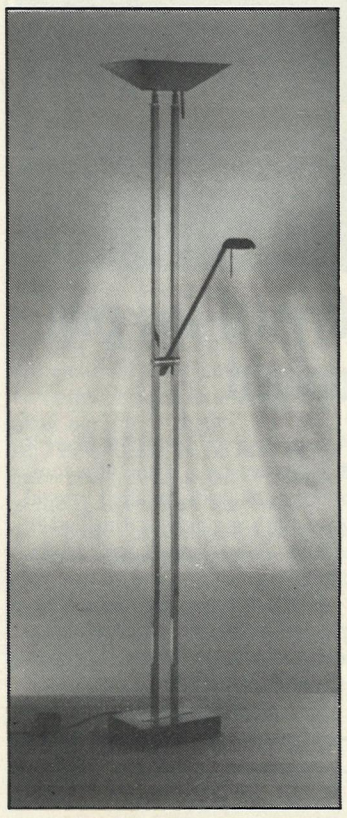
Infra-red remote control is a feature of Monarch ceiling fans by Fantasia.

As well as switching the luminaires on and off and controlling the speed of the five-blade fan, the hand-held control dims the lights.

The length of the ceiling stem is adjustable and the company will spray fans to match, for example, kitchen decor.

Reader Service No. 172

NEW PRODUCTS



Versatile uplight

A floor standing uplight with a separate, adjustable reading light is available from Deknudt Lighting.

Upward light is from a mains voltage tungsten halogen lamp on a dimmer control. The reflector is directionally adjustable.

Reading light is provided by a low voltage tungsten halogen fitting which also has an adjustable reflector. In addition, there is a two-position switch to give a choice of light output.

The uplight, called Combi, is in brass with a marble base. It is intended for use near a seat which is not necessarily near a wall. When placed away from a wall, the upward light will spread further across the ceiling, thus lighting more of the room.

Reader Service No. 151

Light and sound co-ordination improved

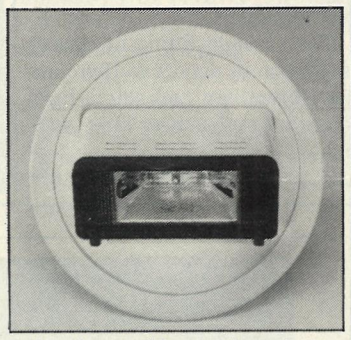
Theatre Projects has launched a computerised system which improves co-ordination between sound and lighting technology, including automated Vari-Lite luminaires. It increases efficiency both in setting up and operating.

Lighting and sound equipment can be controlled either from an Atari computer, or from a remote control. This then interfaces to MIDI (musical instrument digital interface), RS232, Colormag or Celco lighting desks, relay switches, Avo dimmer racks, DMX and SMPTE code. Theatre Projects has also written new software for the system.

The philosophy behind the control system is to help, rather than replace the engineer. For instance, there will always be some form of manual override. It can be pre-programmed to run a show unmanned, but it really comes into its own when an operator wants to do several things simultaneously.

Reader Service No. 154

Projectors for display lighting



Powerlite Electrical Products has launched the Discovery range of display projectors for retail display and accent lighting. Both tungsten halogen and metal halide models are included.

The luminaires are made of extruded aluminium with a clear tempered, or ultra-violet filtering safety glass.

Control gear for the metal halide models is thermally protected and is either integral or in a remote enclosure.

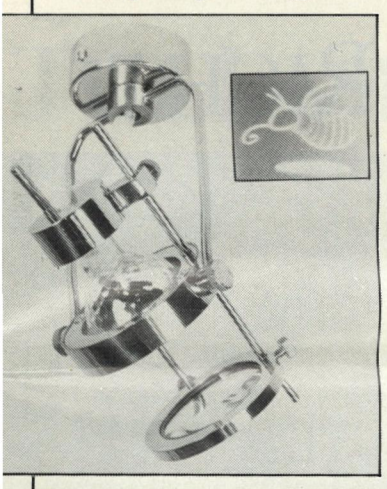
One model is surface mounted, the other is a semi-recessed, rotating type. Both are available in black or white, with a choice of light sources.

Metal halide models use either 70W or 150W lamps while the tungsten halogen models use 200W or 300W lamps.

Accessories include barn doors and fixing bases.

Reader Service No. 155

Projecting the company's logo



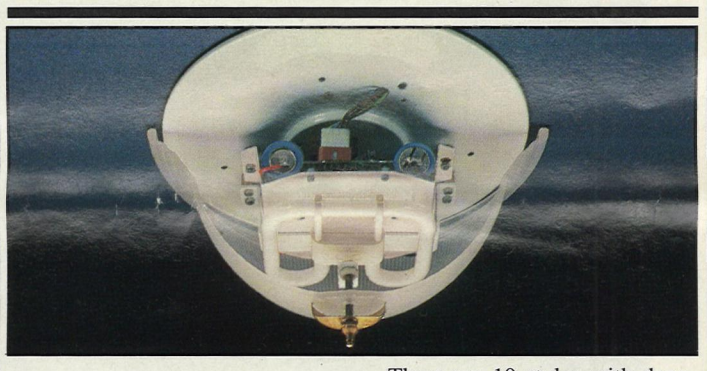
Porthole Imagemaker is one of a new range of low voltage luminaires from Luna Lighting. It comes with a gobo attachment for projecting graphics and images.

Applications include company reception areas, exhibition stands, and many retail and leisure situations where images can be projected of brand names or special promotions, and changed as required.

Finished in either chromium or brass, the Porthole Imagemaker consists of a glass lens and laser-cut light mask, mounted just in front of a low voltage lamp.

Porthole Imagemaker is a creative alternative to traditional signage. The price is about £75 plus an origination cost of around £50 for making the light mask.

Reader Service No. 152



Low energy bollards

Abacus Municipal's AM110 series of illuminated bollards are designed to provide efficient lighting for footpaths, pedestrian walkways, forecourts and parks.

They can be ordered for use with either 25W compact fluorescent, 50W SON-E high pressure sodium, or 50W mercury lamps.

The tubular steel shaft has a black polyester powder coated finish. The cylindrical borosilicate glass refractor is the same diameter as the shaft and has a cast aluminium top cap secured with recessed fixings.

Reader Service No. 153

Flush fitting luminaires

A range of decorative, flush fitting luminaires for incandescent or compact fluorescent lamps has been introduced by Chelsom. Selected versions can be equipped with emergency lighting.

There are 10 styles with decorative bowls including clear diamond-cut patterned glass, moulded glass in feathered and flowered designs and plain opaque bowls with galleries in a variety of finishes.

All except the smallest fittings can be converted to take compact fluorescent lamps.

Reader Service No. 156

LIF LINE

LIF changes its membership criteria

As from the 1 January 1991, LIF is willing to consider admitting into membership continental-based companies who have been operating in the UK for some time and who have a substantial market presence.

This reflects the changing role of the Federation as very much a market orientated organisation, increasingly successful in its key role of promoting the benefits of modern lighting.

The decision comes after a long process of consultation with its membership and demonstrates that LIF is dedicated to business development and, at the same time, thinking 'European'.

The precise membership criteria for continental based companies will be:

1. The applicant must be a company registered in the UK for at least five years.
2. The applicant must have a manufacturing base within the EEC/EFTA region of Europe.
3. The applicant must have either BS 5750 (or equivalent) operating in its UK operation, or agree to implement it within two years of joining LIF.
4. The applicant must agree to supply UK sales statistics as required by LIF.

This new criteria replaces the previous rules of membership requiring companies to have a manufacturing base within the UK and to have been a UK registered company for at least two years.

This move by LIF is one of many new objectives set for 1991 to develop the profitable growth and expansion of the UK industry as represented by LIF membership.

Further objectives on the European front will involve continued discussions with the EEC Commission, the European Parliament and the UK government on the potential for legislation on emergency lighting.

LIF will continue to investigate the scope of the legislative instruments already in place which include the Construction Products Directive, the Hotel Safety Recommendation and the Health and Safety at Work Directive, to ensure that their scope will incorporate all the proposals put forward by LIF to the EEC Commission — ie for emergency lighting to be installed in all places open to the public, certified according to the appropriate standards and regularly inspected and maintained.

Translating this into the home front, LIF will then be active in ensuring that UK legislation fully implements the requirements laid down in the EEC Directives. In this way, suitable lighting will become an imperative in all areas and the health and safety of all concerned, including the industry, will be maintained.

Further objectives aim to encourage the refurbishment of existing lighting and the installation of good lighting schemes using modern lighting technology. In these difficult times, lighting has proved itself to be the only building service which can reduce costs considerably while boosting productivity at the same time. What better combination for combatting a recession!

LIF is, therefore, increasing its efforts to bring this message across to a broader audience by lobbying government to use modern lighting technology as a means of increasing energy efficiency and business efficiency in the government estate. Thus, by example, the rest of the business sector may 'see the light' and save the nation not only millions in reduced energy costs but also enjoy the incalculable benefits of a more environmentally friendly approach.

For retailers, LIF will show by example how recent winners in the NLA and EMILAS reported that the refurbished lighting had given their business the boost it needed and their future was now far from dim, in more senses than one.

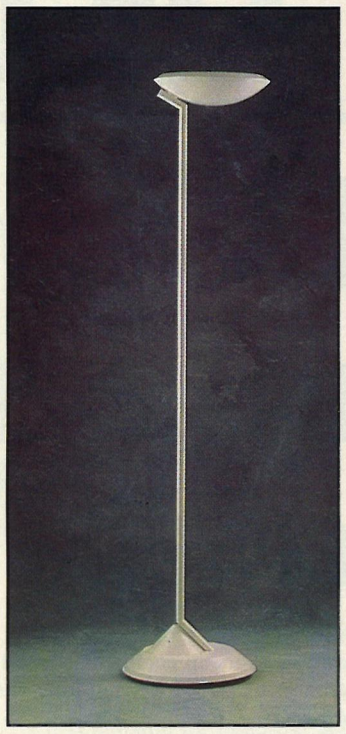
With such 'bright prospects', LIF has certainly got its work cut out in drawing attention to these developments and encouraging everyone to take heed.

One way of achieving this is to review LIF'S two major annual competitions — the National Lighting Awards and EMILAS — to consider merging the awards to commend a more combined approach to lighting design. In other words, to commend lighting schemes which are both operationally effective and aesthetically enhancing yet energy efficient and meeting all the requirements of health and safety for its users. The new competition will then be relaunched in 1992.

Together with the street lighting campaign, the LIF training programme and the elaboration of IEC, CEN and CENELEC standards, it must be said that LIF is a leading light in developing opportunities for its members and it is certainly never to be heard in this Federation that times are slack! Any company interested in more information about LIF membership should contact the director, Ernest Magog, at LIF, tel: 081 675 5432.

NEW PRODUCTS

Floor standing uplight



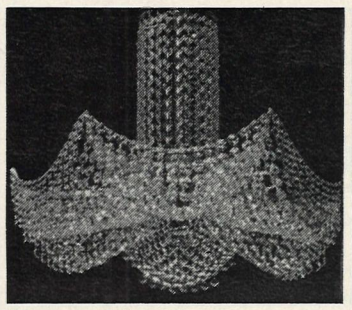
To complement its Legend wall mounted uplight, Hitech has now introduced a floor standing version.

It can be supplied for use with either 70W, 150W or 250W double-ended metal halide lamps. There is a choice of reflector to give either symmetric or asymmetric light distribution.

Control gear is housed in the base to provide a low centre of gravity for stability. Colours are matt black or white, (although for major projects non-standard finishes can be provided).

For applications requiring instant light an auxiliary lamp can be fitted to give illumination until the metal halide lamp reaches full output.

Reader Service No. 157



Sparkle for modern interiors

An unusual crystal fitting for modern interiors is available from Impex. Both the central column and scallop shape surrounding it are draped in chains of crystal buttons.

The six-light fitting illustrated is 480mm in diameter. There are also three-light and single light versions and a matching wall light.

Reader Service No. 159

Splashproof downlight

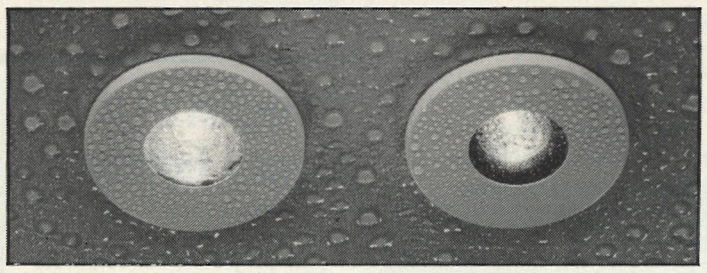
A low voltage splashproof downlight from Microlights is suitable for applications where the fitting will be exposed to condensation or splashing, such as in bathrooms, kitchens and some exterior locations. It is ingress protection rated IP 44.

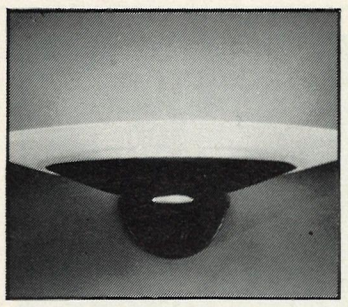
Magnit Splashproof 1 accepts 20W or 35W, 35mm dichroic lamps, while Magnit Splashproof 2 takes any 50mm diameter dichroic lamp up to 50W. Both luminaires require a remotely positioned transformer.

The recessed fittings can be installed into surfaces between 0.2mm and 20mm thick. They require a cut-out diameter of 80mm and have a special mechanical clamp system.

The ceiling plate, which is held in place by magnets and a silicone rubber seal, is a simple push fit. When removed it gives access to the interior of the fitting for speedy re-lamping. Finishes are either satin black or white, with gold or chromium and other colours to order.

Reader Service No. 160



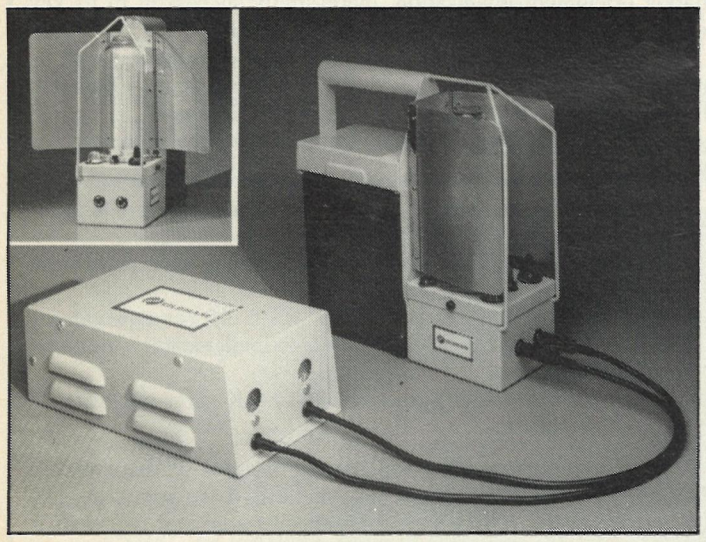


Crystal and gold uplight

A wall mounted uplight from R & S Robertson is made of a combination of acid finished crystal glass with metalwork finished in either 24ct gold or black chromium.

A 300W linear tungsten halogen lamp is used. The wall light, which measures 400mm in width, is part of the Estiluz collection.

Reader Service No. 161



Handlamp has folding reflector

Oldham Crompton has a handlamp for use as a long duration, general purpose working and inspection light. It uses an 18W compact fluorescent lamp powered by two T type 4V batteries to give 6hr continuous light.

The lamp is totally enclosed in a clear polycarbonate shield. A feature of the handlamp is a folding reflector in three sections which can be adjusted to direct the light where it is required, but folds up for easy storage.

There is also a 3W tungsten halogen pilot light. A two-way switch selects either the main light or the pilot light.

Batteries are recharged either with a special charger, or from the Oldham dual charger through two special charging leads, to the jack plug charging sockets on the front of the handlamp.

Weight of the complete handlamp is 6kg. It is 285mm high, with the sheet steel housing finished in yellow.

Reader Service No. 158

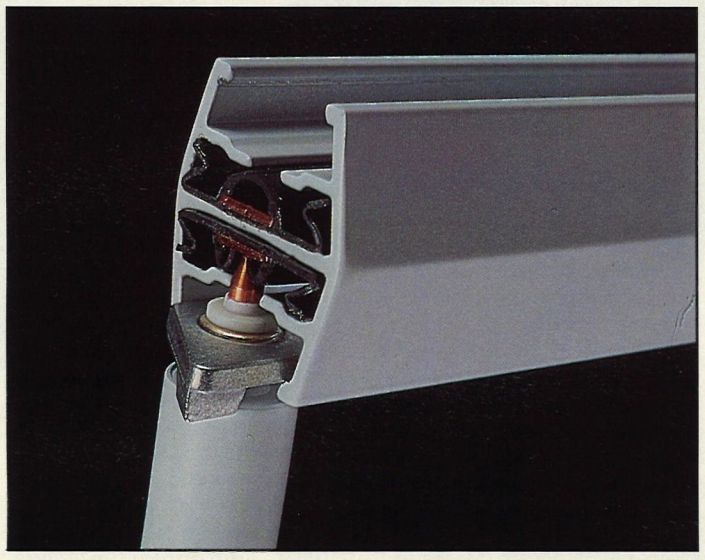
Concord's exciting track system sets a new standard in low voltage lighting design.

Infinitely better

Think of a display lighting system which is so user-friendly it needs only two tools to assemble — an Allen key and a 2p coin — but so sophisticated it can be formed into complex three-dimensional configurations and extended horizontal planes. A retail designer's dream? Far from it. The system is in fact to be launched on the lighting market at the Hanover Fair this month.

'Infinite' by Concord Lighting, is the result of an eighteen month collaboration between designer Terence Woodgate and Concord's own design team headed by Tony Lawrence.

It is an excellent example of how a consultant designer can fire the enthusiasm of an in-house team while benefitting from their close links with the production side of things. The depth of collaboration shows through in details which have been carefully thought through, producing solutions which cause you to say 'It's so simple, why did nobody ever think of it before?' at every turn. The designers are not only still talking to each other but positively enthuse about the experience and are quick to credit their colleagues on a 'who suggested what' basis.



The track in section, showing the mechanical adaptor.

Foolproof

One of the parameters of the design brief was that the system should be as foolproof as possible. Installation is simple because the system carries no cables downstream of the transformer — so there are no wires to twist. A smooth swivel action allows luminaires to revolve through 360° in two arcs — there are no stops to stress or break.

The current is carried horizontally by means of modular lengths of low voltage track which comes in straight lines or as arcs forming a circle 3m in diameter.

One of the multiple applications of the system.

Insulated in-line connectors permit an infinite length of track — the name of the system stresses its limitless possibilities — each section of which operates off a separate transformer. A noticeable first is a hinged coupler allowing a through current of 25 amps across a 60° angle by means of spring plates. The joint is lockable using a coin.

Luminaires may be clipped to the top or underside of the track. The only limitation is that fittings may not bend backwards towards the track for safety reasons.

Modular vertical elements are provided by suspension rods and power rods 100mm and 300mm long. These may be combined to give any length up to 900mm, and used merely to extend the position of a single luminaire or to create a layered structure by hanging a further horizontal track beneath the first one.

The contact point of the vertical rod is sprung on the socket. The suspension rod connects with the track rail through a tapered haft and trapezoidal mechanical adaptor. The latter is very simple to lock into position — you just insert and turn. The conductor is protected by plastic and neoprene cover flaps. As a result small objects such as paper clips accidentally dropped onto the rail cannot produce a short or melt down. Neat, pointed end caps connect conductors, giving a loop in the track. These are the only elements that require the use of a screwdriver — in this case as a safety precaution.

Even the 300VA transformer is well thought out. Toroidal in form and incorporating sophisticated electronics, the different models are designed with current as well as temperature cut out. If the system is overlamped the circuit closes down without shorting; remove the excess lamp and the system automatically lights up again. So it is almost impossible to overload the installation.

Transformers can be surface-mounted or remote. The surface-mounted model allows the track to pierce the transformer without any wires being involved. A further model permits power rods to screw directly into the casing.

Initially the range of fittings available is limited to four spotlights, but further models are already in the pipeline and will extend the range of applications.

The first luminaires include: a 20W 10° beam reflector, which can be fitted with filters; a 50W dichroic with a range of alternative beam widths; and 50W and 75W spotlights with focussing rings and a choice of wide or narrow beams.

Straight lines

The design of all fittings is characterised by straight lines truncated by geometric forms; it thus echoes the design of the suspension elements. Cool handling while focussing and relamping is provided by an integral handle which operates the revolve. A ribbed finial band around this gives a satisfactory grip.

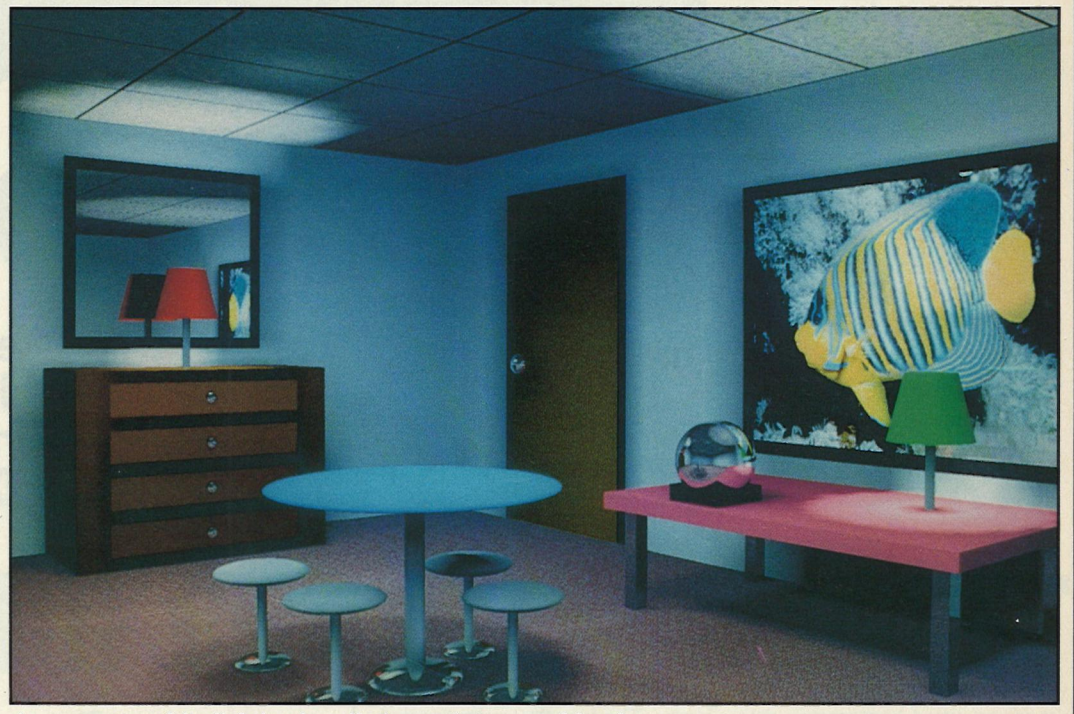
In addition to the dedicated track, luminaires can also be connected to flush solo points or clipped onto Concord's existing Lytespan track system.

The tiny mounting clip is attached to the horizontal track with a patented twist lock. This incorporates an eccentric screw fixing which avoids the need to reposition the clip if it is fractionally out of position.

50W capsule spotlight.

The all-seeing eye

Computers can give your client an accurate idea of what his lighting installation will look like in use. An update on Thorn's computer visualisation scheme.



A room set and its lighting installation as interpreted by the computer.

Computers have been used for some time to carry out lighting calculations by lighting engineers, but the power of modern computers is starting to be used for 'scheme visualisation'. Previously it had been necessary to build a complete mock-up of an installation in the laboratory in order to assess the effect of new lighting concepts. Graphics software can depict a room and its lighting on the computer, and some CAD software can include simple lighting effects.

The problem with accurate representation has always been to deal with the millions of interreflections between all the surfaces in a room (including furniture and obstructions) and also to include the effect of colour. The room must be subdivided into small elements and the effect of each element on every other element must be calculated. That means a lot of arithmatic, even a simple scene requiring between 10 and 100 billion lengthy calculations!

So, even on the fastest and most expensive conventional computers, the time needed to calculate the result can take hours unless short cuts or simplifications are made. The Central Research Laboratories of Thorn Lighting have now developed techniques which enable a complete colour visualisation of the lighting effects, including diffuse light, in an area with around 1000 surfaces, to be calculated in seconds.

The method used is based upon the way the brain processes information. Compared with a typical home computer or office PC, the human brain is very slow at processing individual bits of information — it works in thousandths of a second rather than millionths or less. Yet, unlike even fast computers, the brain can process visual images very rapidly. The secret is that it processes many items of information simultaneously.

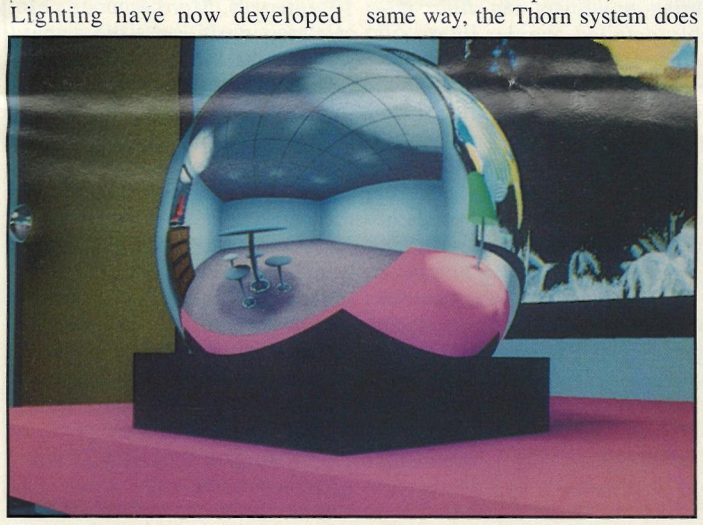
The Thorn visualisation system was developed under Espirit, Europe's research programme in information technology, and uses transputer technology developed with INMOS, now part of SGS Thomson the Franco-Italian group.

Another important difference between this system and conventionally calculated perspectives of rooms is also analogous to the brain. The brain does not show us 'pictures' of the world around us, but creates a 3D map of the world in which **we** move (when we move our head we alter what we see of a fixed picture). In the same way, the Thorn system does not calculate a single 2D 'picture' of the room from a particular viewpoint, but calculates the complete 3D room. This means that the viewer can move around the illuminated room (on screen) without the lighting being recalculated. He can even look under the tables!

The extra speed that this methodology has given, has been used to add detail to the visualisations. Not only are obstructions fully dealt with, but trichromatic interreflection theory is used, so that light reflected from a coloured surface becomes suitably coloured.

However, people do not judge photographs of lighting installations in the same way as they do the actual installation. So, more research work is needed in this field. The system is currently at a research and development stage and will not become available until later in 1991. It will then be used at first for major project work with key architects and consultants.

This will enable the client to 'walk through' the proposed installation by sitting in front of a computer screen which will build up a moving picture of the completed lighting scheme.



The room (top right) as reflected in the metal ball.

Improving accuracy in distribution photometry

Errors can be made in measuring the light emitted from a luminaire, particularly in the case of a narrow beam spotlight, and these would suggest the luminaire is more efficient than it really is. *Peter Everard* studied this phenomenon in his finalists paper for the CIBSE Young Lighter Competition. *LEN* reports.

To design a lighting scheme you need to know the way in which light is emitted from a particular luminaire. This can be described by a set of measured photometric data for the luminaire.

Distribution photometry is the recording of the light output from a lamp or luminaire, both the quantity of light and the way it is output.

The luminaire intensity is recorded at a number of points around the lamp, both in elevation from the centre of the beam and in azimuth around the beam. The data, which is usually collected by a computer system, describes the intensity distribution for that lamp. But there are errors which can occur in using the recorded data.

'Errors from Distribution Photometry' was the subject of a report by Peter Everard, entered in the CIBSE 'Young Lighter of the Year' competition.

The author's aim was to consider these errors. "In some cases," said Mr Everard, "the number of measurements might be insufficient to record the changing intensities of the beam. This is most apparent where the output of a lamp changes rapidly, such as in the beam of a narrow spotlight."

The author measured the intensity distribution at 1° intervals and 5° intervals. He found that the larger interval did not express fully the shape of intensity distribution and could lead to errors in calculating luminous flux.

There is a general appreciation that more detailed measurements can improve the accuracy. But, says the author, there is little published work to indicate the magnitude and disposition of errors.

Peter Everard explored this area further using a set of GTE Sylvania Tru-aim Professional lamps. The lamps were connected in a 12V ac supply for 100 hours to stabilise their operation. Electrical power was taken from a toroidal transformer which was supplied from the mains through a stabiliser to prevent lamp output changing due to drifting of the lamp voltage.

An LMT goniophotometer was used to record the intensity distribution with a Hewlett Packard computer controlled the measuring process.

Distinct differences in the results between measurements at 1° and 5° angular steps could be seen.

"In each case the greatest part of the error was generated at around 10° elevation. Large errors were not indicated at other parts of the intensity distribution."

When Peter Everard looked at the results for all lamps, he found "the difference indicated between 1° and 5° interval calculations is as little as 1% for a wide beam lamp, or as much as 25% for the narrowest beam lamp measured".

It was, therefore, apparent that a narrower beam angle lamp leads to a larger error in calculating the total luminous flux.

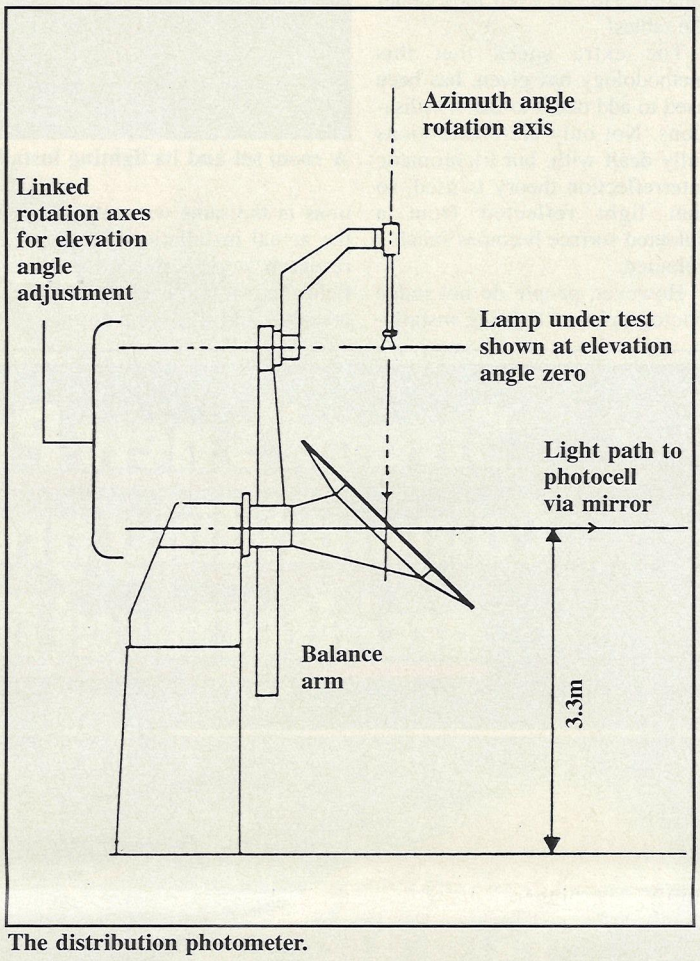
"This can be expected," says Mr Everard, "as a narrow beam lamp has a greater difference between intensities measured close to the lamp axis."

"Further considerations suggest differences in beam profile — soft or hard edged beam — are likely to be significant."

The high value of calculated luminous flux suggests that more light is given out than is true and that conversion of electrical energy into light is more efficient than it really is.

In measurement of luminaire output it would suggest less light is lost in the optical control system.

"Thus data derived for a lighting scheme design is also affected." It could result in the installation of excessive lighting levels.



The distribution photometer.

Eliminating errors

Peter Everard's work showed that "a great improvement can be obtained by taking more detailed measurements. For each of the lamps tested, measurements at 2° intervals gave errors of less than 2%, which would be acceptable in many cases."

However, using 2° intervals instead of 5° more than doubles the number of data points needed, measurement time is increased, more expensive computers are needed to store and process the data, and distribution of the data on floppy disks would require more disks.

"The effect is even more pronounced with measurements at 1° intervals."

Mr Everard suggests it might be possible to make more detailed measurements only on those luminaires where the luminous intensity distribution warrants it. In this case some form of preliminary measurement would be needed to find a suitable measurement interval.

A further option would be to make detailed measurements near the main beam, with less detail of the hemisphere. One method of doing this is detailed in CIE 43, 'The Photometry of Floodlights', for two groups of floodlights. Group I is for half intensity beam angles from 4° to 8°, and greater than 8° Group II.

"A pertinent question," suggests the author, "is whether measuring equipment can offer suitably detailed angular intervals. Most distribution photometers built a few years ago are set to record 5° intervals only. Even more recent ones can only measure a 2.5° interval."

A different approach, therefore, would be to apply mathematical processing in the measured data, by using a curve fitting routine.

In Mr Everard's test, a third order polynomial did not match the intensity distribution, but a seventh order polynomial provided a far better fit.

Using a single function of this type to describe the entire intensity distribution, any data point could be given by the equation:Intensity = C0 + C1.0 + C2.0^2 + C3.0^3 + ... + C7.$0^7$where C0.....C7 are constants

0 is the angle of elevation.

So for a seventh order function, storage of only eight constants is required to regenerate any point or set of points on the intensity distribution — albeit with reduced accuracy.

Another mathematical approach uses spline functions to approximate to the intensity distribution between each pair of data points.

Using computation routines offered by Axel Stockmar, the intensity at 1° intervals was determined using data measured at 5° intervals.

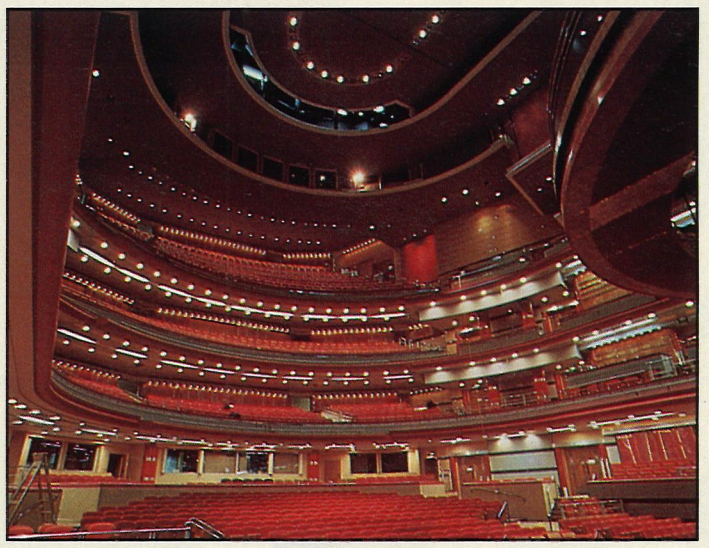
When results calculated in this manner were compared with the measured values, the cubic spline functions closely followed the measured intensity.

In summing up his report, Peter Everard says most published methods of processing data use luminaire data at fixed measurement points, usually 5° or even 10° intervals. More accurate calculations would cause the output to seem less. "It is unreasonable," he feels, "to expect one manufacturer to give highly accurate information that could imply a worse performance than a competitor providing data by existing methods."

"A standard method, internationally accepted, is required in order that published data can be seen to be of a known accuracy. Methods of achieving this accuracy are available, and little work is now required to determine where to apply each method."

"All that is then required is agreement to do so."

Right: the main conference hall lit by pairs of metal halide and tungsten halogen downlights. The tungsten halogen fittings can be dimmed from 200-0 lux.



Left: the Symphony Hall in final stages of preparation. A season of concerts by orchestras from as far afield as Los Angeles and Tokyo starts in May.

Birmingham centre welcomes the world

As the first event takes place at Birmingham's new world standard convention centre, *LEN* takes a look at some of its highlights.

In April, the International Convention Centre in Birmingham will host its first conference. This £160 million centre, financed by the European Regional Development Fund and the Birmingham City Council, is the centrepiece of a huge redevelopment of the city centre.

Although the International Convention Centre (ICC) has 11 main halls and 10 smaller meeting rooms, the complex of buildings is compact, with easy access to the various halls from a central mall.

This mall runs from Centenary Square in the centre of the city to the canalside which has been restored and incorporated into the centre. Some hotels are arranging transport to the centre by boat. Landscaping in the mall includes trees and plants, with shops at two levels.

Decorative lighting consists of large, white opal coloured spheres containing 11W PL compact fluorescent lamps. From three to five of these luminaires, specially made by Udalite, are mounted on slim multi-arm columns. Single spheres on short columns are mounted on the balustrade of a stairway in the mall.

At high level, below the glazed roof, 250W mercury floodlights by Thorn provide general illumination, while pairs of 150W metal halide spotlights, also by Thorn, use narrow beam lenses to light the trees.

A row of wall mounted Concord uplights with 150W mains voltage tungsten halogen lamps wall wash one of the marble effect walls.

Amenity lighting by the canalside and outside the Quayside Café is clear spheres on columns, from Thorn's City Scape range. These luminaires use 70W high pressure sodium lamps in cylindrical refractors. There are also bollards by the water's edge, again by Thorn, containing 50W mercury lamps.

A registration area on level 4, overlooking the mall, is lit by a white tubular lighting system from Erco arranged in a square grid. Fluorescent modules are louvred, while tungsten sections include Eclipse projectors with 150W metal halide lamps to light small exhibitions and other display items.

Main conference hall

The principal conference hall seats up to 1500 people in two tiers and has extensive stage facilities, including full stage lighting.

Auditorium lighting is by Concord recessed downlights mounted in pairs, one containing a metal halide lamp of either 250W or 70W, and the other a dimmer controlled tungsten halogen lamp rated at either 250W or 150W. The higher wattages are used in high ceiling areas while the lower wattage fittings light low ceiling areas. This combination of lamps was chosen to provide an illuminance of 500 lux with a minimum of heat.

An architectural feature of this interior is slightly projecting walls, the tops of which finish in sweeping curves. To emphasise the curves, flexible plastic tubing containing a line of sub-miniature tungsten lamps is concealed behind the top edges. These Rope Lights, by Northern Lights, are on dimmers.

Alternate rows of seats in the hall can be folded down allowing desk tops to slide forward from the backs of those seats. Individual 12V reading lights on flexible arms are then placed in monopoints in the desks. The seats, complete with lighting, were supplied by Figueras, Spain.

Twelve simultaneous interpreting rooms are built into the hall, six at each side of the platform. Working light in these is provided by four 150W PAR38 spotlamps mounted on Thorn track low over the desk top. A bare, twin fluorescent batten fitting, again by Thorn, in each room is provided for setting up and cleaning.

Symphony Hall

Seating up to 2200 people on four levels, the Symphony Hall has been designed with world class acoustics, both for musical performances and conferences.

Below each balcony there is a row of mains voltage downlights by Concord, using 150W tungsten halogen lamps on dimmers, then a row of fully recessed fluorescent fittings made up by the builders with prismatic panels and high frequency gear, to boost the illuminance for conference delegates. This is followed by another row of Concord downlights and finally a line of smaller downlights, also by Concord, to give a wall washing effect on the back wall.

Mounted in the main ceiling of the auditorium there are 500W tungsten halogen and 250W mercury Thorn floodlights. These are used as spotlights, with glass lenses to give a wide beam, and mounted above cut-outs in the ceiling.

Small ante-rooms at the entrance doors of the hall form "light and sound locks". They are lit by small rectangular luminaires fully recessed into the wall at waist height. These fittings from the Bega range, available through Concord, use GLS lamps, some controlled by dimmers, to give a low level of light.

All three halls at the ICC that have raked seating have step lights recessed into the stair risers. In the main conference hall they are in the form of small, square, black louvred fittings, in the Symphony Hall curved steel reflectors conceal the light sources, which in both cases are 15W Pygmy lamps.

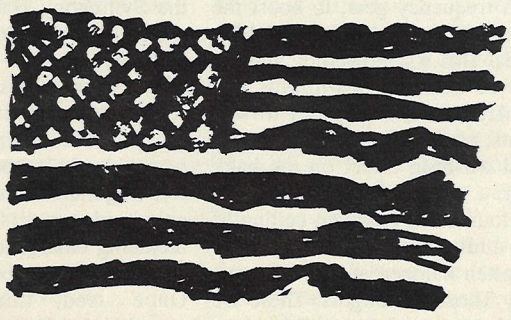
For theatrical effect, all halls that have a control room also have a dead blackout facility. This was negotiated with the fire officers and permits all lighting, including emergency lights, to be switched off for up to 30 seconds. Once used, this cannot be repeated for five minutes. A fire alarm automatically overrides the blackout.

Unusual exterior lighting effects are planned for the ICC, which will create an interesting environment in the city centre by the time the Queen officially opens the complex on 12 June.

The lighting scheme for the ICC was developed jointly by consulting engineers Ove Arup and Partners and the architects Convention Centre Partnership (formed specifically for this project by Percy Thomas Partnership and Renton Howard Wood Levine).

In the begin

in 1879

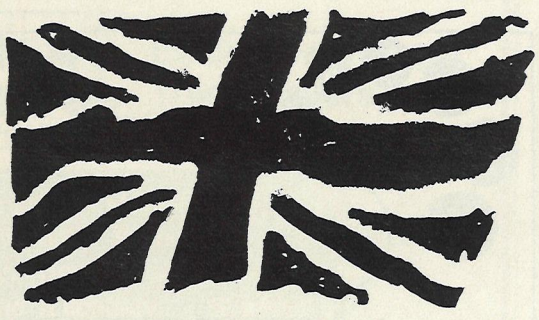


independently of each other, Joseph Wilson Swan in Newcastle and Thomas Alva Edison in Menlo Park, New Jersey, demonstrate their new invention: **The Electric Incandescent Lamp.**

Much work remains to make the Incandescent Lamp burn brighter and last longer. For this task a new industry is necessary: Swan forms the Swan Electric Lamp Company and is later joined by Edison in what is still remembered as 'Ediswan.' In the USA Edison's own company is merged to create the General Electric* Co.

Later General Electric establishes the centre for all its lighting activities at Nela Park, Cleveland, Ohio, which becomes the birthplace of many inventions and amongst its countless Firsts are: *the coiled coil filament; the fluorescent lamp; the double ended halogen lamp; the high pressure sodium and the multi-vapour metal halide lamps...*

in 1928



THORN is founded and begins its progress towards becoming a major world source of lighting products. In 1964 THORN acquires the Ediswan name and this symbolic connection with the inventor of the electric lamp is demonstrated by some of THORN's own FIRSTS: *to mass produce fluorescent tubes in Europe and develop new phosphors and improved cathodes; the dip-beam tungsten halogen headlamp for cars; the 2D compact fluorescent lamp; the single ended halogen lamp.*

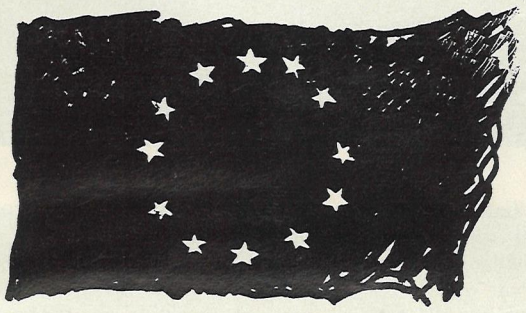
...now GE T

See us at the Hanover Fair: stands B32 & A17 to 29, Hall 9

Upper Floor Ground Floor

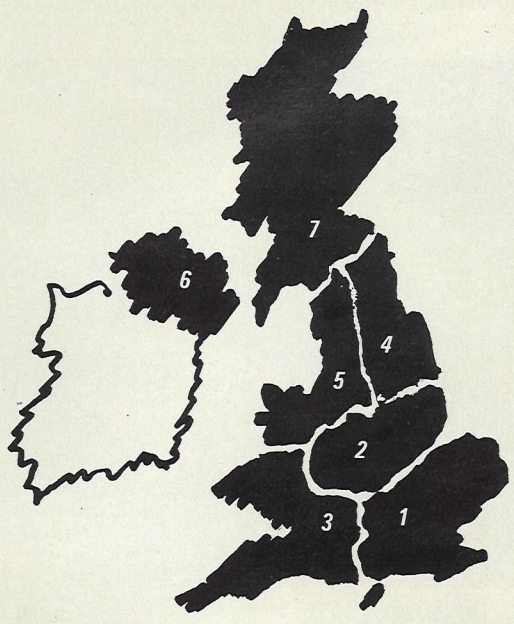
ning...

in 1991



GE Thorn Lamps, the heirs to the traditions of Edison and Swan meet again and fuse their respective talents to work in the creation of the lightsources that will serve the 21st century.
As the largest manufacturer of lamps in the UK, GE Thorn is able to provide a unique level of service to the lighting industry and is committed to make quality of service its hallmark.
With the addition of the worldwide experience and resources of GE Lighting, the new company will afford its customers valuable state-of-the-art insights into all that pertains to LIGHT and LIGHTING.

The Order Processing and Sales Administration of light sources remains unchanged and orders should be placed as before. For further information or queries contact Maureen Hall, telephone 081-949 3131 ext 228.



Thorn Lighting regional offices: *WHOLESALE LIGHT SOURCES*

GE Thorn Lamps
OEM, PHOTO/STUDIO, AUTO
SPECIAL LIGHT SOURCES
Miles Road, Mitcham
Surrey CR4 3YX
Tel: 081-640 1221
Telex: 25534
Fax: 081-685 9625

GE Thorn Lamps
RETAIL
Albany House
Burlington Road
New Malden
Surrey KT3 4NJ
Tel: 081-949 3131
Fax: 081-949 7962

1 London Inside M25 and South East
3 King George Close
Eastern Avenue West
Romford, Essex RM7 7PP
Tel: 0708 730888
Telex: 897759 THLITE G
Fax Sales: 0708 732944
Fax Technical: 0708 727370

2 Midlands
Emmanuel Court
14-16 Reddicroft
Sutton Coldfield
Birmingham B73 6AS
Tel: 021-355 8000
Fax: 021-355 8492

3 South West
Thorn House, Penarth Road
Cardiff, Wales CF1 7YP
Tel: 0222 344200
Fax: 0222 344240

4 North East
California Drive
Castleford
West Yorkshire
WF10 5QH
Tel: 0977 551212
Fax: 0977 514294

5 North West
Thorn House, The Towers
Wilmslow Road
Didsbury M20
Tel: 061-445 8191

6 Northern Ireland
Prince Regent Road
Castlereagh
Belfast BT3 6QR
Tel: 0232 401122
Fax: 0232 401338

7 Scotland
Thorn House
Industrial Estate
Larkhall
Lanarkshire ML9 2PA
Tel: 0698 886007
Fax: 0698 881660

horn Lamps

**GE Thorn Lamps Limited is affiliated with General Electric Company USA and is not connected with the English Company of a similar name.*

GE Thorn
A genius for light

Reader Service No. 11

Permanently safe

Traditionally the game of rugby has only been played in daylight, but when the Welsh Rugby Union started using their Cardiff Arms Park ground for evening events, a permanent safety lighting system was called for.

The Welsh Rugby Unions' National Stadium at Cardiff Arms Park has only recently been utilised to stage events other than daytime international rugby union matches or other tournaments. When the stadium was used to house concerts by Michael Jackson and David Bowie, it was necessary to install temporary festoon safety lighting each time — a situation which was not ideal.

This, together with the recent Taylor report into safety at sports grounds meant that an updated safety lighting system had to be introduced. The South Glamorgan County Council specification called for a minimum of 20 lux anywhere on escape routes and under main stands.

The lighting under the main stand was targeted to meet this illuminance as was the concourse lighting, and the floodlighting of the exterior escape routes.

A 350 KVA generator to supply *all* fittings on mains failure, either on quick run up or to run on standby for instant change-over was decided as the means of maintaining the required lighting under all conditions. As fittings would need to restrike quickly after a mains failure luminaire selection was made from fluorescent and tungsten halogen sources, discharge lamps being discounted.

Obvious solution

At first glance the obvious solution for the lighting under the main stand was tungsten halogen floodlighting. However, this would have created a high electrical load, and fittings would have been mounted in positions which were almost impossible to maintain.

The solution was to use a single row of twin totally enclosed 70W fluorescent luminaires to illuminate the majority of upper stand and the front section of the lower terracing. A row of single fittings at the back of the stand supplemented the illumination at this point and similar fittings also used to light under the balcony at the rear of the lower terraces. In all 550 totally enclosed luminaires were used to light the upper stand.

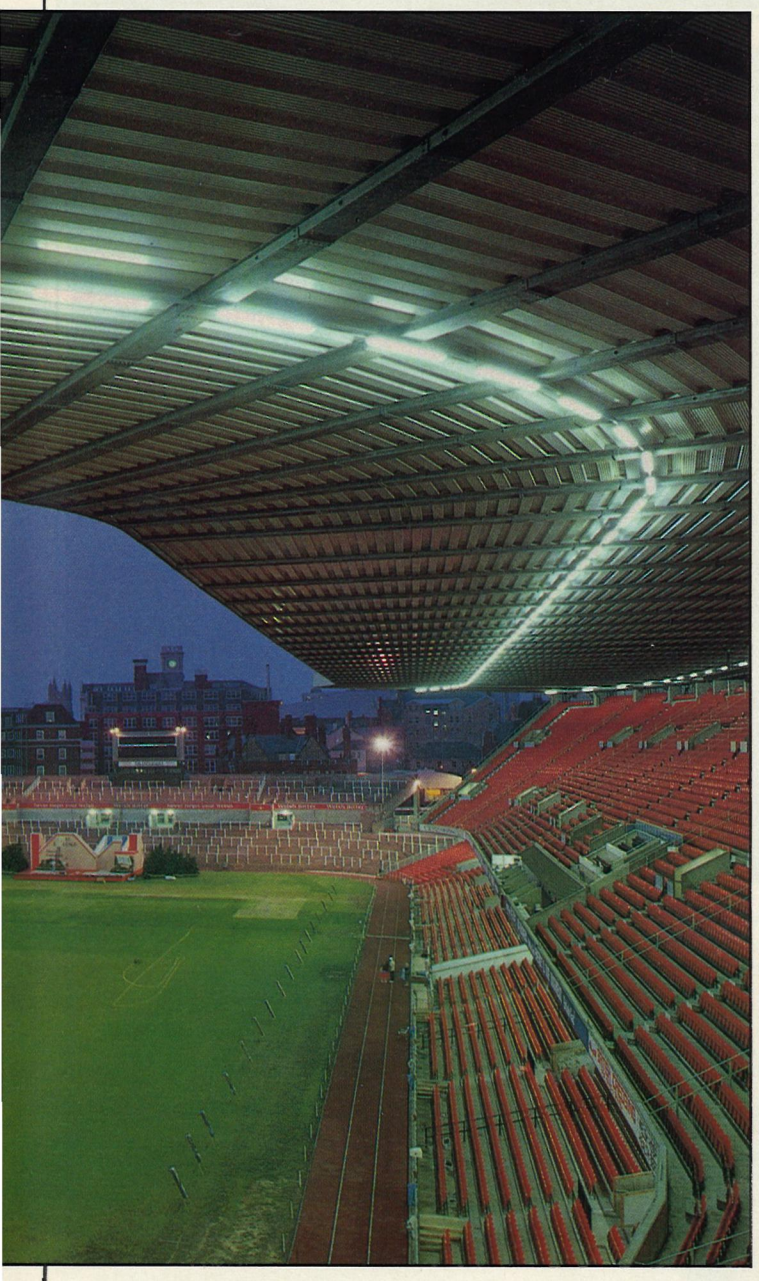
Computer plots were produced to substantiate calculations to provide the minimum requirement. As the slope of the seating gives a varying mounting height above any particular point, the plots had to be produced in small sections (for a given height) and pieced together to obtain the full result for the whole stand from front to back.

Under stand concourses were designed also to provide a minimum of 20 lux anywhere across their width, using mainly single and twin 1.5m totally enclosed luminaires. These were also wall mounted as necessary on staircases, and 2D bulkheads were located at certain exit points which would not be covered by the main lighting.

The remaining open terrace and other external escape routes were lit using tungsten halogen

Emergency lighting illuminates the canopy and the circulation space towards the rear of the seating area.

The slope of the seating gives variable mounting heights, and these had to be taken into account when planning the installation.

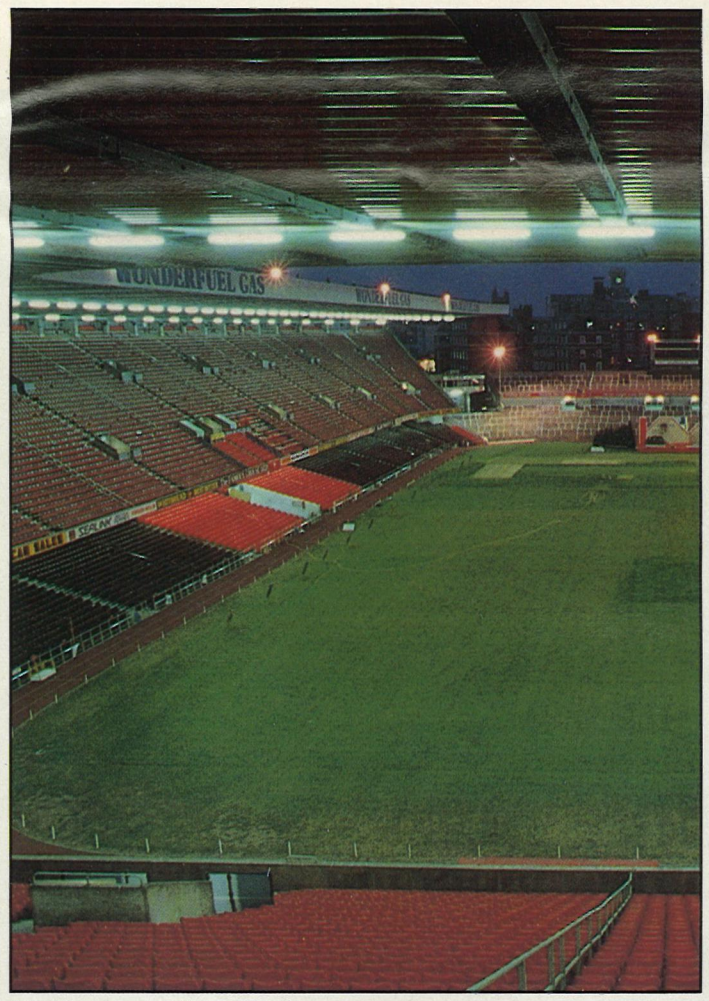


erator back-up for the mains supply, ensured that, in the unlikely event of a sub-circuit failure, only every third fitting would be off supply, thus maintaining the integrity of the safety lighting system.

Maintenance

The new installation was designed and installed by Thorn Lighting and South Wales Electricity. The design fully meets the requirements of the South Glamorgan County Council specification, provides substantial uniformity of illuminance throughout all areas, seating, escape routes and terracing, and is designed particularly to keep maintenance within relamping periods to a minimum.

The fluorescent system is supplemented with tungsten halogen floodlights where necessary.



Looking across the ground

floodlights, using various mounting arrangements.

The main terrace uses 10m columns plus the floodlights on the score board. Escape areas around the ground are lit by floodlights mounted on certain elements of the building. Routes across open car parks are illuminated again by appropriate wattage tungsten halogen floodlights mounted on existing gantries that have been specially extended to give added height for the floodlights.

Locations of fittings were picked to ensure easy maintenance on what is basically a complex site to maintain, and the main run of understand fluorescent fittings were mounted at a point that can be accessed by a large tower wagon from the pitch to avoid the need to use scaffolding. In using fluorescent sources for the main understand lighting it was concluded that the emergency lighting installation would require no attention between full maintenance periods as a number of tubes out at high level would have little effect on the illuminance or uniformity.

To provide the maximum security of supply, the wiring to individual lighting outlets throughout the stadium was designed to ensure all three phases were employed in sequence.

This feature coupled with gen-

Leading lights

Improved lighting could do much to help the image of ten-pin bowling, according to *Mark Ayers*, one of this year's CIBSE Young Lighters finalists. *Geoff Platt* reports.

Until recently the image of ten-pin bowling has been locked in the 1950s, a sport played by ardent fanatics in centres dubbed 'some of the dingiest interiors in Britain'.

But facilities have started to improve, complemented by bright and snappy graphics, designer furniture and fixings and vastly improved lighting.

The lighting of ten-pin bowling centres was the subject of a report, by Mark Ayers, in the CIBSE 'Young Lighter of the Year' competition.

Mark assessed lighting installations and the lit scene at four centres in Crawley, Northampton, Tolworth and Stevenage.

He focussed on three separate areas: his subjective assessment, a questionnaire survey of users, measurement of luminance and illuminance.

Subjective assessment

At each centre Mark carried out his first assessment within ten minutes of arriving, adding further comments after bowling three games.

The Crawley Bowl is compact with no foyer area and a relatively low ceiling. Surfaces are fairly light in colour, with red and grey carpet in the non-playing area.

'Three distinct lighting zones are evident. The thoroughfare is illuminated by recessed downlighters containing PAR 38 lamps. The player's area is lit by a continuous single row of recessed fluorescent fittings with egg-crate louvres.

'A stepped high reflectance white ceiling houses fluorescent tubes and acts as a semi-diffusing surface.'

Crawley is summed up as being 'uninviting but adequate for bowling'.

The GX Superbowl in Northampton, by contrast, has 'vibrant surfaces enhanced by natural daylight and recessed downlighters'.

The walls are off-white, covered in brightly coloured graphics. The carpet is in red/green/blue design.

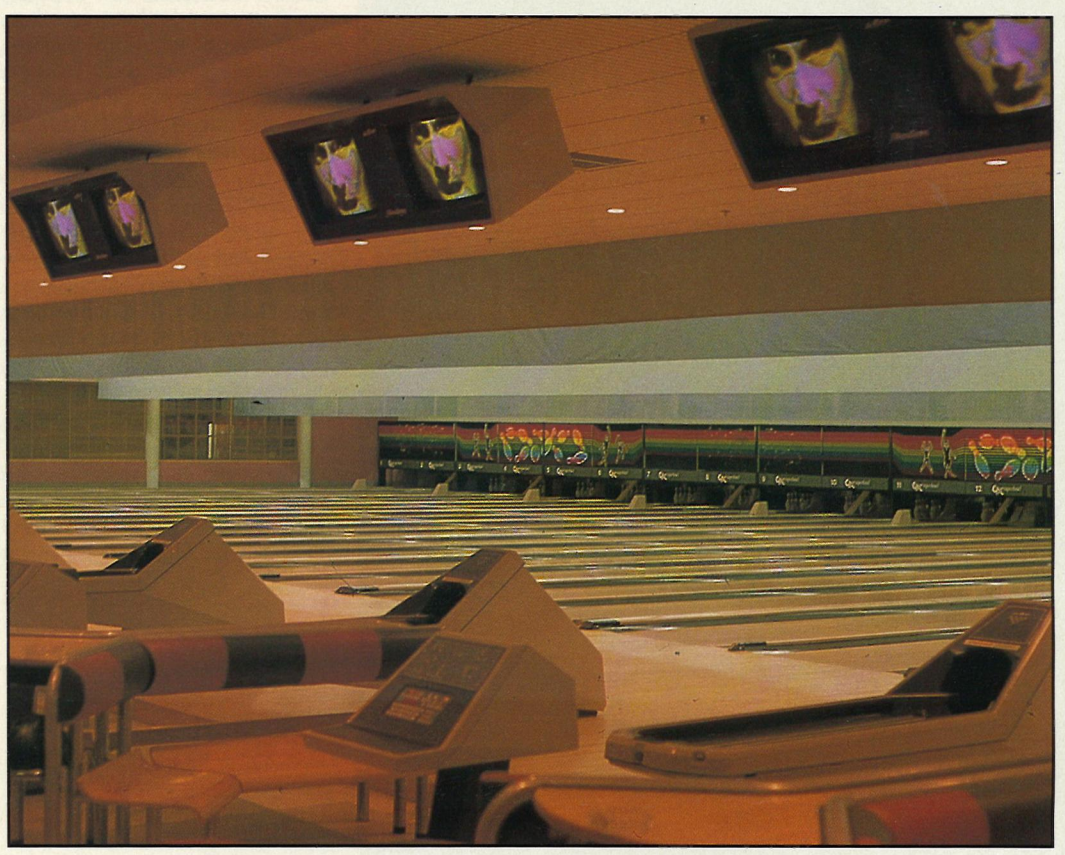
'The lighting of the bowling area is provided by light solely reflected off the walls and ceiling by a number of floodlights, with asymmetric reflectors acting as uplighters.

'The lamps used are 400W metal halide, generating approximately 36 000 lumens, and with a rated life of 20 000 hours. The majority of those are of warm appearance (3200K), although there are two uplighters clearly using cooler sources

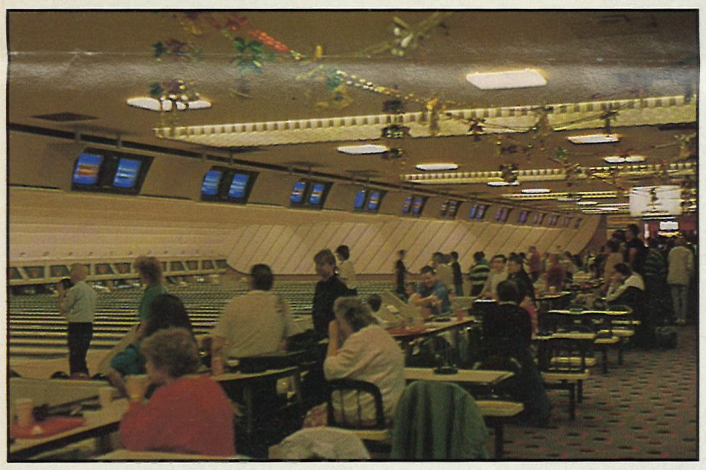
The GX Superbowl at Stevenage was the newest of the four. The walls are pastel blue, the ceiling covered in white ceiling tiles, and the carpet blue and yellow.

'The non-bowling area is lit by recessed downlighters utilising a range of different sources, 100W Osram reflector lamps, 20W Philips PLC lamps and 12v Dichroic lamps. There is a warm and inviting atmosphere.

'Bare fluorescent lamps illuminate the bowling lanes in perpendicular rows. The sources are shielded from view by coloured



The newest of the bowling centres assessed, the GX Superbowl at Stevenage, uses largely pastel colours.



The Charrington Bowl at Tolworth is one of the largest ten-pin bowling centres in the country, Bowling lanes are lit by fluorescent luminaires.

vertical canvases which act as baffles, preventing glare

Mark Ayers says the combination of space and lighting installation provides a warm and inviting atmosphere in a non-spectacular way.

Finally the Charrington Bowl, at Tolworth, is one of the largest in the country. Here the walls range from white pastel to dark wood. Ceiling tiles are magnolia and the carpet has a red/grey and black pattern.

Unlike the other three centres, daylight is used to good effect via two windowed walls.

'The bowling lanes are lit by fluorescent lamps hidden by a white stepped ceiling. The non-bowling area is lit by a variety of fittings including 600mm square diffusers, cylindrical downlighters containing Philips SL lamps and spotlights utilising crown-silvered lamps. In addition, there are a number of special feature luminaires which contain fluorescent lamps and have a unique anti-glare arrangement

Questionnaire

A questionnaire assessed user response to the lighting installations. The author adopted the techniques used in two papers given at the 1990 CIBSE National Lighting Conference by Dale Tiller and David Loe/Ted Rowlands.

Two questions were asked — 'How would you consider the overall lit scene within the centre?' and 'What is your opinion on how the installation illuminates the bowling lane and pins?' These questions were followed by sets of two key words with opposite meanings (ie BRIGHT, DULL) divided by a scale of one to five, thus:

BRIGHT 1 2 3 4 5 DULL

The numbers were ringed according to individual assessment and the scores averaged.

At Crawley the results closely matched the author's assessment, expressing a negative attitude and a dislike of the functional aspects of the lighting.

There was a far more positive response at Northampton. Users had stronger opinions which might have been because lighting installations were far more obvious and 'in view'.

The user score at Tolworth was close to the mean on every aspect, although the furthest deviations were towards monotonous, uniform and colourless, suggesting a need for more visual interest.

At Stevenage, results were, once again, close to the mean. They did not highlight any negative aspects, neither did they indicate any stimulating features.

Light measurement

Using a luminance meter, the luminance of the bowling pins and the backboard was recorded — and a contrast figure ascertained. The luminance distribution across the playing surface was measured.

Both luminance and illuminance recordings were taken on a fifteen point grid on the players' approach, and an average calculated.

The results showed the relatively low levels of illumination to be found in bowling centres.

Arguably the most important area of the results to consider is the luminance contrast between the pins and their background. The greatest contrast appears at Northampton and the lowest at Crawley.

Discussion

In his discussion of the findings, Mark Ayer says 'unless a positive attitude is adopted in the design process, the lighting installation goes unnoticed.'

'Designers' he feels, 'should provide an interior which provides more than the functional requirements in terms of space and the lit scene...The design should include purposeful visual interest in terms of architecture, decor, colour and light — all of which should be in harmony.'

The only centre to provide an aesthetically appealing environment was Northampton, the first indoor arena of its type to use uplighters for lighting the playing surfaces.

In an age where illumination levels in offices and public spaces seem to be ever-increasing, the report concludes that the average illuminance values within the four centres does seem to be fairly low, although adequate for the sport in question.

The author says the lighting measurements are not comprehensive and he plans further work, particularly on the illuminance distribution across the playing surfaces.

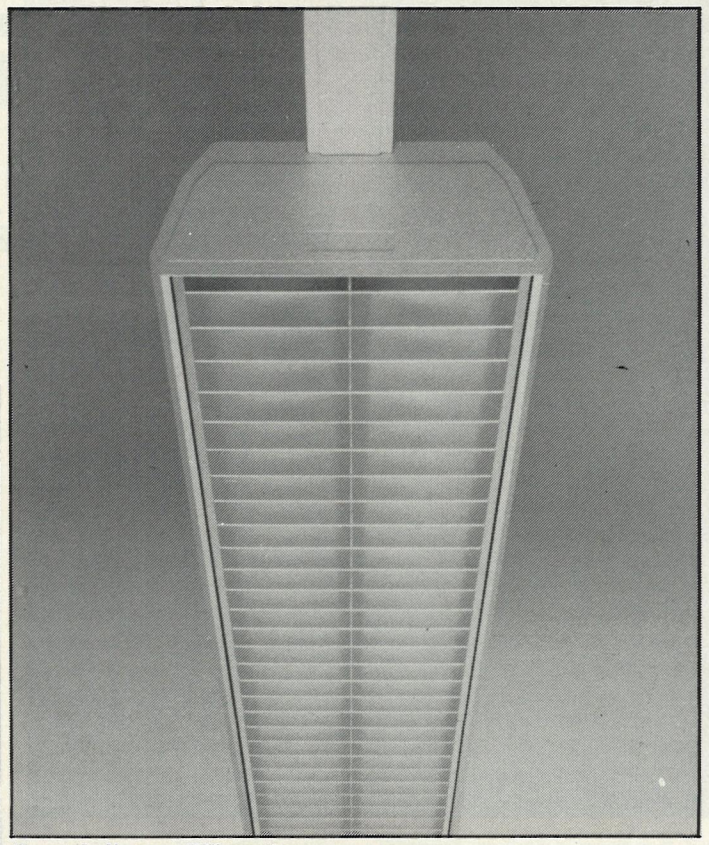
The present edition of the CIBSE Sports Lighting Guide (LG4) does not contain specific guidelines for the lighting of ten-pin bowling centres. Perhaps the results and conclusions in Mark Ayer's report might be incorporated in any future revisions of this guide.

The GX Superbowl in Northampton (above and right) uses brilliant graphics against white walls. Lighting is principally indirect, using floodlights acting as uplighters.

Hanover '91

Part 2 of *LEN's* guide to the major exhibitors at the world's largest lighting fair.

This year's fair seems to place more emphasis of luminiares than lamps. **Zumtobel (Hall 9, First Floor, Stand 08)** will be showing a continuous row lighting system, the ZX range for the first time at Hanover. The range is claimed to combine Zumtobel's quick-fit approach with economy and functional design. An extensive series of attachments makes possible applications ranging from warehouses and factories to shops, classrooms and large open-plan offices. Computer technology has made it possible to design a standard housing to accommodate all reflector types without adversely affecting photometric performance.



Zumtobel's new ZX continuous lighting system.

Also launched is Artos, a geometrical range of new spots and wall-washes for accent lighting, based on the hemisphere. The range offers a choice of light sources from tungsten halogen lamps to HID lamps and is designed for use in sales display areas, shop window and museums.

For hazardous areas there is an improved and extended range of explosion-proof luminaires. These give greater ease of installation and are more versatile than their predecessors.

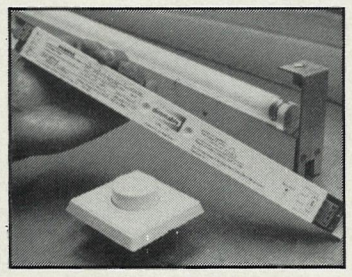
Finally, the advanced COPHOS software for computer-aided lighting design is now available in pocket version to enable approximate lighting design calculations to be made on the site. This version uses an Atari Portfolio pocket-sized PC and a memory card containing the mini-COPHOS program.

The SK Futura range from **SK Lichtechnik (Hall 9, Ground Floor, Stand D07- 08)** is basically a triangular low voltage luminaire using 20W-50W dichroic lamps and its built-in derivatives. The basic luminaire is available in a twin pendant version offering both uplight and downlight, and as an individual spot fitting. The range also includes a semi-recessed spotlight which can be rotated horizontally by 350° and vertically by 50°, and locks itself into the chosen position.

Ventilated spotlight

The downlight version is a recessed spotlight with its own air circulation system to prevent heat build-up. With this fitting comes an extensive range of decorative accessories which extends its application considerably. Finally, the triangular recessed luminaire is designed for the creation of geometrical configurations based on the triangle. It can be used to provide light paths to guide visitors around a building, and coloured glasses as an accessory extend its potential for use as a signing system.

German giant **Siemens** is located in a corporate stand in **Hall 11**. Their light source subsidiary **Osram** can be found in **Hall 9, First Floor, Stand CO5**. Siemens is offering a new electronic ballast which permits fluorescent lamps to be dimmed down to as low as 1% of their total luminous flux, thus giving both economy of operation and high comfort levels. A two-pole power supply sends information about required dimming levels from an external control and this is relayed to the fitting by means of a signal voltage varying from 1V to 10V. Resulting lighting levels are then proportional to the received voltage. For energy saving purposes, the ballasts may be linked to a light sensor which takes account of ambient lighting levels and decrease in light output due to depreciation of lamps and luminaires.



Siemens' dimmable electronic ballast for fluorescent lamps.

From the same company comes a high bay rectangular luminaire for fluorescent lamps. intended for industrial and commercial applications. The high light output of these fittings makes them an economic alternative to older systems, using symmetrical reflectors and high pressure metal vapour lamps, for installations of up to 14 m in height.

These fittings are primarily indicated where the lighting solution includes a high vertical light element. Housings are constructed for both two and four fluorescent lamps, each of 58W. Fittings are available in versions with deep louvres, aluminium profile deep louvres and parabolic reflectors. The IP rating varies between IP20 and IP50 depending on the model chosen.

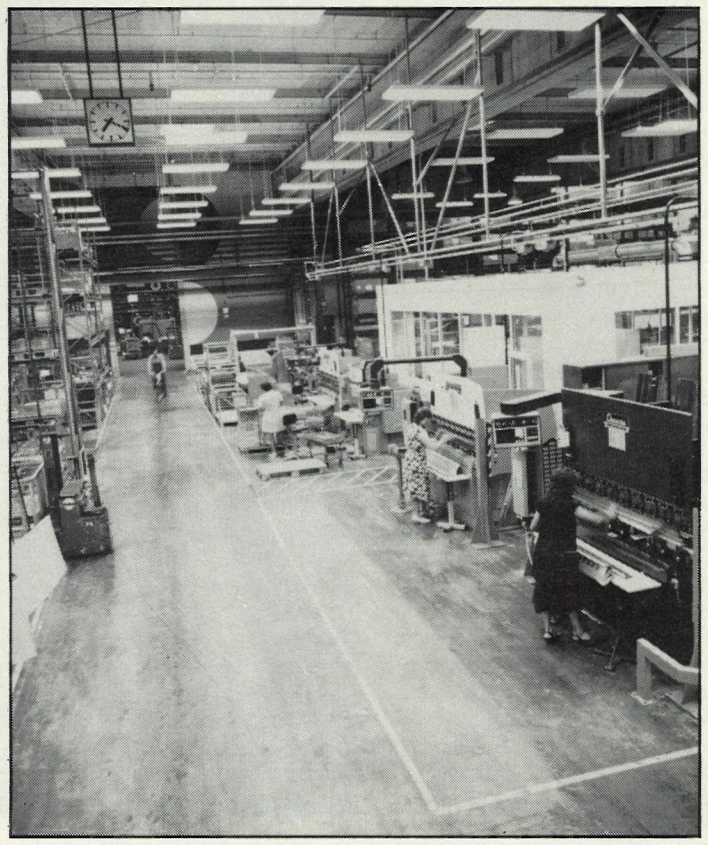
Siemens' SE500 range of display lamps has been widened to include fittings for low voltage tungsten halogen lamps up to 100W. A common housing for the SE500 range gives it visual identity.

The high quality of design of this range has been recognised by a special award for good industrial design from the IF: the product was chosen as one of the year's three best luminaires.

Finally, for damp or wet environments comes a new range of fittings to IP 65. These are high technology, economical fittings, specially developed to limit glare and produce high quality lighting in such cases. The luminaires are designed for easy installation and can be supplied with electronic control gear.

Ceiling void

In some applications such as installing recessed fittings into shallow ceiling voids the disadvantages of dichroic lamps is that 60% of the heat they emit is reflected backwards. New from **BLV (Hall 9, First Floor, Stand A44/B83)**, is the 12V Reflecto lamp available in 20W or 50W versions. Reflekto is a precision halogen lamp whose glass reflector is not dichroic but aluminium coated, thus reflecting more of the heat forward rather than backwards, so the temperature at the lamp holder is lower.



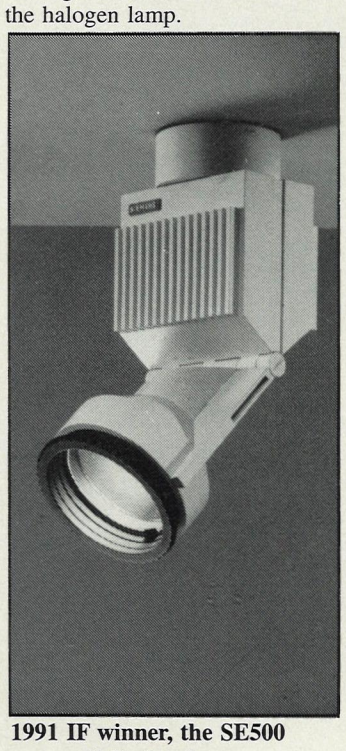
High bay fluorescent luminaires from Siemens.

The 50mm diameter lamps come in 13° spot and 39° flood beams. External finishes include clear, silver matt, matt black and white. Computer aided adjustment of the filament and rapid cut-off of the beam means that a 50W Reflekto lamp gives a tighter beam and higher light output than a 120W PAR lamp.

From the same company comes the economy range of dichroic MR16 Eurostar. Aimed at the larger user, these lamps come in 20W, 35W, 50W and 75W versions. Although the lamp is low price, its production is computer controlled and, in lamps of 35W and upwards, the filament is axially positioned in the burner for precision performance. Their reliability is shown in their low early failure rates and a high average lamp life of 3000 hours.

Edison screw

BLV has also launched Topspot 27, an HIT lamp with an Edison screw socket. It is available in two different forms: a smaller lamp with a clear finish for use in closed fitting and a version with a double envelope for use in open fittings. The latter comes with a choice of clear, matt or UV absorbing outer envelope. The 75W lamp with approximately the same dimensions as a 250W mains voltage tungsten halogen lamp, offers an energy saving of more than 70% over the halogen lamp.



1991 IF winner, the SE500 range of display lamps.

To advertise in this Directory contact Alastair Moyes

WHERE TO BUY DIRECTORY

Telephone: 081-975 9759

ACCESSORIES — BRASS PRESSED AND TURNED

S. Lilley & Son Ltd.,
80 Alcester Street,
Birmingham B12 0QE
Tel: 021-622 2385
Fax: 021-666 6148

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

LIGHT SOURCE

Light Source Electrical Equipment Ltd.,
Lightsource House,
24 Scrubs Lane,
London NW10 6RD
Tel: 081-960 2188
Telex: 915506
Fax: 081-960 8901

ACCREDITED SAFETY TESTS

Albury Laboratories Ltd.,
Albury, Guildford,
Surrey GU5 9AZ
Tel: (048641) Shere 2041/4
Telex: 859336 Albury G

AMTAC

Laboratories Ltd.,
Norman Road
Broadheath, Altrincham
Cheshire WA14 4EP
Tel: 061-928 8924
Telex: 665337 AMTAC G
Fax: 061 927 7359

BSI TESTING

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

SGS testing

SGS Inspection Services Ltd.
Alperton Lane,
Wembley, HA0 1WU
Tel: 081-998 2171

ALUMINIUM LOW BRIGHTNESS AND VDU LOUVRES

ADD

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.

Avonlux Limited,
Nathan Way, Woolwich
London SE28 0AZ
Tel: 081-854 3388
Telex: 896061 (ALPA G)

Maxi Engineering Company,
26/32 Plumstead High St.,
London SE18 1SL
Tel: 081-854 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.

Prescion Louvre Company
Oakfield Farm, Blind Lane
Little Burstead, Billericay
Essex CM12 9SN
Tel: 0277 653817
Fax: 0277 655717

ANODISED ALUMINIUM COIL AND SHEET

alanod®

Alanod & Garfield Lewis
Birmingham B21 0BH.
Pre-anodised strip-blanks for louvres and reflectors available from stock to your precise requirements. Telephone or fax for more information. Garfield Lewis is a quality assured source to BS5750/1S09002
Tel: 021-554 5242
Fax: 021-551 9315

ALCAN

Alcan
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 55981

ANOCOIL

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.

aca Non Ferrous and Feralco

Pre-anodised and pre-painted aluminium slit coil and cut sheet for your lighting reflector and louvre requirements available ex stock. Contact
Non Ferrous and Feralco
Tel: Walsall (0922) 722200.
Fax: Walsall (0922) 722466

ARCHITECTURAL & COMMERCIAL LIGHTING CONSULTANTS & SUPPLIERS

BBI

BBI Lighting
23 Parkside
Coventry CV1 2NE
Tel: 0203 551444
Fax: 0203 525862

LED

Lighting & Electrical Distributors (L.E.D.)
109 Wood Street
London E17 3LL
Fax/Tel: 081-521 5485
Importers indoor/outdoor lighting. LV fittings, decorative, ceramic and crystal. Flush fittings. Street and amenity, security/PIR commercial light fittings.

REFLEXION Design for Light

The Old Court,
All Saints Road, Newmarket,
Suffolk, CB8 8HH
Tel: 0638 662140
Fax: 0638 662143
Lighting, design, consultancy, concept engineering, specification.

ASSEMBLY — COMPLETE MANUFACTURING SERVICE

ASSEMLEC

Unit 5, Bay Works,
Pevensey Bay, BN24 6EG.
Tel: 0323 767904
Fax: 0323 767133
Assemblers of all forms of lighting. Design and manufacture undertaken

WYS INDUSTRIES

WYS Industries Ltd
Unit 2, Stockwell Lodge
Conway Street, Hove
East Sussex BN3 3LA.
Tel: 0273 821564
Fax: 0273 202699
Specialists in quality assembly and manufacture to the lighting industry.

BATTENHOLDERS/ CEILING ROSES/ JUNCTION BOXES

Ashley and Rock Limited
Morecambe Road,
Ulverston,
Cumbria LA12 9BN
Tel: 0229 53333
Telex: 65164
Fax: 0229 57659

BATTERY BASED EMERGENCY STANDBY SYSTEMS

Freelance Battery Distribution Ltd
Unit 5, Estate Road No. 5
South Humberside Ind. Est.
Grimsby
DN31 2TG
Tel: 0472 361213
Fax: 0472 241175

BULKHEAD LUMINAIRES

GEWISS

Gewiss UK Limited
Bumpers Way
Chippenham SN14 6LH
Tel: 0249 444734
Fax: 0249 444514
Full range of weather proof polycarbonate round and rectangle bulk head luminaires.

BULKHEAD LUMINAIRES — TUNGSTEN AND ENERGY SAVING

BG

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

CABLE

Kingston Cable Distributors Ltd.,
Amsterdam Rd. Sutton Fields,
HULL HU8 0XF
Tel: 0482 830367
Fax: 0482 830369

CABLES/SILICONE

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

CEILING AND DESK FANS

Fanfayre Ltd
Gravesend, DA11 0BH
Tel: 0474 535994
Fax: 0474 535224
Full range of "Fantasia" decorative ceiling and desk fans.

COLD CATHODE

INCANDESCENT LIGHTING DESIGN

Cold Cathode,
S.E.L. (S.E.F.T.)
High Output Lighting
Contact: Mick Watts
Tel: 081-771 8318

National Signs

National Signs Ltd.,
1 Hampshire Street
London NW5 2TE
Tel: 071-485 3363
Fax: 071-284 1700
Cold Cathode & S.E.F.T., lighting installations, servicing nationwide, wide range of colours.

Oldham Lighting

Oldham Lighting
Fulton Road,
Wembley,
Middlesex HA9 0DF.
Tel: 081 902 3682
Fax: 081 903 7320
Design, manufacture, installation and maintenance of long-life, high output, lighting systems using HI-SLIM and cold cathode.

S.W.1.

14 Smiths Yard
Summerley Street,
Wandsworth SW18 4HR
Tel: 081-944 0411
We are Specialist Consultants in Cold Cathode and S.E.F.T. longlife lighting. We design, supply and install. Contact Mr Beecroft or Mr Watts.

COLOURED SLEEVES FOR FLUORESCENT TUBES

COLORAP

E. C. Hinton & Co. Ltd.,
225 Cannon Hill Lane,
London SW20 9DB
Tel: 081-540 5813
Fax: 081-543 9395

COMBINED MAINS AND EMERGENCY LUMINAIRES

existalite EMERGENCY LIGHTING ENGINEERS

Existalite Ltd.,
Project House, 18 Tallon Rd
Hutton, Essex CM13 1TZ
Tel: 0277 263600
Fax: 0277 263592
Uplights with auxiliary and emergency features.

GEWISS

Gewiss UK Ltd
Bumpers Way
Chippenham SN14 6LH
Tel: 0249 444734
Fax: 0249 444514
Non-corrosive standard and special configurations from stock and to order.

CONSERVATION AREA LIGHTING

Candela Traditional Lighting Limited

Birmingham B11 3EY
Tel: 021-707 6936
Fax: 021-707 7425

CUSTOM DESIGN AND LUMINAIRE ASSEMBLY

SAMHILL DESIGNS

121 London Road,
Knebworth,
Herts SG3 6EX
Assemblers of all forms of lighting. Luminaire Design Undertaken. Lighting Sales.
Tel: 0438 812550

CUSTOM DESIGN AND MANUFACTURING FACILITIES

Phipps Plastics Ltd.,

Phipps Plastics Ltd.,
Coneygre Road, Tipton,
West Midlands DY4 8XF.
Tel: 021 557 1113
Fax: 021 557 6369.
Ex stock range. Fabricated and formed diffusers in styrene, acrylic, polycarbonates etc. Opal and clear prismatic.

CUSTOM DESIGN LUMINAIRES

Sugg Lighting Ltd
Sussex Manor Business Park
Gatwick Rd, Crawley
West Sussex RH10 2GD
Tel: 0293 540111

DECORATIVE BRASS TUBING

S. Lilley & Son Ltd.,
80 Alcester Street,
Birmingham B12 0QE
Tel: 021-622 2385
Fax: 021-666 6148

DIMMERS

Hamilton Litestat

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

HELVAR

Helvar Ltd.,
1 Ealing Road Trading Est.
Ealing Road, Brentford,
Middlesex TW8 0QY
Tel: 081-568 6205
Fax: 081-568 6473
Telex: 291439 HELVARG

Home Automation Ltd
Bumpers Way
Chippenham, Wilts
SN14 6LF.
Tel: 0249 443515
Fax: 0249 443315
Manufacturers of consumer & commercial dimmers.
BS5750 Part 1

Lytemode Ltd.,
Unit 3, Maple Ind. Est.,
Mapleway, Feltham,
Middx TW13 7AW
Tel: 081-751 5449
Fax: 081-751 3334

Polaron Controls Ltd.,
21 Greenhill Crescent,
Holywell Ind. Estate,
Watford, Herts
WD1 8XG
Tel: 0923 240272/5
Telex: 934191

Richmond LIGHTING LIMITED

11 Cambridge Trading Est,
Cambridge Road,
Hanwell,
London W7 3UP.
Tel: 081 567 6086

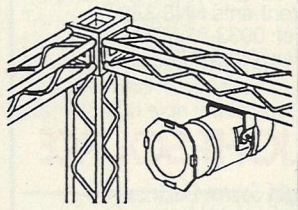
Strand Lighting (Environ),
Grant Way (off Syon Lane)
Isleworth
Middlesex TW7 5QD
Tel: 081-560 3171
Telex: 27976
Fax: 081-568 2103

DISCOTHEQUE & STAGE LIGHTING

CLASS
Commercial Light and Sound Systems Ltd.
Experts in Disco Lighting
837 Garratt Lane, London
SW17 0PG
Tel: 081-944 1400
Fax: 081-944 0141

MSL™ PRO LIGHT & SOUND

MSL Pro Light and Sound
Head office: 071-354 2254



Penn Fabrication Ltd
Unit 26, St John's Estate
St John's Road
Penn, Buckinghamshire
HP10 8HR
Tel: 049 481 8262
Fax: 049 481 6074
Par 64, Par 56 Cans and Trussing Systems supplied

VALIANT

UK Largest Stockist of film, television and photographic lamps.
Tel: 071-736 8115
Fax: 071-731 3339

ELECTRONIC CONTROL GEAR

SMART & BROWN

Miles Road
Mitcham
Surrey CR4 3YX
Tel: 081-640 1221
Tlx: 25534 TELC G
Fax: 081-685 9625

Tridonic

Tridonic Ltd.,
Hampshire International Business Park,
Crockford Lane,
Chineham, Basingstoke,
Hampshire RG24 ONA
Tel: 0256 707000
Fax: 0256 707002

ELECTRONIC TRANSFORMERS

IBL

Intram Barwell Ltd,
Barwell Business Park,
Leatherhead Road,
Chessington,
Surrey KT9 2NY.
Tel: 081 391 5252
Fax: 081 974 1629
Competitively priced transformers with high performance standards.
Bespoke service available.

Lighting Components Limited

249 Seaside, Eastbourne
East Sussex, England
BN22 7NT
Tel: (0323) 410105
Fax: (0323) 410161

MODE ELECTRONICS

Mode Electronics Ltd
Chelsing Lodge
Tonwell Ware
Herts SG12 0LB
Tel: 0920 462121
Fax: 0920 466881
Manufacturers of electronic transformers which can be switched or dimmed with all types of dimmers.

ORBIK

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

SMART & BROWN

Miles Road
Mitcham
Surrey CR4 3YX
Tel: 081-640 1221
Tlx: 25534 TELC G
Fax: 081-685 9625

EMERGENCY LIGHTING CONTROL GEAR

ORBIK

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

To advertise in this Directory contact Alastair Moyes

WHERE TO BUY DIRECTORY

Telephone: 081-975 9759

Miles Road
Mitcham
Surrey CR4 3YX
Tel: 081-640 1221
Tlx: 25534 TELC G
Fax: 081-685 9625

EMERGENCY LIGHTING EQUIPMENT

Armada Lighting and Fire Ltd.,
Unit 1, Huxley Close,
Plympton,
Plymouth PL7 4JN
Tel: 0752 342942
Fax: 0752 342864

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
EMERGENCY LIGHTING ENGINEERS

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

Jsb

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

Light Source Supplies
Millars One, Southmill Road
Bishops Stortford,
Herts CM23 3DH
Tel: 0279 652143
Fax: 0279 504318
Wide range of krypton, xenon, halogen and many other low voltage bulbs.

MATTALEX

Mattalex
Waterloo Rd
Bidford on Avon
Alcester
Warwicks, B50 4JH
Tel: 0789 490900
Fax: 0789 490516

Menvier (Electronic Engineers) Ltd
Southam Road, Banbury
Oxon. OX16 7RX
Tel: 0295 256363
Fax: 0295 270102

PLASMOLD

Plasmold Safety Systems Ltd.,
Bruntcliffe Lane,
Morley, Leeds, LS27 0LZ
Tel: 0532 539119
Telex: 556322
Fax: 0532 535665

Selite

Selite Ltd
19 Stafford Road,
Croydon CR0 4NG
Tel: 081-686 9919
Fax: 081-680 9288
Telex: 917759

FLUORESCENT COLOURED SAFETY LIGHTING

EncapSulite

Encapsulite sleeves with aluminium end-caps and COLOURED filters, offer the widest possible choice in single or multi-coloured fluorescent lighting. For a free brochure;
Tel: 0525 376974

FLUORESCENT & COMMERCIAL LIGHTING

MANLIGHT LIGHTING LIMITED

Wilmore House,
The Mews, Hollybush Lane,
Sevenoaks, Kent TN13 3TH
Tel: 0732 451744
Fax: 0732 456205
The office of Ronald Dury!

FLUORESCENT COMPONENTS AND ACCESSORIES

ADVANCED LIGHTING INDUSTRIES

Advanced Lighting Industries,
Electronic Fluorescent Starters,
Electronics and Adapters,
Motem House,
Brooker Road,
Waltham Abbey,
Essex EN9 1JW
Tel: 0992 88668

KNOBEL

Sole UK Agent and Distributor
Hylec Elettro Gibi (UK) Ltd
Unit 4, Trinity Centre,
Wellingborough
Northants NN8 3ZB
Tel: 0933-677633
Fax: 0933-675771

LIGHT SOURCE

Light Source Electrical Equipment Ltd.,
Lightsource House,
24 Scrubs Lane,
London NW10 6RD
Tel: 081-960 2188
Telex: 915506
Fax: 081-960 8901

SMART & BROWN

Miles Road
Mitcham
Surrey CR4 3YX
Tel: 081-640 1221
Tlx: 25534 TELC G
Fax: 081-685 9625

Transtar
CONTROL GEAR FOR LIGHTING

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

Tridonic

Tridonic Ltd.,
Hampshire International Business Park,
Crockford Lane,
Chineham, Basingstoke,
Hampshire RG24 ONA
Tel: 0256 707000
Fax: 0256 707002

FLUORESCENT/ DISCHARGE CONTROL GEAR

Control Components (CW) Ltd
3 Macadam Road
Corby, Northants NN17 2JN
Tel: 0536 402403
Fax: 0536 402419

HELVAR

Helvar Ltd.,
1 Ealing Road Trading Est.
Ealing Road, Brentford,
Middlesex TW8 0QY
Tel: 081-568 6205
Fax: 081-568 6473
Telex: 291439 HELVAR G

Lighting Components Limited

249 Seaside, Eastbourne,
East Sussex, England
BN22 7NT.
Tel: (0323) 410105
Fax: (0323) 410161

LIGHT SOURCE

Light Source Electrical Equipment Ltd.,
Lightsource House,
24 Scrubs Lane,
London NW10 6RD
Tel: 081-960 2188
Telex: 915506
Fax: 081-960 8901

MAY & CHRISTE

Manufacturers of OPTIMA control gear
May & Christe Ltd
Unit 22, Mead Park,
River Way, Harlow
Essex CM20 2SE
Tel: 0279 422540
Fax: 0279 421570

SMART & BROWN

Miles Road
Mitcham
Surrey CR4 3YX
Tel: 081-640 1221
Tlx: 25534 TELC G
Fax: 081-685 9625

Tridonic

Tridonic Ltd.,
Hampshire International Business Park,
Crockford Lane,
Chineham, Basingstoke,
Hampshire RG24 ONA
Tel: 0256 707000
Fax: 0256 707002

VS

Vossloh-Schwabe UK Ltd
38 Tanners Drive
Blakelands
Milton Keynes MK14 5BW
Tel: 0908 611060
Fax: 0908 613131

GARDEN LIGHTING

Alectralink Distributing Company
Unit 5, Popin Building,
Southway, Wembley,
Middlesex HA9 0HB
Tel: 081-900 2322
Fax: 081-903 3403
New range low voltage path and garden lights only knee high! + five way garden transformer to suit. Low voltage sunken Uplighter with integral transformer.

GEWISS

Gewiss UK Limited
Bumpers Way
Chippenham SN14 6LH
Tel: 0249 444734
Fax: 0249 444514
Cylindrical and angle luminaires to IP55

GEAR TRAYS

JERRARD BROS

Jerrard Bros PLC
Arcadia House
Cairo New Road
Croydon CR0 1XP
Tel: 081-688 8222
Fax: 081-681 3119
Standard and made to measure fluorescent gear trays and control boxes.

Lighting Components Limited

249 Seaside, Eastbourne
East Sussex, England
BN22 7NT
Tal: (0323) 410105
Fax: (0323) 410161

GENERATING SETS

Brimotor Ltd.,
Tel: 0892 37588
Fax: 0892 27724
Telex: 95446+Floodlighting

GLOBES

ACRILUX

Veralux Ltd
Tel: 071-402 1997
Fax: 071-402 1998
Spheres and other architectural shapes in Polycarbonate, Acrylic and Kamax, injection/blow moulded.

HEAT RESISTANT LAMP COVERS

TORNADO

Tornado Lighting
235 Upper Richmond Road
Putney
London SW5 6SN
Tel: 081-788 2324
Heat resistant glass covers for Tungsten Halogen lamps in both clear and opaque with various clip. For information contact above.

LAMPHOLDERS

C

Collingwood VLM Ltd
North Drive,
Deer Park Road,
Moulton Park,
Northampton NN3 1NP
Tel: (0604) 495151
Fax: (0604) 495095

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

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

L&E

Lighting & Electrical Components Ltd
Unit 1A, Bill House,
222 Soho Hill (off Villa Rd)
Hockley,
Birmingham B19 1AP
Tel: 021-554 9924
Fax: 021-554 5243

LIGHT SOURCE

Light Source Electrical Equipment Ltd.,
Lightsource House,
24 Scrubs Lane,
London NW10 6RD
Tel: 081-960 2188
Telex: 915506
Fax: 081-960 8901

S. Lilley & Son Ltd

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

Sole Agent and Stockist
C. Quitman Ltd
Ullswater Crescent
Marlpit Lane, Coulsdon
Surrey CR5 2HR
Tel: 081-668 5295/6
Fax: 081-660 2589

SMART & BROWN

Miles Road
Mitcham
Surrey CR4 3YX
Tel: 081-640 1221
Tlx: 25534 TELC G
Fax: 081-685 9625

Studen Products Ltd.,
Hedgehog House,
Unit 8,
Caldershaw Centre,
Rooley Moor Road,
Rochdale OL12 7NR
Tel: 0706 45225
Bakelite and brass wired holders.

VS

Vossloh-Schwabe UK Ltd.,
38 Tanners Drive,
Blakelands,
Milton Keynes MK14 5BW
Tel: 0908 611060
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: 081-539 7785

LAMPSHADE AND BASE MANUFACTURERS

The London Trend Lighting Co. Ltd.,
3/5 Coxtie Green Road
Pilgrims Hatch, Brentwood,
Essex CM14 5PN
Tel: 0277 374247
Fax: 0277 374949

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.

C and G Weir (Glasgow) Ltd.,
Tel: 041-554 3126
Quality lampshade frames, ringsets and shade carriers, nylon coating, U.K. delivery.

LAMPS AND LIGHTING

American Lamps and Lighting Ltd,
Unit 2, Tudor Estate
Abbey Road, Park Royal
London NW10 7UY
Tel: 081-965 6800
Telex: 894452 Light G.

Chadwell T.S.M. Ltd.,
Unit No.2
Southbrook Mews,
Southbrook Road, Lee,
London SE12 8QL
Osram-Thorn-Philips-Omega-Wotan.
Tel: 081-318 5071

GE

G. E. Tungsram Lighting Ltd.,
Nene House, Drayton Way
Daventry, NN11 5EA
Tel: 0327 77683
Fax: 0327 76386
Telex: 311684 IGE DAV

GLOW BALL LIGHTING LTD

20 Woodside Place
Wanstead, E11 2RH
Tel: 081-518 8008
Fax: 081-518 8129

LIGHTING COMPONENTS LAMPHOLDERS/SWITCHES CABLE/BRASS/GLASS

C

Collingwood VLM Ltd,
North Drive
Deer Park Road
Moulton Park
Northampton NN3 1NP
Tel: (0604) 495151
Fax: (0604) 495095

LIGHT SOURCE

Light Source Electrical Equipment Ltd.,
Lightsource House,
24 Scrubs Lane,
London NW10 6RD
Tel: 081-960 2188
Telex: 915506
Fax: 081-960 8901

LIGHTING DIFFUSERS

Dawn Diffuser Services
2 Mead Crescent,
Sutton, Surrey,
SM1 3QS
Tel: 081-642 4709
Suppliers of all types of cut panels, diffusers and metal louvres.

Diffuser Replacement Services
Unit 8, Landmark Centre,
Shaftesbury Road,
Edmonton,
London N18 1SW
Tel: 081-884 4934
Fax: 081-884 2212

Panelservice Ltd.,
Wycliffe Works,
Wycliffe Road, Wimbledon
SW19 1ER
Tel: 081-540 7172

LIGHTING DIFFUSERS/ PLASTICS

Arrow Plastics Ltd.,
Arrow Works,
Hampden Road,
Kingston-upon-Thames,
Surrey
Tel: 081-546 6258
Fax: 081-541 4654

Lamplighter Products
Ashton under Lyne,
OL6 6LN
Tel: 061-343 1113
Vacuum formed diffusers

To advertise in this Directory contact Alastair Moyes

WHERE TO BUY DIRECTORY

Telephone: 081-975 9759

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

C. Quitman Ltd.,
Ullswater Crescent, Marlpit Lane, Coulsdon, Surrey CR3 2HR
Tel: 081-668 5295/6
Telex: 945809
Fax: 081-660 2589

LIGHTING LOW VOLTAGE FLEXIBLE STRIP

Alectralink Distributing Company
Unit 5, Popin Building, South Way, Wembley, Middlesex HA9 0HB
Tel: 081-900 2322
Fax: 081-903 3403
Only ½" wide uses new type of miniature Halogen lamps, runs bright, white, cool (low heat emission). It is new it is amazing.

LIGHTING STOCKIST AND DISTRIBUTORS — LIGHT COLUMN SUPPLIERS

BEGA

Exterior-Lite Services Ltd.,
Unit 4, The Empire Centre, Imperial Way, Watford, Herts, WD2 4YH
Tel: 0923 247254
Fax: 0923 226772

KINGFISHER LIGHTING LTD

Kingfisher Works
Main Road, Langwith
Mansfield NG20 9BH
Tel: 0623 748090
Fax: 0623 746532

CROMPTON RAAK

Medlock Electric Ltd.,
605-609 Green Lanes
Harringay, London N.8
Tel: 081-340 3242
Fax: 081-341 6791

LIGHT MEASURING INSTRUMENTS

hagner INTERNATIONAL (UK) LTD

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

Megatron Limited,
165 Marlborough Road, London N19 4NE
Tel: 071-272 3739
Fax: 071-272 5975

LIGHT SOURCES & COMPONENTS TO OEM MANUFACTURERS

SMART & BROWN

Miles Road
Mitcham
Surrey CR4 3YX
Tel: 081-640 1221
Tlx: 25534 TELC G
Fax: 081-685 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: 081-848 1881
Fax: 081-569 1837

LOW VOLTAGE TRACK SYSTEMS

JCC marketing

Lamplighter House, Shripney Road, Bognor Regis, West Sussex PO22 9LL
Tel: 0243 829040
Fax: 0243 829051

MANUFACTURERS OF SPECIAL AND PURPOSE MADE FITTINGS

IMP Lighting Ltd.

Unit 29, Mochdre Ind Estate, Newtown, Powys, SY16 4LE
Wales. Tel: 0686 625797
Fax: 0686 623084
London. Tel: 081 857 3565
Fax: 081 857 0964
Specialist Fitting, Louvre & Reflector, Manufacturer. Write or phone for details.

SONDIA LIGHTING LTD.

45 Portland Place, Hull, HU2 8QP
Tel: (0482) 223353
Fax: (0482) 26811
Design and manufacture of special purpose light fittings. Sub-contract sheet metalwork and assembly.

LUNA

Luna Lighting Ltd.,
Corton House
Shrivenham 100 Business Park
Watchfield, Nr. Swindon
SN6 8T2, United Kingdom.
Tel: 0793 784400
Fax: 0793 784488
Designers and manufacturers of luminaires to architects instructions.

Martin Roberts

Martin Roberts
Grimrod Place,
East Gillibrands,
Skelmersdale
Lancashire WN8 9UU
Tel: 0695 33068
Telex: 629020
Fax: 0695 50227
Manufacturers of all types of luminaires and metal louvres to the trade.

Maxi Engineering Co.,
26/32 Plumstead High St.,
London SE18 7SL
Tel: 081-854 3181

SYMONDS

Symonds Engineering plc,
High Street, Cheshunt,
Herts EN8 0BU
Tel: 0992 26222
Telex: 28725
Fax: 0992 37738
Luminaires/louvres, major trade suppliers.
BS5750 part 2.
Contact: Lee Freeman.

METAL FINISH PLASTIC BASES & FITTINGS

Febus Agencies
75 Jackson Street
Manchester M32 8BA.
For bases, risers, breaks etc,
ring 061-865 4237 or
061-872 3276

METAL PRESSWORK

TRANSTEEL
TRANSTEEL COMPONENTS LTD.

Trinity Road, Richmond
Surrey TW9 2LG
Tel: 081 948 8822
Fax: 081 948 1998
Metal Pressing and Deep Drawing for the Lighting Industry.

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.,
46 New Summer Street
Newtown, Aston
Birmingham B19 3TG
Tel: 021-333 3454
Fax: 021-359 6865
Metal Spinning and deep drawn presswork for the lighting industry.

Anglia Spinners,
Spinnings, Presswork, Spraying & Finishing,
Unit 115a,
Little Staughton Airfield,
Little Staughton, Beds
Tel: Colmworth 0230 62 398
Fax: 0230 62506

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: 081-902 2153
081-903 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
Fax: 0727 46658

METAL SPINNING/ASSEMBLY ANODISING/PRESSWORK METAL WORK/SPRAYING

Aman Metal Spinners
Complete lighting service capacity includes:
Metal spinning & presswork, powder coating, metal polishing, wet spraying, brassing, electrical assembly, deep drawn steel spotlights.
Tel: 0685 811882
Fax: 0686 813861

Shawe Metal Spinners Ltd.,
Injection Moulders & Component suppliers. The complete Lighting Services.
Tariff Road, London,
N17 0EJ
Tel: 081-808 1271
Telex: 25545

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 SUNODYM AND SUNGRO LITE

Sungro-Lite

Sungro-Lite Ltd.,
Tel: 081-459 2636
Fax: 081-459 4130
From main elec w/salers.

OPERATING AND MAINTENANCE INSTRUCTION MANUALS

Nash Draughting Services,
Enterprise House,
181-189 Garth Road,
Morden, Surrey SM4 4LL
Tel: 081 330 7566

PETROL FORECOURT UNDER CANOPY LIGHTING UNITS

National Signs Limited,
1 Hampshire Street,
London NW5 2TE
Tel: 071-485 3363
Fax: 071-284 1700

PHOTOMETRY

B.S.I. (reg) Laboratory
Photometry/Reflector Design and development
Exterior and Interior luminaires.
Tel: Dr Harold Pfitzman (0920) 462272
Charles House, Furlong Way, Gt. Amwell, Ware, Herts SG12 9TA

PICTURE LIGHTS

JCC marketing

JCC Marketing,
Lamplighter House,
Shripney Road,
Bognor Regis, West Sussex, PO22 9LL
Tel: 0243 829040
Fax: 0243 829051
A range of traditional picture lights available in brass, satin, reeded and gilt.

PLASTER WALL UPLIGHTS

Green Tree Lighting
Top quality uplighters in plaster, alabaster and glass. GLS, halogen and low energy. Colour brochure available.
Tel: 0904 691122
Fax: 0904 691123

TORNADO

Tornado Lighting
235 Upper Richmond Road,
Putney, London SW15 6SN
Tel: 081-788 2324
For top quality wall lights in T/Halogen GLS and PL. Phone or write for brochure.

POLYCARBONATE GLOBES

YLAMP Outdoor Lighting

Keylighting Components
Royd Mill, Cowling
N. Yorks, BD22 0BE
Tel: 0535 35922
Fax: 0535 33546
Cube Sphere Amphora Opal Smoke Clear Polycarbonate and Acrylic 150mm through to 500mm Screw and Bayonet neck fixing. Full range of galleries. Wall brackets posts.
All Ex-Stock.

POWDER COATING AND STOVE ENAMELLING

TRINITY ENAMELLERS LTD.

Trinity Enamellers Ltd.,
Trinity Road, Richmond,
Surrey TW9 2LG
Tel: 081 948 9152
Fax 081 948 1998
Powder Coating and Stove Enamelling for the Lighting Industry.

PROTOTYPES

ARRK EUROPE LTD

Arrk Europe Ltd.,
London NW10 7PA
Tel: 081-961 6366
Manufacturers of models and prototypes for lighting companies in all materials.

RECESSED LIGHTING

JCC marketing

Lamplighter House,
Shripney Road,
Bognor Regis,
West Sussex PO22 9LL
Tel: 0243 829040
Fax: 0243 829051
A full range of recessed lighting in Energy Saving Low Voltage and 240 Volt Mains.

REFLECTORS

Tridonic

Tridonic Ltd.,
Hampshire International Business Park,
Crockford Lane,
Chineham, Basingstoke,
Hampshire RG24 ONA
Tel: 0256 707000
Fax: 0256 707002

SELF ADHESIVE LABELS AND BASE COVERS

Rosehill Printers and Converters Ltd.,
50A Bolton Street, Bury
BL9 0LL
Tel: 061-761 3501

SHEET METAL WORKERS/ PRESSWORKERS AND ASSEMBLERS TO THE LIGHTING INDUSTRY

Alpha Lighting Services Ltd
55 Canning Street,
Kemptown, Brighton,
Sussex, BN2 2ES.
Tel: 0273 620840
Fax: 0273 620850
Contact: Francis Stevens
Comprehensive service to Lighting and sign industries.

SPECIAL & PURPOSE MADE FITTINGS

DAVIS CASH

Davis Cash & Co. Ltd.,
Alexandra Road,
Ponders End, Enfield,
Middx EN3 7EN
Tel: 081-804 4028
Fax: 081-805 2896
Quality manufacturing service to customer drawings.

PSM

P.S.M. Dunbar & Co.,
Hedley Works
Hedley Road, St Albans
Herts, AL1 5JC
Tel: 0727 45829
Fax: 0727 45830
Manufacturer of specialist lighing. Full C.N.C. production, BS5750/AP.

Martin Roberts

Martin Roberts
Grimrod Place
East Gillibrands
Skelmersdale
Lancashire WN8 9UU
Tel: 0695 33068
Telex: 629020
Fax: 0695 50227
Manufacturers of all types of luminaires and metal louvres to the Trade.

SPRINGS AND CLIPS

Simpson Springs & Pressings Ltd
Unit 4 Station Ind Estate,
Oxford Rd, Wokingham,
Berks RG11 2YQ
Tel: 0734-786573
Fax: 0734-894434
Manufacturers of all types of Springs & Clips for the Lighting Industry.

STANDARD & SPECIAL LUMINAIRES & FLUORESCENT LIGHTING DESIGN SERVICE

IMP Lighting Ltd.

Unit 29, Mochdre Ind Estate, Newtown,
Powys, SY16 4LE
Wales. Tel: 0686 625797
Fax: 0686 623084
London. Tel: 081 857 3565
Fax: 081 857 0964
Std. fluorescent luminaires + complete lighting designs. Write or phone for Brochure.

Maxi Engineering Co.,
26 Plumstead High Street,
London SE18 1SL
Tel: 081-854 3181

SUPPRESSION COMPONENTS

Almag

Almag Ltd.,
17 Broomhills, Rayne Rd.,
Braintree, Essex CM7 7RG
Tel: 0376 45200
Fax: 0376 551917
Manufacturers of Toroidal chokes for dimmers, electronic ballasts and electronic transformers.

APEX INDUCTIVE DEVICES

27 Abbey Manufacturing Estate, Mount Pleasant,
Alperton,
Middlesex HA0 1RD
Tel: 081-903 2944
Telex: 8813237
Fax: 081-903 7944
Manufacturers of Suppression Chokes and Toroids for Dimmers, Emergency Lighting and Low Voltage Systems.

To advertise in this Directory contact Alastair Moyes

WHERE TO BUY DIRECTORY

Telephone: 081-975 9759

THERMAL CUT-OUTS

Hhv Components Ltd
11 Prospect Drive, Lichfield
Tel: 0543 416667
Fax: 0543 416140
Thermal fuses/cut-outs/ NTC's range: 330C Loads: 15A/250V

MCB Components Ltd.,
82 Wick Street, Littlehampton
Tel: (0903) 715503
Telex: 877560 BMFBRS G
Fax: (0903) 715431
Full range of thermal cut-outs. Temps 70C to 150C. Auto/manual reset options.

TOROIDAL TRANSFORMER MANUFACTURERS

Airlink Transformers Ltd.,
Unit 6, The Maltings,
Sawbridgeworth, Herts.
Tel: 0279 724425
Fax: 0279 726379

Economy Lighting Ltd.,
For fully approved (EN60/ 742 & UL) toroidal L/V transformers, 18 models 20Va-750Va, inbuilt splitters specials on request
Tel: 081-420 1810
Fax: 081-420 1813

Toroid Technology Ltd.,
175A Brigstock Road,
Thornton Heath,
Surrey CR7 7JP
Tel: 081-689 8002, 684-4217
Telex: 8813271 Gecoms G
Fax: 081-689 0002

TOWER/MASTS FLOODLIGHTING

Strumech Versatower Ltd
Portland House,
Coppice Side, Brownhills,
Walsall WS8 7EX
Tel: 0543 452321
Fax: 0543 361050
Static and Portable Floodlight Units

TRADITIONAL EXTERIOR & INTERIOR LANTERNS & LIGHT FITTINGS

Birmingham B11 3EY
Tel: 021-707 6936
Fax: 021-707 7425

TRADITIONAL WOOD FITTINGS AND WALL BRACKETS

S. Smith (E.F.) Ltd.,
85 Abercromby Avenue,
High Wycombe,
Tel: 0494-21667

TRANSFORMER MANUFACTURERS

Ambience
Hills Street
Halfmoon Lane
Gateshead NE8 2AS
Tel: 091 490 1533
Fax: 091 490 1250

APEX INDUCTIVE DEVICES
27 Abbey Manufacturing Estate, Mount Pleasant,
Alperton,
Middlesex HA0 1RD
Tel: 081-903 2944
Telex: 8813237
Fax: 081-903 7944
Manufacturers of Inverters and Switching Transformers.

H. A. Birch & Co Ltd,
Progress Drive, Cannock,
Staffs WS11 3JE.
Tel: 0543 506226
Fax: 0543 579180
Manufacturer specialising in toroidal and laminated transformers ranging from 3VA up to 750VA for lighting, industrial controls, medical and leisure industry applications. Quality products in accordance with British and international standards.

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.

KNOBEL
Sole Agent and Distributor
Hylec Elettro Gibi (UK) Ltd
Unit 4, Trinity Centre,
Wellingborough
Northants NN8 3ZB
Tel: 0933-677633
Fax: 0933-675771

Lighting Components Limited
249 Seaside, Eastbourne
East Sussex,
England BN22 7NT
Tel: (0323) 410105
Fax: (0323) 410161

LIGHT SOURCE
Light Source Electrical Equipment Ltd.,
Lightsource House,
24 Scrubs Lane,
London NW10 6RD
Tel: 081-960 2188
Telex: 915506
Fax: 081-960 8901

MAY & CHRISTE
Electronic and wound transformers
May & Christe Ltd
Unit 22,
Mead Park,
River Way,
Harlow,
Essex CM20 2SE
Tel: (0279) 422540
Fax: (0279) 421570

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

RAM
Ram Electronics (UK) Ltd.,
Iron Row,
Burley in Wharfdale,
West Yorks LS29 7DB.
Tel: 0943 863884
Telex: 518285 RAM G
Fax: 0943 862630
Electronic Transformers for low voltage lighting and hard fired dimmers for electronic and conventional lighting transformers.

TOROID TECHNOLOGY LTD
Toroid Technology Ltd
175a Brigstock Road,
Thornton Heath,
Surrey CR7 7JP
Tel: 081-689 8002, 684-4217
Telex: 8813271 Gecoms G
Fax: 081-689 0002

Tridonic
Tridonic Ltd.,
Hampshire International Business Park
Crockford Lane,
Chineham, Basingstoke,
Hampshire RG24 ONA
Tel: 0256 707000
Fax: 0256 707002

UNIVERSAL TRANSFORMERS
Universal Transformers
9 Hurworth Road,
Aycliffe Industrial Estate,
Newton Aycliffe,
County Durham DL5 6UD
Tel: 0325 317429
Fax: 0325 311081
Fax for instant quote.
Full range of Toroidal and Laminated Transformers available Ex-Stock.

UNDERWATER LIGHTING

BEGA
Exterior-Lite Services Ltd.,
Unit 4, The Empire Centre,
Imperial Way, Watford,
Herts, WD2 4YH
Tel: 0923 247254
Fax: 0923 226772

ULTRA VIOLET/SPECIALIST LAMPS & EQUIPMENT

Starna Ltd.,
33 Station Road,
Chadwell Heath, Romford,
Essex RM6 4BL
Tel: 081-599 5115
Fax: 081-599 5415

U.V. Systems Ltd.,
PO Box 797, Sudbury,
Suffolk CO10 6PL
Tel: (0787) 76259

VICTORIAN REPRODUCTION GAS AND ELECTRIC LIGHT FITTINGS

The Copper Lamp Co Ltd.,
Nutts Lane, Hinckley
Leics LE10 3EJ
Tel: 0455 633140
Fax: 0455 632664

D. W. Windsor Ltd
Marsh Lane,
Ware, Herts
SG12 9QL
Tel: 0920 466499
Fax: 0920 460327

WOOD FLOOR STANDARD LAMPS

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

S. Smith (E.F.) Ltd.,
85 Abercromby Avenue,
High Wycombe,
Tel: 0494-21667

ZONES 1 & 2 BASEEFA APPROVED LIGHTING FITTINGS

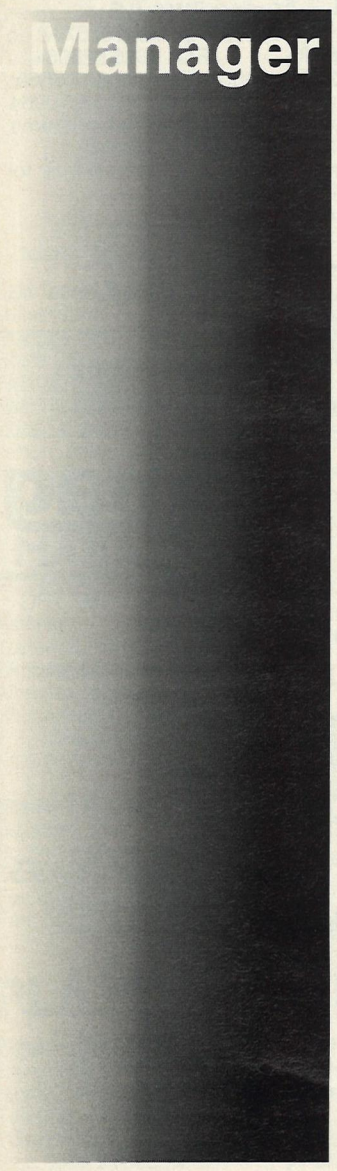
B.V. Industria,
52-62 Brasenose Road
Bootle, Merseyside L20 8HG
Tel: 051-922 0052
Telex: 629135
Fax: 051-922 0099

Lighting Equipment News is the monthly marketplace for you to promote your company and services to those important buyers, specifiers, installers and stockists who regularly read the lighting industry's leading journal.
The **Where To Buy Directory** will enable you to advertise effectively, at a low cost, to over 43,000 readers every month.
In addition you can display your company's unique image, by including your own individual and distinctive company logo and penetrate this highly selective audience with even more impact.
For further details on this highly successful and fast growing section please contact:
Alastair Moyes on 081-975 9759

081-975 9759

CLASSIFIED ADVERTISEMENTS

081-975 9759



Special products department

Special architecture such as the new Stansted Airport terminal building requires particular and equally exacting standards of quality in everything. That is why ERCO was chosen to provide the lighting equipment for this acclaimed building.

Our specials department is growing. In this recession we are recruiting.

We need a manager with the knowledge, experience and abil ity to help us with the special requirements of our clients.

Are you special? Then please write in confidence to:

Mark Rowling
Technical Department Manager
ERCO Lighting Limited
38 Dover Street
London
W1X 3RB

ERCO

ILE DESIGN COURSE
in
INTERIOR LIGHTING
15-19 JULY 1991

For Consultants; Sales and Planning Engineers; Installation and Maintenance Contractors.

A comprehensive residential course designed for persons directly or indirectly involved in the field of lighting.

The Course consists of lectures and demonstrations covering Lighting Technology; Light Sources and Luminaires; Lighting Design; Project; Appraisal Tour. Home study material is provided prior to the residential period.

For an application form contact:
Mrs Judy Park
The Institution of Lighting Engineers
Lennox House, 9 Lawford Road, Rugby, Warwickshire CV21 2DZ
Telephone: 0788 576492 Fax: 0788 540145

Please state where you read this advertisement.

FOCUS YOUR CAREER

FIELD SALES MANAGER — COMMERCIAL LIGHTING

Attractive salary + car **East Midlands**

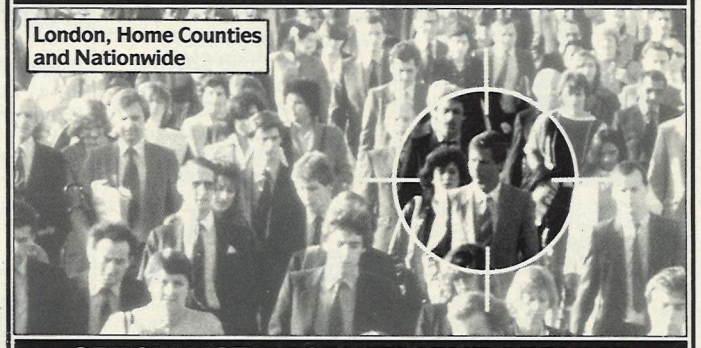
A long established, enterprising and profitable small company wants to recruit a sales professional to spearhead a major expansion into the specification and user market.

This is an opportunity for an ambitious sales executive to play a major role in the future development of the company and to gain substantial career potential.

If you are an experienced sales executive with commercial lighting experience and are capable of converting your own ideas into effective action, then contact Vaughan Wiltshire on 0905 26671 (office) or 090565 397 (home), or send CV to:

County Bureau Recruitment
63 Foregate Street, Worcester WR1 1DX

Top Sales Professionals



SPECIALIST RECRUITMENT SERVICE FOR THE LIGHTING INDUSTRY

FOR CANDIDATES: Excellent Career/Promotion opportunities with leading Manufacturers and Distributors in the Lighting Industry.
Sales Professionals £16/22K + CAR.
Management Positions £22/30K + CAR.

FOR CLIENTS: Immediate access to high Calibre Candidates, plus tailor-made Advertised Searching and Headhunting Service.

For further information call Dominic Grudzien

BUILDING THE WINNING TEAM

James Knight
SALES & EXECUTIVE SEARCH
Knight House, 29-31 East Barnet Road, Barnet, Herts EN4 8RN (Fax: 081-449 6262)
Tel: 081-449 4111

TO ADVERTISE IN WHERE TO BUY, CLASSIFIED, AND CATALOGUE DIRECTORY PLEASE CALL ALASTAIR MOYES ON 081-975 9759

081-975 9759

CLASSIFIED ADVERTISEMENTS

081-975 9759

SALES AGENTS
required
SCOTLAND — MIDLANDS & S. COAST

For exciting new range of high quality Brass Table Lamps. Already accepted by numerous multiples and DLA safety approved.

If you have an established connection with both retailers and wholesalers please contact:

DECOR BRASS®

Decor Brass Ltd.,
Unit 5,
Thomas Industrial Park,
London E14 7BN
Tel: 071-538 8840
Fax: 071-537 4847

SALES AGENTS
required for
SCOTLAND & OXFORDSHIRE/THAMES VALLEY

This design lead, expanding company, marketing their **design**, **supply** and **installation** services, require sales agents for the above areas that already call on all specifiers, contractors and large end users.

Full C.V. in confidence to:

10 Orchard Road
Botley, Oxfordshire OX2 9BL

NI LIGHTING (UK) LTD
LIGHTING SALES ENGINEERS
SCOTLAND AND SURREY

A quality Sales person will sell quality goods and service irrespective of price.
Would you agree with this statement?

Are you a good Sales Person who is looking for a new career in lighting?
Are you self-motivated, hard working, have good communications skills, an electrical background (preferably in lighting but not essential as training can be given).
An excellent salary is offered with a generous bonus system and company car (Rover 200).
We sell high quality lighting products at very competitive prices to Specifiers, architects, electrical contractors and end users.
N I Lighting UK Ltd is part of a European Group of companies who manufacture in many EEC countries including Britain and Ireland.
The range includes commercial fluorescent, floodlighting and industrial luminaires.

Why not contact us on 0582 491955 for an application form.

UK AGENTS REQUIRED

with established contacts with lighting independents, lighting contractors, cash & carrys and wholesalers.

To sell the sensational ***Catalina*** range of high quality decorative lighting.

Superb product, unbeatable prices, high commissions.

Send full details to: **Mr A. D. Park, Managing Director,**
Gibson of Perth,
Arran Road, Perth PH1 3DZ.

LIGHTING EQUIPMENT SALES
c. £21,500 + car

Sales to specifiers in London, Home Counties, Midlands, North West etc.

TELEPHONE (0283) 552964
TODAY!

K. P. Personnel

EUROPEAN BUSINESS OPPORTUNITY

Well established, German, low voltage light fittings **factory** and **sales company** with **distributor network** in **eleven European countries** seeks British equity partnership from accomplished UK company or alternatively a joint venture with an established UK lighting group.

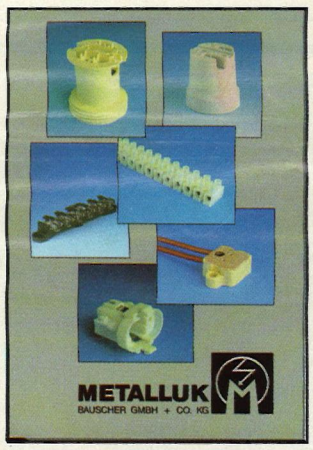
In the first instance contact:

Box No. 1497
Lighting Equipment News,
Maclean Hunter House, Chalk Lane,
Cockfosters Road, Barnet, Herts EN4 0BU

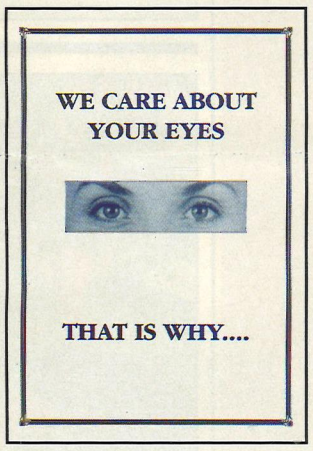
081-975 9759

CATALOGUE DIRECTORY

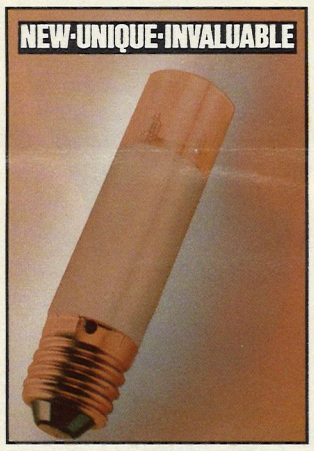
081-975 9759



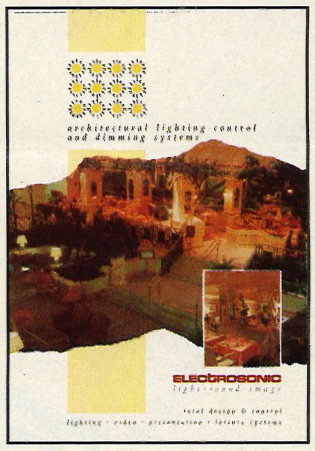
Metalluk offers a complete range of lighting components from mains and low voltage lampholders through to fused terminal blocks and plug-connectors. Acorn Lighting Products and Metalluk are able to offer a solution to most termination problems:
circle 90



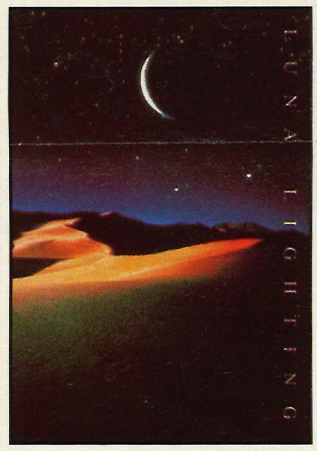
Unique range of scientifically designed reflector lamps producing light similar to indirect sunlight. Advantages — reduced glare/cool/colour corrected and diffused. Less eye-strain, improves work output, creates relaxed working environments. Ideal for work stations/vdu's. Natural light lamps can help combat sick building syndrome:
circle 91



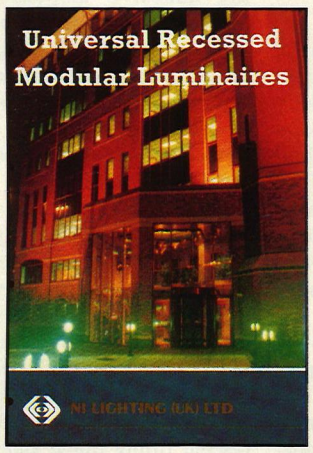
From RADA, the amazing Discharge Lamp Gear Tester. Just screw in to locate faults in seconds. The P.O.C. (Pulse and Open Circuit) Tester saves time, worry and money on maintenance and testing of discharge lamp gear. Robust, compact, perfect for continuous on-site use from leisure to industry:
circle 92



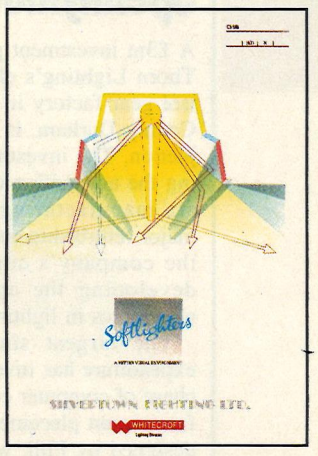
Whatever the application, from hotel to museum, shopping complex to a church, Electrosonic's range of archtectural lighting control and dimming systems can meet your requirements. Electrosonic's expertise is world renowned, with over 25 years' experience. From a single channel dimmer up to a custom-built computer controlled network, Electrosonic is there:
circle 93



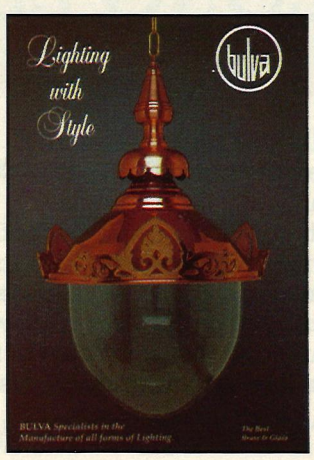
A new brochure from Luna Lighting illustrating their exciting collection of high quality luminaires especially designed and manufactured for retail display and interior design. Luna Lighting also provide design consultancy covering all aspects of lighting design from initial concept through to full technical specification including manufacture of special luminaires:
circle 94



N.I. Lighting's new brochure for the Universal Range of recessed modular luminaires. The Universal luminaire can be installed in 95% of ceiling systems, with attachments including parabolic low brightness louvres, Wedge VDU and white louvres, prismatic lens, opal diffusers, and custom built attachments:
circle 95



The new Softlighter catalogue from Silvertown Lighting, features the latest of Softlighter fluorescent luminaires. This comprehensive guide to Softlighter applications presents an insight into Softlighters' unique concept and technology. An ongoing product development programme ensures that Softlighters will continue as market leaders in the lighting industry:
Tel: (0376) 43434: circle 96



Bulva introduced a new range of decorative lighting designed specifically for Brewery/Hotel/ Leisure interiors using compact fluorescent light sources yet still producing the correct ambience. We also produce lighting to clients custom design. For literature contact: Bulva Lighting Ltd, Tel: (0902) 25095 & 771149:
circle 97

ORA's continued growth in a declining market is the result of flexible response, efficient project management, innovative products, close liaison with the specifier and delivering the goods on time. ORA supply lights to many of the finest and most discerning customers in the country. Why not join them?
circle 98

LIGHTING CATALOGUE

CATALOGUE DIRECTORY

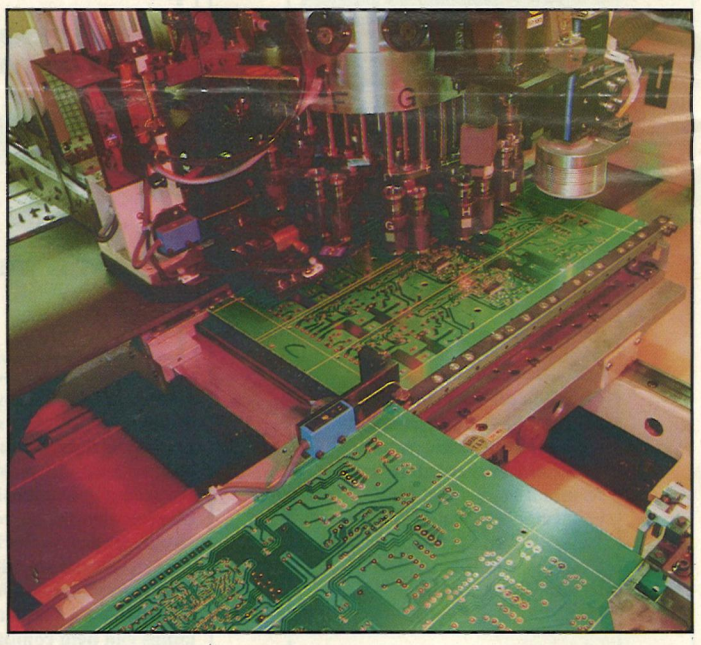
Every year companies spend huge amounts of time developing catalogues and one of the biggest problems they face is publicising and distributing them to specifiers. If you have a catalogue, printed or in production which is targeted at lighting specifiers then this section can help you. Contact: Alastair Moyes 081-975 9759: circle 99

LIGHTING EQUIPMENT NEWS

The church of Our Lady Immaculate in London's Docklands was lit from pendant filament lamps and floodlights. This did not do full justice to the interior, the lamps gave a poor level of illumination and their short service life presented a problem of replacement in inaccessible positions

Refurbishment by Philips Lighting includes ten MCG/QCG 101 uplighters with 150W MHN metal-halide lamps to illuminate the barrel roof with a crisp white light. The gallery and underside at the rear is lit from nine PSM224 fluorescent luminaires, each with two PLL 24 lamps. The lectern is spotlit from a QCN210/35 with a 6V, 35W tungsten halogen lamp.

The altar and front of the church are lit by seven 6324 surface mounted downlighters with 50W white SON and 42° distribution, plus ten 20212 spotlights with 50W white SON with 5° distribution. This gives a pleasant warm contrast to the uplighters, and enhances the architecture with a good level of illumination from sources with a long service life and high efficiency.



Thorn invests at Spennymoor

A £3m investment programme at Thorn Lighting's electronic control gear factory in Spennymoor, County Durham, is nearing completion. The investment, combining the acquisition of state of the art manufacturing plant, with major refurbishment work reflects the company's commitment to developing the application of electronics in lighting.

The largest single item of expenditure has involved the purchase of computer controlled, surface mount placement equipment, designed by Fuji, which is capable of placing up to 13 000 components each hour onto printed circuit boards. The surface mount machine, which consists of several integrated processes including adhesive dispenser, chip placement machine and infra red reflow oven, processes the PCBs for the Fluoropulse starter, the controllable high frequency electronic ballast and the sensing device which controls the new intelligent fitting, Sensa.

An example of the surface mount machine's dexterity can be seen in the Fluoropulse starter PCB. This measures only 18mm x 30mm but incorporates a total of 14 components, mounted by the Fuji machine in 5 seconds.

The Spennymoor factory also manufactures Thorn's UK fluorescent fitting range and conventional wire wound control gear, on a site employing 1100 people.

IN YOUR NEXT ISSUE

The next issue of *LEN* looks at various ways of providing lighting for industrial buildings and factory premises. One of the major considerations is that of energy efficiency; in other cases hazardous processes will determine the type of installation that can be used.

We also hope to provide more details of the CSP Index and how is measures visual comfort.