

# LIGHTING EQUIPMENT NEWS

MARCH 1992

## UK leads in '92

Mike Lippold of the council of LIF has been elected CELMA president for the 1992/93 term of office. He took over from the French delegation, represented by the Associations Syndicat de l'Eclairage and Groupement des Industries du Luminaire who had led CELMA very successfully through its first year.

The Committee of EEC Luminaire Manufacturers' Associations was founded on 17 May 1990 to serve as the formal communication channel with commission. Its membership currently consists of national associations representing luminaire manufacturers from Belgium, Denmark, France, Germany, Great Britain, Greece, Italy, Spain and the Netherlands.

As his investiture Mike, who holds the LIF council chair for 1992 and European issues, explained his objectives. These will concentrate on five key areas:

□ To facilitate cross border col-

laboration between European companies.

- To continue CELMA's successful lobbying activities on legislation and mandated standards which bring business to the lighting industry.
- To ensure the equality of business opportunity by maintaining pressure on Brussels for uniform implementation of legislation and prevention of counterfeit products entering the market.
- To aid the provision of market information.
- To develop an exhibition policy throughout Europe which establishes single national lighting exhibitions.

The German delegation, represented by ZVEI and its president Dip. Ing. Theodor Huettermann, was voted to the vice presidency.

The next official meeting of CELMA will be held in Stratford-upon-Avon from 7-9 May 1992.

□ To facilitate cross border col-



Singapore's City Hall has been picked out by 42 high pressure sodium floodlights. The stone clad building – built in 1929 in a neo-classical style – has been restored as part of a scheme to revitalise the civic district of Singapore. The main facade of the building is punctuated by 18 Corinthian columns linked by an ornamental cast iron balustrade. The upper part of the building is decorated with the cross of Saint Andrew and edged with decorative dentils. Trials established that high pressure sodium lamps combined the necessary lumen output with energy efficacy and this light source rendered the texture and colour of the building rather better than metal halide.

Twenty Thorn 70W SON projectors are positioned in front of the building to give the facade a general, but subdued 'wash' of light. The remaining floods, 150W SONDL, have been placed behind the eighteen fluted Corinthian-style pillars creating a sharp contrast between the columns and the back wall thus giving the facade a three-dimensional appearance at night. Finally, a row of warm coloured fluorescent lamps positioned at parapet level outlines the building in light.

The scheme restores the building's elegant and dignified appearance and helps to remind both visitors and residents alike of its important place in Singapore's history.

## Selling a winner

Lighting for Selling is the theme of the third European Lighting Awards. The contest, organised every two years by the European Lighting Council, aims to commend outstanding lighting installations.

Prizes will be awarded for the innovative and efficient use of display and ambient lighting for the selling of goods and services. This theme covers retail specialist shops, department stores and supermarkets as well as services such as banking and travel agents. It also includes the public areas of shopping centres and precincts, but specifically excludes hotels and entertainment buildings.

The judges represent the European world of lighting experts in the widest sense. The criteria they will concentrate on when evaluating the entries include: use of innovative lighting technology, colour rendering, energy efficiency, thermal loading and effects in terms of architecture, decor and display.

Designers, manufacturers, architects, lighting consultants, installation contractors and services engineers are asked to submit unusual and interesting solutions for the application of lighting for selling, which have been completed in the period from 1 January 1990 to 30 April 1992.

All entries must be received by the Secretariat of the European Lighting Council, rue Montoyer 31, Box 1, Brussels, Belgium by 15 May.

## Services must be more competitive

CIBSE president Tom Smith has repeated his attack on the building services industry for failing to address form as well as function. He sees this as a potential disadvantage to the UK within an integrated Europe, which will present the most severe competition from engineers and designers.

Speaking at the CIBSE Annual Dinner, Tom Smith put forward education and training as a key issue, and in particular a closer rapport between art and science, architecture and engineering.

The recruitment of young people to the industry was vital if the challenge of a more competitive Europe was to be met. Smith expressed his support for Sir John Fairclough, Chairman of the Engineering Council, who was trying to bring together the engineering professions and had suggested that all engineers should take a common first degree before specialising.

The industry also needed to improve on its past record of investment in research and development. The CIBSE Research Fund had raised £250 000 since its launch in March 1991. In addition, CIBSE was sponsoring

a project by students at the Royal College of Arts to explore ways of improving the visual aspects of building services engineering.

## In brief...

• The Electro Lighting Group, which has been closed, has sold its warehouse at Northampton to GE Thorn Lamps with effect from March.

• Crescent Lighting has now acquired sole UK rights to market Fiberstars, the USA-designed, lateral fibre optic lighting system.

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## Going to ground

Tunnel luminaires and approach road lighting from Siemens Lighting have been installed in the Conwy Tunnel, North Wales.

Nearly 4000 luminaires were supplied for the 1km long twin-bore tunnel. These include 2600 58W single and twin fluorescent

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luminaires and over 1100 150W, 250W and 400W twin lamp SON fittings. The fittings have end access for easy maintenance of the gear and lamp trays.

The lighting system was designed to meet stringent specifications. To save energy and improve visibility it is linked to a computer which provides eight stages of switching according to light levels outside the tunnel. All single tube fluorescent luminaires are fitted with high frequency control gear and are dimmable. Twin lamp units have dual circuits so that lamps can be individually controlled to meet the complex requirements of the switching sequence.

The crossing of the River Conwy was the subject of a long dispute about the route for the busy A55 coast road. Against the idea of a third bridge over the estuary – an area of natural beauty already crossed by two road and rail bridges – a local environmental campaigner suggested a tunnel using a form of construction never before used in the UK. This involved dredging a trench and sinking performed sections of tunnel. The project is widely acclaimed as a major feat of engineering.

Reader Service No. 1

# DIARY

## MARCH

2-31

**Chandeliers by Shiu-Kay Kan.** An exhibition at Concord Lighting showroom, 174 High Holborn, London. Details from 071-497 1400.

9

**16th Edition: topical aspect of good practice.** Evening meeting in London arranged by the IEEIE. Details from 071-497 9006.

10

**Street lighting.** Half-day seminar in Armagh followed by afternoon tour of observatory. Event organised by ILE Irish region. Details from Michael Moloney, 0001 771821.

11

**BMS in control.** Evening meeting in Birmingham held by CIBSE West Midlands region. Details from A J Singleton, 021-706 5511.

12

**Architectural lighting.** Evening meeting in Cambridge organised by CIBSE East Anglia region. Details from A N Rands 0954 32277.

16-20

**Lighting technology course, part 1.** Held in Birmingham by the Institution of Lighting Engineers. Details from 0788 576492.

17

**Illuminated signs – their history, evolution and future development.** Evening meeting in London held by CIBSE Lighting Division. Details from 081-675 5211.

**Lighting basics 1: light, sight and colour.** One-day seminar at Newcastle-upon-Tyne University arranged by the Mid Careers College. Details from 0223 880016.

**Lighting design for visual amenity.** Evening meeting in London organised by CIBSE

London and south east region. Details from Andy Robinson, 081-953 6282.

19

**Luminaire design.** Two-day course in London held by the Institute of Environmental Engineering, South Bank Polytechnic, London. Details from the director of the centre, 071-928 8989.

**Preview of new CIBSE interior lighting code.** Evening meeting arranged by CIBSE southern region. Details from M R Dorgan, 0703 339300.

**Circuit breaker equipment for street lighting.** Evening meeting in Gateshead organised by ILE north eastern region. Details from D Plummer, 0670 361081.

**New light sources.** Afternoon meeting in Taunton held by ILE western region. Details from Dennis Wilson, 0272 223223.

24

**Images of your future.** The

Charles Marques memorial lecture arranged by the ILE. To be held in London. Details from the ILE, 0788 576492.

**Sick building syndrome.** Evening meeting in London organised by the Lighting Forum. Details from Edward Pagett, 081-560 3171.

25

**Fault finding in lamps and circuitry.** Evening meeting in Manchester held by north west region of CIBSE. Details from L Daniels, 061-248 7272.

## APRIL

2

**One-day lighting exhibition in Gateshead.** Arranged by ILE north eastern region. Details from Derek Plummer 0670 361081.

5-8

**National lighting conference.** Manchester. Details from CIBSE, 081-675 5211.

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## Exhibiting signs of strain?

It cannot have escaped even the most casual observer of the UK lighting scene that exhibitions are 'in'. For whatever reasons, this most depressed period for the lighting business in some 20 years sees an abundance of events at which lighting manufacturers are asked to display their wares. The customer – in a wealth of guises – is expected to attend, and CIBSE and the other lighting organisations are invited to mount seminars to help attract customers.

There are at least two ways of reacting to this situation: satisfaction that, whatever the state of the market, interest in promoting lighting is so apparently healthy; or a feeling that the ability of the manufacturers and the lighting bodies to support so many events may be under some strain.

Certainly, from CIBSE Lighting Division's standpoint, the time has come to review and assess the lighting exhibition scene in order to decide where its major professional effort should be applied, for the good of the lighting profession generally.

There are effectively two types of exhibition: those run principally by the lighting organisations themselves – Lightex (ILE), Lightshow (LA/LIF), Hilight (IALD) and, until quite recently, the lighting sector within Electrex (BEAMA/LIF etc); and those run by essentially non-lighting organisations – Light Fair (Industrial Media) being the prime example.

To these we can readily add a whole range of 'fringe' exhibitions dealing with building, design, interior decor, retailing or furniture, all with some relevance to lighting, and, in the case of CIBSE itself, some relatively small events associated with conferences, seminars, CPD courses and the like, for which we often mount small specialist exhibitions.

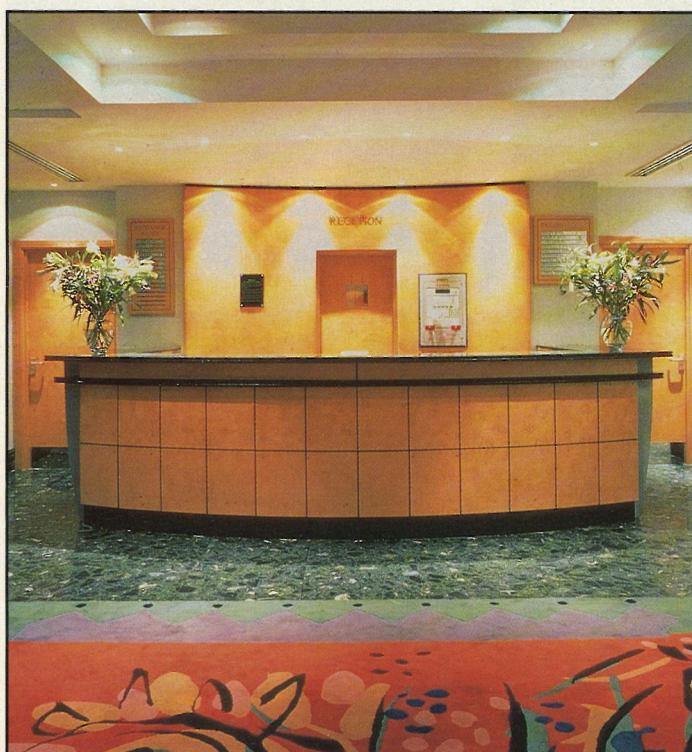
That's an awful lot of events chasing a limited number of exhibitors, customers and other visitors. And it is clear from some recent exhibitions that some are feeling the strain. Attendances fluctuate alarmingly, seminars, which can sometimes seem to be the sprat to catch the mackerel, are cancelled through lack of interest, exhibitions are missing major manufacturers and so don't attract the right quantity and quality of visitor, which brings us back to where the whole vicious circle began!

So, I suspect that not only CIBSE Lighting Division is having to be increasingly selective as to which events will best repay its efforts and input of resources. The way ahead looks a little clearer now that the Lighting Industry Federation has aligned itself with the Lighting Association to expand and develop Lightshow (formerly the LA-only type of event). If this works out as they intend, exhibitors' choice between this and 'comparable' shows could be simpler in future. For the 'designer' end of lighting, Hilight looks set to continue at the Business Design Centre; Lightex is established as the public sector lighting event every other year; and Electrex/Electrotech has its revamped Lighting International at the NEC, which will probably compete with the new Lightshow, or at the very least complement it.

The Lighting Division's aim in associating itself with any non-CIBSE event is to promote good lighting to the general good of all. To that extent, our motivation should be pretty clear to all our colleagues on the lighting scene. However, the plethora of exhibitions currently on offer must surely lead us all to take stock, assess the relative claims, and be ever more vigilant in deciding which we feel we can support. CIBSE cannot be alone in this.

Finally, two lighting events that I can recommend unreservedly are the National Lighting Conference to be held in Manchester from 5-8 April, and the Lighting Division's annual luncheon to be held at The Church House, Westminster on 29 April. Enquiries about both should be directed to Karen Phillips at CIBSE, tel: 081-675 5211.

**Karl Pike,  
Secretary, Lighting Division.**

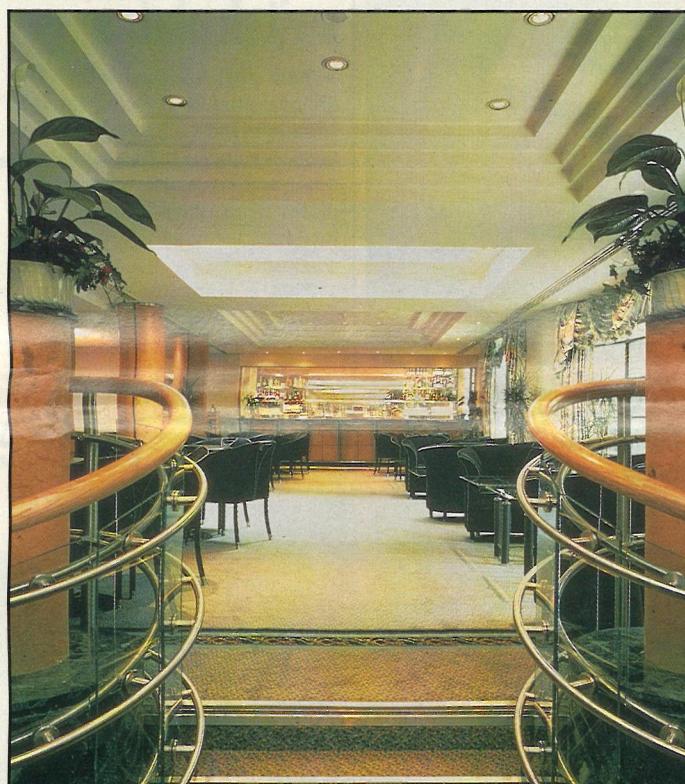


## Inn great style

The need to create a theatrical effect and to compensate for the absence of natural light was the challenge offered in refurbishing the new Holiday Inn in Kensington, west London. Additional requirements to vary the atmosphere throughout the day and to provide flexible lighting for conference spaces of varying sizes spelled out a very detailed brief for designers Light Years.

Low voltage fittings are used throughout the public areas located in the ground floor and basement, and these are controlled by an Electrosonic dimming system which, while assuring an ambient level of 400 lux, gives a number of scene setting alternatives which allow variation between a brisk daytime environment and a more intimate evening atmosphere. The installation is divided into a number of separate control zones including the lobby, conference suite, restaurant, and café and bar area.

A single-cell battery system, designed by Buro Happold, pro-



## Top of the class

Those involved in the design and specification of lighting can now update their knowledge free of charge thanks to lamp manufacturer, Osram. The company has developed a one day training programme to provide wholesalers, original equipment manufacturers, architects, contractors and specifiers with a grounding in the new requirements of commercial lighting design.

Essentially practical in content, the course stresses current issues such as advances in lighting technology and the implications of EC regulations and directives for the lighting of VDU areas.

The series of seminars, which will run for eight consecutive months, started in February 1992 at Osram's Wembley light studio, a further series will be held at Osram's northern office near Oldham.

They are run by lighting specialists and technicians and because of the intensive nature of the tuition numbers are limited to 25 delegates per seminar.

As well as learning the general principles of lighting design, delegates will be equipped with the tools necessary to tackle lighting

applications. These include a design reference manual, purpose-designed calculation pads and a pre-programmed calculator for the instant calculation of illuminance, display lighting installation and costs in use.

The seminar will cover the legal, economic and aesthetic requirements of lighting systems, including health and safety issues, lighting standards and the principles of cost effective lighting system management. In addition, delegates will be given the chance to tackle practical examples.

But a lighting scheme does not become a job until it is actually sold to a client, so Focus 2 also gives guidelines for the commercial presentation of lighting ideas.

## IDI exhibition

Interior Design International, Britain's annual forum for the contract interiors industry, will be held at Earls Court, London, from 17-21 May.

There will again be a special lighting section. Some 30 companies have booked space, including Thorn Lighting, Christopher Wray and Illuma.

vides emergency lighting in the areas supplied from the dimmer system and obviates the need for separate emergency lighting. Certain of the fittings are designated as emergency lights. Under normal conditions these dim with the rest of the installation but in the event of a power failure they immediately switch onto full output, provided by the central battery mains-voltage inverter.

A conference area capable of seating up to 200 people can be subdivided into six different self-contained spaces using a folding Japanese style partition in birds-eye maple and black ash. Low voltage downlights are designed to operate whether the suite is subdivided or not. Each sectioned off-area is designed to work independently as building services – including dimmer control, air conditioning and concealed power track for computers and spotlights – are zoned.

The building is situated in a conservation area and – in contrast to the starkly modern interior – the late Victorian facade of the hotel has been carefully restored, retaining the traditional appearance of this area of Kensington.

Copies of Code of Practice are available price £35.00 from BEAMA (tel: 071-437 0678) or AGMT (tel: 081-744 2389).

## Revised code for explosive atmospheres

BEAMA and AEMT (Association of Electrical Machinery Trades) have just published the latest revised edition of their Code of Practice for the repair and overhaul of electrical apparatus for use in potentially explosive atmospheres other than mining or explosives manufacture.

This Code, first published in 1984 and revised in December 1991, has been prepared by the BEAMA Committee for Electrical Equipment in Flammable Atmospheres and AEMT with the participation of other organisations including the Health and Safety Executive. The Department of Energy considers repairs or overhauls which meet the provisions of this Code will be appropriate for offshore installations on the UK Continental shelf.

Copies of Code of Practice are available price £35.00 from BEAMA (tel: 071-437 0678) or AGMT (tel: 081-744 2389).

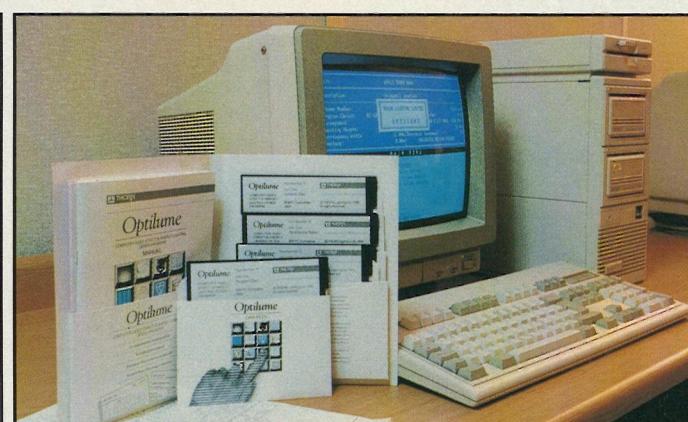
## Co-ordinating IT in buildings

The CIBSE Information Technology Group has written an applications manual *Information technology and buildings*.

Basically, it has been produced as an aid to communication between all those involved in building design, the design of IT equipment and systems, facilities managers and building developers. It highlights both the need to provide flexible accommodation for IT equipment and the constraints that buildings impose on IT design.

The chapter on the visual environment lists factors to consider in relation to visual display terminals and lighting design. In the section on lighting, readers are referred to *Lighting Guide 3*.

CIBSE believes this is the first time such information has been collected together in one publication. For more details contact member services department on 081-675 5211.



## A bright solution

Thorn Lighting has upgraded its Optilume computer software package which designs lighting solutions for traffic routes, residential roads and amenity areas to BS 5489.

Version 2 retains the benefits of the first package. It finds the maximum lantern spacings to comply with the code, avoids time consuming trial and error calculations, enables quick and easy comparisons of different lanterns, calculates point light values on and off road surfaces and produces grids of lighting values for BS 5489: Part 2 and 3.

In addition, it is now possible to use the program for calculations for dual carriageways where staggered arrangements are required, for narrow residential roads (7-13 m), for motorways (BS 5489: Part 10) or for roundabouts and junctions.

Optilume enables the user to load and use CIBSE TM 14 photometric data and includes the full CIE program. There is also an updated range of new product data.

The Optilume program, available from the nearest Thorn regional office, comes with a comprehensive user manual and a choice of 5 1/4" or 3 1/2" disk sizes.

# COMMENT

## Towards an employee-friendly workplace?

Lighting the factory or office is once more becoming an issue – basically because of the government's cut price approach to the new responsibilities forced on it by recent Community decisions. It has now been pushed into the foreground by the Health and Safety Commission circulating for public comment the draft proposals for legislation to implement directives both on the workplace and on areas in it where visual display screens are used. But I, for one, am left with the impression that rubber stamping, rather than genuine dialogue will be the order of the day.

What appears to be wrong is the premise that lighting requirements should be geared to the needs of the employer, to the requirements of IT, to the demands of human physiology – and only in the last instance to the wishes of the staff working there. The intention of the proposals as stated by the HSC is "to propose regulations which meet the directive, but which generally do not go beyond it, so as to minimise the impact of alterations in the law at a time when the requirements of the EC necessarily mean considerable changes in the law". It might be more honest in this context to substitute "cost" for the word "impact".

So in this, the first piece of UK workplace legislation to be more concerned with employee health and welfare than with safety, the need not to burden employers with extra cost is considered more important than the comfort of their staff.

That research recently carried out in Germany\* shows that good lighting promotes health, wellbeing and work performance should surprise no one. What is more likely to raise eyebrows is that researchers found that the term 'good lighting' meant something very different to the workers than it did to the experts. Schemes rated as adequate by the consultants were often most unpopular with those who had to spend the whole day in the work environment and among the least popular types of lighting were the darklight downlight systems developed for VDU areas.

This lighting system was actually developed to minimise the inconveniences inherent in the worst technology of the time. The way to avoid eye strain was to limit reflections in screens by using luminaires with a very sharp cut-off point; office lighting levels were lowered to give acceptable contrast on poor VDU screens; and surfaces were to be darker and duller to limit reflection. And, as the control of daylight in VDU areas presented major difficulties, the problem could more easily be solved by removing VDT workplaces from daylit areas somewhere into the depths of open plan office areas – to that office environment least acceptable to employees.

In short, the real consumer – the worker – knows what he wants but cannot push for it. Surely there is scope here for our industry to launch a campaign on the same scale as the highly successful 'Lighting and crime' initiative to sell the value of quality workplace lighting to employers – and incidentally to expand our own market.

\* Light and health – An investigation on state-of-the-art and future prospects of lighting technology in German office environments, Ahmet Cakir, Ergonomic Institute for Social and Occupational Science Research Co. Ltd., Berlin July 1991.

## LIGHTING EQUIPMENT NEWS

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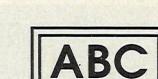
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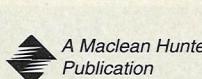
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# NEW PRODUCTS

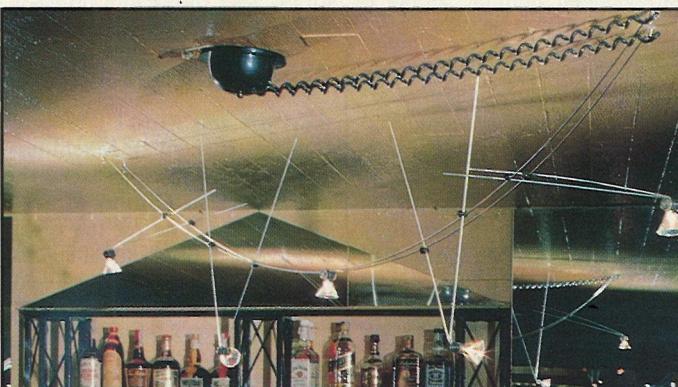
## Low voltage display system

A low voltage, bare wire display lighting system from Hamilton Litestat is based on pairs of wires tensioned between two fixing points. The system uses a 300VA transformer, either wall mounted

near a fixing point or remotely positioned.

Four luminaires are available: round and square pendants using capsule lamps and with sand blasted glass diffusers, a 50W dichroic spotlight, and a spotlight with diffuser. This gives the options of ambient lighting, spot lighting and wallwashing.

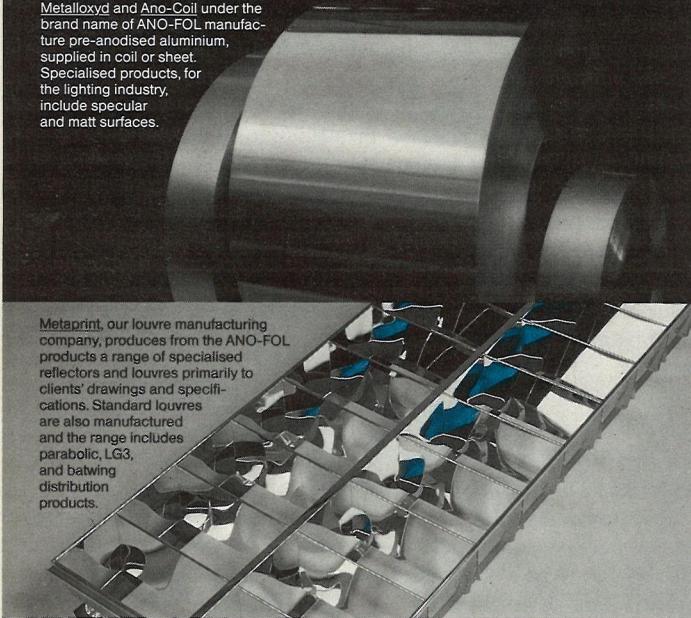
The luminaires can be clipped



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Reader Service No. 3

direct to the wires or attached to rods which are then clipped to the wires at various angles or even bent to form shapes.

The company believes that the Dirrema system is easier to install than many low voltage bare wire systems; it uses a four-piece fixing kit operated by an Allen key. Because of the sim-

plicity of design and fixing, it is easy for the user to re-configure or move. A six-luminaire system is expected to retail at around £200.

Further luminaires will be added to the system and also a bridge to allow two or more systems to work in tandem.

Reader Service No 151

## Uplights have touch dimmers

Demetra is a range of Italian made, floor standing and wall mounted uplights from Light FX.

Cone shaped reflectors are in perforated steel plate with glass detailing. They accept linear tungsten halogen lamps up to 300W.

The floor standing model, which has a circular glass base, incorporates a four-step dimmer in the supporting stem. The light level is adjusted simply by touching the stem half way up.

Finishes are gun metal grey, chromium or brass.

Reader Service No 152



## Modular linear lighting system

A modular, linear fluorescent lighting system that is suspended on either wires or rods and provides upward and downward light is available from LDMS.

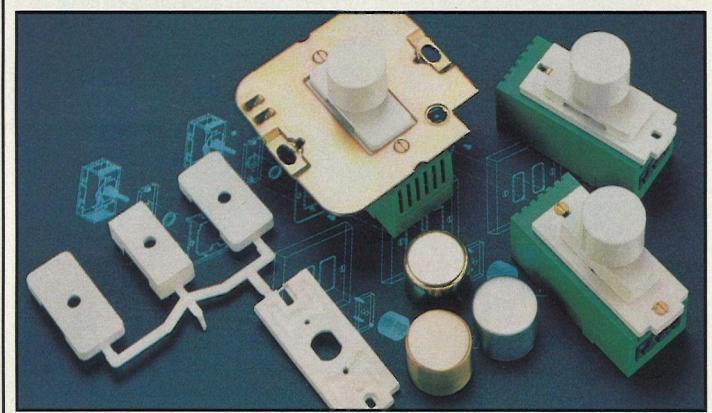
The company says that when used with parabolic crossblades, the system is suitable for use in

VDU areas. Other options are conventional crossblades, dark-light attachments or prismatic panels. If required, the system can provide uplight only.

Couplers enable T, X and left and right hand corner junctions to be formed.

The range includes matching wall and floor standing units using twin 36W PL type compact fluorescent lamps.

Reader Service No 153



## Dimmer module fits variety of switch plates

A new push-on push-off 400W dimmer module is being fitted to Hamilton Litestat's range of dimmer switches. It has also been designed to work with switch plates from other leading manufacturers, using an innovative grid adaptor.

This is Hamilton's first fully enclosed module and it is stated

to use hybrid circuits to provide exceptional reliability. Other advantages are ease of installation and greater safety.

For use with other manufacturers' plates the dimmer module is located on a standard grid which fits directly onto the backbox. As a result, switch configurations can be changed easily, for example positioning dimmers in place of rocker switches without need for new plates or redecoration.

The grid fix pack comes with a choice of dimmer knobs to match the customer's switch plate.

Reader Service No 154

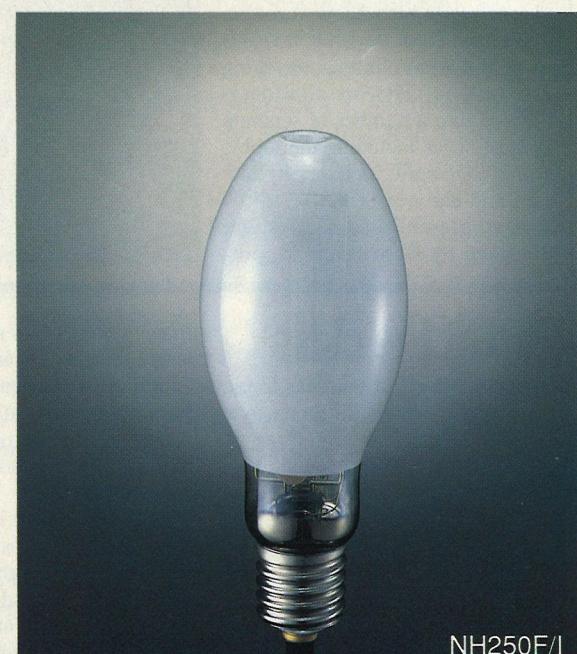
# EYE IGNITRON™ HPS State of the Art HPS

In response to the growing demand for retrofit high Pressure sodium lamps, IWASAKI ELECTRIC is proud to announce the **EYE IGNITRON** series, the latest technological development in H.P.S. lamps. No other H.P.S. lamp matches **EYE IGNITRON**'s efficiency or advantages in ignition and construction.

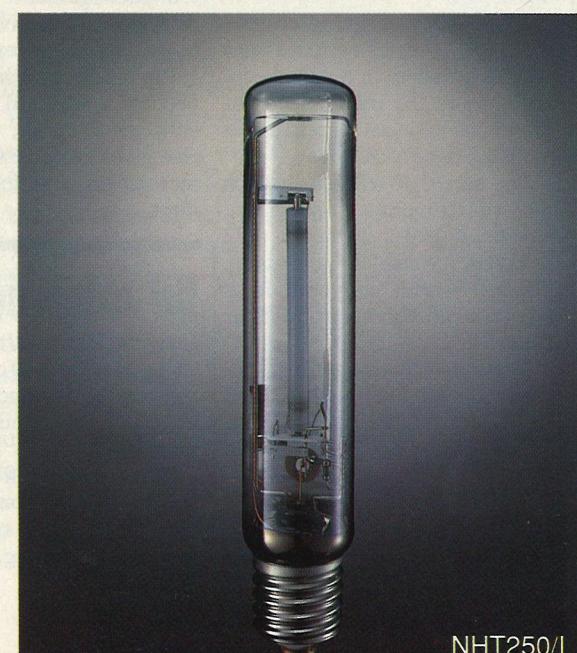
**EYE IGNITRON** is the first H.P.S. lamp in the world to use an internal ceramic (non mechanical) ignitor known as an F.E.C. Energy waste and ballast damage are minimized due to the F.E.C.'s unique capability to precisely control the lamp ignition pulse. Safety is ensured through the F.E.C.'s distinctive ability to eliminate high voltage pulsing at end of life. In the event of arc tube leakage, the F.E.C. will cease functioning, thus preventing possible ballast burnout.

**EYE IGNITRON**'s high quality construction sets it apart from the rest. Sintered electrodes, in lower wattage lamps, ensure superior performance. Plasma arc tube sealing, an IWASAKI ELECTRIC developed technology, prevents any leakage, an inherent problem with conventional crimp sealed arc tubes.

Find out how the **EYE IGNITRON** can be the solution to your lighting needs.



NH250F/I



NHT250/I

## Hannover Messe Industrie '92 (April 1 - 8)

See the "EYE Ignitron" and other Iwasaki Electric Co., Ltd. products on display in Hall No. 09EG, Stand No. B40.



"CREATING LIGHT AND DEVELOPING THE FUTURE"  
**IWASAKI ELECTRIC CO., LTD.**

Reader Service No. 4

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Tel: (03) 3454-1841 Fax: (03) 3454-1974  
Cable Address: "EYELAMP TOKYO" Telex: J28732 (EYELAMP)

# NEW PRODUCTS



## LV outdoor lighting

A collection of exterior, low voltage spotlights using dichroic reflector lamps has been launched by Reggiani.

A fitting called IP55 provides localised lighting for garden architectural features and building facias. A finned heat sink dissipates heat from this totally enclosed, IP55-rated fitting.

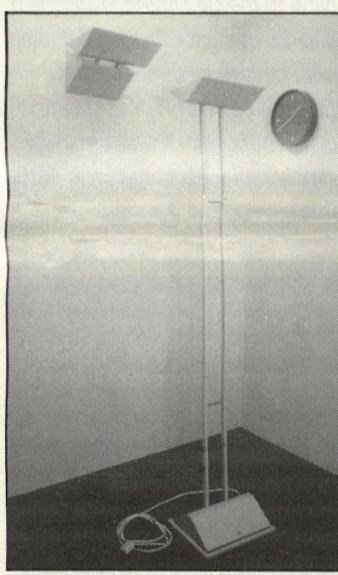
## Metal halide uplight range

La Conch Lighting has a range of slim profile uplights with V-shaped reflectors. Either 70W, 150W or 250W metal halide lamps are used.

The floor standing model has the control gear housed in the base, while the wall light incorporates a wall box for control gear. There is also a model adapted for mounting on furniture.

Special colours can be supplied to co-ordinate with interior design schemes.

Reader Service No 156



## LV lightbars have pierced reflectors

A lightbar with low voltage spotlights, designed to blend with traditional interiors and other ranges of brass lighting, has been introduced by Quality Lighting Design.

## Luminaire supporting coupler improved

Litelink luminaire supporting coupler system by MEM has been improved.

A number of components have been redesigned for ease of installation. For example, the wall outlet now has a loop terminal.

Reader Service No 158



The cone shaped reflectors are of pierced metal in a pattern of trailing stems. The luminaire is made of polished, cast brass.

Versions of the Carla range are available with either two, three, four or five adjustable spotlights and there is a matching single wall light. Dichroic lamps with sealed glass fronts are used.

Customers supply their own transformer for remote mounting.

Reader Service No 157

and a new surface mounting box. The special plug has been completely redesigned with ample wiring and cable outlet space. As before, there are pre-wired pendant sets and a ceiling rose conversion kit.

The range already complied with BS6972 and BS57001 and now complies with the IEE Wiring Regulations 16th Edition requirements for termination of lighting outlet tails.

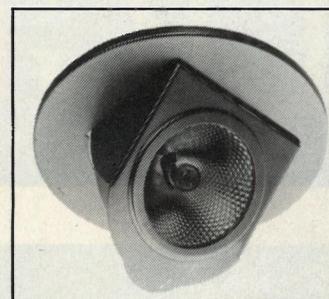
Reader Service No 158

## Front loading downlights

A range of nine low voltage downlights that are re-lamped from the front has been introduced by Accent Lighting.

All use 50W dichroic lamps and can be rotated through 355°. They are available in either black, white, chromium or brass finishes.

The universal downlight (illustrated) can be adjusted vertically through 90°; a recessed eyeball fitting swivels through 30°, and a tilting luminaire with a square centre adjusts through 20° vertically.



cally. In addition there is a fixed downlight. Each of these four fittings is available on either a round or square ceiling plate.

A miniature version with a diameter of 68mm has a round ceiling plate.

Reader Service No 159

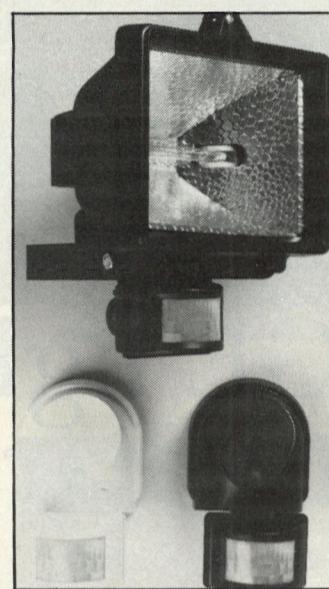
## Outdoor security floodlight

H & L Appleby has introduced a tungsten halogen security floodlight called Pathos. It uses a 500W linear lamp and is ingress protection rated IP55.

A passive infra-red sensor detects heat sources at a distance of up to about 15m. It is directionally adjustable but can be locked in position. Once activated, the light stays on for some three minutes after the area has been vacated.

The infra-red sensor is available separately, under the name Patriot.

Reader Service No 160



## Powerful indoor floodlight

A metal halide indoor floodlight to provide accent lighting where there is a high level of ambient light, or when a wide area needs lighting from a distance, has been introduced by Microlights.

Microstar uses a single-ended capsule lamp rated at either 70W or 150W. There is a choice of either 3000K or 4000K colour temperature.

To further enhance warm tones, for example in restaurants and



other leisure interiors, gold coloured reflectors can be factory fitted. The luminaire is designed for surface mounting.

Reader Service No 161

## Wider choice of spotlights

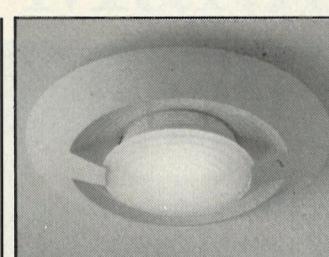
Additions have been made to the Excel range of low voltage display lighting by Hitech.

A new spotlight (illustrated) accepts the 111mm diameter, 12V, reflector lamp. This enables the fitting to provide dramatic accent lighting, particularly where there is a high ambient lighting level.

Two versions of a 70mm diameter spotlight have been introduced. One uses the integrated metal reflector lamp in 20W, 50W or 75W ratings; the other takes 35W, 50W or 75W capsule lamps.

All the new fittings are available for individual mounting or for use on Hitech track. Integral electronic transformer versions are also available for 240V track or surface mounting. Finishes are either black or white.

Reader Service No 162



## Shallow fitting for ceilings and walls

Joker is a shallow, circular luminaire for wall or ceiling mounting. It uses a 150W linear tungsten halogen lamp and has a white opal diffuser. Made in Italy, it is available in Britain through Ambience.

This diecast aluminium fitting is finished in a choice of either all white, all black, or a combination of aluminium with contrasting red, white or black reflector.

Reader Service No 163

# LIF LINE

## A guiding light for health and safety

An interesting and important aspect of the new work place legislation stemming from the social charter or chapter, which should not be missed, is that, unlike previous legislation of its type, it relates to health and welfare as well as safety.

Generally speaking present regulations, as they apply to lighting, are all about provision of minimum lighting levels, which will prevent workers stumbling or falling. Similarly the Health and Safety Executive Codes, which have been produced to amplify the requirements, address the same basic problem; that is safety, not health and welfare.

These new work place directives are, therefore, to be welcomed. On the one hand they fill a gap in the legislation, and on the other they give a new status to CIBSE Codes. Indeed it is fortuitous that CIBSE is in the process of updating its codes and is on line to publish them at the end of the year, coinciding with the implementation of the UK versions of the work place directives:

- Health & Safety (display screen equipment) Regulations 1992.
- Workplace (health, safety and welfare) Regulations 1992.

The CIBSE Codes can then be used as a yardstick by employers who would otherwise have no way of knowing what terms like 'satisfactory' or 'suitable' or 'sufficient' mean when applied to lighting.

The CIBSE Codes will take on a new importance as the years go by becoming as crucial to the employer as the Highway Code is to the driver. The work place legislation will also bring an enhanced status to the lighting professional, who will be called upon more and more to advise the employer.

Some concern has been expressed as to the method of policing – or rather the lack of it – and, up to a point, this is justified. However, one would hope that most employers, having had a dig in the ribs from the HSE, would want to do the right thing – and the right thing is to bring in professional help. Having taken professional advice the employer would then find there are other benefits to bringing lighting up to standard. New lighting is more energy efficient than old lighting and the energy savings can often pay for installation costs in three years or less. But, better still, productivity benefits have been known to pay for a new lighting scheme in five working days through less errors and less absenteeism.

In today's harsh economic climate we only spend when we have to – the preoccupation is keeping the company's nose above water. In these circumstances lighting does not figure high in the employer's priorities. The work place legislation is going to change this and push lighting up the list. Over the next four years, employers have not only got to bring their lighting up to standard but also have to introduce an adequate system of maintenance – something we have all been preaching for a long time and which has a particular relevance to emergency lighting.

The status which the new legislation brings to the codes will also, one hopes, put paid to the 'Greeks bearing gifts' in the form of reflective material for auto transformers, which appear on the market from time to time.

The starting point at any discussion on saving energy or compliance with legislation must be the CIBSE Code.



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Reader Service No. 5

**spectrum** /'spektrəm/ n. (pl. -tra)  
band of colours as seen in rainbow etc.;  
entire or wide range of anything  
arranged by degree or quality etc.®

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# LIGHT Spectrum

## Lighting the way

Visitors to our stand at Lightshow in January were interested to know how we will establish the GE brand in the UK when certain existing products are so strongly identified with the Thorn brand. Very simply, new products that come on to the market, and in the main these will be value added products, will carry the GE brand. Alongside these and for some months to come, we will continue to supply familiar Thorn branded products, such as tubes, under the Thorn brand. Whether Thorn or GE branded lamps, they are manufactured by GE Lighting.

As mentioned in our first issue of 'LIGHT Spectrum' our newly formed OEM sales force is fully operational, calling on manufacturers and providing a vital bridge between fittings and lamps. The generation of new sockets benefits all aspects of the lighting industry.

Working towards April, Mitcham's newly refurbished site and offices will be ready and open for business for the integrated GE Lighting commercial operation. Work is well advanced and two weeks ahead of schedule.

In the planned build up to the establishment of Mitcham as the company's UK commercial centre, several sales office functions around the country have gradually been relocated to our adjacent offices at New Malden, to ensure a smooth transition to the one centre at Mitcham. The sales office function handling light sources on behalf of GE at Romford will also re-locate to Mitcham.

GE Lighting will have a major presence at the International Hanover Fair and will be exhibiting the full range of light sources (Stand B32/44)

Mike Murphy, Managing Director, GE Lighting UK Commercial

**M**EET THE NEW BOSS! In fact many customers have already done so! Charles Pieper - or Chuck as he prefers to be called - has joined GE Lighting to drive the European business as President and Chief Executive Officer. Putting the customer's needs first is what he's all about. With a reputation for being a "hands on manager", he believes in fast action and since he's been in the UK, he has been finding out for himself what customers think of the company, its plans and its products. He has unashamedly set his sights on market supremacy. GE Lighting is the No.1 lamp supplier in the world, No. 1 in the UK and Europe is next.

A truly international manager, Chuck has been with GE since 1981 and joined the European operation from GE Medical Systems Asia where, from a base in Tokyo, he worked for the past three years developing the business throughout the Far East.

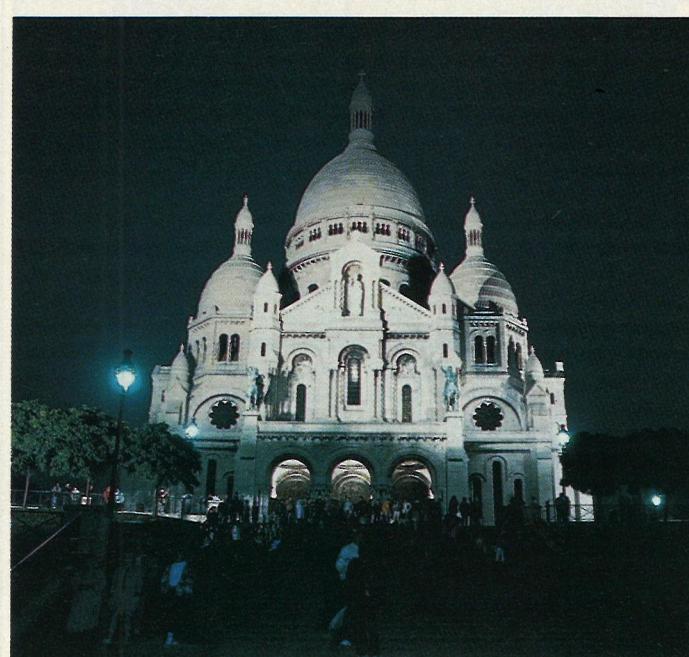


## Building relationships

Christine Pettit, Customer Services Manager for Sales will be moving with her sales team from New Malden to Mitcham early in April. Until then, contact telephone numbers remain the same.

Customer service is a key area for any manufacturing or service industry but few companies focus attention in getting it right. Not so

Christine and her girls. Building customer relationships through efficiency and understanding is how Christine Pettit manages her department. Each customer is allocated an internal sales contact who responds to that customer, becoming familiar with that customer's business, ensuring continuity of service.



Reader Service no.65

## GE lights up Paris sky

High on the popularity list of spectacular tourist attractions in France's capital, is Le Sacré Coeur which commands the Montmartre skyline. Its visibility is even better at night now that this splendid monument is floodlit

by ninety nine PAR halogen lamps from GE, available as narrow spot or wide flood. These Q 500 PAR 56 lamps aim their crisp, well defined beam accurately to the required area, ensuring clarity of detail.

## Northampton Update

The new distribution facility mentioned last month is now up and running and successfully handling lamp distribution to Europe.

The next step in the phased distribution programme will be to handle specialist lamps including Photo, Stage and Studio, Miniature and Automotive; these products will be handled first;

followed by ex-Daventry products. Mainline commercial, wholesale and retail products will fully utilise the new warehouse and distribution facility from mid-Summer.

Watch out for further Northampton updates.

### New Product

## 2D

### INSTANT START

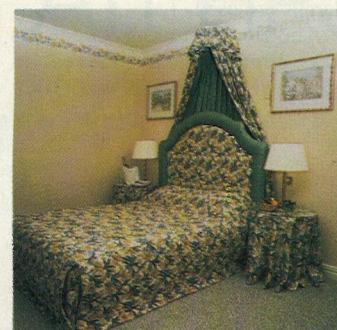
New to the GE Lighting range is a 16W 2D compact fluorescent lamp with built-in electronic starter. Existing users of 16W 2D lamps can benefit from instant start by simply replacing their lamps with this new option. Furthermore,

OEMs can benefit from the new electronic instant start feature without modification to their fittings.

Available in 2700K warm and 3500K white.

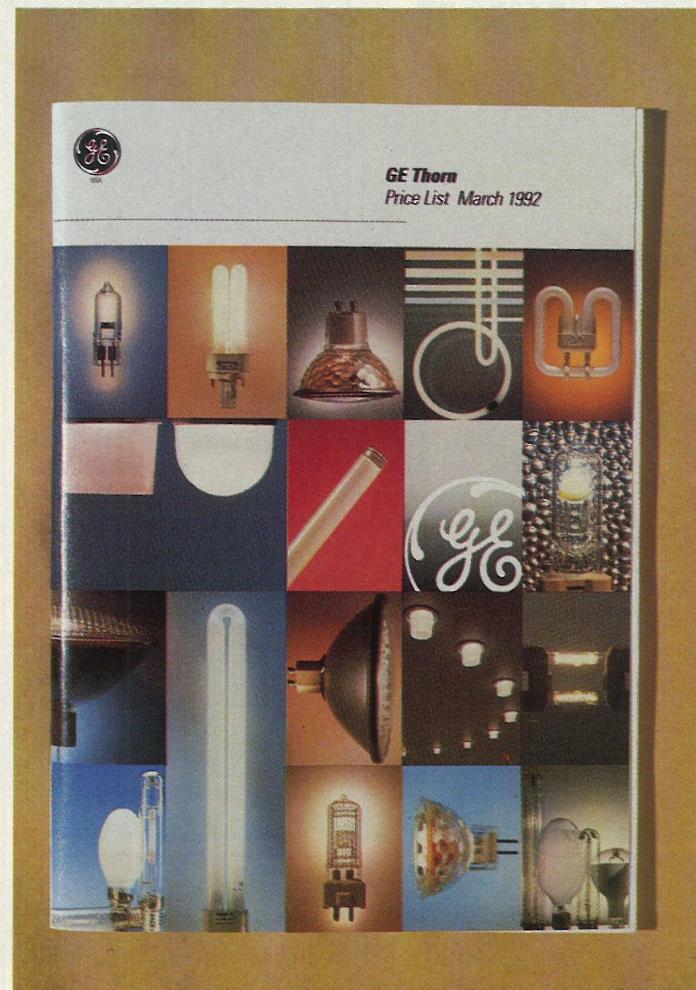


Reader Service no.67



## £34 Billion Sales

1991 saw a 3% increase in GE's sales to £34 billion, with world sales for GE Lighting up 13%. Worldwide, GE ploughs back over 9% of its sales revenues into huge research and development programmes across its thirteen businesses.



Reader Service no.66

## More than just a price list

Time is money and saving time, by finding the required information quickly and unerringly, is what the new GE Thorn price list does. Great care has been lavished on it to achieve clear product identification and utmost legibility. In addition, a colour section introduces and discusses new products or topical lighting information.

This, together with a new GE-Tungsram price list, will become effective in March 1992. Both publications will be combined into one when GE Thorn and GE-Tungsram are merged in mid-summer.

## Six out of Seven

No, not winter Olympics scoring. Out of seven compact fluorescents installed in new bedrooms and en suite bathrooms of the Cross Keys Inn in Cleveland, six are long life, energy saving 2D lamps from GE Thorn. Outlasting the life of standard GLS bulbs eight times over, energy efficient 2D lamps also consume only one quarter of the power for the equivalent light output.

**SPEED OF LIGHT**

# GE Lighting

## Colour Coordination of light sources

There is a consensus that colour preference reflects an attitude or state of mind and conversely, that colour influences them and may even affect the physical being.

Light is the medium through which colour is made manifest and lighting will create or reinforce the mood of an interior space.

The importance of lighting, in both functional and psychological terms, has stimulated the creation of an ever greater array of

lamps that offer choice in colour appearance and colour rendering.

To the designer and user of a lighting installation, the coordination of the colour characteristics of the different light sources in an installation can become time consuming or even baffling.

GE Lighting has started a programme of coding the colour characteristics of some of their lamps to aid the design, specification and maintenance of an

installation.

The code includes the Ra index and the colour temperature and thus makes easy the coordination of the colour of different lamps so that it may be matched or deliberately contrasted.

The first group of GE light sources to be so coded are the range of Polylux fluorescents and Arcstream compact metal halides.

### Ease of specification

The Colour Rendering Index and the Colour Temperature of GE Thorn Polylux and Arcstream can be readily identified by their code thus:

Ra80+ CCT3000K = 830  
Ra80+ CCT4000K = 840

### Colour Rendering Index

Colour rendering is the ability of a lamp to help distinguish colour. The accuracy with which a lamp can render colour can be quantified by general index Ra with a maximum value of 100. Lamps with an Ra of 80+ are considered very good

### Colour Temperature

The Correlated Colour Temperature CCT defines the apparent colour emitted from a lamp. This is described in degrees Kelvin (K) and a lamp can be classified in the following way:

**WARM** < 3300K  
**INTERMEDIATE** 3300K-5300K  
**COLD** > 5300K

### 827 2700K

very warm colour for social areas eg restaurants. They can also be used in cold countries to create a warm effect

### 830 & 930 3000K

warm colour with applications in social areas such as hotels receptions and certain retail outlets

### 835 3500K

intermediate colour suitable for general commercial and industrial applications

### 840 & 940 4000K

intermediate colour used to create a cool crisp business like atmosphere

### 950 5000K

intermediate colour for accurate colour judgment in shops and commercial premises

### 860 6000K

very cool colour used in very warm countries to create a cool ambience.

### POLYLUX ▲ 827

### POLYLUX ▲ 830

### POLYLUX ▲ 835

### POLYLUX ▲ 840

### POLYLUX ▲ 860

### POLYLUX ▲ 930 DE LUXE

### POLYLUX ▲ 940 DE LUXE

### POLYLUX ▲ 950 DE LUXE

### ARCSTREAM ▲ 830

### ARCSTREAM ▲ 840



Reader Service no.68

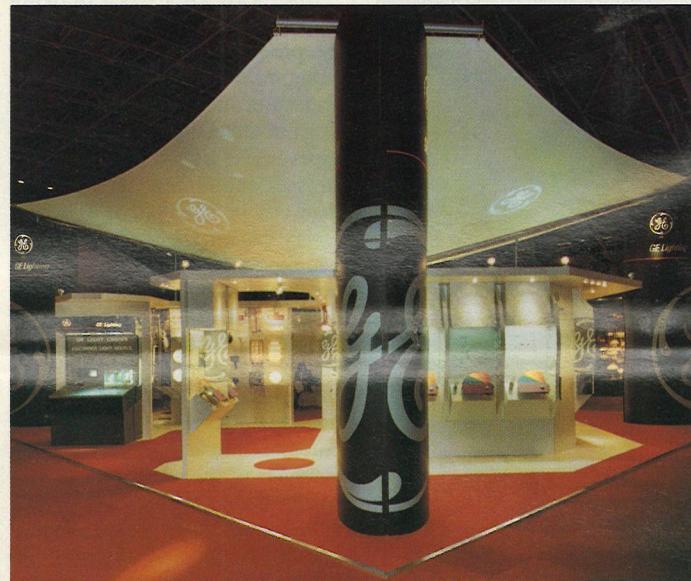
The Speed of Light logo will become a familiar sight within GE Lighting. But how will it affect GE Lighting customers? Working faster and more efficiently rules supreme within the organisation. Finding ways to reduce time

between an order received and an order delivered, speeding up response to customer's need, speeding up product innovation - they all represent priority actions communicated by the Speed of Light logo.

## UK's No 1 Light Bulb in new packaging



Reader Service no.70



## Making an impact at Lightshow '92

Under the huge white sails of GE Lighting's award winning stand, retail and commercial customers came together in the first of the new, combined Lightshow. Products from MAZDA, GE Lighting's highly successful retail brand, plus innovative lamps from the company's commercial operation

made their debut at the four day show which attracted over 7,500 visitors.

Comments Mike Murphy, MD, UK Commercial, "Through Lightshow GE Lighting was able to demonstrate its commitment to the industry and our messages about added value product innovation, customer

service and support were clearly understood. Attendance from both markets was encouraging and particularly the first time interest shown by OEMs, lighting consultants and other specifiers in what has traditionally been a retail orientated show."



# GE Lighting

# Seeing is believing

**Brock Hoaran, of Thorn Lighting, looks at the latest computer modelling techniques used in the design and development of luminaires and for demonstrating the effect of a lighting installation.**

The use of computers in modern product design, development and application is constantly evolving. Computer aided design (CAD) and computer aided manufacture (CAM) have already become established tools in Thorn and, indeed, computers are an essential part of the control and data acquisition for photometry. Other recently introduced techniques include mould flow analysis and thermal imaging. Major inroads are also being made in optical design and visualisation.

The next major application of computers is the simulation and testing of models to allow more reliable pre-production models of new luminaires using finite ele-

ment analysis. These simulations will enable flaws in the design to be identified and corrected at an early stage, before physical models and tools are actually made.

This article outlines the new techniques and shows the major input that they will make to the development process in future.

#### Pre-production modelling

Until recently, once the initial design of any new product had been agreed, it was necessary to manufacture one or more pre-production models to assess the viability of the design. These models would be subjected to various thermal, static and dynamic loading tests as well as photometric trials. As a result,

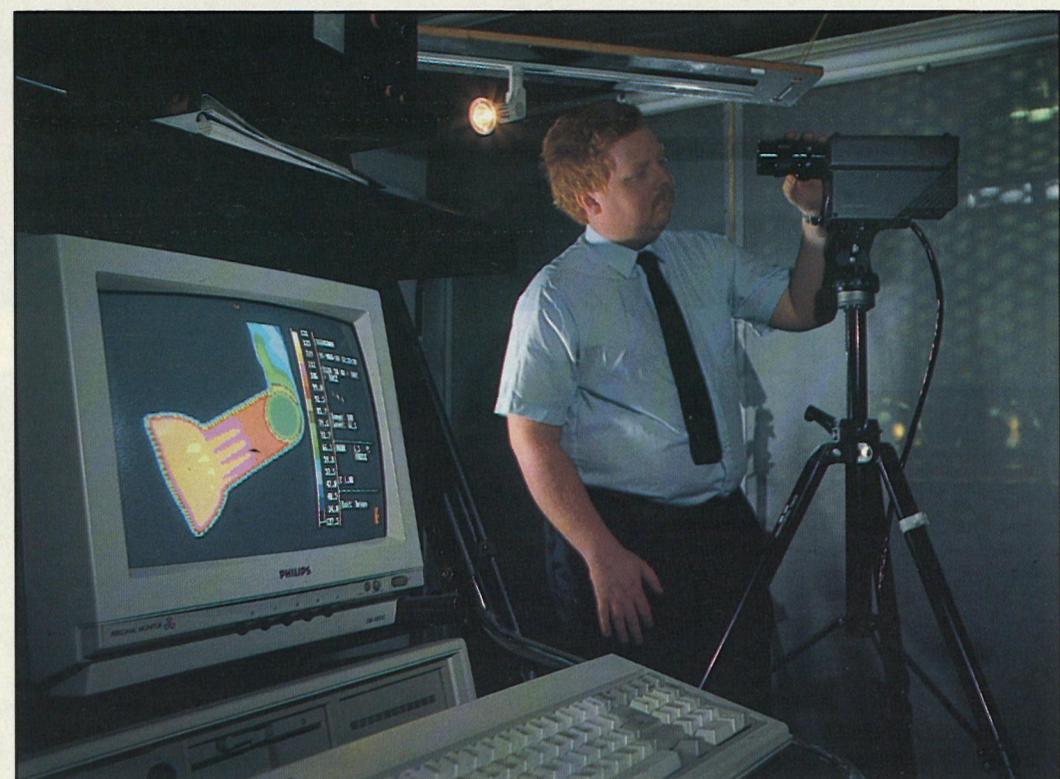
refinements or major changes would be introduced. A lot of problems with new designs only emerge during this pre-production testing stage and this can lead to costly redesign, model-making and testing, coupled with crippling time delays.

A new computer programme now being used by Thorn uses finite element stress analysis to allow components – or even complete assemblies of different materials – to be modelled and loaded at an early stage in the design. In this way refinements can be introduced and a range of different options tried before any models are built.

The technique also allows stress levels and deflections to be optimised so that adequate material thicknesses are achieved throughout the structure without over- or under-designing. Thus, a better understanding of the mechanical performance of luminaire components can be obtained during the feasibility stage.

Starting with a CAD drawing of the product or a solid model, the program allows the proposed structure to be broken down into a mesh of identifiable lines, areas or solid elements – beams, plates, pipes and shells – for which the stresses and displacements under load can be calculated. The necessary data on the material and all geometric factors are fed into the computer and the model is loaded hypothetically to simulate actual conditions. The programme then calculates separately the stresses and displacements imposed on each of the elements and the complex interactions between the elements of the whole, thus building up a total picture.

It sounds simple, but in reality is quite complex as the program is very user-dependent. For instance, the choice of element type and size, and the nature of selected mesh, markedly affect the results obtained. In a complex model, stress levels within 5% of reality are considered a



Thermal imaging techniques use an infra-red camera linked to a computer.

'good' analysis. The program also makes it possible to zoom in on critical areas for more detailed analysis, take sections and rotate the model.

The calculation can frequently be simplified by symmetrical design, which enables the analysis to be restricted to one half of the model; by ignoring any sections of the model which have no influence upon stressing; and by simplifying certain shapes. Indeed, greater accuracy can often be obtained with a similar model.

A powerful feature of the ANSYS program selected by Thorn for its finite element stress analysis is an ability to carry out analyses for a complete structure comprising components of different materials. For example, it can be used to model a complete luminaire including the canopy, diffuser, gasket and diffuser clamping toggles. The effect of the sealing gasket and the toggles is an integral part of the calculation. It is even possible to take account of gaps between components.

In the past, the clamping toggles have been over-designed. Not only has this resulted in unnecessary use of material but it has also led to stress cracking of the diffuser when clamping was too rigid. Use of the ANSYS program should overcome such problems and enable the effect of different clamping arrangements to

be assessed on-screen prior to model-making.

The two main results obtained from the analysis are the stresses in the structure and the displacements, or deformations, given in three dimensions. The analysis can include both metallic and non-metallic materials. The program is capable of dynamic as well as static analysis, so it can be used to simulate vibration, for instance, in street lighting luminaires.

A similar approach can also be applied to the design of luminaire optics. Using a CAD drawing of an optical system, a design program will select a number of points on the light source and follow rays from these points as they are reflected and refracted within the optical system. As a result it can build up an intensity distribution plot for the proposed optic resembling one which would be produced by photometric measurements on a real system. The program operates in three dimensions and can handle specular and diffuse reflections, and refractive boundaries.

As with the finite element stress analysis program, the optical design program can bypass the initial prototype and photometric testing stage and allows reflective and refractive elements to be manipulated in software to achieve a required distribution of light. Only when the optic has

been optimised in the software will the prototype be constructed.

The optical design program provides data in a format that is compatible with existing lighting calculation software. This opens up the possibility of integrating the optical design program into a CAD/CAM system to enable the optic to be designed, modelled and optimised on the computer, and tooling set up for manufacture without a physical prototype ever being made!

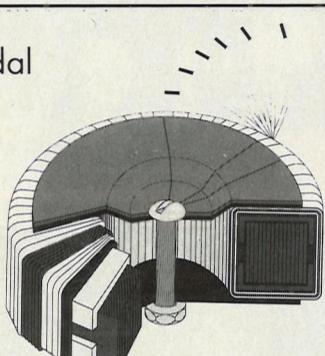
#### Pre-manufacture

Once a design has been optimised, it is important to ensure that the product can be made. In the case of plastic materials, this includes confirming that it can actually be moulded. A plastics material flows into the mould through a number of 'gates'. As it flows the material cools. If flow paths are too great, some of the material may begin to 'set' before the mould has been filled, resulting in weaknesses or voids in the moulding.

Flow can be improved by changing the number, size or positions of the gates in the mould, or by heating selected areas of the mould or runner system, but sometimes it is necessary to redesign the original moulding and repeat the optimisation process.

A mould flow analysis program (mold flow) was introduced at the

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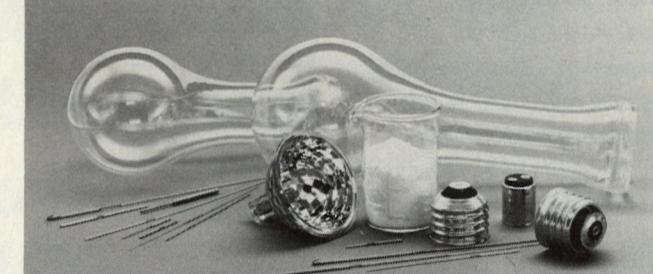
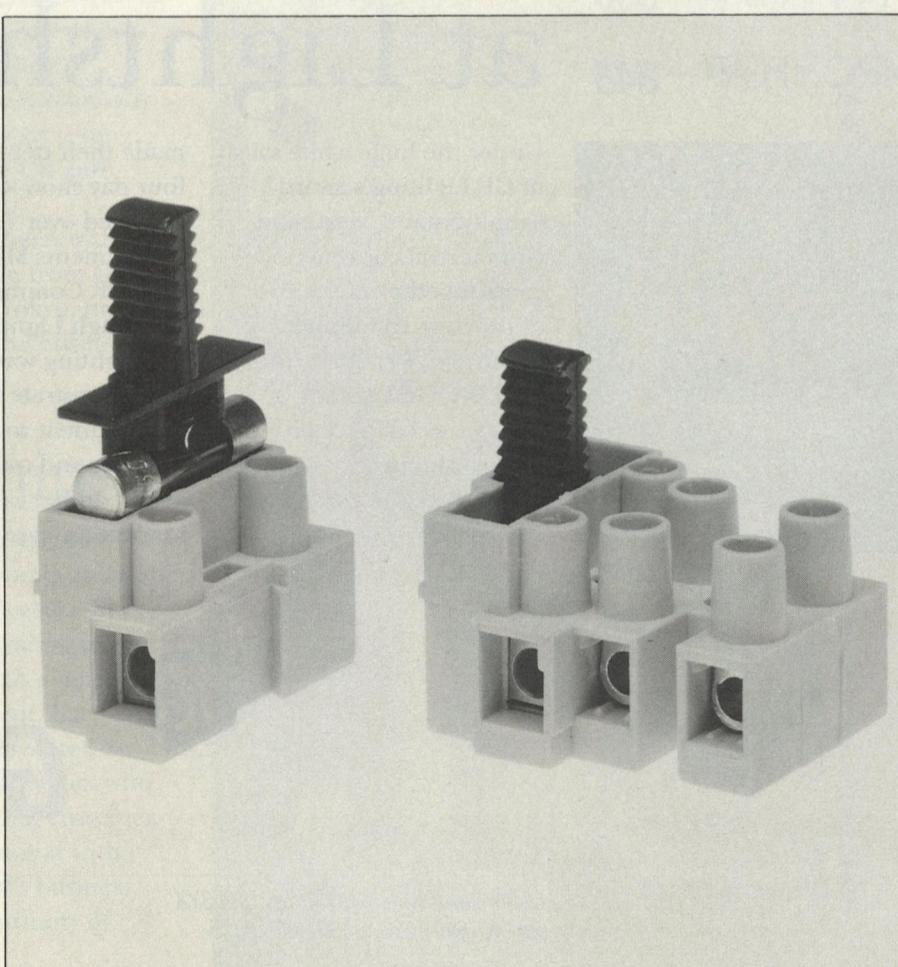
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Reader Service No. 7

Page 8



#### Lamp Parts & Materials

The special materials and quality parts that make GE (USA)\* a world leader in lighting products are readily available in England and Europe. Contact our UK Sales office for these and other products:

- Halogen lamp glass
- Pressed glass reflectors and lenses
- Hard glass bulbs
- Lamp bases and stamped parts
- Lead glass tubing
- Filaments and filament wire
- Dumet and Cumet wire
- Tungsten halogen wire
- Molybdenum wire
- Lamp phosphors
- Many others

Call or write for more information. GE Components Marketing & Sales Operation, 21A High Street East, Uppingham, Leicestershire, LE15 9PY England, Phone: 0572-823748/9 Telex: 34362 GELCOS 6 Telefax: 0572-823836



**GE Components**  
Marketing & Sales Operation

\*GE (U.S.A.) is not connected with the General Electric Company p.l.c.

Reader Service No. 8

Lighting Equipment News, March 1992

company's Spennymoor moulding plant a few years ago to enable the moulding process to be simulated. The program uses a finite element technique and takes the optimised drawing together with flow characteristics of the proposed moulding material. It then predicts what paths the material will take as it flows into the mould, how long it will take

means that proposed luminaire designs from outside designers can be validated.

□ Customers and decision-makers within the company itself are more inclined to accept the hard data produced by a computer analysis especially as it can be presented in a visual form that is easily understood.

ture contours and hot-spots clearly identifiable.

#### Lighting visualisation

A computerised visualisation program which builds up a picture of a proposed lighting scene is at an advanced stage of development at the Thorn EMI's central research laboratory.

There are already numerous computer programs designed to carry out the necessary calculations for simple lighting schemes, but the visualisation program is a more sophisticated package capable of producing a colour image of any complex scene complete with realistic furniture and textures as they would appear in the proposed lighting installation.

It starts with a CAD drawing of the scene. For each element within that scene the colour, reflection characteristics and texture are fed into the computer. From this the computer will draw a colour picture of the scene. The lighting can then be 'installed' on the computer model by feeding in the proposed locations of the luminaires and their photometric data. For the Thorn luminaires, this latter information is stored on computer so that simply identifying of the luminaire will be sufficient to call up the necessary data.

The program then looks at the intensity distribution from the luminaires, divides the scene up into a matrix of 'patches' and first calculates the brightness and colour of each patch in the scene due to direct light from the luminaires. Next, unlike existing computer programs for lighting design which consider only average light reflected from the room surfaces, the visualisation program considers reflections from all elements in the room and can continue to repeat the calculations for successive inter-reflections from surface to surface. The user can determine the number of iterations that are carried out.

The program can output the data as a colour picture of the scene, accurately portraying the effect of the scheme, or as a plot of the various lighting levels.

The visualisation program can be used with internal and external scenes, provided those scenes can be reduced to a CAD drawing with the various colours, reflectances and textures identified. It can also take full account of diffuse daylighting.

The program makes use of parallel processing techniques

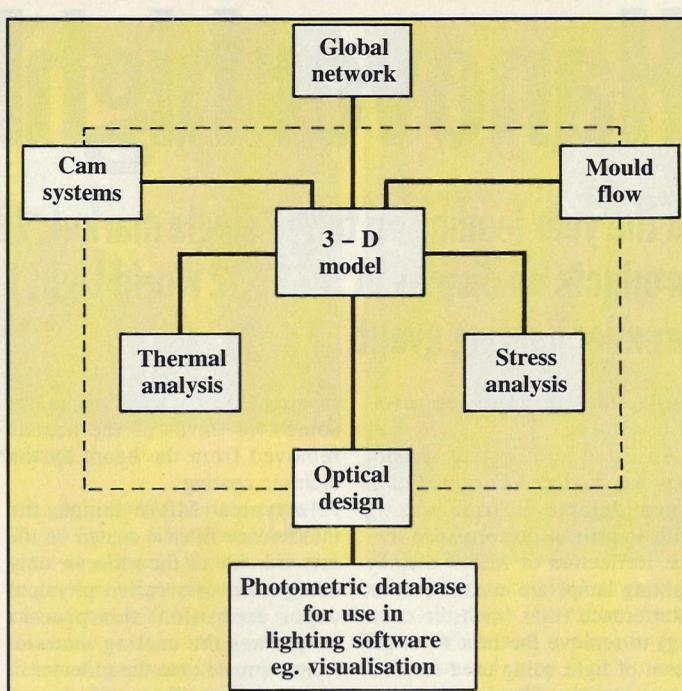


Fig. 1. The future for integrating computer programs into a unified system for design, development, manufacture and testing.

with the calculations shared out between fifteen transputers which communicate with each other. It can also operate in serial form on a Unix-based work station.

The visualisation program is intended for large-scale projects where it will enable architects and lighting designers to visualise the scene accurately. It is a design rather than an engineering tool and provides an accurate picture of lighting effects which many lighting engineers visualise instinctively. It allows a designer to express his ideas to a client in visual terms which may be more meaningful than just lists of numerical values. One of its main benefits will be to 'sell' an aesthetically pleasing scheme to the customer.

#### The future

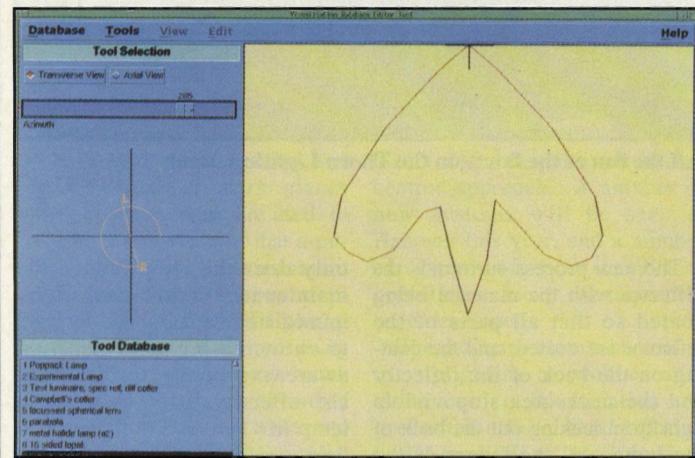
The finite element stress analysis, optical design and mould flow analysis programs are already beginning to yield benefits in speeding up lighting development times as the time-consuming processes of repeated model testing are cut to a minimum. But there are other criteria, notably thermal stress, that could benefit from similar treatment. Integration of the various analysis programs into a common system with computer aided design will further enhance the benefits, while international networking will ensure that the data and analysis facilities are available worldwide.

Thermal stress analysis is the

development time. If the temperature distribution and heat flow characteristics produced by lamps, ballasts, forced convection and ambient conditions can be calculated for the various materials and structures, it will go a long way to clearing one of the remaining bottlenecks in luminaire development.

Finite element thermal analysis is more complex than stress analysis but it is anticipated that ANSYS will also be invaluable in allowing the effects on structural analysis to be determined.

The potential for integrating the various programs into a unified CAD/CAM system is shown in Fig.1. The CAD system will generate the three-dimensional model which will then be optimised by the finite element stress analysis, thermal analysis, optical design and mould flow analysis programs. The optical design program will interact with the photometric database used in a wide range of lighting software including the lighting visualisation program. Once optimised, the model can be used in the computer aided manufacturing program and the production of mould tooling.



A simulated polar plot for the optic of a low bay discharge fitting.

#### Thermal imaging

The element of 'seeing is believing' is one of the benefits of the recent introduction of infra-red thermal imaging techniques for the thermal testing of prototypes.

Traditionally, thermal testing has involved the use of thermocouples located at strategic positions on the luminaire to record surface temperatures. While experienced test staff have a reasonable knowledge of likely hot-spots so that they know where to position the thermocouples, it is impossible to identify peak contours accurately without employing an excessive number of thermocouples.

Recently, Thorn introduced thermal imaging techniques to assist with prototype testing. This involves the use of an infra-red camera coupled to a computer to record, store and analyse thermal data. The thermal imaging process produces a picture of the luminaire overlaid with coloured temperature contours. The image provides instant indication of the precise location of any hot-spots together with a readout of temperatures.

The camera can view the target from any angle in order to build up a complete thermal picture. It can also zoom in on any critical locations and freeze the record.

The technique means that customers can be shown a graphical plot of the product with tempera-

ture contours and hot-spots clearly identifiable.

The technique allows the company to look at a whole range of moulding materials and analyse the filling characteristics of each without ever producing a real mould and without going through the laborious process of trials.

The combination of computerised finite element stress analysis and computerised optical design and mould flow analysis produces a number of benefits:

- Structural integrity and mouldability can be validated at the design stage and the marketing department advised if a design is impracticable.
- The number of prototype models and moulding tools that have to be made can be reduced drastically, resulting in savings in development costs and reducing development times in some cases from months to weeks.
- Where necessary, materials from different suppliers can be compared directly. Similar analysis services are offered by most materials supplies, but usually for their own materials. Only by in-house analysis is it possible to compare competing materials on an identical basis and ensure optimised selection.
- The facility with which the analyses can be carried out also

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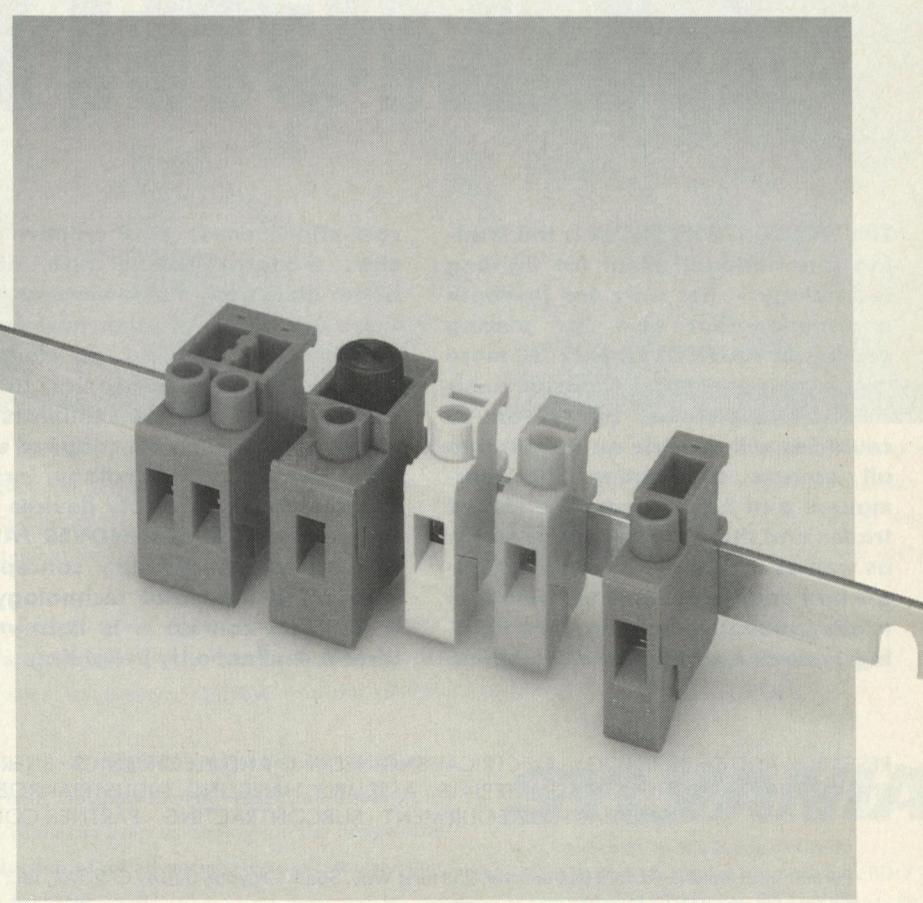
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Reader Service No. 10

This, the last Hanover Fair before the completion of the Single European Market, could provide an interesting overview of the lighting industry across the community as a whole. However, given the state of the economies of most of the member nations, companies appear to be consolidating their product ranges rather than indulging in the experimental kite-flying for which Hanover is famous. But lamp ranges are being steadily expanded and interesting changes are occurring in the office lighting field.

Products on display at the **GE Lighting stand (Hall 9, first floor, Stand B32/44)** will focus on innovation in both lamps and optics.

Under the latter heading, the company is currently developing Light Engine, an application of fibre optics to general lighting. Light Engine uses an instant discharge lamp first developed for automotive applications in conjunction with fibre optics. The intensity of light is capable of driving the electrically noncon-

# Hanover highlights

**In the year leading up to the single market, *LEN* previews new products on display at the 1992 World Light Fair, Europe's premier lighting event.**

ductive fibre optics to new levels of brightness.

Research into coating technology has produced ConstantColor, a new durable dichroic coating with improved performance levels.

Reflectors of MR16 display lighting lamps are coated with an interference filter (dichroic coating) to remove the heat from the beam of light being used for illumination. The filter which alternates layers of materials of high and low refractive index, reflects the visible light while transmitting the ultra-violet and the infra-red. The visible light is reflected forward in the beam while the unwanted IR heat is removed

through the back of the lamp: some two thirds of the heat is removed from the beam by the dichroic coating.

In typical MR16 lamps, the interference filter is coated on the forward side of the reflector only using a process called physical vapor deposition: this process evaporates the coating material from a source onto the reflector in a straight line. The coatings produced are not uniform over the reflector and the back and neck of the reflector are not coated, so light can leak through uncoated surfaces. Similarly the coatings are not fully durable. They tend to evaporate over time, especially

at high operating temperatures or when used with high wattage lamps. This loss of the coating reduces the light projected forward and also causes colour variations over the life of the lamp.

GE has extended the Pow-IR-Film coating process, used to increase the efficiency of incandescent lamps in the halogen/infra-red product line, to produce a coating which will not change colour or light output for over 5000 hours; the reflector coating is used in a new product line, Precise ConstantColor. The coating used is a dichroic filter which removes the heat from the light beam.



All the fun of the fair – on the Thorn Lighting stand.

The new process surrounds the reflector with the material being coated so that all parts of the reflector are coated; and the coating on the back of the reflector and the neck area stop visible light from leaking out the back of the lamp. All the layers of the coating are of high temperature oxides which will not evaporate, even with high wattage lamps. Because these coatings do not change with time, the colour and intensity of the light lamp will not change. The reflector coating have been tested for more than 5000 hours.

New from GTE Sylvania at the 1991 Hanover Fair (Hall 9, first floor, Stand F8/14-G7/13) will be a newly designed range of low voltage halogen MR 16 dichroic 35 mm and 50 mm lamps, and PAR 30 halogen and PAR 38 halogen mains voltage lamps. Backing up these new products are new MP 75 and MP 100 metal arc low wattage metal halide lamps for indoor commercial applications, including a new 4000K colour temperature M150 rating.

The new MR 16 lamps are called 'professional de luxe' and feature clear front lenses, a new spiral faceted reflector design and a 4000 hour life rating both in the 50mm and 35 mm sizes. MP 75 and MP 100 E27 low wattage metal halide lamps are re-rated for operation without safety protection glasses.

PAR 30 and PAR 38 halogen de luxe mains voltage lamps also follow the improved look and performance of the professional de luxe range.

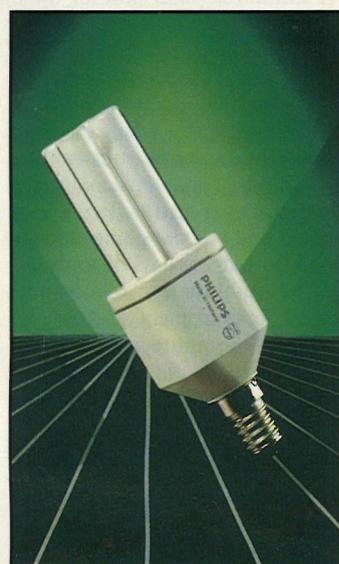
In addition to improved performance in low voltage dichroics and the extension of the lamp type to mains voltage, colour is also a key note. A new range of coloured low voltage dichroic lamps will be shown by **BLV (Hall 9, first floor, Stand A44/B43)**. The range, named Popstar, is based on the Superline dichroic reflector lamps and incorporates a specially coated flush front glass which gives red, blue, green or yellow light according to type.

The company is also launching Topstar, a new range of energy-saving compact fluorescents with an E27 cap which come in 11W, 15W and 20W ratings and incorporate an electronic ballast.

**Philips Lighting, (Hall 9, first floor, Stand C32/44, E31/43)** is also introducing compact mains voltage halogen lamps from the end of 1992. PAR 30 lamps will be available in 50W and 75W ratings and a PAR 20 version comes in 50W only. There will be a choice of spot, flood and wide flood beams.

A new high pressure sodium lamp, EuroSON, eliminates the cycling effect of the standard high pressure sodium lamp as it approaches the end of its life and offers an alternative to the use of special self-stop ignitors to solve this problem. Cycling has been prevented by removing the mercury content of the lamp. Not

only does the lamp reduce the maintenance costs caused by immediate relamping and respond to an increasing environmental awareness among specifiers, it also offers a 10-15% increase in lamp life and a 15% increase in light output for approximately the



Philips PLC electronic now comes with E14 lamp base.

same cost as the standard lamp. In addition, a slightly higher colour temperature gives a whiter appearance. EuroSON will be available in versions from 50W to 400W by the end of 1992.

Public concern has been expressed recently about the possible risk of UV radiation from halogen lamps, particularly those used in open luminaires without the protection of a front glass. With this in mind Philips has developed a range of halogen lamps with UV block glass capsules. The capsule glass provides considerable reduction in total UV output: UV-B and UV-C radiation is completely blocked, and only part of the UV-A radiation is transmitted. These lamps are otherwise identical with standard halogen capsules and so are completely interchangeable with them.

Eight standard, non-regulating constant watt HF ballasts have been added to the Philips range, complementing the regulating types introduced in 1991. The new constant watt ballasts can be used with both TL-D and TL-D HF lamps, and the same power is delivered in both cases. A further benefit is that lamp power is maintained at a constant level over a wide range of mains voltages.

Reliability of the total lighting system is increased by built-in mains overvoltage protection, which automatically switches the lamps off if mains voltage rises above 280V.

From **Tridonic (Hall 8, Stand E18)** comes a new technology for the dimming of fluorescent lamps. This works by using digital signals transmitted along a two-wire bus. Versions for 18W, 36W and 58W fluorescent lamps are available and there are already models for both linear and the full range of T5 lamps. These will be suitable for use in various configurations – solo, with one or more

# ONCE A YEAR IN HANNOVER - LIGHT-YEARS AHEAD IN LIGHTING

**The WORLD LIGHT SHOW** is the leading international event for lighting technology – not only for in-depth information but also for placing orders. At **HANNOVER FAIR '92** more than 400 exhibitors from 25

countries will provide an insight into all aspects of lighting. Decision-makers and buyers from the skilled trades and the electrical goods sector as well as architects, lighting designers and engineers come to Hannover to see innovative lighting, new lighting systems and solutions combining

cost-effectiveness and creative design. Modern lighting now offers better illumination at lower cost. And there are plenty of other new developments in the field of electrical engineering and electronics. In the adjacent hall some 250 exhibitors will showcase the complete range of electrical installation technology, including innovative assembly devices and components. The **HANNOVER FAIR** – with its interdisciplinary concept of presenting industrial technology in a practical context – is light-years ahead. And not only in lighting.



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wall switches, or as part of a building management system.

Also making its exhibition debut is the latest electronic ballast for 150W metal halide and SON lamps, it incorporates hot re-strike and will immediately switch off any failed lamp.

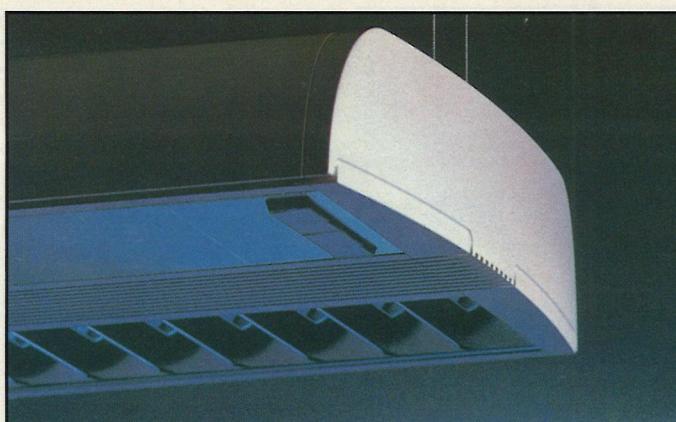
Turning now from lamps to lighting systems, Office based activities have changed dramatically over the past few years with the introduction of computer systems. To natural developments arising from changes in working practice must be aggregated the effect of the recent EC directives on both work place lighting and requirements for work places where display screens are used. In the past it was assumed that a satisfactory working environment could be provided by just stepping up the amount of lighting provided. With the increasing use of VDU screens too much light has been found to be as bad as too little and there is a move to provide workplace lighting which is flexible and gives each worker individual control over his immediate lit environment. The role of ambient lighting thus becomes to

provide levels of lighting sufficient to meet the needs of safety and to enable easy circulation within office areas.

The initial reaction to the VDU problem was to use darklight downlights, but these have not been found to be particularly popular with office workers. Thousands of years of natural daylighting have taught man to expect light to come from the sky downwards - so a dark ceiling feels unnatural.

The past couple of years have, therefore, seen an attempt by office lighting manufacturers to take a different and more worker centred approach. A number of new systems will be seen at Hanover this year, and a number of systems on show in 1991 as prototypes have subsequently been developed.

These systems almost invariably use uplighting to produce adequate ambient illumination and predominantly vertical lighting useful for VDU tasks. This gives a more acceptable light ceiling and a light spacious feeling to the workspace, but leaves the room entirely free of glare.



Pendant fitting from the Trilux 3E range.

Desktop activities such as reading and writing require direct illumination of the horizontal plane, and for this purpose individual task lights are provided. Because of their proximity to VDU screens these cannot be point sources which could introduce an element of glare. Instead, larger light sources usually employing compact fluorescent lamps are used in conjunction with mirror reflectors and louvres which confine light to the horizontal working plane. These fittings are normally individually switched and often controllable for brightness as well, thus giving a customised work environment.

Within this framework **Waldmann** (Hall 9, first floor, Stand C15), for instance, has produced the 2-K indirect/direct system. Here the indirect element is provided by uplighters which are essentially seen as being part of the office furniture. Uplighters are mounted on dividing screens or on the edge of desks and hence follow the pattern of the office layout. They may also be built into the tops of cupboards and other storage units, where they require an overall depth of about 100mm.

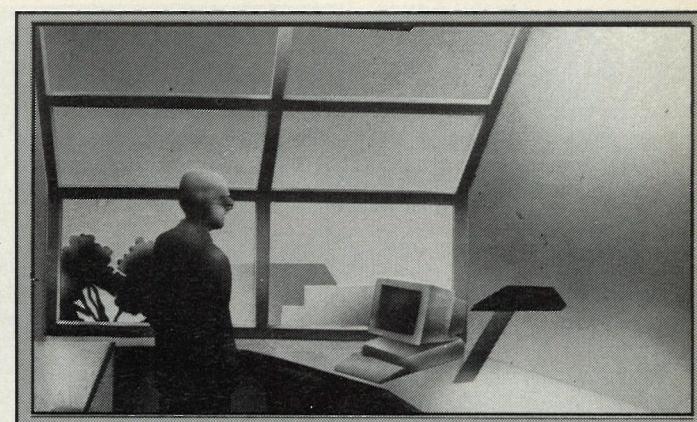
The uplighters, in extruded aluminium section, are finished in white. Switches are incorporated into the head of the fittings. Task lights are constructed of impact resistant plastic and come with parabolic mirror louvres which eliminate reflections on the VDU screen. All adjustable task lights have a span of 1.4m and so can easily be fixed on any table top while directing light just where it is required.

The 3-E office lighting system from **Trilux** (Hall 10 Stand 413/417) also makes a distinction between ambient lighting for circulation areas and perimeters of

Light sources include compact fluorescents and metal halide, with or without tungsten halogen to give an instant light. A pendant ceiling mounted uplighter is also available in this range. Around the room perimeter illumination is provided by means of floor standing fittings. The direct lighting component for desk work is given by individual task lights which are provided with compact fluorescent lamps and may incorporate a g15 lamp to improve the spectral distribution and bring the quality of the light closer to daylight.

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Kinkeldy (Hall 9, First floor, Stand C7/C13) has carried out work on lighting the new smaller individual office used where the Scandinavian concept of individual offices and shared communal areas is employed. The low ceiling heights normally found in these spaces mean lighting must be carefully designed.

rooms, and individual workplace task lighting. The light source here is twin and triple compact fluorescent lamps. The fittings available include pendant luminaires for double work stations and desk mounted and floor standing luminaires for both single and double workspaces.

Ambient lighting is provided by floor standing and wall mounted luminaires. Luminaires are individually controllable, with

switches located on the lamp body. Specially designed double parabolic reflectors together with the indirect lighting component reaching the ceiling give the appropriate degree of contrast and glare is eliminated. The basis of the system is the Ectron dimmable electronic transformer which gives a higher light output, integrated brightness control and flicker-free start and operation.

Turning to luminaires the pic-



The Waldmann office lighting system uses screen mounted luminaires for ambient lighting.

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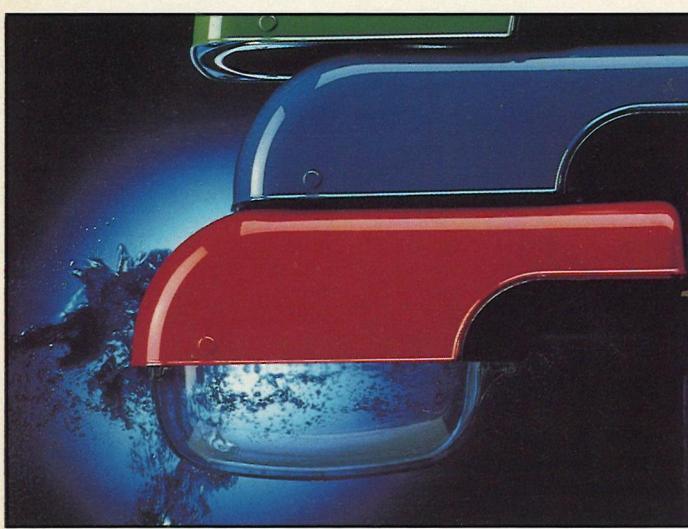
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Pilote, Thorn's new road lantern, combines optical excellence with design flair.

ture is one of making fittings available on a wider European scale. Nowhere is this more obvious than with **Thorn Lighting (Hall 20 Stand 520)** – one of Europe's market leaders in fittings – where new products from each of Thorn Lighting's European operations will be on show this year.

A new range of compact fluorescent light fittings for a wide range of applications displayed, emphasising a strong portfolio of products for the decorative and display market. The new designs use a variety of linear compact fluorescent lamp types and are not limited to 2D versions.

A fitting to create impact is Section from the Swedish design team. Reminiscent of the Art deco era, the luminaire has a stainless steel frame holding an opal acrylic diffuser and is mounted on a white painted steel body. Two profiles are available – rectangular or semi-circular. Both are designed for mounting on walls, are 325mm in height and use a single 11W lamp.

Band, from Finland, has a subtle, shallow profile. With an opal diffuser and a decorative white painted ribbed trim down its centre line, it uses two 18W or 36W lamps. The fittings are 330mm and 500mm tall for the 18W and 36W versions respectively.

Pilote a new road lantern from Thorn's French factory comes designed to give excellent optical performance.

The fitting incorporates a one-piece high purity aluminium reflector developed using computer aided design and manufacturing techniques. The precise contours of this reflector control the light in such a way as to maximise spacing, uniformity and luminance.

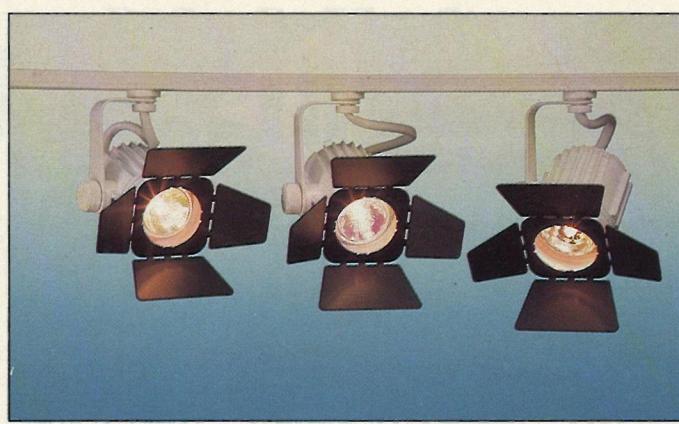
The lampholder is adjustable in both horizontal and vertical planes so that light distribution adjusted on site to suit the geometry of specific road lighting schemes.

Pilote is available in two body sizes to accommodate 50W to 400W tubular high pressure sodium lamps. The lanterns can be supplied with acrylic, or polycarbonate bowls, or toughened flat glass. The latter eliminates glare for road users hence permitting excellent spacing.

Particular attention has been paid to developing a unique seal. The lantern achieves IP65 by means of a twin latch fixing, a reinforced lip bowl and a multi-rib sealing face set into a deep channel.

The lanterns are designed with ease of installation and maintenance in mind. All control gear is accessed from above and the gear plate is removable, the bowl is hinged down to give easy access to the lamp and the latches do not need an opening tool.

Pride of place on the **Philips** stand is reserved for QL luminaires for the company's revolutionary new induction lamp. The post-top outdoor luminaire



Low voltage track and spotlights from Edison Halo.

ity are contained within a remote control box so that individual light fittings can be positioned freely and do not require power or access for relamping.

Norwegian company, **Glamox (Hall 9, Stand E33)**, is launching the new DeLight range, with up to 850 variants. It provides an attractive and economic solution that has many applications.

The range offers modern styling and comprises a wide range of luminaires and diffusers. Contractors will find its modular 'self-locating' design is simple to

install. For users it provides optimum lighting conditions with low running and maintenance costs.

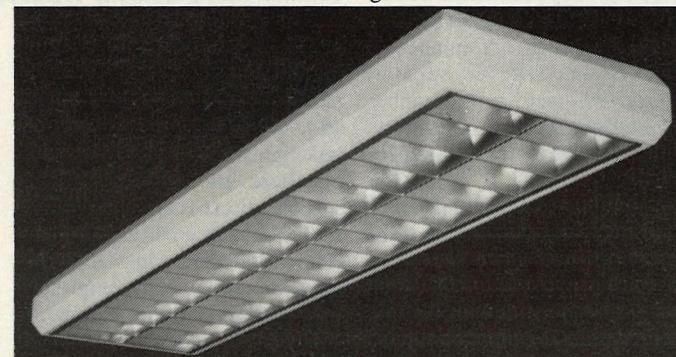
Also on display is the new SDS range of downlights, spotlights, track and components for use in museums, restaurants, shops and showrooms.

Wall washers and ceiling mounted luminaires are commonly found, but **Erco (Hall 10, Stand 200)** are attempting to start a new trend with their new floor recessed fittings. The theory behind this is that self preservation encourages us to look at the ground in front of our feet – if

only to notice that penny on the pavement – while ignoring the Picasso on the wall. Because the direction of light is unexpected, floor recessed fittings can be effective at comparatively low intensities of light. Fields of application include illumination for marking out traffic routes or entrances, and emphasising the architectural features of building.

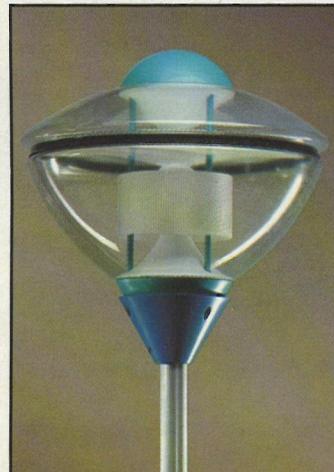
This product range comprises 50mm, 75mm, and 100mm diameter fittings. Depending on size, these are available with opalescent glass or clear glass covers with a matt ring. The former is excellent for producing accent lighting on the floor or for floor mounted signage when the lamp is switched on, the latter generates an upwards light which can be used to illuminate adjacent objects such as walls and other architectural elements.

From the same company comes a new downlight with a performance intermediate between that of conventional downlights and the larger modular fittings. Erco CL gives the freedom of layout of the former and the technical advantages of large-format modu-

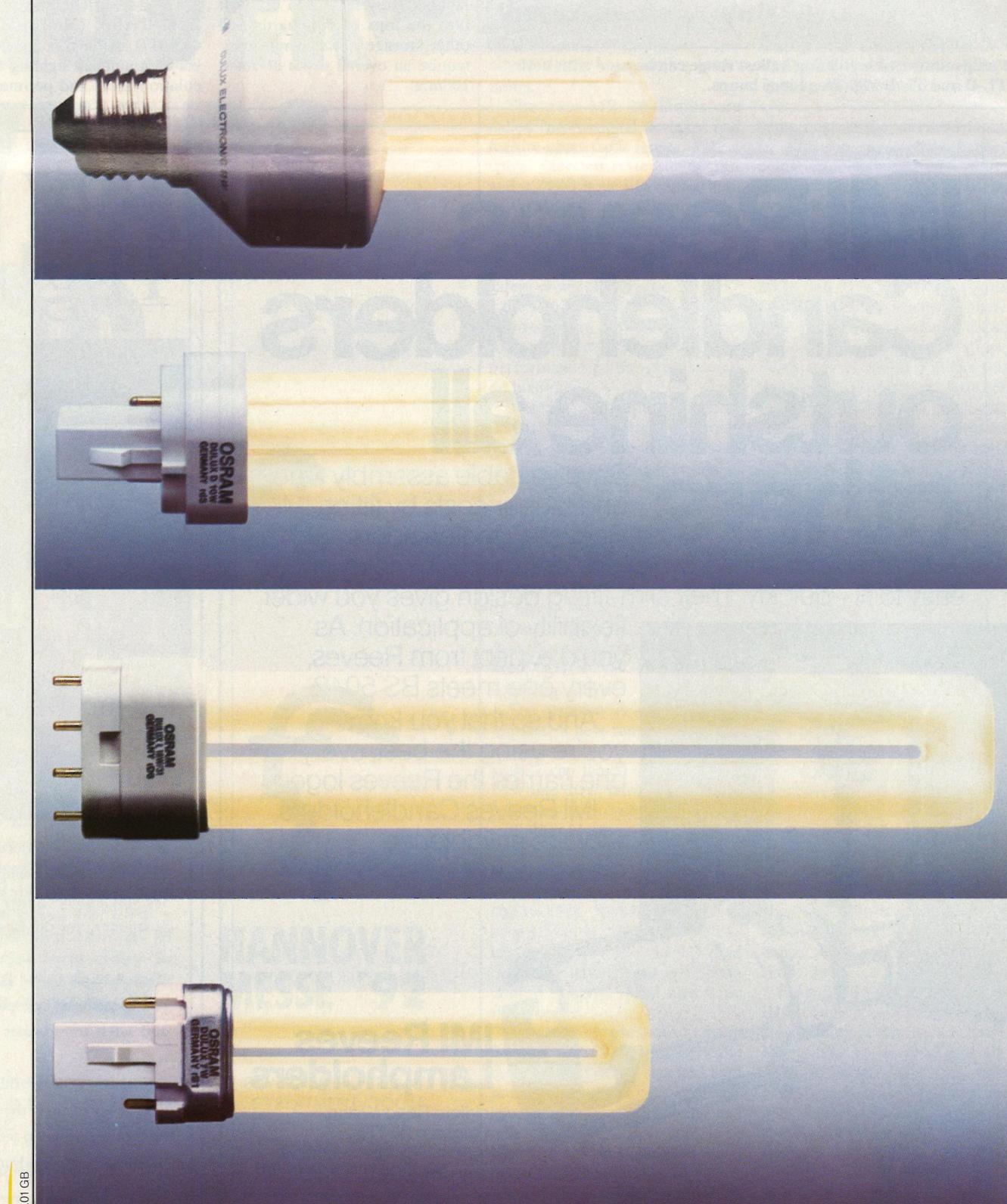


DeLight from Glamox offers a wide range of luminaires and diffusers.

## A RAY OF LIGHT ON ENERGY COSTS:



Luminaire from Philips for the electrodeless QL lamp.

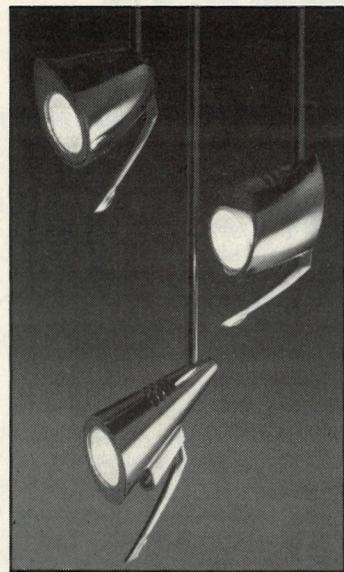


2.01 GB

lar fittings.

The luminaires range in size from those taking two 13W TC-D lamps (and thus replacing downlights for compact fluorescent lamps) to fittings equipped with up to three 24W TC-L lamps (with a similar size and performance to conventional modular fittings). These are available with low brightness reflectors, and with a choice of opalescent or structured covers for the front end of the fitting.

Dutch firm **Lumiance** (Hall 10 Stand 133/134) is showing some interesting new additions to its Primostar low voltage tungsten halogen range. Most innovative of these is Primostar Xeno, a range of three low voltage luminaires for 50W 12V dichroic lamps. The fittings are designed by Studio Naco of Paris. Although the prototypes were made from hand polished aluminium, the product is now vacuum injection moulded in a die made by stereo lithographic techniques. Rotation is through 360°, and the luminaire is suitable for accent lighting in shops, galleries, restaurants or domestic lighting. The fitting is available in



The Xeno range of low voltage luminaires from Lumiance.

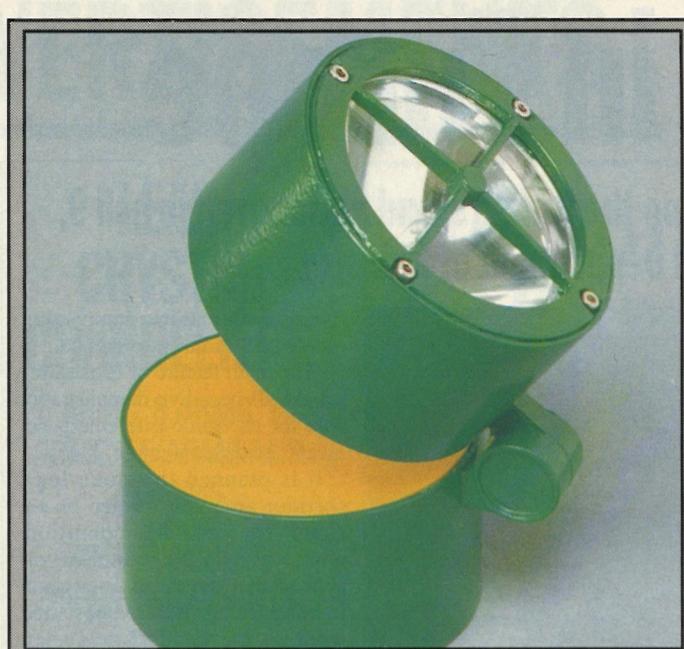
three versions – Xeno 1, 2 and 3 – and comes in three stick lengths of 125mm, 280mm and 500mm, and in a chrome finish.

Disc from the same range is a low voltage halogen spot for commercial accent lighting with a decorative spill ring. Available for two lamp types 50W 12V

dichroic and QT 12 50W 12V, the fitting comes in black or white and is available with three stick lengths – 125, 280 or 500mm. The spot comes with a white spill ring as standard; spill rings are also available in red, blue and green.

Tallo is a modern uplighter in freestanding and wall mounted versions for a QT 12 300W R7s double ended halogen lamp. The fixture is fitted with a safety glass to protect against explosive failure of the lamp and to prevent dust gathering on top of the reflector. Thus, light output is maintained and a potential fire hazard is eliminated. The luminaire is F-marked, so it can be safely mounted on 'normally flammable' surfaces like wood. It is Class 1, earthed, and is fitted with an internal fuse to protect against short circuiting that can occur at the end of lamp life. The fitting comes in black, white and matt silver.

Centre stage on the **Concord stand** (Hall 9 Stand F0/13) is the new range of control Spots, a comprehensive kit of spotlights and projectors for mains and low



The DKS halogen projector from DZ Licht (Hall 9, First floor, Stand A43), which takes a 50W 12V QT lamp is a colourful component for interior and exterior lighting (protection to IP44).

voltage operation. Distinctive fin banding and precision die-cast construction produce a strong design theme that gives the range identity.

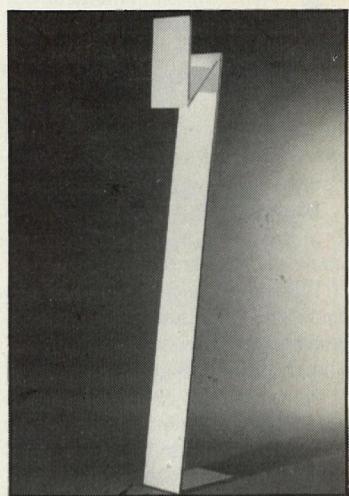
The entire range comprises low voltage spotlights, discharge spotlights, low voltage and white SON projectors, PAR and halogen DLX fittings, providing a exceptional choice of sources. The range features a new mechanical/electrical adaptor which dispenses with the need for a separate pendant adaptor and back-up wire suspension.

The low voltage tungsten halogen projector comes with a reflector and an adjustable projector arm to take various lens and filter options. The 100W white SON projector offers the alternative of a high intensity source with a warmer appearance. Specialist projector attachments include: a framing head; iris head; two different lens options (double bi-convex and plan-convex to provide alternative beam angles); and a gel holder.

Spotlights are available for low voltage tungsten halogen capsules; 70W and 150W single ended metal halide lamps; 100W white SON; PAR 30 and PAR 38 mains voltage lamps; and the

175W to 400W.

**S & K Lichtechnik** are presenting a number of bright design ideas (Hall 9, Ground Floor, Stand D7). This very design-conscious German company has produced a new recessed downlight, the SK-Futura QR-CB which pivots through just under 90° to give a spotlight. The fitting incorporates an air circulation system to aid cooling. The lamp head, the moving element in the luminaire, is triangular in shape making an



The SK Lichtvision floor standing luminaire.

interesting design feature.

Most sculptural of all the new models is the SK-Lichtvision floor standing luminaire. In form the luminaire is a simple rectangle, folded in three places to provide a base and angles in which to house both an uplighter and downlighter in a single fitting. This luminaire combines a wide range of applications with visual comfort. Both lamps are separately switchable and separately dimmable.

A range of new table lamps and spotlights for mains and low voltage are among the fittings to be shown by **Brilliant** (Hall 9, Ground Floor, Stand 36).

New low voltage table lamps add to the range of table and floor lamps which saw considerable expansion in 1991. Bal (20W)



The versatility of the Concord Control Spot range.

halogen DLX fitting with integral reflector which provides an exciting alternative to PAR lamps.

All luminaires offer 360° rotation and, except for the PAR30 and PAR38 fittings, focussing adjustments on luminaires ensure optimum performance from each lamp. A lockable stirrup with lever action ensure easy positioning. Low voltage luminaires, both projectors and spotlights have a stepped dimming facility which allows lumen output to be varied across three levels – 100%, 80% and 60%.

**Holophane** (Hall 9, Ground Floor, Stand C15) will be showing Park Lane, an exterior luminaire with a specially developed optical system comprising a cone within a cube, which is claimed to provide effective control of the lamp flux while achieving a high light output ratio and give a level of uniformity of illumination approaching those obtained in interior lighting installations.

A new range of fittings with polycarbonate enclosures designed specifically for the food industry will also be on display – the Vanguard range. These luminaires take lamps ranging from

and Coco (50W) are among the new products shown.

The Deko range of mains voltage spots has been updated. Deko is available as a single wall spot, clip on spot, two spots and three spots on a bar, as well as three spots on a plate. Also new is the Mini 50 series of spotlights for R40 lamps, which is available in black and white.

Flash Back is a new uplighter, designed by Olle Andersson, that is being shown by **Ledu** at Hanover (Hall 10, Stand 320). It is one of a range of Ledu indirect and task station lighting systems, all designed to making office work more ergonomic.

Two 55W compact fluorescent lamps give a total output of 9 400 lumens. All models have built-in electronic ballast for high frequency operation which is claimed to prolong the life of the fluorescent tube by 50%.

Flash Back comes as both wall mounted and floor standing models. The former is also available with a dimmer, which permits light intensity to be adjusted manually from 25% to 100% and can be regulated automatically by connecting to a light control sensor.

# OSRAM DULUX®

The energy-saving OSRAM DULUX® EL.

With the E27 or B22d base the OSRAM DULUX® EL fits all normal lampholders.

It has a similar warm colour appearance and the even light distribution of conventional incandescent lamps, but uses only 20% of the power and lasts eight times as long.

The integral electronic ballast of OSRAM DULUX® EL ensures instant flicker-free start, and radio interference is fully suppressed.

The energy-saving OSRAM DULUX® D.

The OSRAM DULUX® D combines the economy of a fluorescent lamp with the convenient size of an incandescent lamp.

Yet it is one third the width of incandescents, has eight times the lamp life and uses 80% less power.

Single based with an integral starter, it generates less heat and is ideal for downlighters.

Four-pin base versions are also available for use with HF electronic control gear for emergency lighting and dimming operation: OSRAM DULUX® D/E.

The compact fluorescent OSRAM DULUX® L.

The same lumen package as conventional fluorescent lamps of equal wattage, but approximately two thirds shorter in length – that is the OSRAM DULUX® L.

This compactness gives architects, lighting designers and planners more space to design with light.

OSRAM DULUX® L is available in colour appearances: 21 LUMILUX Cool White; 26 LUMILUX White; 31 LUMILUX Warm White and 41 LUMILUX INTERNA with very good colour rendering and in three DE LUXE colours.

With a single 4-pin base, the OSRAM DULUX L is suitable for conventional as well as electronic HF ballasts.

The energy-saving OSRAM DULUX® S.

This uses 80% less power than an equivalent incandescent lamp and has an average life of 8000 hours.

The OSRAM DULUX® S single based lamp with integral starter is easily installed. Suitable ballasts are readily available.

Four-pin base versions are also available for use with HF electronic control gear for emergency lighting and dimming operation: OSRAM DULUX® S/E.

OSRAM DULUX® EL

7 W	= 400 lm	= 40 W
11 W	= 600 lm	= 60 W
15 W	= 900 lm	= 75 W
20 W	= 1200 lm	= 100 W

OSRAM DULUX® D

10 W	= 600 lm	= 60 W
13 W	= 900 lm	= 75 W
18 W	= 1200 lm	= 100 W
26 W	= 1800 lm	= 2 x 75 W

OSRAM DULUX® L

18 W	= 1200 lm
24 W	= 1800 lm
36 W	= 2900 lm
40 W	= 3500 lm
55 W	= 4800 lm

OSRAM DULUX® S

5 W	= 250 lm	= 25 W
7 W	= 400 lm	= 40 W
9 W	= 600 lm	= 60 W
11 W	= 900 lm	= 75 W

TECHNOLOGY  
BROUGHT TO LIGHT

OSRAM

# Britain in Europe

An overview of products on the British stand at Hanover, in hall 9, sponsored by the LIF and Department of Industry.

The Lighting Industry Federation has again organised a joint stand to enable additional British manufacturers to show their products at the Hanover Fair.

Fifteen companies have taken advantage of this, including two making their first appearance at the Hanover Fair: Existalite and Creed Light Engineering Co.

Illuma plans a major advance into Europe in 1992 and will show many new products.

Electrospot is a 12V cylindrical spotlight with integral electronic transformer. Barndoors and colour filter attachments are available.

A range of compact, 12V, downlights in open, eyeball, gimbal and baffle-fitted designs have connector boxes that snap shut forming a cable clamp. A quick-release lampholder housing makes re-lamping easy. There is also a finned, diecast heat sink.

Europot is a range of high tech 12V and 230V spotlights with various reflector attachments and filters.

Highspot spotlights use either 70W or 150W linear metal halide lamps and have integral control gear, plus ultra-violet safety glasses. Attachments include barndoors. Single-ended lamps or White SON high pressure sodium lamps can also be accommodated.

A high efficiency, economy downlight called White SON Multiplier is complete with quick fixing springs and is pre-wired to



Electrospot by Illuma.

a terminal block with remote control gear.

Menvier (Electronic Engineers) will be showing its innovations in emergency lighting — Fibrelite and the 2D, wall mounted Trilite.

Fibrelite is for prestigious applications where the emergency lighting should be unobtrusive. The system provides illumination from fibre optic lenses. Varying their spacing and input power gives minimum lighting levels from 0.2 to 1 lux.

A series of fibre optic cables is linked to two tungsten halogen light projectors connected to an emergency lighting power supply. Light generated by one of the projectors passes along the cables which are typically terminated at points located in the ceiling.

Fibrelite provides up to three hours' light and is stated to be suitable for areas which are sensi-

tive to both extreme temperature ranges and radio interference.

The main feature of Existalite's stand will be a live demonstration area for its Guide-Lite emergency escape guidance lighting system.

It is planned to smoke-log a corridor area constructed on the stand to simulate conditions where it can be conclusively proved that overhead emergency lighting fittings become obscured, whereas the Guide-Lite system will act as an aid to evacuation.

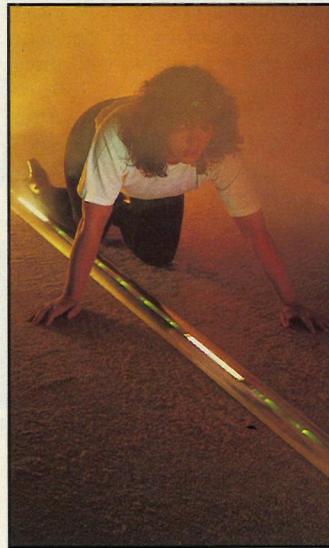
Anglepoise Lighting will exhibit both task and ambient lighting.

Energy saving task lights using compact fluorescent lamps suit modern working environments.

The Quad range of uplights complements the task lights. There are free standing, wall mounted, ceiling, partition mounted and filing cabinet mounted models. Emergency lighting facilities can be incorporated in certain models. There is a choice of light sources for use with the Quad range.

Axis Lighting will launch the Thomas System. This is a low voltage rail lighting system consisting of nickel plated brass rods onto which diecast, brass, miniature spotlights can be clipped. The rails are suspended from the ceiling by rods.

The "no wires, no track" 12V Shelf Light system has been enhanced. It already includes conductive tape, wall brackets for



A demonstration of Existalite's Guide-Lite.

glass shelves and transformers. Now, there is a clamp-on version of the spotlights making them particularly suitable for vertical panels or open display shelves.

The second introduction is a 5mm wide conductive tape with a 5A capacity, which accepts either three 20W or six 12W dichroic lamps.

Chalmit will display its new range of IP66 floodlights, manufactured from marine grade stainless steel, for use in hostile environments. The range accepts either 300W-1500W tungsten halogen or 70W-400W high pressure sodium lamps.

Shown for the first time also will be a Copper Lamp range of Victorian and period street lanterns. These are available in round, square or six-sided formats and are complemented by cast iron posts and brackets.

There will be two new IP65 Davis street lanterns and a sample of the company's hazardous area range of floodlights.

Crompton Lighting will be releasing a number of new products for worldwide sale.

The Egress range is a shallow-bodied collection of emergency exit luminaires with a choice of finishes and legends, specifically designed for hotels, hospitals and prestige areas. New style Modulite provides a fully recessed range of emergency lights.

This will be the first opportunity to see a range of injection moulded floodlights for low to medium wattage high pressure sodium and mercury lamps.

Crompton will be showing new, clear lacquer colours for the 45mm round and Pygmy sign lamps.

Orbik Electronics will exhibit a range of miniaturised emergency lighting control gear available in either open PCB or canned versions. This range is available for switchstart operations up to 28W and offers space saving features as well as being cost effective due to a minimum number of cells being required, ie. four 4Ah for 18W, 20W and 28W three-hour versions.

A full range of conversion modules from 18W to 125W are approved to IEC 924/IEC 925. Orbik's low voltage electronic transformers from 50VA to 250VA units are now approved to

IEC1046.

Emergency lighting remote boxes for tungsten halogen systems offer space savings and reduced costs. They are available for either one or three hour systems up to 75W.

On display will be a preview of a range of high frequency electronic ballasts for fluorescent lamps from 18W-75W. Single and multilamp versions will be seen.

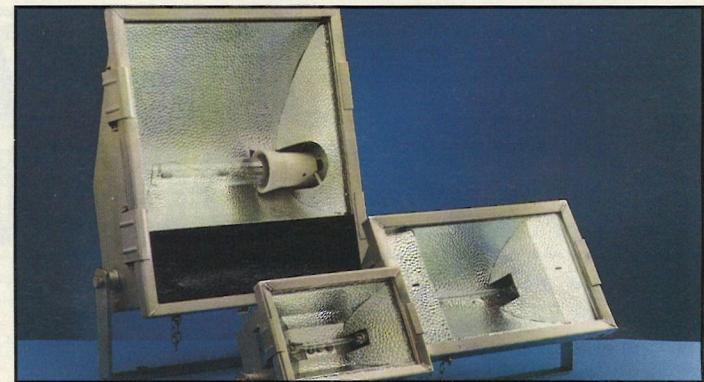
Conventional low voltage transformers (open or boxed) will be exhibited from 20W up to 750W and can be built to individual customer specification.

Thorlux Lighting will exhibit industrial and commercial lighting, which includes high and low bay fittings, floodlights, bulkheads, emergency, type "N" and fluorescent luminaires.

New products on display will be a square-headed floodlight for use with discharge lamps up to 400W with integral control gear, and a range of small bulkhead fittings for emergency use.

Of interest also will be examples of the Alterlux recessed modular luminaires for VDT areas with suspended ceilings.

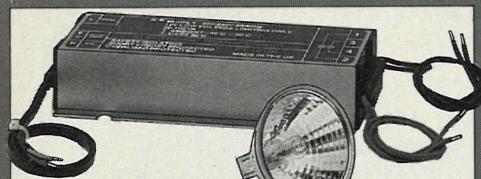
An updated version of the Compact 3 low bay fitting and a Zone 1 (Exd) flameproof fluorescent luminaire will be shown.



Stainless steel floodlights by Chalmit.

# RAM

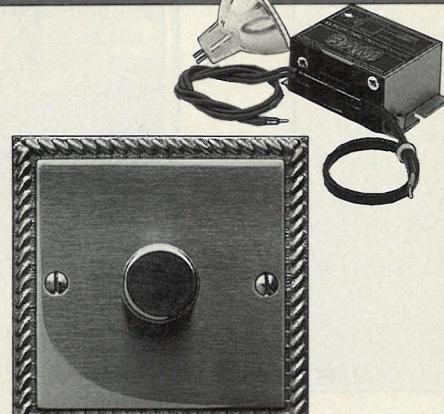
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If you're interested and have the necessary skills and commitment to make a positive contribution to the continuing success of the company, please contact Brenda Jones for further details and an application form at THORN Lighting Limited, 14-16 Emmanuel Court, Reddick, Sutton Coldfield, West Midlands, B73 6AS, Telephone No: 021 355 8000 Fax No: 021 355 8492

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## OPPORTUNITIES WITH THORN LIGHTING LIMITED AT THE SPENNYMOOR LIGHTING TECHNOLOGY CENTRE.

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Product Groups are divided into three areas Street and Floodlighting, Industrial Luminaires and Modular Luminaires. Opportunities exist for both Group Engineers and Design Engineers to be assigned to one of these areas. Product responsibility will be for design and development, bills of materials, compliance procedures and technical support to production, marketing and sales. Ideally you will be educated to Degree/HND level in Electrical or Mechanical Engineering with 5 years plus experience designing product using one or more of the following processes:— casting, moulding or extrusion. CAD/CAM experience is a distinct advantage.

#### LIGHTING SOFTWARE ENGINEERS

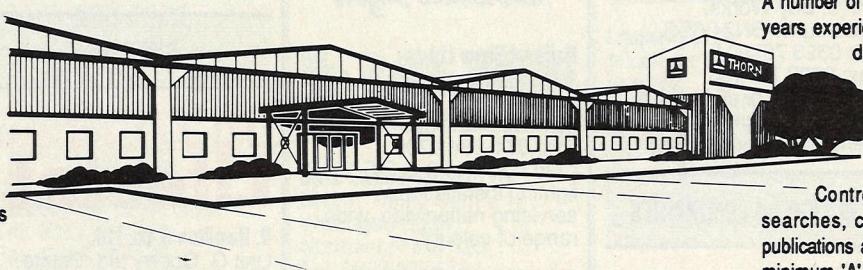
Graduates in a Maths or Science related discipline are required to help in the development of lighting design and photometric data processing software. Programming experience is necessary although training may be given if required. A willingness to be thoroughly involved in the departments activities and needs is essential.

#### LIGHTING DEVELOPMENT ENGINEERS

As part of a development team you would devise new techniques to ensure Product Design specification compliance within time and cost restraints. A Graduate/HND Engineer in Mechanical or Electrical Engineering you will need to be innovative, self motivated and a team player.

**Excellent salary packages are offered including re-location assistance to a pleasant rural area very close to the historic City of Durham.**

**To find out more about these opportunities please contact Harry Chalmers of P.E.S. Associates Ltd. Management Consultants. P.O.Box 1HE, Earl Grey House, Grey Street, Newcastle upon Tyne, NE99 1HE. Telephone: (091) 261 5135. Fax: (091) 261 2432. Quoting the appropriate job title.**



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A Graduate/HND Engineer with good communication and engineering skills coupled with Electrical Product Testing experience. Duties will include product testing, verification of test results, compilation of test reports, product approval submissions and liaison with approvals authorities.

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#### ELECTRONICS TEST ENGINEERS

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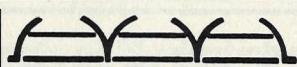
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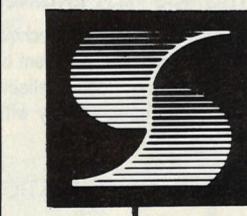


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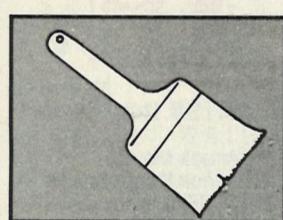
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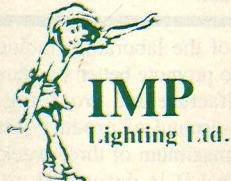
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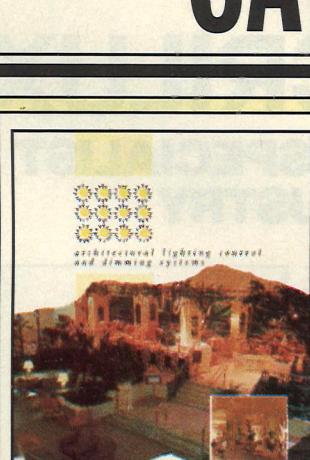
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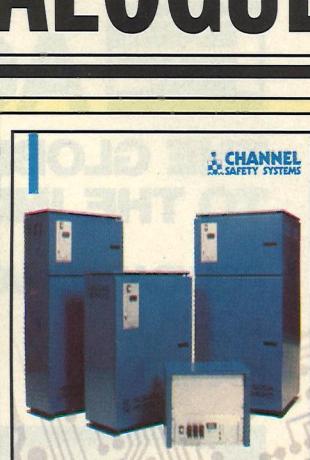
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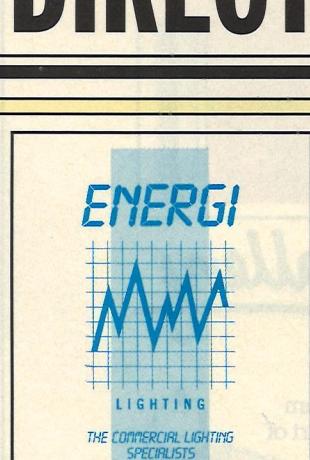
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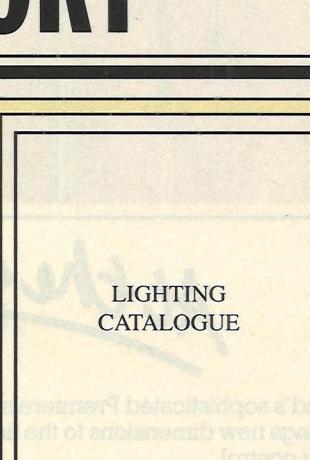
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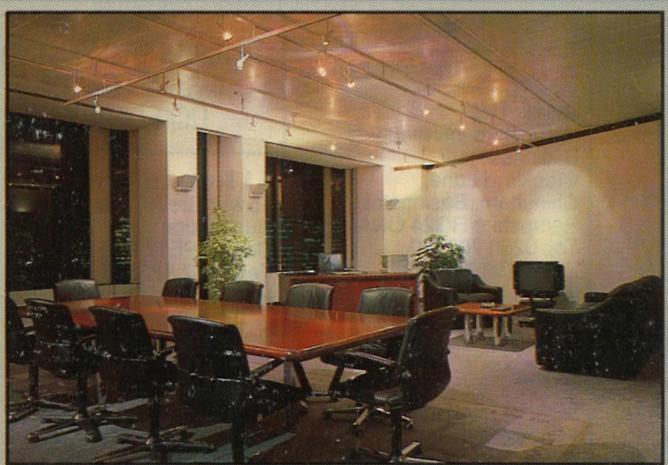
The new generation 'Series 90 DC Emergency Lighting Central Battery Systems' from Channel Safety Systems incorporate the latest microprocessor control technology, constantly monitoring the status of battery and charger circuitry. Available in the range 24v to 110v from 100W to 28kW as standard: circle 91



Energi Lighting is a specialist lighting design import and distribution company, distributing to all types of lighting users including wholesalers, architects, hotels and contractors. The core range of products handled includes interior low voltage, low energy and HQI fittings, exterior HQI and Sodium Flood fittings, and a large range of decorative interior fittings: circle 92



**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: William Langdon on 081-975 9759: circle 93



The main trading headquarters for Sony Financial Services (Europe) have just been established in the City of London. Commanding a spectacular view of St Paul's and the City, the offices comprise dealer rooms, the managing director's office and a conference suite.

Concord's Infinite was specified for the managing director's office. The white low voltage track is used in a double tier open grid with 20W capsule and 50W dichroic spotlights. Ambient light is provided by wall mounted uplighters from Concord's MIL range.

## LV wins at Lightshow

A low voltage lightbar system from Osram won the Lightshow award for the best modern design at the exhibition.

Halostar Combi consists of a shallow bar with either two or three, recessed, adjustable, tungsten halogen spotlights, using M47 capsule lamps in separate reflectors. The bar also houses a transformer.

In either hard-wired or plug-in

versions, for ceiling or furniture mounting, the system has potential uses in both domestic and commercial applications. Up to 15 units slide into each other end-to-end to form a continuous lighting system.

The Pegasus award for best traditional design was won by Jeremy and Company for a handmade, lined silk lampshade.

### LIGS news

Twenty-five members of the Lighting Industry Golf Society attended its AGM and dinner on 4 February, when the outgoing captain, Barry Ship of AEG, presented his 1991 annual report.

He also presented the captain's trophy for 1991, for the best average Stapleford score, to Barry Glazer of Bernlite. Bruce Watts

presented a trophy to Mark Bailey for the most Birdies.

The next meeting will be on 30 April at Denham Golf Club, followed by a meeting on 2 June at Moor Park Golf Club.

Honorary Secretary, Tony Smith, thanked LIGS sponsors, *Lighting Equipment News* for their continuing support, and all those who presented prizes, with special thanks to David Proctor.

## CIBSE against lowest cost tendering

CIBSE has written to the Department of the Environment expressing concern about proposals in the consultative paper *Competing for quality* which was published in November 1991.

The paper proposes extension of the legislation requiring compulsory competitive tendering to create competition in the public as well as the private sector. Although CIBSE supports accountability in the public sector

it is concerned that economics will take precedence over quality of design. It believes that establishment of a quality threshold is essential since comparison based on price alone could lead to poor performance arising from confrontation within the construction team, extra costs and even possible failures.

The Institution is not convinced that the double envelope system for comparing tenders is the answer because this method does not give sufficient weight to the service provided by the professional team.

## New lab for LA

The Lighting Association is setting up its own test laboratory in the Midlands. As well as product testing, it will provide assistance in the development of new luminaires, and general technical support.

Services offered will include testing to the association's own code of practice and to British and European standards.

Aims of the laboratory include helping to promote better standards of manufacture and providing a fast turn-around of product samples – a maximum of three weeks.

Whilst it is described as a cost effective technical service for members, the laboratory's facilities will also be available to non-members. LA member companies, however, will pay reduced rates.

## STRAND SCAPES

No. 3



### At the gallery

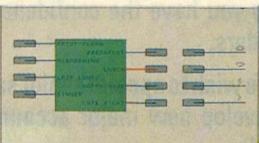
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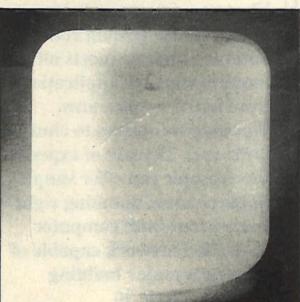
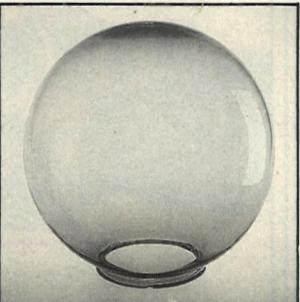
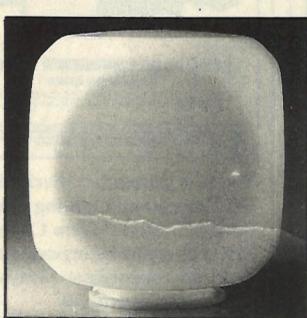
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