

# LIGHTING EQUIPMENT NEWS

FEBRUARY 1992

## In brief...

● The Definitive Laser Company provided a laser display as part of the entertainment at the Dubai '91 Air Show Dinner. The dinner was given by Sheikh Ahmed bin Saeed Al Maktoum, president of the Civil Aviation Department and Chairman of Emirates Airline.

● Hoffmeister Lighting and W F Electrical Distributors have signed a national distribution agreement. The Hoffmeister range of interior and exterior luminaires will be supplied direct from Germany to the W F network of 50 branches.

● Alpa Lighting has been awarded a contract for the supply of luminaires for Ogilvy & Mather's new offices at Canary Wharf.

● Crescent Lighting's bollard-style luminaires from the Scherma range have been chosen for the main access walkway at Emmanuel College, in Gateshead. The strategic placing of the 18W compact fluorescent lamps also serves as a deterrent against 'ram raid' vehicles.

● Simplex Lighting has supplied specially designed air handling lighting to CIBSE Lighting Guide 3, Category 2, for Spring Gardens, a prestige office complex by the Albert Embankment in London.

● The UK, together with 10 other countries and the EC, has agreed to collaborate on research into technologies to mitigate greenhouse gas emissions resulting from the use of fossil fuels. The first task is the removal and disposal of carbon monoxide produced in power generation.

● Strategic Events has been appointed UK sales agent for ElectroTech '92, the international electrical and electronics exhibition to be held at the NEC in July 1992.

● Briticent International has been purchased by Otra, an Amsterdam-based wholesaler, in a deal worth over £23 million. Otra has branches throughout Europe and also in Canada and Russia.

● Glamox Electric has won a £200 000 contract for an air handling, continuous lighting system for the Thurrock Civic Centre in Grays, Essex.

● Staff Lighting is setting up a national network of specialist lighting companies to augment its team of sales engineers.

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## Designed for champions

The National Indoor Arena at Birmingham has been completed at a cost of £51m. Boasting top class facilities, including what is claimed to be the world's fastest six-lane indoor running track, the Arena has a maximum capacity of 13 000 and can cater for all sporting and entertainment events – including the staging of Verdi's opera, Aida.

Some 254 2kW Metaline floodlights with metal halide lamps from Thorn Lighting provide a floodlighting scheme to world class standards.

The floodlights are controlled by a special computer programme which can be operated from a central control room or from four other positions in the arena. The installation is designed so that 184 fittings provide the general illumination for athletics, while a further 70 provide localised lighting for specific sports such as ice hockey, badminton or table tennis.

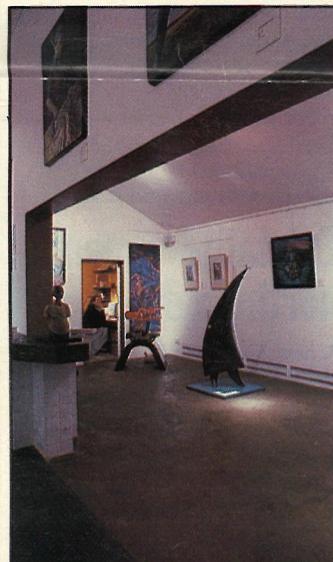
The floodlighting is switched to



give three levels. Full lighting achieves 1400 lux, giving excellent colour TV coverage. This can

then be switched to two-thirds (900 lux) and one-third (500 lux) depending on the type and level of activity taking place. This has the added advantage of optimising energy efficiency.

## Light at your convenience



The Splinter Gallery in Ravenscourt Park, West London, has been transformed by designer Katherine Mann from the gutted shell of 1960s public conveniences. She has maximised the smallish floor area, creating storage areas behind the walls, and provided a cool yet stylish space for the collection of modern paintings, sculpture and furniture. Walls are white, with colour accents on the faces of the arches, the floor is simply polished concrete.

Concord's Coolspot was chosen to light the gallery. The low voltage spots are suspended from Concord Lytespan track and, because of twin axial movement, they can be aimed quickly and readjusted when exhibits change.

Proprietor Robert Gerrish reports, just a month after the opening, that attendance and support, and most importantly, sales have been most encouraging.

## Illuminating Manchester

The National Lighting Conference, to be held from 5 to 8 April, will be one of the first events at the purpose built Manchester Conference Centre on the campus of the University of Manchester Institute of Science and Technology.

It will open with an international session comparing service and maintained illuminance, and review European harmonisation and common standards.

A new feature of the conference will be a session of workshops which will examine visualisation, scheme appraisal techniques and modern luminaire design.

The social programme includes a talk on the architecture of Manchester and a visit to the Manchester Museum of Science and Industry.

For full details contact the Member Services Department at CIBSE, 081-675 5211.

## Whitecroft profit down

The Whitecroft Group have announced that profit before taxation for the half-year ended 30 September was £2.23 million and earnings per share were 3.25p, substantially lower than for the same period in the previous year.

Trading conditions remained poor with no signs of an early improvement in demand.

Bright spot in the lighting business were the 1991 acquisitions, Industria in the Netherlands and Hitech in the UK, which improved the division's total turnover. Substantial cost reductions had been made but profits were likely to continue to be low until construction activity increased.

## Preparing for 1992

'Designing electromagnetic compatibility into your product' is the theme of an ERA Technology European conference and exhibition to be held from 12-13 February at the Heathrow Penta Hotel.

The conference will examine the current position on the European EMC Directive. Speakers from Directorate General III of the Commission of the European Communities, the DTI and the EMCIT Agreement Group (European Testing of Electromagnetic Compatibility of Information Technology Products), will help delegates to assess the impact which the changes will have on product design.

The second day is devoted to the practical aspects of achieving electromagnetic compatibility: test methods and facilities; performance testing and modelling;

and the design and installation of products and systems.

BEAMA is organising a 1-day seminar on 'Mutual acceptance of electrotechnical products within Europe' at the Conference Forum at the Sedgwick Centre, Aldgate, London E1 on 18 February.

The seminar is aimed at those interested in free trade in this sector: designers, manufacturers, purchasers, importers, exporters, testers, certifiers and regulators.

Topics to be covered include the use of the CE mark, the UK viewpoint and the European Sectoral Committee (ELSECOM). Speakers include representatives from DG III, the DTI and the Technology Division of BEAMA.

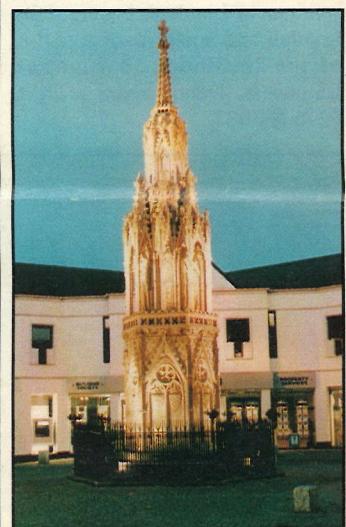
Full details of these events are available from ERA on 0372 374151 ext. 2290, and BEAMA on 071-872 6239 respectively.

## Seeing history in a new light

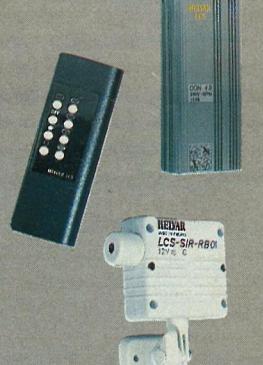
Eleanor Cross, an ancient monument and Grade 1 listed building, was erected by King Edward I in memory of his queen; it was constructed at Waltham Cross to mark an overnight stop of her funeral cortège on its way from Lincoln to London. To mark the 700th anniversary of this occasion Hertfordshire County Council restored the monument and installed a floodlighting system.

As nothing can be attached to the monument, locating the floodlights presented a problem. Other considerations included minimising glare and making the fixtures as inconspicuous as possible.

The solution, provided by LDMS Lighting, was to illuminate the lower parts of the monument from ground level using 70W metal halide Sill 490 series floodlights with wide angle beam distributions located within the protective railings. To highlight



the statue and floodlight the upper parts of the cross two small units with narrow beam 150W metal halide projectors were mounted on purpose made ladder bars attached to 5m columns. Metal halide lamps enhance the white masonry and allow the monument to stand out against a background of buildings lit mainly by high pressure sodium.



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# DIARY

## FEBRUARY

5

**Lighting of conference and teaching spaces.** Evening meeting in Wilmslow held by CIBSE north west region. Details from L Daniels, 061-248 7272.

6-7

**Energy efficient lighting.** Two-day course organised by the Institute of Environmental Engineering, South Bank Polytechnic, London. Details from the director, 071-928 8989.

10

**Emergency lighting design and practice.** One-day seminar in London arranged by the Mid Career College. Details from 0223 880016.

11

**Developments in emergency lighting to satisfy new European standards.** An evening meeting in Brentwood held by CIBSE London and south east region. Details from Andrew Wincott, 071-387 9671.

12

**Lighting basics 1: Light, sight and colour.** One-day seminar in London held by Mid Career College. Details from 0223 880016.

**Road lighting:** An afternoon seminar in London. Arranged by London and south eastern region of the Institution of Lighting Engineers. Details from S Lain, 0276 683082.

18

**Street lighting techniques and engineering solutions.** Evening meeting in London organised by the CIBSE Lighting Division. Details from member services department, 081-675 5211.

19

**Influence of lighting on forms and interiors of buildings.** Evening meeting in Birmingham arranged jointly by CIBSE West Midlands region and the ILE. Details from A J Singleton, 021-706 5511.

20

**Building regulations and energy conservation.** Evening meeting held by CIBSE north west region (Preston centre). Details from D W Green, 0772 59383.

**Energy conservation techniques using BMS and other tools.** Evening meeting in Kettering organised by CIBSE East Midlands region. Details from J G Bettison, 0629 580000.

**Site layout for daylight and sunlight.** One-day seminar held by Humberside Polytechnic School of Architecture, Hull. Details from Cherine Lindsey, 0482 440550.

21

**Colour in architecture.** One-day seminar at the Humberside Polytechnic School of Architecture, Hull. Details from Cherine Lindsey, 0482 440550.

25

**Dynamic lighting control in the music and entertainment markets.** Evening meeting at Dartford arranged by the Lighting Forum. Details from 071-631 1510.

# NEWS

## Thorn Lighting plans expansion

Thorn Lighting's profit before tax in the six months to 30 September 1991 was £6.1 million compared with a £1.2 million loss for the same period in the previous year.

Contributory factors to this improvement are stated to be the disposal of the loss-making lamp business and increased efficiency.

Thorn continues to be the UK market leader in luminaires. Seventy per cent of its business is outside the UK, with operations in 21 countries. Its strategy is growth on the present base and it

sees Eastern Europe and the Pacific area as particular regions for expansion.

Although the directors expect trading conditions to remain tough, they view the future with confidence. A new technology centre will be opened at Spennymoor in late April and, as part of its European strategy, a computer aided design facility is being installed in which computers will "talk to each other" across national boundaries.

In the meantime, a new catalogue includes 50 new product ranges.

### Daylight and colour seminars

Two seminars are being held in February by the School of Architecture at Humberside Polytechnic, Hull.

*Site layout for daylight and sunlight* is the title of the event on 20 February. It will cover in detail the newly updated guide on daylight and sunlight, with the author, Dr Paul Littlefair of BRE, taking a prominent part.

This seminar will be of critical interest to planners, architects and lighting specialists.

*Colour in architecture* is the subject of the seminar on 21

February. This will be of interest to architects and other building professionals.

More information is available from Cherine Lindsey, School of Architecture, 0482 440550.

### One-day lighting exhibitions

Gateshead international stadium is the venue for the first of the 1992 one-day exhibitions of lighting and associated equipment arranged by the Institution of Lighting Engineers. It will take place on 2 April.

Other ILE exhibitions will be held on 4 June at Sandown Park Exhibition Centre, Surrey, and 28 October at Stoneleigh Exhibition Centre, Warwick.

For further information contact the ILE, 9 Lawford Road, Rugby CV21 2DZ (tel 0788 576492).

### Existalite expands northwards

A new northern office and showroom for its emergency lighting has been opened by Existalite at 559 Chester Road, Manchester M16 0QW.

Jim Condron, director, is heading the operation, with Richard Avery as regional manager.

### Euroluce in April

Euroluce international lighting exhibition will be held from 10-15 April in Milan.

Italian design will be well represented among the domestic and commercial lighting from a variety of countries.

Further details are available from the organisers COSMIT, Corso Magenta 96, Milan 20123, Italy.

### Daylight planning

With attention to site layout planning, designers can provide good daylight and sunlight within buildings, retain daylight in existing buildings nearby, protect daylight available to adjoining development land and achieve sunlighing of gardens and amenity areas.

Guidance on achieving these aims is given in the new Building Research Establishment report, *Site layout planning for daylight and sunlight: a guide to good practice* by P J Littlefair.

Copies are available price £35, from the BRE Bookshop, Building Research Establishment, Garston, Watford WD2 7JR.

# CIBSE



The Chartered Institution of Building Services Engineers

## How green is your lighting?

Every CIBSE lighting publication, from the *Code for Interior Lighting* through the comprehensive range of Lighting Guides, offers guidance on the selection of the most suitable equipment for the particular application under consideration, in addition to the usual authoritative advice on best practice in lighting design.

Only rarely, perhaps, do we look beyond the standard design parameters to consider product selection on the basis of the materials used in their manufacture. If we do, what more natural in these "green" times, than to ask what it is that guides lighting manufacturers in their materials selection for lamps, luminaires, etc, and do they have regard for really long-term continuity of supply?

Brock Hoaran, of Thorn Lighting, spoke on this subject at the annual National Illumination Committee of GB seminar recently. The following is a summary of his thought-provoking discourse.

He said that lighting manufacturers could make recycling or energy recovery unnecessarily difficult.

A great deal of activity had occurred in the last 10-20 years in developing energy efficient light sources to overcome the inefficient GLS lamp in which only 6% of the input energy was converted into useful light. Expensive phosphors were developed for the compact sources, but the gains in efficiency balanced the equation even though the phosphors cost over 20 times more than the old halophosphate types.

Today, most lighting companies were looking at recovery systems for their lamps as well as "greener" production methods. In the UK solvent coating for inside fluorescent tubes was still the main method, but it was only a matter of time before water coating and other non-solvent systems such as electrostatic became the norm as in Europe and the USA.

The trend towards plastics in luminaires, Mr Hoaran said, was just as apparent as in the motor industry, which had always been at the forefront of change. The plastics ranged from thermoset, which could not be remelted for reuse, to thermoplastics that could, but might have suffered from degradation.

At present there was very limited recycling of the plastic parts, although aluminium and steel were recovered up to a point. Landfill seemed to be the disposal route, even though it was expensive and undesirable.

Problems with recycling plastics included separation, collection, quantity, quality, identification and applications for degraded material. Degradation was not such a problem in production as the primary scrap was easily collected and recycled successfully. Indications were that most scrap came from the metals, i.e. about 10% by weight, and therefore plastics processing was "greener".

The question of biodegradability versus plastic stability was raised from time to time. Today it was generally agreed that biodegradability was undesirable for engineering plastics because such materials could not be recycled. In addition, their breakdown in the atmosphere or in landfills was not predictable, as it depended on factors such as light, heat, moisture and depth of burial.

The lighting industry, Mr Hoaran said, should be considering post consumer scrap and should be working closely with suppliers and all involved in the product cycle. In addition, it should be designing with recycling in mind and anticipating any legislation. As yet the full implications of "green" marketing in lighting products had not been exploited.

Karl Pike, secretary, Lighting Division.

Lighting Equipment News, February 1992

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## Banking on uplighting

The Royal Bank of Scotland's building in Edinburgh's St Andrews Square dates back to 1772, when it was originally built as a private dwelling. The hall with its magnificent dome, pierced with tiny star shaped windows, was built in 1858 and is now used as the banking hall.

Restoration work, started in 1989, is intended to restore the hall to its former glory, in particular by reproducing the original

colour scheme.

Lighting the hall presented a number of challenges. The dome – the central feature of the space – had to be evenly and uniformly lit while general lighting levels at working planes had to be improved to achieve the recommended standards.

Eight powerful 250W Thorn metal halide floodlights are mounted two per corner behind special decorative mouldings. The

floods are fitted with reflectors which disperse the light evenly and allow it to gently 'run back' over the curvature and height of the ceiling. 'Hot spots' and glare at low level have been avoided and the excellent colour rendering of the light source displays the colour scheme perfectly.

Sufficient illumination has been provided for normal banking operations, leaving the hall free of floor-standing localised lighting.

## People in brief...

• Steve Ottewell has been promoted retail market manager at Osram.

• Hugh Nottton has become sales manager at Profile Lighting Services.

• Michael Chuter is now managing director of Luff Light and Sound. Richard Harris, previously with Strand Lighting, is also on the board and has responsibility for sales and marketing.

• Melanie Reavill has been appointed customer services manager at Osram.

• Amanda Miller has joined Glow Ball Lighting from GE Tungsram to run the lamp division.

• Michael Buck, director of Southgate College, London, has been elected chairman of council of the IEEIE.

• Michael Hawkes has become sales and marketing director of D W Windsor.

• John Nunnerley has been promoted managing director of Francis Searchlights.

• George Renshaw, formerly with Ottermill, has been appointed general manager at Geiss.

• Ralph Melhuish, chairman of Ottermill, has been elected president of the Electrical Installation Equipment Manufacturers' Association.

## Safe handling of loads

The Health and Safety Commission has published draft regulations and guidance on the manual handling of loads.

In a consultative document, the Commission reports that over a quarter of all accidents reported to the HSE and local authorities are associated with manual handling. These occur in all industries and services – not only those traditionally associated with heavy work.

The proposed regulations would implement the EC Directive on the subject, which Britain played a leading part in negotiating.

## Philips Lecture

The fourth Philips Lecture was given by David Loe, director of The International Philips Centre for Lighting Education and Research, at University College, London. His subject was the appearance of lighting.

Illustrating the dramatic role lighting can play in display and leisure, he broadened the concept into more everyday installations by suggesting a new framework for all lighting design.

His lecture considered six lighting parameters – amenity, function, architectural image, costs, energy efficiency and maintenance. He examined the first three in more detail, believing they influenced the second three.

Mr Loe said that if design was influenced by cost alone, the result would fall short of the ideal lighting solution.

Lighting, he concluded, was about people and their needs. In the total cost of building and operating an office, 85 per cent is spent on the salaries of the occupants. The remainder was split between capital and running costs. Any economy in capital costs which affected the performance and wellbeing of the occupants is likely to be a false economy.

## Lighting show at Electrotech

At Electrotech '92, from 20-24 July, apart from two well-established international exhibitions – Electrex and Power Plant International – four new exhibitions will be encompassed. These are Lighting International, Environmental Solutions, Electro Transport and the Energy Show. In addition, there will be a major conference with the theme *The New Era for Electricity*.

A show within a show which will attract the attention of architects, interior designers, contractors and specifiers is Lighting International in Hall 5, for which a specially-targeted advertising and public relations campaign is being mounted, in addition to the main Electrotech '92 publicity campaign.

## Papers on lighting wanted

Papers on lighting are invited for Clima 2000 conference on engineering systems for buildings. This world congress for researchers, practitioners and building users will be held at the Queen Elizabeth II conference centre in London, from 1-3 November 1993.

Authors are invited to cover any application of lighting. Papers addressing design criteria for safety, health and comfort, equipment performance, efficiency and economy, environmental issues, and education and training will be particularly welcomed.

Abstracts of papers of approximately 300 words may be in English, French or German and must be submitted by 1 April 1992 to Clima 2000, Chartered Institution of Building Services Engineers, 222 Balham High Road, London SW12 9BS (tel. 081 675 5211).

The conference is being organised by CIBSE for the Federation of European Heating and Ventilating Associations.

# COMMENT

## The year in question

What does the year ahead look set to bring for the lighting industry? Firstly, on the international front some very large and prestigious projects will be completed. Here, I'm thinking of Eurodisney the first phase of which opens in April and, travelling further south to Spain, the Barcelona Olympics and Expo '92 in Seville. A visit to the latter city two years ago underlined the tremendous construction effort going into the World Fair, not only within the fair ground, but in terms of installing the sort of infrastructure in which the south of Spain has until recently been sadly deficient.

Turning to the domestic front, the picture is one of continuing gloom, any attempt to stimulate industrial markets appearing to be in abeyance for the foreseeable future while politicians play the election game. The most positive thing that can be said about the current situation is that by the autumn a new government of some political hue should be installed and attention will once again be directed to the plight of manufacturing industry.

In theory lighting exhibitions provide an excellent opportunity to see what the industry as a whole is up to. Unfortunately the picture in the UK is a confused one with too many exhibitions for such a small industrial sector, none of which has sufficient prestige to become predominant. The net result is that marketing managers are left with a difficult decision as to which exhibitions – if any – they should participate in. And in many cases the decision seems to be to wait and see – so no exhibition space is booked at all, and everybody suffers. For the sake of the industry, one can only hope that a clear market leader emerges by the end of the year, making the choice simpler.

Be that as it may, by the time we go to press with this February issue, Lightshow will be underway and the degree of success of its current attempts to combine both decorative and professional lighting under one roof will be more apparent. Rival offerings this year include Electrotech – the old Electrex under a new name and moved from late July. On first reflection a more inconvenient date for the lighting industry could scarcely have been dreamt up by the exhibition organisers. But they have been active in developing a specialist lighting section for the exhibition and appear to be promoting it vigorously. Apart from regionally or professionally orientated exhibitions, the final event of note is Highlight, held as usual at the Business Design Centre but now transposed to November. By contrast to the British scene, the World Lighting Show at Hanover, suffers from none of these disadvantages – and major trends in European lighting may be detected in this, the world's largest lighting event.

All these events will be reported by LEN in the course of the year. But we have to cover a large number of events with a very small staff, and in order to do our best we need your collaboration. If, as a company or organisation, you are involved in a major project, an exhibition or similar event, please let us know and help us to tell our readers about it. If you don't, then you have only yourselves to blame if you don't get what you feel is adequate coverage.

# LIGHTING EQUIPMENT NEWS

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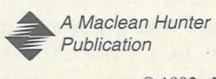
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Prague Castle, seat of the Czechoslovak government and the largest medieval castle in the world, has recently been given a new floodlighting installation.

The impressive facade, which is more than 500m long and faces the centre of Prague across the river, has been lit with floodlights supplied with 2kW Philips metal halide lamps. This replaces a previous installation based on halogen lamps, and has produced a 60% saving in energy. It also enhances the night-time visibility of this impressive monument, and complements recent renovation work carried out at the castle. The installation was designed by Philips Lighting in Eindhoven.

## LIGS elects a new captain

Thirty members and guests of the Lighting Industry Golf Society played at the RAC Country Club in December.

A four ball, better ball Stableford competition was played for the Christmas Cup. They also competed for the longest drive and nearest to pin.

Barry Ship, captain, presented the cup and supporting prizes. First and second prizes, spon-

sored by Barry Glazer of Bernlite, went to John Driver and John Everett, and Bill Walker and M Froud respectively, with Alex Pratt and J Shepherd taking third prizes.

The longest drive was won by Gerry Knowles, and J Burton won nearest to pin. David Procter of GE Lighting presented first tee gifts, and Barry Booth of Osram presented the nearest to pin prize.

Captain for 1992 is Gordon Sugden. The next meeting is the AGM on 4 February at the RAF Club, London.

The two-hour meetings deal exclusively with practical matters and time is allowed for discussion.

The next seminars, to be held at the company's Potters Bar premises, will be on 26 February, 11 and 25 March and 8 April.

For more details contact Brian Burfoot on 0707 43401.

## Raise money for your industry's charity

Philips Lighting is sponsoring the Electrical and Electronic Industries Benevolent Association in a fund-raising initiative for 1992 and beyond. All you have to do to enter is to raise money for the EEIBA, preferably by doing something adventurous or unusual, and you could win a £1000 prize along with a trophy. The awards will be announced each year at the Electrical Industries annual ball in November starting in 1992.

The EEIBA - with a turnover of £3 million a year - looks after the increasing numbers of former workers in the industry who are suffering great hardship usually through poor health. Further information on the initiative is available from Nick Kelso at Philips Lighting.

## Modern office lighting seminars

Aspects of Lighting is the title of a series of seminars being arranged by Rada Lighting. Three key topics in office lighting are covered: air handling, LG3, and ceiling and luminaire integration.

## Energy awards

Wiggins Teape Fine Papers, of Aberdeen, has won the first National Energy Award for reducing its energy costs by 50 per cent from an already satisfactory performance. The company used combined heat and power, monitoring and targeting and other modern technologies.

Presenting the award at a special ceremony at the House of Commons, energy Minister John Wakeham said the high number and standard of entries showed that top management was now convinced we could not fall behind in the drive to improve energy efficiency.

Runners-up were GEC Alsthom Large Turbines of Rugby and Gloucestershire County Council.

## Health in buildings

Visual discomfort at the office is one of the topics to be covered in a conference called *Health in buildings: safe living and productive working*. Organised by the British Postgraduate Medical Federation, it will be held on 23 and 24 March in London.

The environment is the theme of the first day, when as well as lighting, topics will include, radon, and non-ionising radiation.

Subjects on the second day include sickness in buildings and practicalities and possibilities for improvement.

For programme and application forms contact Education Dept, BPFM, 33 Millman Street, London WC1N 3EJ.

## Driver of the year

The 1991 Crompton Lighting Driver of the Year is Matthew Neal, a 24 year old racing driver from the West Midlands. At the recent British Racing Drivers Club dinner at the London Hilton, Matthew received his trophy from Kenneth Clark, Secretary of State for Education and Science.

Neal began his circuit racing career in 1988 when he competed

in the Ford Fiesta Championship. In 1990 he won the Class B Esso Saloon Car Championship, and this year became Class A Esso Super Lube Champion in his Nissan Skyline.

His consistently good driving resulted in his selection as Crompton Lighting Driver of the Year. This award is based on points scored during the year at all major races at Silverstone racing circuit.

# 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

1.-8. 4. 1992 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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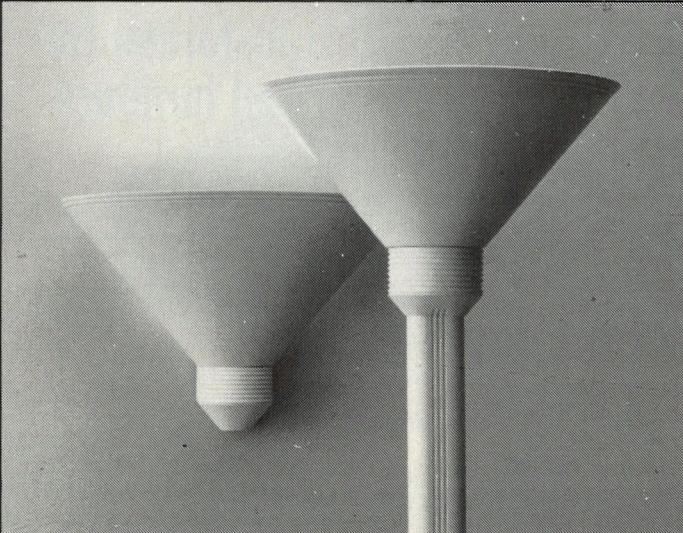


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Reader Service No. 4

Lighting Equipment News, February 1992

# NEW PRODUCTS



## Uplights for all areas

Concord has introduced a range of uplights called Quill to meet lighting needs in every area of a commercial building using luminaires with a unified design theme.

The range, designed by the Conran Group, is particularly suitable for VDT areas and other situations requiring glare-free ambient and task lighting.

The five uplights use either double-ended metal halide or mains voltage tungsten halogen lamps protected by a toughened safety glass. Housings are made of pressure diecast aluminium with a fine textured finish achieved by applying a newly developed powder coating.

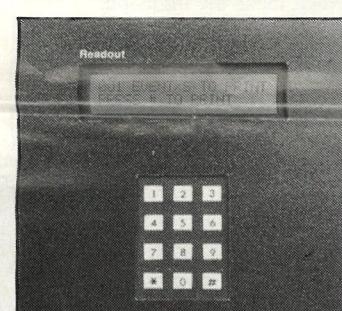
An unusual feature of the wall light is a glowing back-lit effect which gives the luminaire the appearance of "floating away" from the wall. There is also a version for corner mounting.

A plug-in floor standard is available with either symmetric or asymmetric reflector. Safety features include anti-tilt device and automatic switch-off if the fitting is knocked over.

A pendant suspended on a single stem is designed so that the supporting rod does not cast a shadow on the ceiling.

Versions of Quill can be supplied for screen mounting, to special order.

Reader Service No 151



## Automatic testing for emergency systems

Automatic monitoring and testing for central battery emergency lighting systems, without the need for extra wiring, is available from Protec Fire Detection.

Testing is in accordance with the requirements of BS5266. The operation includes checking for faults.

Luminaires can be divided into groups to ensure that the entire system is not tested at the same time. This also means that if the general lighting fails in some

If the starter and capacity are removed from a standard fluorescent fitting and a VIP90 module wired in, the luminaire can then be controlled using a standard hard fired dimmer, such as those supplied by R & G Services.

The equipment is stated to give very smooth, flicker-free dimming. It can be used, for example, with photo-electric cells to control commercial and industrial lighting installations.

Reader Service No 153

R & G Services has available electronic dimming control modules for fluorescent lamps. The VIP90 range, made by Starkstrom, Switzerland, is in two versions, one for PL type compact fluorescent lamps, the other for linear lamps.

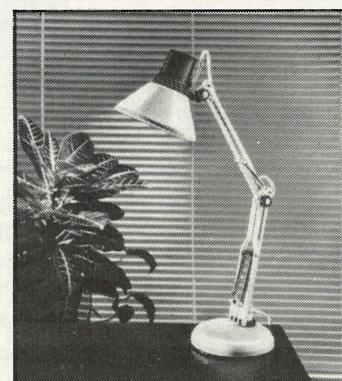
Reader Service No 153

## Desk light is adjustable

Micromark has introduced a range of adjustable desk lights in two sizes with spring balanced arms, which come in a total of six versions.

The larger model has a 914mm arm reach and a conical reflector, and comes in either black or white. Both are available with either a weighted base or in a clamp-on version.

The smaller version, also in black or white, comes with a



weighted base only. It has an adjustable swing arm reach of 558mm. Reader Service No 154

## Stylish outdoor lighting

A stylish bulkhead light is part of an outdoor lighting collection from Chelsom. The luminaire bridges the gap between a conventional bulkhead and a spotlight; it has a wide, fixed, directional beam.

It can be wall or ceiling mounted and is available in either white or granite finish, taking a 75W GLS ES lamp, the luminaire is 250mm wide and 200mm high. The housing is in diecast aluminium with nuts and bolts in stainless steel.

The range, which is made by Ismos, Italy, includes freestanding posts of various heights for siting



on walls or in the ground, pendant fittings and columns that accept multiple luminaires. Additionally there is a range of traditional and contemporary street lighting.

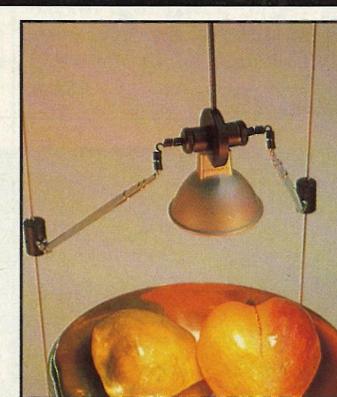
Reader Service No 155

## Spotlight for LV wire systems

Aerial is a low voltage display light by Ora Lighting. It clips onto new or existing wire display lighting systems, giving a tidy appearance as there are no trailing cables.

The luminaire is very versatile in use; it can not only be moved up and down on vertical wires, but also extended and retracted. In addition, the lamphead can be rotated through 360°.

This flexibility of use makes it



suitable for retail displays and exhibition work.

Reader Service No 156

## LV exterior uplights

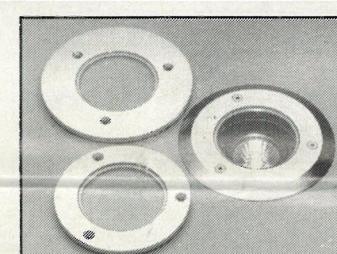
Outdoor Lighting Supplies has introduced two low voltage fittings.

Jaguar 3 (illustrated) is a very robust uplight for recessing into soil or paving to light trees, shrubs, statues, pergolas, and for giving a wash of light on walls, colonnades and building fascias.

Measuring 125mm in diameter, and using an MR16 tungsten halogen lamp, the fitting is available with either remote or integral transformer.

Below-ground construction is of diecast aluminium. The visible top-plate is available in either turned aluminium or solid brass, in a choice of three styles.

Jaguar 4 is a multi-purpose spotlight which can be used on a



spike for general landscape lighting, or on a mounting plate as a wall spotlight. The company adds that it can also be used underwater.

The fitting features variable beam control. A simple twist of the outer body alters the position of a 20W or 35W lamp in relation to the reflector, and provides beam options from 10° to 40°.

This luminaire is for use with a remote transformer and is easily concealed in the landscape.

Reader Service No 157

## Low voltage spotlight

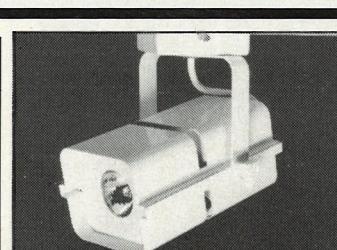
A square-fronted, low voltage spotlight from Environmental Lighting has an integral transformer. It can be either track or surface mounted from the yoke supplied.

The LEM50 uses a 50W tungsten halogen lamp with dichroic reflector.

Standard finishes are black, white, chromium or gold colour, with other colours to special order. Reader Service No 158

## Versatile meter

Minolta has a small, portable spectrophotometer that connects straight to a computer for



## Low voltage lamp has new reflector

Sylvania has launched a range of low voltage, tungsten halogen, sealed lamps which the company claims gives the best combination of lamp life and light output.

Called Professional De-Luxe, the lamps replace the Tru-Aim Professional range. They have a new spiral faceted reflector, which catches ambient light and produces a sparkling effect.

A life of 4000 hours is quoted for all wattages, due to improved filament design and modification of the gas mix. A 50% increase in light output has also been achieved.

Professional De-Luxe is supplied in 50mm diameter size in 20W, 35W and 50W ratings, and 35mm size in 20W and 35W ratings in a wide range of beam angles. Reader Service No 159

advanced data handling. Measurements can be taken in the field or in narrow spaces. It conforms to ISO and CIE standards.

Reader Service No 160

# LIF LINE

## Talking to government about energy

The Lighting Industry Federation welcomes the initiatives taken by HM government and the Labour Party to discuss energy efficiency more openly. This represents real progress in consultation and the LIF intends to continue to play its full role.

John Wakeham's memorandum to the NEDC, the government's response to the select committee on energy's report and MP Frank Dobson's paper prepared for his consultation meeting in September 1991, are all examples of this. The government can now quite legitimately argue that it has indeed made an effort to set out publicly its energy efficiency policy.

Firstly, there was the Lancaster House presentation in September 1990 by Chris Patten on the government's white paper on the environment, This Common Inheritance, followed by the first year report, prepared by Michael Heseltine in September 1990.

It includes a summary of the 1990 White Paper commitments, the action to date and the commitments to further action. In the last paragraph it said that the government would publish the first report of the ministerial group on energy in October 1991 and would continue to promote energy efficiency improvements.

In fact, the report of the ministerial group was published on 16 October 1991. On that day also the LIF was able, through an exhibition held at the Energy Efficiency Office, to speak to ministers serving on the committee about the latest developments in lighting technology. At the invitation of David Heathcoat-Amory, it also presented its case to the senior civil servants who decide which energy efficiency measures are to be introduced on the government estate.

In the ministerial report itself, giving an account of what government departments are doing, lighting figures very prominently. It shows that LIF have achieved the breakthrough which it planned two years ago.

Now that government departments have embarked upon this road they can be monitored and reminded, and indeed an incoming government can hardly do less.

LIF welcomes the increased role of the Energy Efficiency Office, its willingness to engage in dialogue, and was delighted with its support on 16 October, and backing for the City of London presentation on 18 November 1991 at which energy minister, David Heathcoat-Amory, agreed to speak.

In its autumn statement last year on government expenditure the EEO budget was increased by 40% taking it to a total of £59m.

This figure includes funding for what is known as the Energy Management Assistance Scheme which is aimed at helping smaller enterprises to improve energy efficiency – it includes consultancy costs, specific project design and actual project management, and could, therefore, cover the cost of lighting audits.

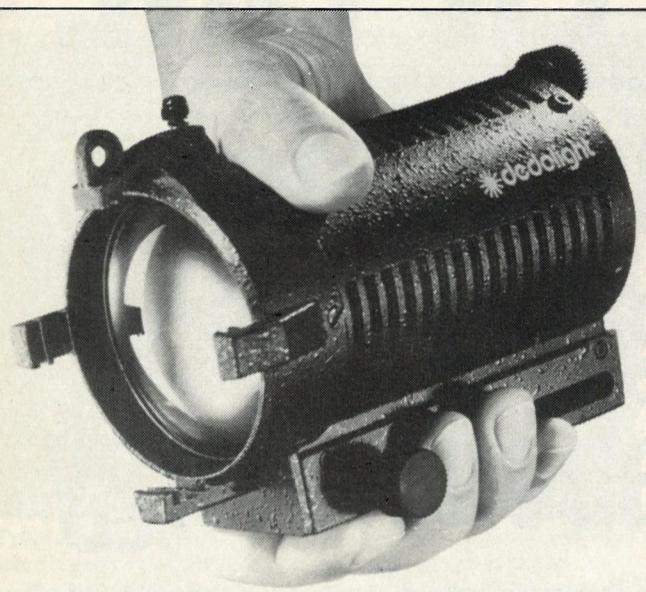
Turning to the Labour Party, Frank Dobson MP, opposition spokesperson for energy, went to the length of writing to LIF inviting us to take part in the compilation of policy. This gesture was recognition of the fact that LIF is making a political impact. It is LIF policy to monitor these developments all of which we believe encourage debate and greater public awareness.

In all, LIF has made considerable effort to influence energy policy in Britain for the last 2-3 years and, by being prepared to sustain its effort and investment, is beginning to see results. These developments are very much in line with the 'green approach' which was discussed at the last LIF Annual Conference two years ago in Chester.

LIF understands above all the time scale against which policy in Britain evolves, and will continue to argue its corner and seek new opportunities to promote its case. LIF reports to and seeks the continued participation of all its members in the field. The real participatory back-up of LIF membership is one of the core reasons for such progress.

LIF is the principal contact point for the lighting industry. Government departments and opposition members come to LIF and are extremely reluctant to approach individual companies directly. Energy efficiency is just one of the areas in which we are participating in a constructive dialogue with government, and where we are making real progress. Discussions within the membership of the federation on an industry response have allowed a more effective argument to be developed, as well as helping to maintain harmony and stability within the industry.

# NEW PRODUCTS



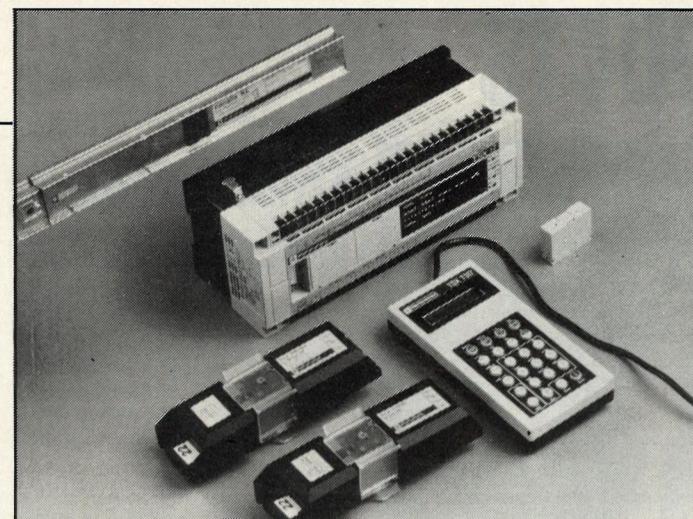
## Sophistication in lighting control

Telemecanique has increased the level of sophistication in its K lighting control system.

Canalis K busbar trunking system is now available with a dedicated micro programmable controller. The link-up to a controller gives designers a level of control that was previously only available on hard-wired systems.

Special features are designed to cut lighting costs and increase the user-friendliness of the installation.

Programming of the entire installation is controlled from a hand-held terminal. Status information on an installation can be



produced on a separate printer.

The software contains enough memory to control 64 lighting zones, operating on 15-day programs and 15 separate weekly programs.

There is also a facility for setting up special zones. Communication from the central controller

is via a Batibus cable link to the transmitters and receivers on the trunking.

The K System also allows local control for individual users and speed of installation and flexibility for future changes in lay-out.

Reader Service No 163

## Transformer for fitted furniture lighting

A slim, compact, 20VA high frequency electronic transformer is available from Hüco, Germany. It has a height of only 19mm and is designed for concealed lighting in fitted furniture in the home, office or window display.

Each transformer is supplied complete with cable or clamp connection enabling paralleled wiring with interconnecting plugs and sockets.

Short circuit and overload protection are included. All transformers are dimmable.

Reader Service No 165

## Spotlight can be focused

Desisti Lighting (UK) has a low voltage spotlight called Dedolight that is a development of a luminaire used for film and television work. Interior lighting applications envisaged include shops and museums.

It has a focusing range of 1:25 and uses a 12V tungsten halogen projector lamp rated at either

20W, 50W or 100W.

Accessories such as barndoors, filter holder, framing shutters and 18-leaf iris are available.

The spotlights, which are made in Germany, are mounted on individual plates and use remotely positioned transformers. A track mounted version is being developed.

Reader Service No 161

## Photo-cells for lighting

Cadmium sulphide photo-cells for the control of street lighting and other outdoor lights are available from Power Development. Ranging in diameter from 5mm-20mm, they have power dissipations up to 500mW.

Reader Service No 164

The design of these brass fittings is based on a pendant in a Paris banking hall of the 1930s.

Reader Service No 162

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

## Brass lighting for public buildings

A collection of traditional, commercial lighting called Paris, introduced by Chelsom, includes pendants with both uplighting and downlighting. Compact fluores-

cent lamps provide the downlighting element above white opal diffusers, while uplighting is from 300W tungsten halogen (or alternatively metal halide) lamps. Emergency lighting facilities can be incorporated if required.

A square, flush mounted fitting, and rectangular and triangular wall lights are also available.

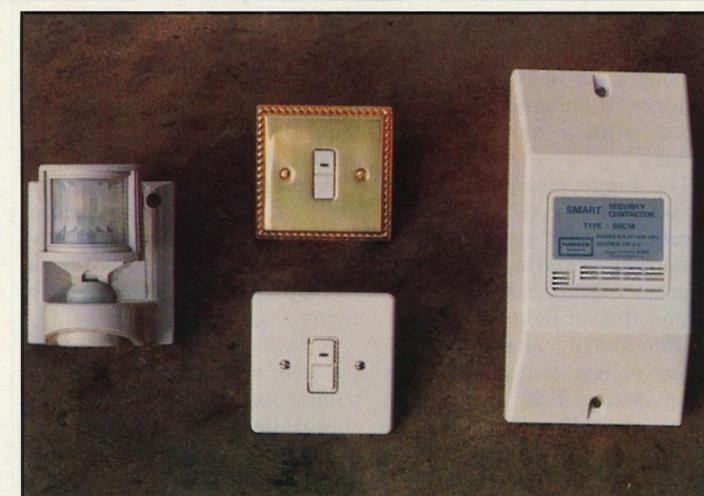
## Lighting control system has security features

ESM has launched a range of contactors, push switches and infra-red detectors designed to provide lighting control with security features in domestic, retail and commercial premises.

Resistive, inductive and fluorescent loads can be controlled. The system can be installed in existing and new buildings.

In the home, the Smart range transforms existing lighting into a powerful intruder deterrent without the need to rewire. As a person approaches the house, the contactors switch on internal and/or external lights in random sequence giving the impression the premises are occupied.

Lights remain on for five minutes.



Alternatively Smart is easily connected to a burglar alarm which locks the lights on.

In retail and commercial premises, the system automatically switches off lights, and other electrical equipment if required, after the staff have left, following a

delay of 1 minute to 1 hr to allow the premises to be locked up.

An on-only push switch can be located by the front door. Connection to an existing alarm system locks the lights on when the alarm is activated.

Reader Service No 166

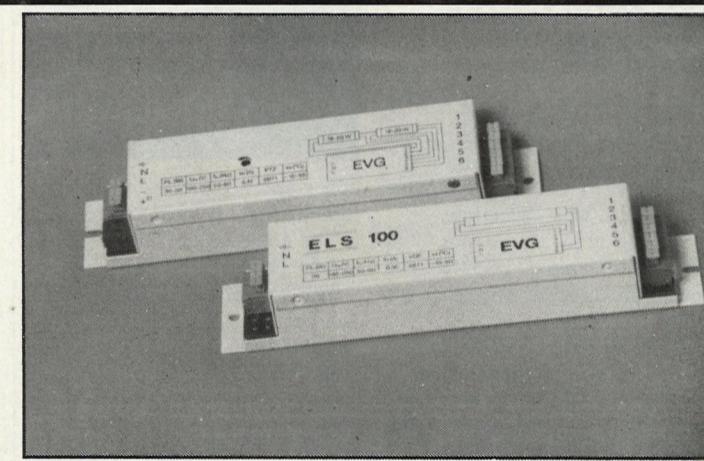
## HYBEC HIGH TECHNOLOGY LAMPS

## High frequency ballasts

A range of high frequency electronic ballasts, made in Germany, for fluorescent lighting is available in the UK through Engelking & Co.

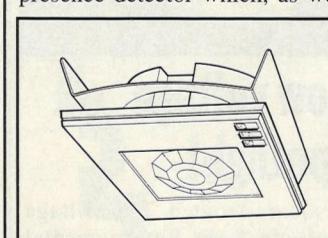
Various configurations are available: for single lamps 18W-58W and for twin lamps from 18W to 58W. They are stated to be smaller and lighter compared with other designs on the market.

Reader Service No 167



## PIR detector has override facility

ECS Energy Conservation Systems has introduced an infra-red presence detector which, as well



## IR lamps for industrial drying

Amber Lamps is now making infra-red lamps for production processes such as drying paint, ink and adhesives, removing excess moisture from paper and textiles, applying shrink wrapping materials and heating metals for fusing. There are also applications in the field of catering.

Initially, lamps are available in lengths up to 1m with a 10mm

outside diameter. They have a peak operating frequency between 1 and 2 microns depending on application. A wide range of end terminations compatible with popular infra-red drying units is available.

There will also be special filter jackets.

Amber's ability to produce a bespoke lamp with a specified output is of importance to manufacturers who need to match the lamp output to frequency of absorption of materials being processed.

Reader Service No 168

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There will also be special filter jackets.

Amber's ability to produce a bespoke lamp with a specified output is of importance to manufacturers who need to match the lamp output to frequency of absorption of materials being processed.

Reader Service No 169

## Task light with choice of base

Studio is an Italian task light with conical reflector in black, grey or polished aluminium. It is available through Ambience and



uses a GLS lamp with screw cap. The switch is on the lamphead.

There are two versions, with alternative articulated arms, and a choice of circular base, clamp or wall bracket.

Reader Service No 170

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Reader Service No. 5

Page 6

Lighting Equipment News, February 1992

# NEW PRODUCTS



## Metal halide uplights

Metal halide uplights known as Diamanta have been introduced by Tally Ho Lighting.

They are made of cast aluminium to give extra heat dissipation. The head is adjustable.

Either 70W or 150W metal halide lamps can be accommodated.

To provide increased light out-

put immediately after switch-on there is the option of a tungsten halogen lamp within the luminaire. When the metal halide lamp has reached full output, the secondary source is extinguished.

Diamanta uplights are supplied as either floor standards, wall lights or pendants.

Reader Service No 171

## Enhanced transformers

RAM Electronics has improved its ET1250 low voltage, electronic lighting transformer.

Now produced in both flying lead and terminal connector versions, the transformer has had voltage transient suppression added to the existing protection system. The company claims this will prevent damage when switching conventionally wound transformers on the same circuit.

RFI suppression has also been improved. The transformer measures 50mm x 45mm x 30mm and with its screened enclosure weighs only 100g.

These changes have been made at no extra cost to the customer.

Reader Service No 175

## Ballast for three compact lamps

An electronic ballast to operate three 40W PLL type compact fluorescent lamps has been introduced by Tridonic.

This provides a solution where a higher lighting level is required. It also switches off any defective lamp.

A separate filter choke minimises length, to fit into 600mm modules. Step dimming can be achieved down to 50%

Reader Service No 172

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

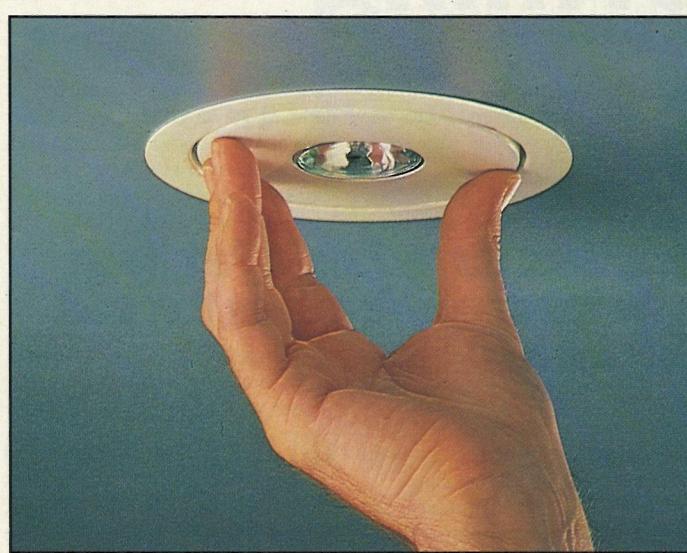
## Low voltage range improved

Hitech Lighting has improved and relaunched its Emblem range of low voltage downlights.

Most significant change is the Click-Catch system, which permits fast lamp replacement by simply pressing the inner body upwards to release the lamp-holding assembly. It accepts 20W-50W dichroic lamps.

Other improvements include the use of high quality extruded and injection moulded components, and improved luminaire retention mechanism enabling easier installation in ceilings from 0.7mm-25mm thick.

The new Emblem range includes mini downlight, mini wallwasher, modular downlight, and modular wallwasher. The wallwashers can be adjusted through 45°.



Both downlights can be supplied with black anti-glare baffles. For applications requiring a backlit halo effect, further versions with suspended feature glass are to be launched this month.

Completing the range is the modular eyeball which is designed to retain the spherical section within the housing, to allow installation in any horizontal, vertical, or angled surface.

Reader Service No 173



## Easy measuring of emergency lighting

Menvier (Electronic Engineers) has introduced a purpose designed, hand-held light meter that covers the emergency lighting ranges defined in BS5266 and the draft European Standard.

The instrument is calibrated to specifically indicate 0.1, 0.2, 0.5 and 1 lux, with logarithm index up to 40 lux. An illuminated moving bar makes it easy to read.

The meter is cosine corrected, suitable for both tungsten and fluorescent lighting, and is lightweight and robust.

Reader Service No 174

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that fulfils what the design promises. Detailed information can be obtained from STAFF Lighting Ltd., HIBP, Crockford Lane, Chineham, Basingstoke, Hants., RG24 0WH Telephone: (0256) 707007 Telefax: (0256) 707018.

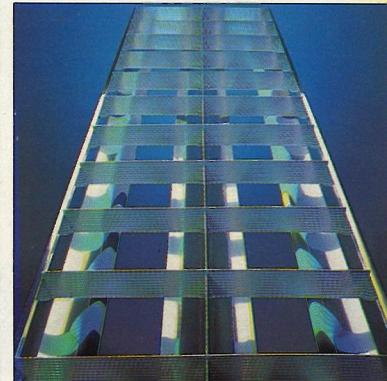
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Reader Service No. 7

# Transforming virtues

**Don't be baffled by transformers.** *Murray Fane, of Park House Laboratories, describes the types available and how they meet the requirements of safety and reliability.*

Low voltage halogen display lighting continues to attract the attention of interior designers around the world. It is even becoming an important element of lighting schemes in private dwellings, especially in Italy and Japan. A common denominator of all these systems is an isolating transformer which converts the mains supply to a normal 6V, 12V or 24V. Of these alternatives, 12V systems are by far the most common.

The definition of most low voltage lighting systems is SELV (safety extra low voltage) but, because even a small electrical potential cannot be considered to be completely safe, there is a proposal to amend the nomenclature to read ELV. Whatever the terminology, the Sixteenth Edition of the IEE Wiring Regulations clearly states that, for a mains powered system, a Class II isolating transformer conforming to BS 3535 must be used. No part of the output circuit may be connected to earth.

#### Transformer types

There are two basic types of transformer operating on 50Hz AC mains: one is toroidal, the other bobbin wound and laminated. It may be toroidal or bobbin wound.

No one of these types is ideal for every situation but, if it were necessary to choose a single type for universal application, then one might well specify a toroid. They offer reasonable weight and cost, high reliability, variable shape (low profile or tubular forms) and low acoustic noise, making them particularly suitable for use with dimmers. In common with laminated types, they have a high tolerance to modest overloads, while protection against gross overloads can easily be achieved. Extreme operating conditions - Class H, 180°C and beyond - can be

accommodated using readily available materials and technology.

Laminated transformers are marginally cheaper than toroids, particularly in the 20-200VA range, and quality control is somewhat less critical. Noise, even with dimmers, can be brought within reasonable limits by careful assembly and subsequent varnishing.

Care must be taken when selecting welded core construction since non-magnetostrictive noise may well be generated. Vacuum varnish impregnation may be essential to keep noise within acceptable limits, but the cost penalty could well negate the economics of welding. Moreover, the long term effectiveness of varnishing as a significant element in noise reduction has not been adequately researched.

Laminated transformers have a higher leakage flux than toroids; this may give rise to secondary vibrations in a steel case. Reorientation of the transformer within the enclosure or changing the case material in whole or part to aluminium, will minimise this effect.

Electronic transformers are significantly lighter in weight, more expensive, less reliable and some types may have relatively poor tolerance to both moderate overloads and ambient temperatures above 40°C. Many currently available models have restrictions on output lead lengths - sometimes to less than 0.5 metres - or they may require screening.

When several units comprise a total system, it is likely that additional suppression of conducted RFI, will be necessary to meet the stringent requirements of VDE 0871, Curve B. What is unclear is how a system installer can be expected to meet the RFI standard for the system without the necessary expertise and equipment. A more mundane and marginal dis-



Figure 3. Line regulation is one of the safety features incorporated into this GTE electronic transformer.

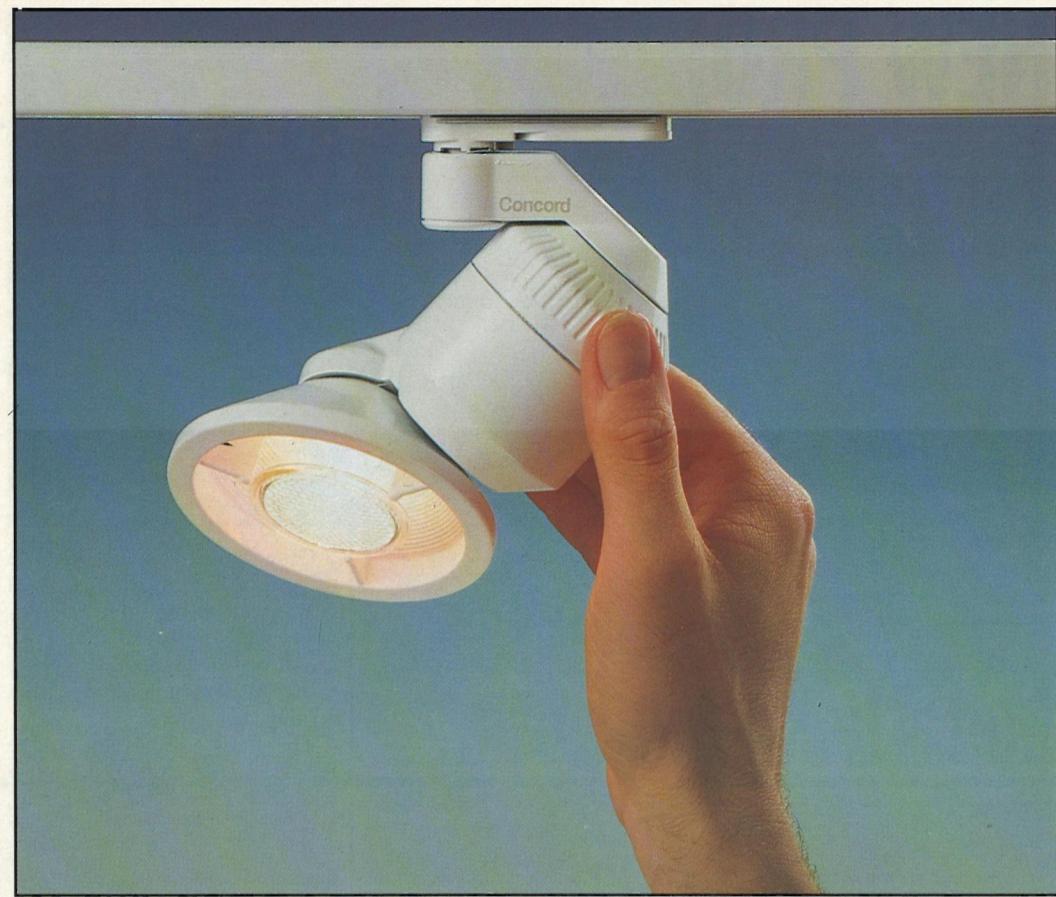
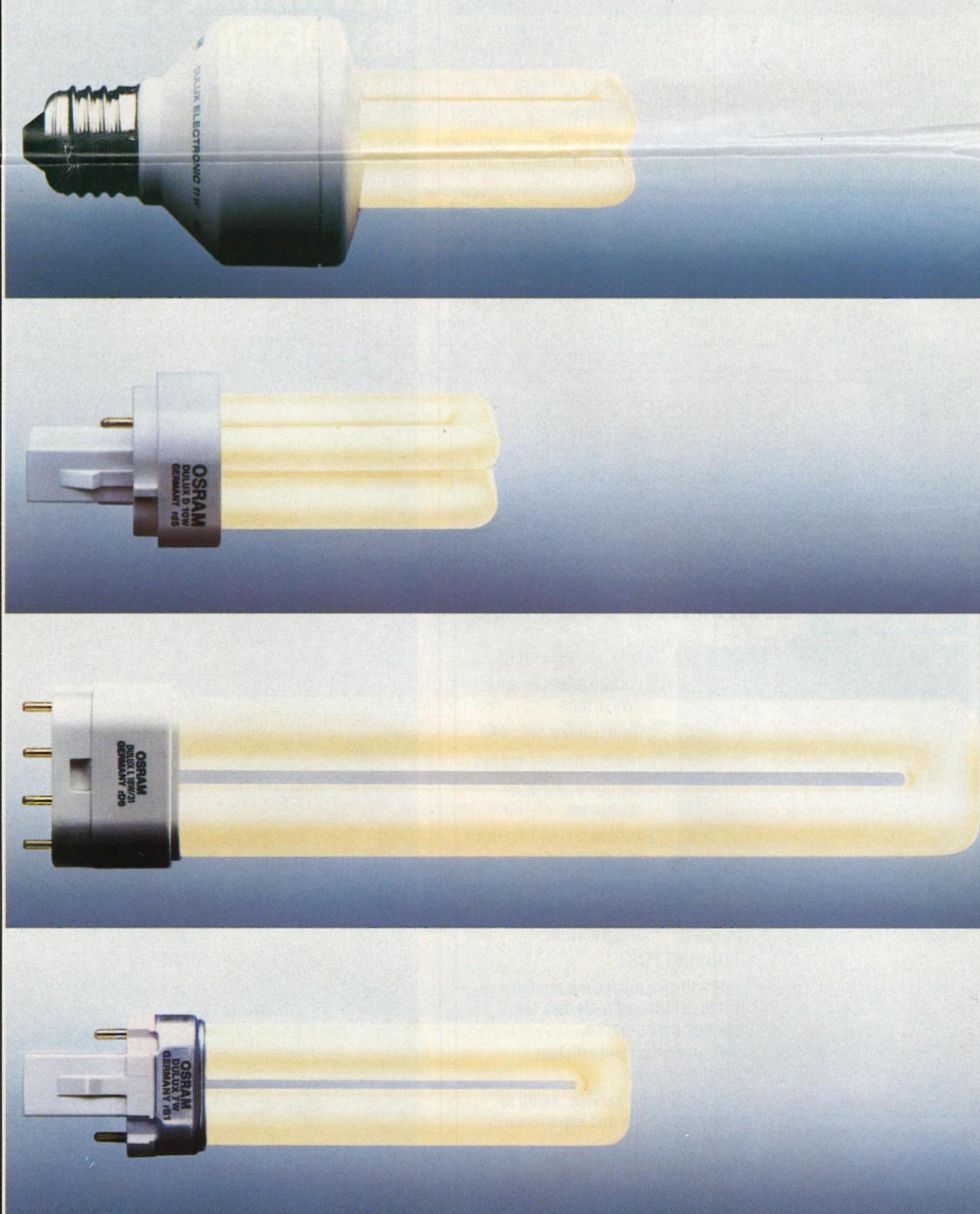


Figure 1. A transformer is incorporated into this Concord light fitting.

## A RAY OF LIGHT ON ENERGY COSTS:



201 GB



Figure 2. This dedicated transformer from Skott, serving a single fitting, incorporates a large number of safety features.

On the credit side, quite apart from their light weight, electronic transformers can be fitted into spaces not accessible by toroidal and laminated types. They nearly all have adequate regulation over a wide range of loads together with short circuit and overload protection. Many exhibit an integral dimming facility and some models will operate from completely standard incandescent dimmers – useful where several transformers need to be controlled from a single point, or where dimmers may be fitted subsequent to the original installation, perhaps by another contractor. Another useful feature of most electronic transformers which may prolong lamp life is the soft start.

Let us now examine three transformer applications – A popular approach is to incorporate the transformer within the fitting. Figure 1 shows a fitting which also houses a toroidal transformer

of advanced design, thus keeping the size, weight and temperature rise to minimal levels while ensuring high reliability and long life at moderate cost. The model shown is track-mounted but it can be attached to a wall plate.

This, and similar systems, have the outstanding advantage that they can be used as a direct replacement for existing fittings and, in new installations, no special wiring is required. Maximum continuous ambient temperatures of 40°C are normally recommended but thermal excursions to 60°C have been tolerated. Internal overload protection is provided to meet just about any eventuality.

#### Integral models

Integral transformers may also be of laminated or electronic construction and, while each has its own particular merits, the balance of advantages, especially if cost is taken into account, may well lie with a highly specified toroid.

Another useful configuration is a free-standing single load unit, usually 50VA, sometimes called a dedicated transformer. This transformer may be of laminated, toroidal or electronic construction serving a single fitting. It can be readily employed to replace existing mains powered fittings or used in new installations without special wiring.

This type of transformer is generally cylindrical and often uses a toroidal transformer, which results in a minimum of potting compound and modest overall weight. Nearly all transformers of this type are designed to fit through a 65mm diameter cut-out to facilitate installation in the ceiling void. Figure 2 shows a typical dedicated transformer which exhibits, not only overload and short circuit protection, but also the ability to shut itself down in the event of component failure or exposure to excessive ambient temperatures. This is vital since the manufacturer has little or no control over the ultimate installation which may well be in a confined or insulated space.

Some dedicated transformers still use terminal block connections but flying leads are becoming more common. The advantages of the latter system are that the cable length between transformer and luminaire is predetermined by the manufacturer and interconnections are reduced. The installer is discouraged from extending the secondary cable but

can, of course, extend the primary to any length required using normal electrical practices.

Figure 3 shows an example of an electronic transformer which, unusually for a product of modest cost, features line, in addition to load, regulation from 210–260 V and 20–65VA. This has to be an important development as it allows halogen lamps to operate at peak colour temperature and light output without the ever present concern of over voltage and reduced lamp life. It will easily fit through a 55mm diameter hole, thus being in tune with a trend towards smaller luminaires. The particular unit illustrated must be dimmed by means of a variable transformer which, although technically ideal, would be expensive on a small installation and difficult to automate on a larger one. Acoustic noise is not normally a problem with electronic transformers since the operating frequency is beyond the range of the human ear.

The third, and perhaps the most widely used transformer configuration, is the multiple load type with single or dual channels for low voltage track, or multiple channels serving a distributed network. The transformer element itself may be toroidal or laminated in form, though from a technical point of view, it could be electronic. It is usually installed in a metal case but some manufacturers put their transformers into a, generally circular, plastic housing.

#### Safety measures

Whatever the configuration, a problem has always been to provide effective and completely satisfactory protection for all eventualities. The incorrect type of value of fuses may well be used, while a manual reset thermal cut-off usually has to be reset by accessing the interior of the enclosure, and auto-reset devices may recycle the fault.

In any case, the thermal lag of transformers over 200VA can introduce excessive delay in the operation of any type of simple thermal device. For reasons outside the scope of this article, PTC thermistors, which have an important role in protecting small transformers, are not very satisfactory for the larger units.

A neat solution to the problem, and one that makes a major contribution to safety, is shown in Figure 4. A 600VA transformer

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The energy-saving OSRAM DULUX® EL.

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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.

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

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.

### 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

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.

### OSRAM DULUX® L

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

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.

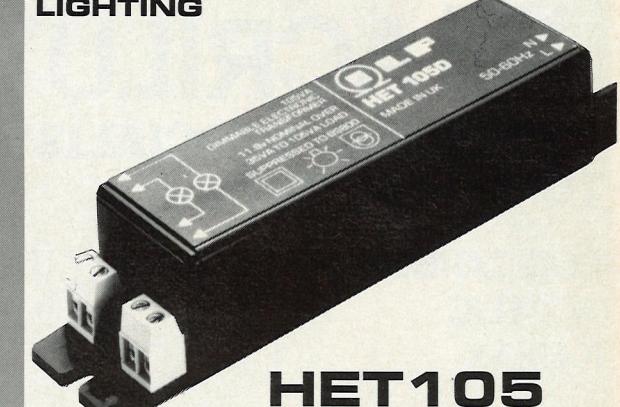
### OSRAM DULUX® S

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

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with enhanced regulation is matched to over-current and soft start devices. Modest, but persistent overloads and ambient temperatures in excess of 60°C are monitored by a thermal device; and there are no fuses. This layout allows the output to be connected to any lamp load track or multiple, from 20VA-600VA and, provided that the unit is wired in conformity with the Sixteenth Edition of the IEE Wiring Regulations using cable of not less than 2mm, then the unit itself and any of the circuits are fully protected. The over-current device can be reset from the enclosure itself or remotely once the fault has been cleared.

Conformity to appropriate standards and regulations gives the specifier, installer and end user confidence that he is doing his utmost to ensure system safety, reliability and freedom from maintenance and, at the same time, meeting the requirements of the Health and Safety at Work and Consumer Protection Acts.

#### Safety parameters

A BS 3535 transformer called up by the Sixteenth Edition of the IEE Wiring Regulations defines three basic safety parameters; insulation resistance, over-voltage test to 370V and the security of the physical barrier between the primary and secondary circuits. Some manufacturers, particularly those who also produce wound chokes for discharge lighting, are marking their product with a  $T_w$  rating. Briefly, conformity to a  $T_w$  rating (transformer winding temperature) should ensure a 10 year component life provided that the normal operating temperature does not exceed the  $T_w$  value.

Provided that the British, or equivalent European, Standard is adhered to the value of a  $T_w$  rating to a transformer is somewhat questionable, since life is a parameter which has already been addressed, albeit indirectly, in compiling the standard. A conventionally wound transformer conforming to BS 3535, using modern insulating materials and wire enamel, installed in non-aggressive areas and operating within its design temperature, should have a life well in excess of 10 years. The life of the unit as a whole, especially in a non-ideal environment, is likely to be governed by peripheral items such as terminals and solder joints. Most manufacturers can accommodate adverse



Figure 4. Multiple load transformers, like this model from Accent Lighting, need to incorporate a wide range of safety devices.

installation conditions such as exceptionally high ambient temperatures provided that they are made aware at the design stage.

Transformer noise may be a problem. The increased use of dimmers and heightened awareness of noise in general, has highlighted some problems in quiet areas such as libraries and homes. Where exceptional quietness is demanded, solutions to the problem are available, albeit with a cost penalty.

#### Reasonable precautions

The desirability of conforming to the sensible demands of standards and regulations cannot be stressed too highly since, in the event of system failure, the parties concerned can show that they took all reasonable precautions to ensure safety and reliability. Ideally, the transformer manufacturer should obtain British Standard Kitemark approval for his product. This means that a system of regular inspections of both the product itself and testing methods, guarantees conformity to the standard. The next best thing is to purchase transformers which have been tested by an independent test house.

Care needs to be taken with all

installations to ensure that magnetic field generating elements of the system – transformers and secondary cables carrying relatively high currents – are situated well away from communications systems such as telephones and computers. For instance, a transformer unit should be at least 1.5m from a telephone cable and secondary, low voltage cables at least 2m distant if they follow the same route for any distance. Where lighting cables have to cross those carrying communications, they should intersect at right angles. Screening may be necessary in exceptional or very confined areas.

#### Good practice

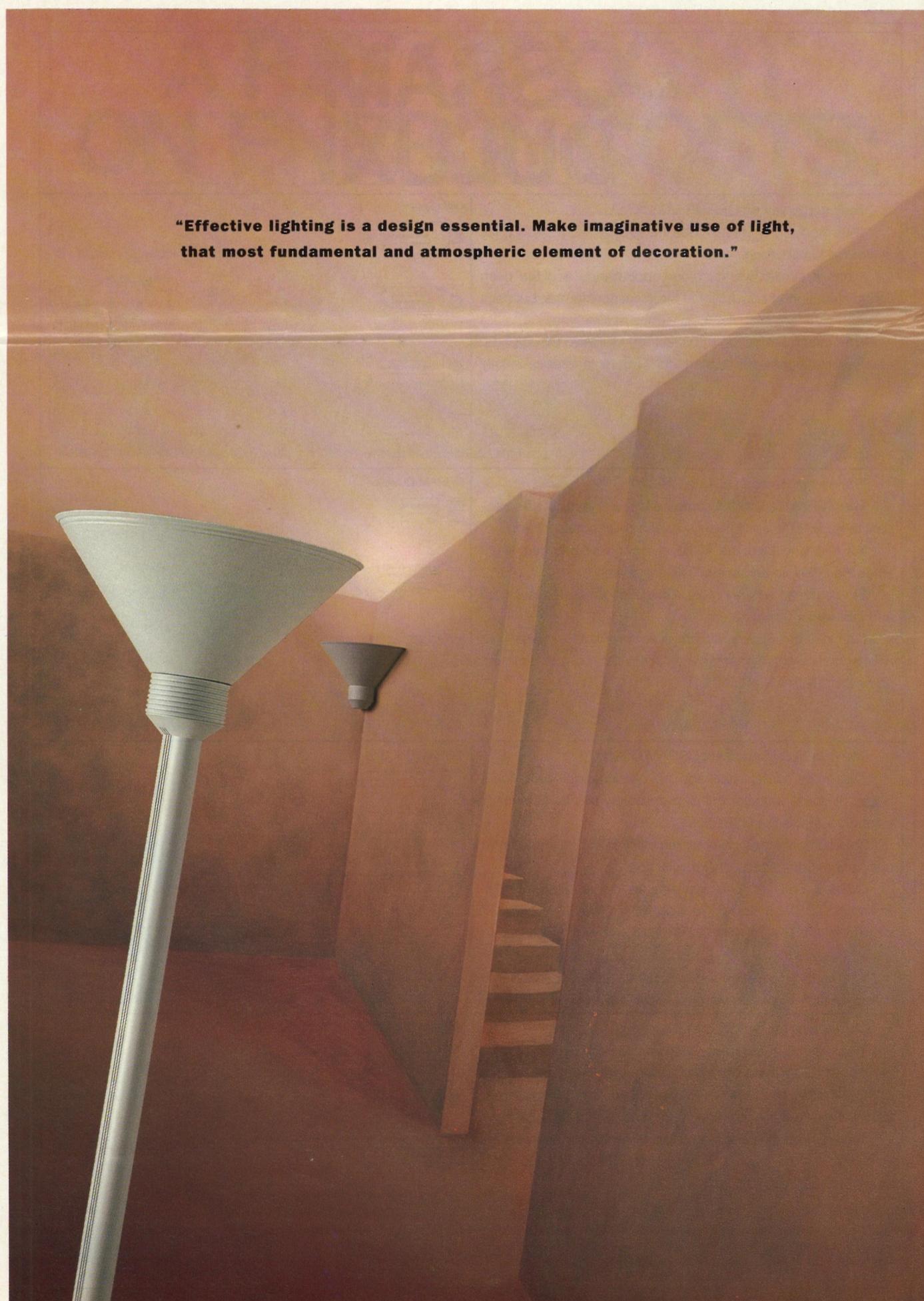
Apart from these precautions, good electrical practice is all that need be observed. Because secondary currents can be as high as 50 amps, special care needs to be taken to ensure that connections are all secure and unlikely to loosen due, for example, to vibration. It goes without saying that transformer covers should be replaced and secured at all times both for safety reasons and to

exclude dust.

What of the future? Architects and specifiers will increasingly require assurances that they are using products which conform to the appropriate regulations – and more and more installers will be looking to reduce their culpability in the event of system failure. After safety, the next priority has to be convenience and speed of installation, with easy but minimal servicing.

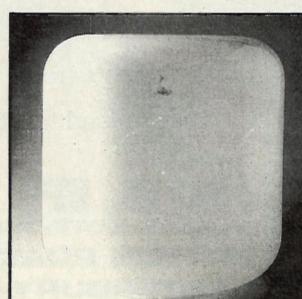
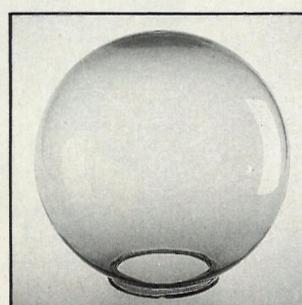
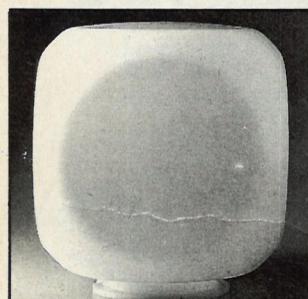
Stockists are looking for minimum inventory on their shelves, so we may well see a reduction in the models available – perhaps leading to universal model approach, such as we saw in Figure 4.

It is difficult to see the composition of the three basic configurations discussed in this article changing. We shall perhaps see a shift to electronic transformers but problems with collective conducted RFI have yet to be fully defined and addressed. At the same time, significant strides are currently being made in the design of magnetic core materials which will provide lighter and more efficient products at modest cost and with proven reliability.



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Page 10

# Spotlight on museums

**What is a museum, and what is its function? In a field where the distinction between education and entertainment is increasingly blurred a wide range of interpretations is possible. LEN looks at a couple of recent installations.**

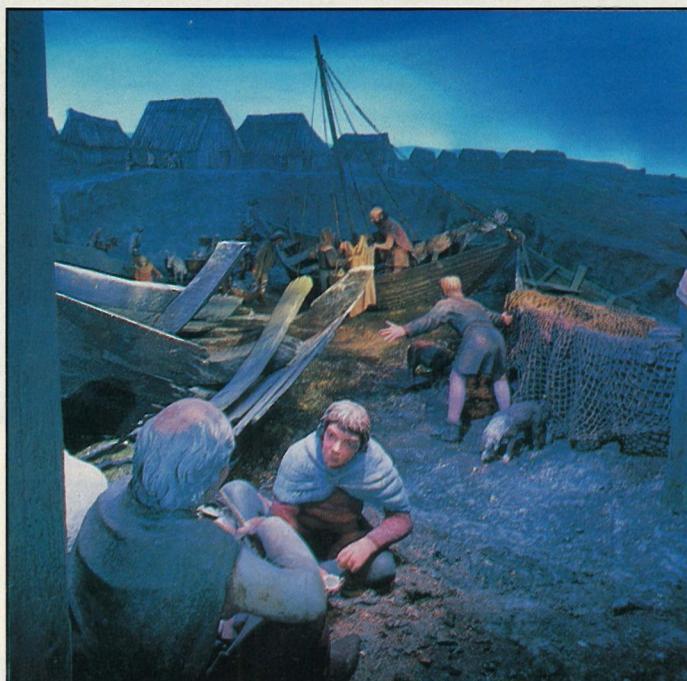
Until recently everybody knew what a museum interior should look like – a remnant of the Victorian age with vast echoing halls filled with a confusing number of illuminated glass cases. In the past fifteen or twenty years all this has changed. Museums are not only seen to be places of education, but a new generation of

directors driven by the need to compete for entrance fees out of the disposable income of visitors has been forced to step up the entertainment content of their displays. So, increasingly there seems to be little consensus as to what constitutes a museum.

Two recent schemes for museums illustrate very different attitudes towards museum design –

and have demanded very different qualities of their lighting designers. The first scheme is theatrical in nature; the second is rather more classical and restrained.

London's tourists are being taken for a ride. Near the Tower of London, the Tower Hill Pageant is housed in a series of old wine vaults. This, Southern Britain's first dark-ride, tells the



Drama is the keynote at the Tower Hill Pageant.

story of the River Thames from AD50 to the present day in a series of tableaux.

In lighting terms the need was to achieve maximum flexibility while incorporating over 500

luminaires into the settings. According to designer Adam Grater, of David Hersey Associates, the use of low-voltage lighting enabled electrical loading to be kept relatively low while providing for the necessary diversity.

The main wash unit is the Short-nosed Birdy, a Light Projects modified PAR 16 can with a shortened front to ease space problems and open up the fitting to utilise the wider beam M16 lamps better. Main tableaux lighting uses Times Square MR35 12V 50W profile spotlights, which are bifocal and allow the use of accurate framing shutters and gobos. Most fittings have local transformers and are fixed to track with switched multi-circuit track adaptors.

#### Lighting controls

The light is heavily textured – over 150 miniature gobos by DHA are used – and every luminaire is coloured. A high degree of control, using an Electrosonic Digidim system triggered by infra-red sensors and programmed with the PC-based Scene Planner, means long gel life and low maintenance.

An approach to lighting the curved cyclorama backdrops using low-voltage floodlights produced problems. David Hersey Associates did some trials with tinted neon tubes and found them to be ideal for the task. The neon is custom-made and uses strips of neutral white and a deeper blue together to give an even wash for the backdrops.

Howard Eaton produced a fibre-optic firework display for the Tower Bridge opening scene (complete with 10mm high working street lamps) and a frighteningly accurate miniature scanning searchlight for the Blitz bombing set, seen from above the German bombers attacking the city.

The ride ends at a museum showing artefacts from archaeological digs around the Tower and riverside, and this area is lit by Light Projects low-voltage special M16 fittings and fibre-optic spotlights driven by two 150W 4000K Arcstream light boxes. The tiny spotlights are mounted on gimbal joints with the fibre running into the rear of an adjustable lens. This gives a cool, easily controllable 50 lux lighting level for a piece of original harbour wall.

#### Glass canyon

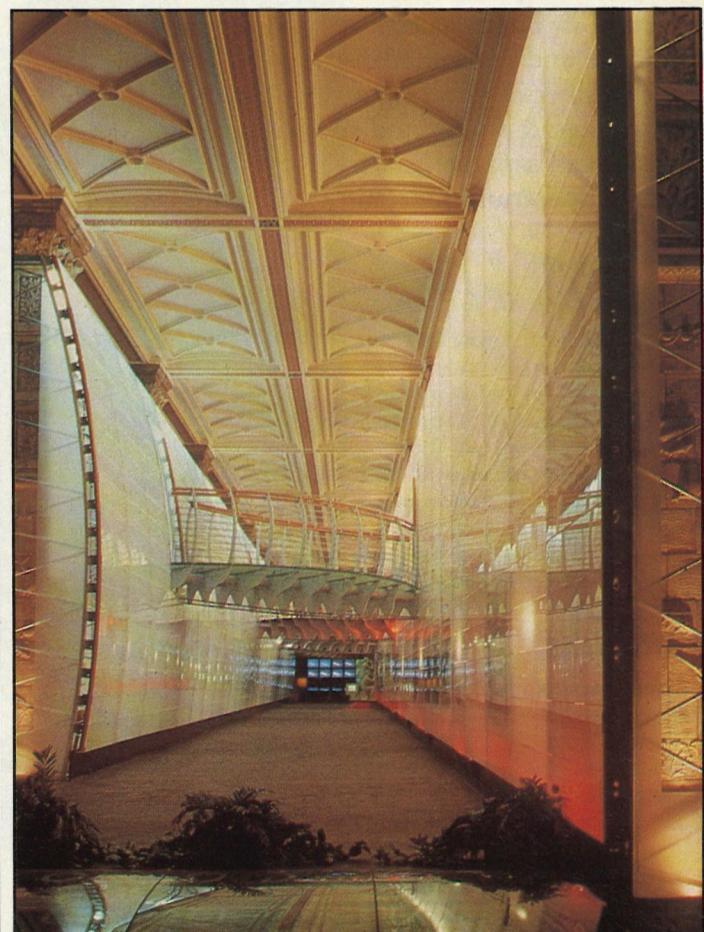
A far starker approach was adopted at the new Ecology Gallery in London's Natural History Museum. The central feature is a 5m tall etched glass 'canyon' which leads visitors down the length of the gallery as an introduction to the main body of the exhibition. As visitors return through the upper levels of the exhibition, they return over the glass 'canyon' on a series of bridges which span the two structures.

Rather than produce a typical fluorescent light-box effect, the etched glass walls are back-lit utilising high frequency fluorescent luminaires with narrow beam trough reflectors which graze light down the internal faces of the glass from high level. This creates a gently graduated surface luminance from a minimal number of light sources.

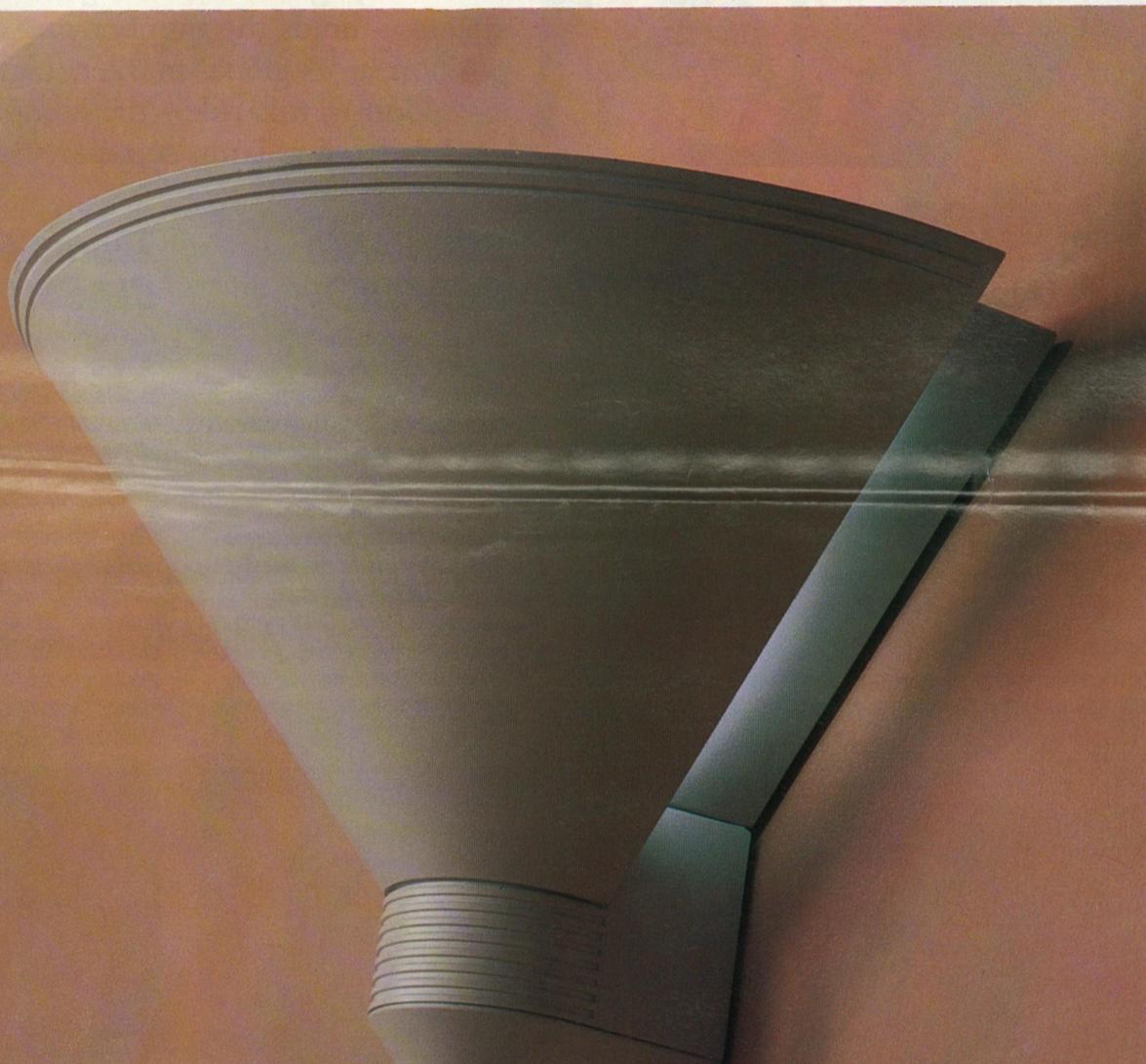
The north-facing wall is lit with very cool colour rendering lamps representing water. The south-facing wall has warm colour rendering lamps representing fire, further accentuated by the gently oscillating orange lava flow effect at the base of the wall.

Etched caption panels along the length of the wall are softly back-lit with discreet low voltage sources, creating a gentle glow of light around the texts.

The whole lighting installation is controlled by a simple dimming system which provides a number of pre-set lighting scenes and controls the subtle cross-fade of the 'lava-flow' lighting effect. Architects for the scheme are Ian Ritchie, and the lighting design is by Maurice Brill Lighting Design.



High frequency fluorescent back lighting gives a cool look to ecology.



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## Concord

# LIGHT Spectrum

February 1992

## Lighting the way



Welcome to the first issue of LIGHT Spectrum. This will be published in Lighting Equipment News on a regular basis to keep our customers and the industry informed on the stage by stage progress towards the integration of GE Thorn and GE

Tungsram as one company, GE Lighting UK. It will have its commercial operation on one site at Mitcham in Surrey.

With General Electric's acquisition, just over a year ago, of Thorn Lighting's light source business, GE Lighting became the world's largest lamp supplier and the No1 lamp supplier in the UK. The company's ambitious plans for the GE brand throughout Europe were unveiled recently.

Mainland Europe will immediately embrace the single GE brand identity. The UK market with its extensive product ranges and large manufacturing units will take a little longer - but only a little - by the middle of this year, the company will be known as GE Lighting, introducing a phased programme of GE branded lamps. Mazda, remains the key brand for the consumer channel.

The integration of the two companies is more than a change of company name. Significant resources have been invested in the UK manufacturing sites at Leicester and Enfield. £10 million has been invested in a new UK based distribution facility and we're expanding our product portfolio.

Finally, a word about how we intend to operate the sales operation. As the UK business is restructured, we're refocussing the sales teams. The specialist OEM sales team has been formed from the current expertise within GE Tungsram and the present GE Thorn sales force will develop the wholesale and consumer distribution channels. The niche businesses covering auto and miniature, photo, stage & studio and special applications will be managed separately. I trust you will find LIGHT Spectrum interesting and informative.

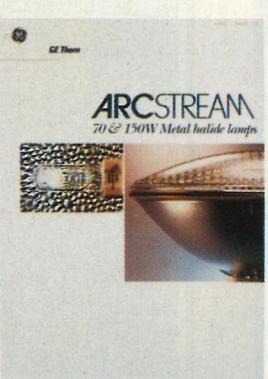
Mike Murphy  
Managing Director, GE Lighting UK

### Product portfolios

Have your individual product leaflets? All these GE Thorn publications are obtainable through Reader Service.



The new source of light  
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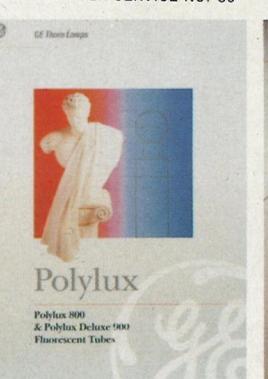
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2L & 4L Compact fluorescents  
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Mirror lamp Guarantee  
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35 & 50mm Dichroic Mirror Lamps  
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## £10 million distribution investment

GE Lighting has set up the company's new European state of the art distribution facility in Northampton at a cost of £10 million. The centre will shortly start operating as a central warehousing facility for products from the company's international manufacturing plants in the UK, US and Hungary, servicing both the European and UK markets. A southern European distribution centre, in Vienna, will also stock Hungarian made products.

The current distribution set up at Daventry will transfer to Northampton and, by mid year, existing GE Thorn distribution arrangements will also be replaced by the new multi-million pound centre.

## POLYUX ▲ 950 ARCSTREAM ▲ 830

These new logotypes include colour codes that help in co-ordinating colour rendering and temperatures - More next issue...

## Selling light

We have a mission to create better lighting. That means superior light levels in more pleasing colours with lower energy and maintenance costs. New lighting applications showing our light sources in action feature at major lighting exhibitions. You saw us at Lightfair, Lightshow, Hanover and IDI

## GE Lighting - part of the tenth largest company in the world

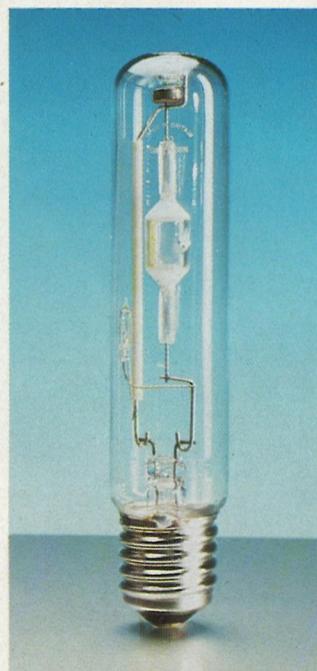
Thirteen core businesses, of which lighting is one, make up the \$58 billion General Electric corporation. Nearly all GE enterprises operate on a worldwide basis and each of its thirteen core businesses as wide ranging as aircraft engines to medical systems - holds the number one or two position in its global market. Lighting is no exception to this rule - the company is the world's leading lamp supplier.

### SON RANGE EXPANDED

SON lamps combine high efficacy, long life and exceptionally good lumen maintenance. SON XL represents the new generation of high pressure sodium lamps, with 18% more lumens and no increase in energy consumption. 50W SON XL with the latest ceramic technology is an alternative for the 80W mercury lamp for street lighting. Its initial output of 4000 lumens is 4% higher.

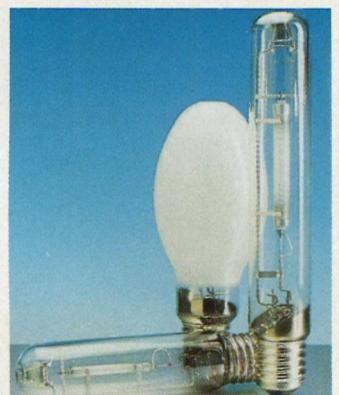
### Thorn SON CLASSIQUE

The technological advances of SON XL have been utilised to produce SON CLASSIQUE lamps with the increased efficiency and lumen maintenance of SON XL a high quality light output of 2200K colour temperature and a colour rendering index of Ra 60. SON Classique lamps, available with both clear tubular and diffuse elliptical outer bulbs, are electrically and dimensionally interchangeable with standard SON, SON DL and SON XL lamps.



THORN MBI-T

READER SERVICE NO. 60



KOLORARC MBI-T

Revolutionary Arcstream technology has been utilised to produce the latest lamp in the Kolorarc range. The MBI-T 250W offers high lumen output, neutral white colour a colour rendering index of Ra 70 and an arc tube designed for use in precise optical systems.

READER SERVICE NO. 61



35 & 50mm Dichroic Mirror Lamps  
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**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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# GE Lighting



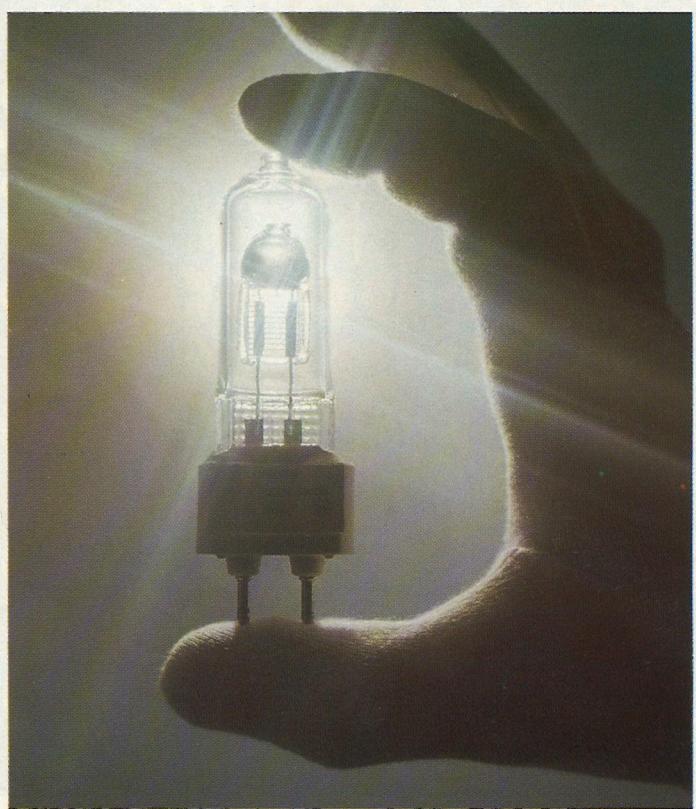
## NEW PRODUCTS **GE White Lucalox** - the compact high pressure sodium lamp

Consistent colour throughout its 10,000 hour life, reliability and economy, that's White Lucalox. Because its colour temperature is 2800 Kelvin, White Lucalox can be used alongside halogen or incandescent light sources. Unlike other light sources its ballast ensures good lamp-to-lamp colour even when burning upside down.

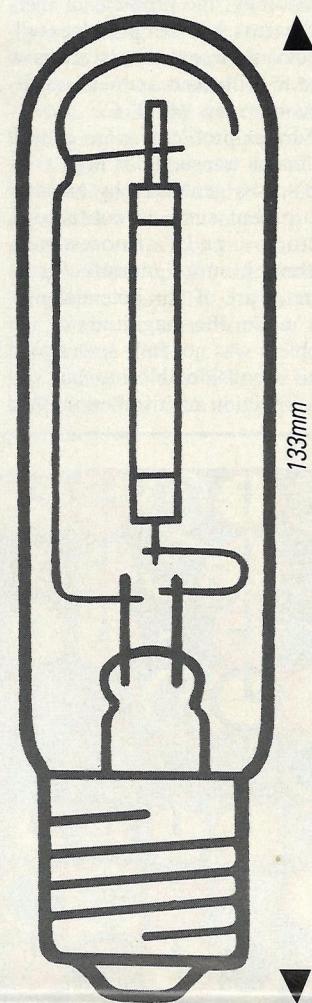
GE White Lucalox with its single end design and small arc length is designed for use in open fixtures and since it does not emit ultra violet radiation, a cover glass is not required. The lamps, available with either E27 or PG 12 caps, are designed for use in down-lighting and display luminaires.

READER SERVICE NO. 62

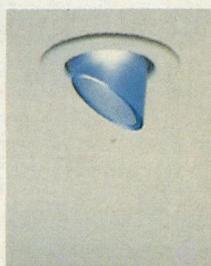
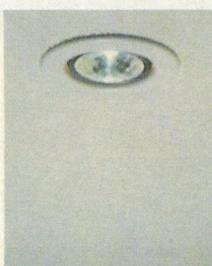
## Lighting and luminaire design with the Thorn Arcstream family of compact metal halide lamps



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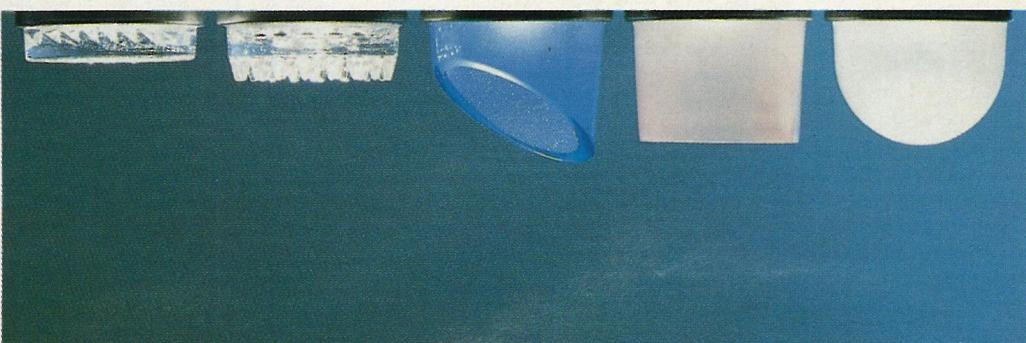


Halogems low voltage decorative mirror lamps offer designers attractive and innovative lighting for standard 50mm downlighters. The compact tungsten halogens giving pure brilliant white light in three wattages - 20, 35 and 50, have protective glass fronts secured by a decorative metal ring. Five interchangeable shapes and colours give a choice of beam pattern and visual effect.



Standard mirror lamp replaced by Halogem

## **HALOGEMS - PURE BRILLIANT LIGHT**



READER SERVICE NO. 64

## **GE goes High-Tech with the Light Engine**

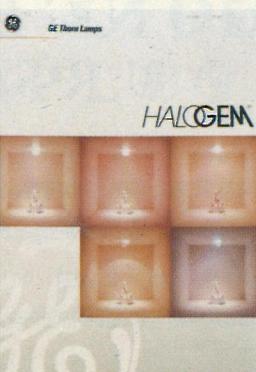


The Light Engine is an instant light discharge lamp, first demonstrated on automotive applications in conjunction with fibre optics. A fibre optic light is essentially a pipe, normally made of glass, along which light travels by reflecting itself off the inside walls. The intensity of the Light Engine is capable of driving fibre optics to new levels of brightness. The fibres are electrically nonconductive. GE Lighting is developing Light Engine technology to increase the range of general lighting applications.

Miles Pinniger, principal of Pinniger & Partners who are lighting systems advisers, is a great advocate of fibre optic lighting and predicts that the '90s could turn out to be the era in which fibre optic display lighting comes into everyday retail use. In fact he has already specified display spots with fibre optics driven by Arcstream in the new Harrods' Egyptian Room showcases (illustrated) with great success.

**GE Lighting**

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# Overcoming a dim reputation

**Electronic transformers were once synonymous with poor performance, but this is no longer the case. Andrew Penfold, of Intram Barwell, describes recent advances made in their design and looks at future developments.**

When electronic transformers first appeared in the UK market place some 5 or 6 years ago, they seemed to herald a new era in low voltage (LV) lighting possibilities. Lightweight, compact and very cost effective alongside conventional wound transformers, electronic transformers were all set to revolutionise the low voltage lighting industry with the promise of easy installation and energy efficient performance.

But, within a year, the outlook had changed dramatically. Problems inherent in circuit design and mechanical construction doomed them to a relatively short lifespan – generally less than 5000 hours. As for dimming – that was a short cut to total and immediate extinction! Ominously, it looked as though the electronic transformer had been born to die.

Unfortunately for current manufacturers the legacy of those early days still lives on. We know that perhaps many hundreds of users and potential users swore never to touch electronic transformers again, fed up with their reputation for failure and unreliability. Manufacturers may have had blind faith in their potential, but users who'd had their fingers burnt could only curse their apparent gimmickry and revert to old habits with conventional wound models.

So what exactly went wrong, and how can users now be certain that the electronic transformers they install or specify in 1992 are not going to be the 'dodos' of the next decade?

When electronic transformers were first developed and launched in the mid-1980s it was in very rapid response to a booming interest and demand for low voltage lighting. At the time the electronic transformer (ET) market was supplied by a handful of manufacturers with a variety of either British or imported prod-

ucts. To be fair there was little difference between them – they all suffered from similar drawbacks: acceptable performance under laboratory conditions, unacceptable performance in the field!

Given the speed with which suppliers raced into the market, it was almost inevitable that problems would occur. What was more surprising was the extent of the problem. Without the benefit of long-term trials in real conditions few could have anticipated that ETs would fail in quite such a fundamental fashion. A combination of inappropriate circuit design, component failure, incompatible mechanical construction and lack of relevant standards, meant that early manufacturers were forced back to the drawing board to reappraise almost every aspect of the transformers' design.

## Shake out

Naturally this was not a task for the faint hearted or the under-funded and this, in turn, led to an industry shake-out with some names dropping by the wayside. However, those with a real commitment to the lighting industry, who could see and be inspired by the huge potential that ETs offered, were not deterred. After all, the basic concept was sound and the potential benefits undisputed, compared with conventional wound models. These were heavy, expensive, awkward to install and lacked the regulation capability of the electronic transformers. There was still everything to be gained from the application of well-designed electronics in the lighting industry.

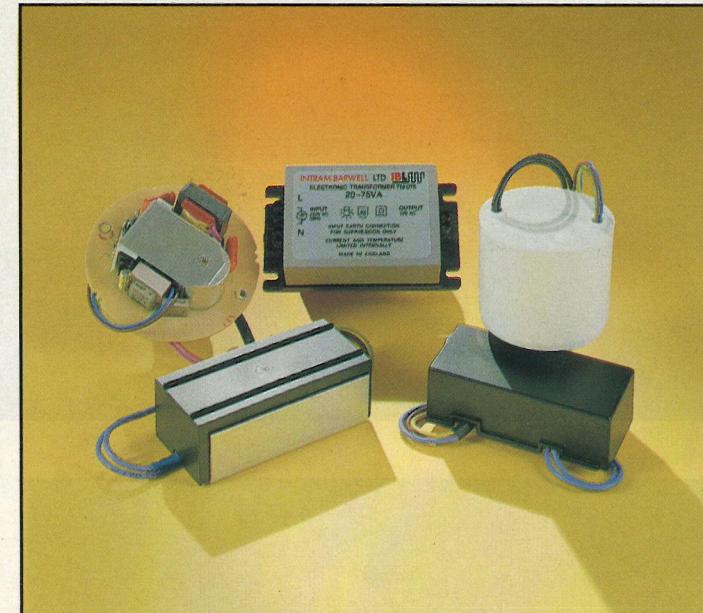
However, certain problems were more easily overcome than others. Firstly, with the help of semiconductor and other component manufacturers, the reliability of critical parts was vastly improved (see Figure 1). Nevertheless, the speed of change here was restricted by the need to keep prices as low as possible to

temperature even for conventional transformers. Equally, many units were encapsulated to aid environmental security. This exacerbated the problem even further by concentrating the stresses. Although designers knew that refinements in circuit design and PCB technology would ultimately provide the solution to thermal stress, this was not a cost effective means of providing an immediate answer.

## Problem solved

Nowadays with modern PCB manufacturing facilities, and the latest semiconductor and circuit technology, the problem of thermal stress has been addressed. Electronic transformers are now able to withstand ambient conditions in excess of 50°C.

Further problems were caused by mains transients or high voltage spikes generated by external equipment such as contactors, motors and fluorescents. Although most manufacturers were aware of this potential failure mode, the magnitude of the problem was not fully understood until a considerable number and cross-section of installations had



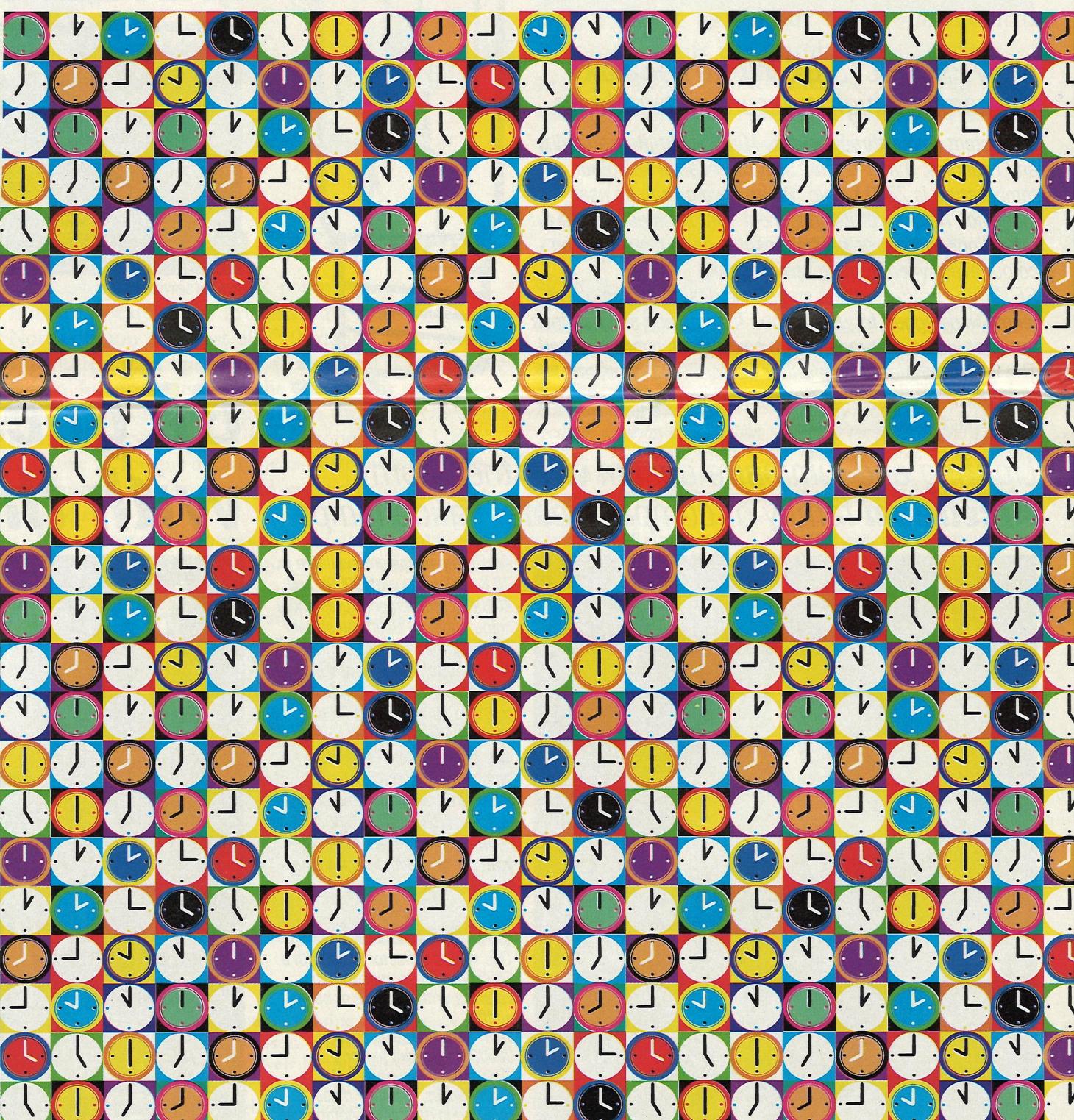
Typical designs of electronic transformers.

been experienced.

The product had to be able to withstand a typical mains spike (> 2 Joules at up to 1000V) but remain within the bounds of a realistic end price. Good communications between the manufacturers' in-house technicians and the

semiconductor companies enabled the correct balance to be reached between performance and cost.

A challenge which has occurred within the last 2 years has been the dimmability of ETs. This began with an increase in demand for mood lighting. With



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### IEC 1046 : 1991

DC or AC supplied electronic step-down converters for filament lamps. General and safety requirements.

### IEC 1047 (In draft)

DC or AC supplied electronic step-down converters for filament lamps. Performance requirement.

### IEC 65 : 1985

Safety requirements for mains operated electronic and regulated apparatus for household and similar use.

### BS 3535 : Part 1 : 1990/EN 60 742 : 1989

Isolating transformers and safety isolating transformers. General requirements.

### BS 800 : 1988 /EN 55 014 : 1987

Limits and methods of measurement of radio interference characteristics of household electrical appliances, portable tools and similar electrical apparatus.

### IEC 555-2 : 1982

Disturbances in supply systems caused by household appliances and similar electrical equipment.

Current standards used for the design and construction of electronic transformers.

Figure 1

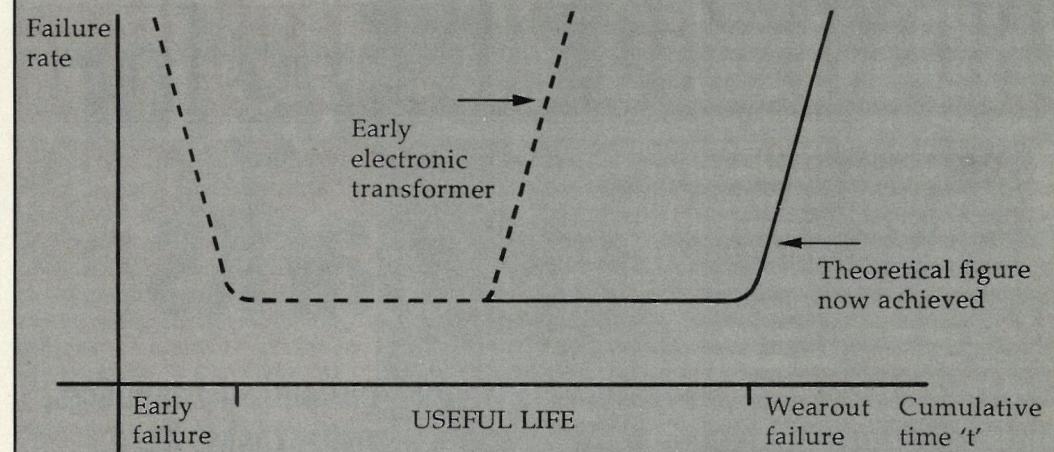
sophisticated commercial dimming systems.

As conventional wound transformers will always need to rely on special dimmers capable of controlling inductive or capacitive loads, here was a clear opportunity for electronic transformer manufacturers to make ETs compatible with conventional domestic dimmers. This would inevitably have a devastating effect upon the LV power supply market.

#### Resistive load

The technological difficulty here lay in getting the transformer to behave like a resistive load – such as an incandescent light bulb – while continuing to conform to the mandatory RFI standards of BS 800 as laid down by the Wireless Telegraphy Act 1948. This, combined with refinements in the circuitry ensuring more stable control and scope for the dimmer to operate normally, has placed the electronic transformer at the head of the field.

Current users of ETs are now well protected from the perils of



A range of dimmable electronic transformers.

the ET now an acceptable product, both commercial and domestic users became interested in the atmospheric possibilities of dimming. On the face of it, this was a whole new can of worms!

Many of the ETs available in

the early days were not dimmable because of the fundamental design of the circuit. Other manufacturers had dimmable ETs, but with restrictions on dimmer types to hard-fired dimmer technology, normally found on more

unreliable products they purchase from a reliable source. The introduction of several safety and performance standards and, in particular, the newly harmonised IEC 1046: 1991, is a valuable endorsement. Such standards benefit both manufacturers and users and now give ETs the technological credence they previously lacked.

So where is the electronic transformer industry heading in the future? Two areas of new growth will provoke interest in

We can demonstrate the improved reliability of the electronic transformer by using the 'bathtub curve'.

The theoretical reliability of a product may be determined by a term known as the 'mean time between failures' (MTBF). This is governed by the quality of the components used in the assembly, the way in which they are used in the design (stress factor) and the operating temperature.

The theoretical MTBF for an electronic convertor using conventional technology and operating in a normally encountered ambient temperature, is around 400 000 hours. This is expressed as the ratio of the total cumulative time to the number of failures.

If  $t$  is the duration of the test,  $N$  the number of units under test and  $k$  the number of failures, then:

$$MTBF = \frac{Nt}{k}$$

As we know that the MTBF for the transformer is 400 000 hours, we can calculate that there should be a 1% failure after 4000 hours' cumulative operation.

Early electronic transformers did not match up to this expectation due to one or a combination of fault conditions. By careful enhancement over a period of time, the useful life of the transformer has been increased to reflect the theoretical result as shown on the 'bathtub curve'.

the coming months.

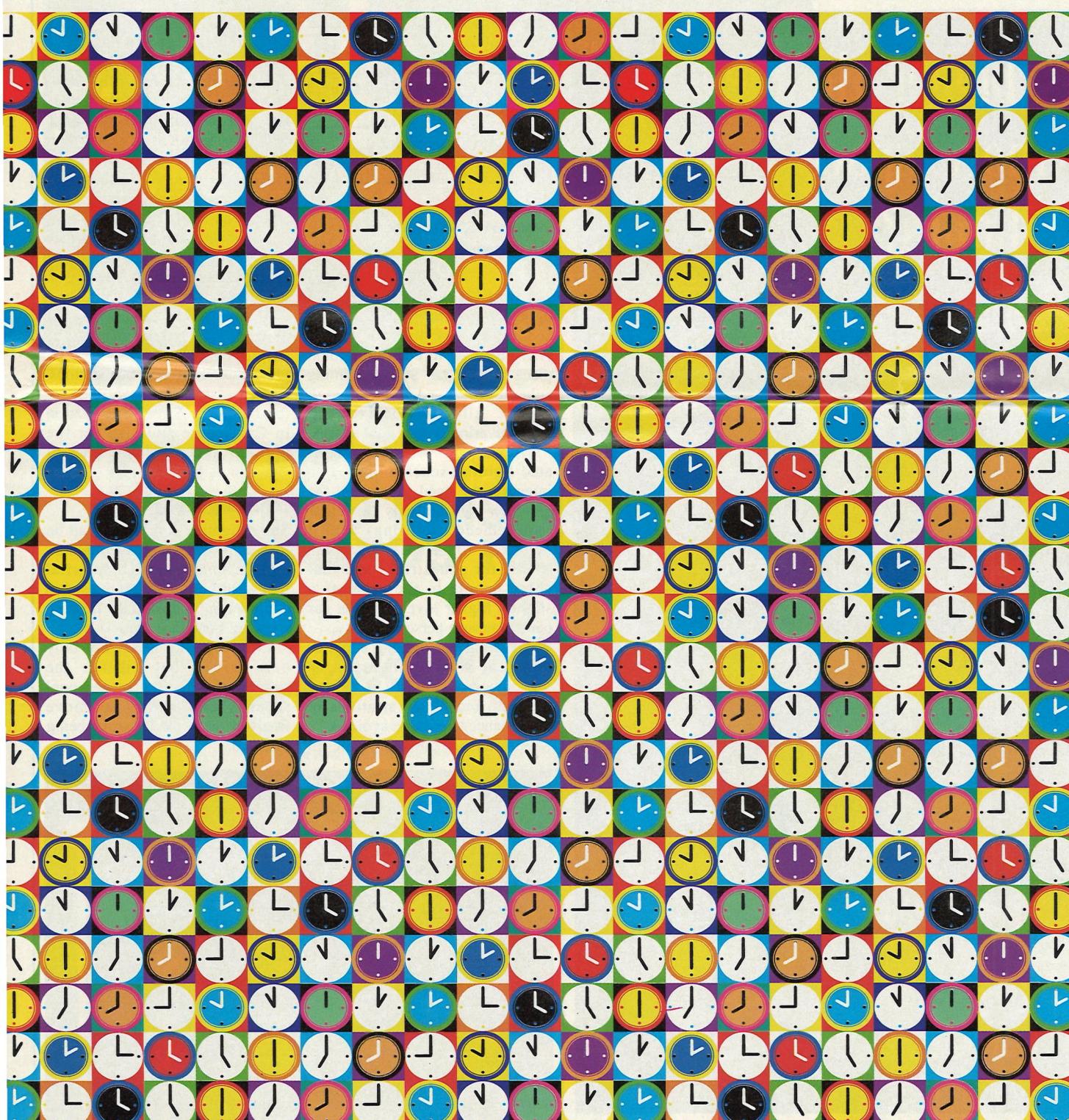
Integration will be the key word in the application of electronics to lighting. By their very nature ETs are ideal for building into luminaires. A fully dimmable, fully integrated luminaire able to take varying wattage loads, installed in a few short minutes, effective and reliable in close proximity conditions will soon bring a new breath of fresh air to the market.

#### Radiated RFI

The development of high powered, high performance ETs is an obvious progression from high frequency power supplies. But this is a more technically difficult prospect which throws up the question of radiated RFI due to the application. Although high powered ETs already exist and are readily and easily produced – the technological advances needed to guarantee their absolute freedom from RFI nuisance have not yet been fully realised.

The established ETs operate up to a maximum wattage of 105W. These function with relatively little output disturbance, short output cables minimising the risk of unacceptable levels of radiated RFI. As high powered ETs ideally will operate at power ratings of up to 300-400W and are intended for use with multiple light banks, cable or track length can prove a real victim to RFI, making performance difficult to guarantee. However, techniques now exist which largely eliminate this problem, so users can look forward to a new generation of high powered ETs.

There will always be a place for the tried and trusted conventional wound transformer despite its drawbacks, especially where cost is of prime importance. But for those who appreciate the advantages of simple installation, reliability, convenience, cost-effectiveness and energy efficiency then electronic transformers are a good choice.



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Reader Service No. 14

# Planning lighting for exterior car parks

Not only do car parks vary greatly in their layout and surroundings, but the lighting must provide for a variety of visual tasks. Here, Hans-Joachim Dodillet and Ian Pears, of Hoffmeister, discuss basic requirements.

Car park lighting is required as an aid to both motorists and pedestrians. It enables them to recognise obstacles and boundaries, including the delineation of the car parking zone. Moving objects, human, animal or mechanical, must also be perceived. In addition, it helps pedestrians to move around the car park in safety and

to recognise their vehicle when they return.

The visual tasks in connection with using a car park area can vary greatly with the differences in car park layouts, the landscaping used within them and the surrounding area.

Thus, all standards – be they European or the British Standard 5489: Part 9: Section 3 – can only

indicate minimum recommendations for lighting levels within car park areas. It is then the responsibility of the design engineer to take into account all the architectural features of each individual project and then to base luminaire positions and recommended lighting levels on this.

Table 1 gives the British Standard recommended values of ser-



A modular linear lighting system used in a bus station.

vice illuminance for exterior car parks only.

Average horizontal illuminance	50 lux
Minimum horizontal illuminance	10 lux

Table 1: Exterior car parks – recommended service illuminance.

In today's world, the level of demand for car parking space seems to mean that the actual area given up to each individual place is minimal. So any lighting scheme must provide enough overall illumination to aid manoeuvring within tight spaces.

The car park layout and associated lighting scheme must also integrate the need to provide for disabled parking, this particular requirement also brings with it the need to illuminate access routes for pedestrians and disabled people to the same or a slightly higher level than the car park to ensure personal safety.

Uniformity of lighting is not as important as on traffic routes, as the speeds should be much reduced, but wide variations in illuminance should be avoided.

Luminaires chosen to be in

character with the surrounding area provide a good solution, so that when they are not lit they are aesthetically acceptable. However, individual taste may dictate that a total contrast be made between the luminaires and their surroundings. The overriding criteria must always be that they provide an adequate lighting level when required to do so.

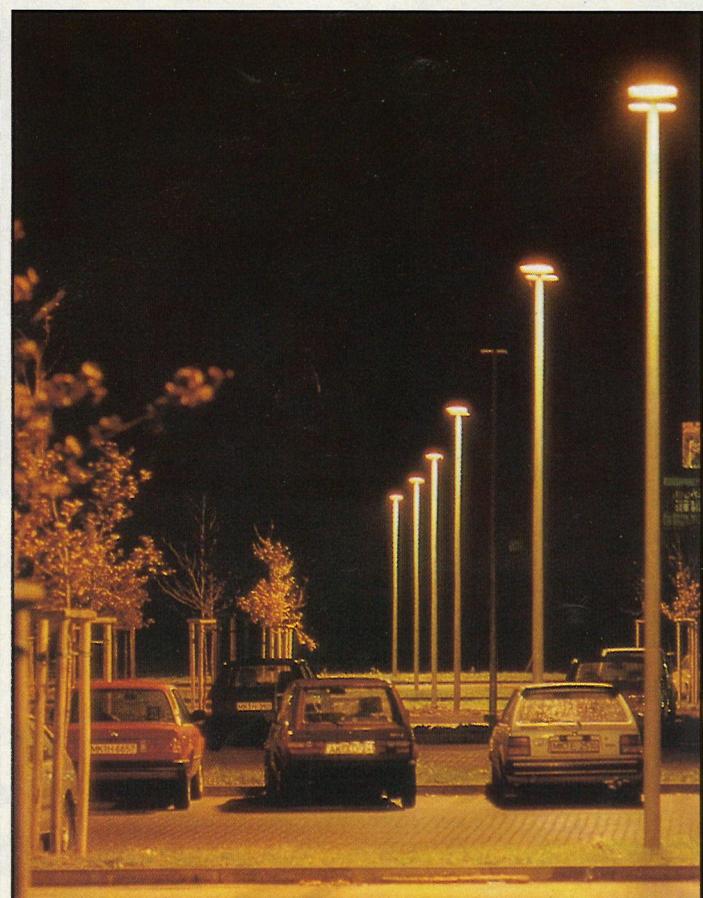
Luminaires can be used in such a way that they appear to be part of the architectural structures in, around or over the car park area.

Modular linear lighting systems designed for exterior use can be employed in this way for car parks and short-stop bus stations. Such a system has been used for the Drummer Street Bus Station in Cambridge and also for the pick-up and set-down area of Glasgow Airport.

## Enhancing safety

Street lighting luminaires can be used to provide car park illumination. Luminaires with a spherical light distribution are often used in conjunction with bollard lighting showing boundary lines.

Good lighting levels not only help drivers but enhance the pedestrian's feeling of personal security and ability to move freely without the threat of being attacked.



A car park lit by road lighting luminaires.

This year's Euroluce is bigger than ever: are we talking more space or more exhibitors?

Both, actually.

More space, since the floor area will be double what it was last time around. But also because Achille Castiglioni and Pierluigi Cerri's great new design creates a free-flowing look for the whole show, and also includes oases where you can take a break if you're feeling light-headed.

All in all, Euroluce will be such a brilliant experience that visitors will remember it, at least for the following two

years because, as we know, it is now a biennial event.

More exhibitors: a better spread, all the way through pavilions 16, 17, 18 and 21 of the Milan Fairgrounds, in fact. This means Euroluce is brighter quality-wise too.

And what's more, visit Euroluce between 10 and 15 April and you won't be able to miss the Salone Internazionale del Mobile.

Will the enlightened be coming to Italy for the sun or for the lights? Both, actually.

**Euroluce, International Lighting Exhibition. Milan Fairgrounds, 10-15 April 1992.**

Cosmit, Organizing Committee of the Italian Furniture Exhibition.  
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# New thoughts on outdoor lighting

**LEN** previews a new guide that gives advice on lighting many aspects of the outdoor environment. Whether you are lighting a hospital precinct, a fountain or a sundial, help is given.

**O**utdoor lighting has been under close scrutiny at CIBSE and the outcome is *Lighting Guide 6: The outdoor environment*. The previous guide on this subject was published in 1975 and consequently significant changes have been made and new concepts

introduced.

Basic objectives of the new publication are to promote safety and security at night, enhance appreciation and enjoyment of the surroundings and, by giving a sense of belonging, help people to relax.

Since the last guide, the order

of priorities in designing outdoor lighting have changed and this fact is reflected in the new guide.

More attention is paid to running costs and not only are capital outlay and energy considerations acknowledged, but also maintenance and environmental issues – factors which have re-

ceived increasing public recognition since the last guide. For example, it discusses the use of energy in terms of the lighting's effectiveness in the chosen locality.

The new publication has a broader scope. There is guidance on the use of lighting in crime prevention and more technical information needed by electrical engineers, town planners, developers, traffic engineers, lighting designers, architects and other specifiers.

Although advertising signs, road, traffic and security lighting are touched on, readers are referred to other publications which contain more comprehensive information.

The task group which has written the guide, chaired by Peter Le Manquis of Thorn, has adopted a logical format that makes it easy to use as a quick reference guide.

## Step by step

First, general design aspects are discussed. Lighting objectives are examined in terms of aesthetic and functional considerations, and factors affecting the visual environment.

Under aesthetic considerations, side headings include unity, scale, rhythm, emphasis, depth and colour, giving a new architectural concept to the guide.

The next chapter gives advice on 26 specific applications, such as, shopping precincts business parks, railway stations, subways and various types of building and other structure. There are sections on festive illuminations, parks, advertising signs and even on how to light flags and clocks.

**Right:** Brindavan Gardens, Mysore, India. The fountains are lit by narrow beam, submersible floodlights.



**Specially doped metal halide lamps tint the metal cladding blue on the Lloyds of London building.**

Short reference tables in the body of the text give the recommended illuminance for the particular application.

In the following chapter, a range of seven lighting techniques is discussed, including emergency and landscape lighting. Flood-lighting of different types of building facade is covered, such as facades with external recesses.

The next chapter reviews equipment, including controls, housings and masts, with a long

section on the electrical installation.

Maintenance has a separate chapter which ranges from commissioning of the system, through economics to system management.

Two appendices deal with floodlighting design and calculation methods, and landscape design method.

Copies are available from CIBSE, 222 Balham High Road, London SW12 9BS, price £44 to non-members, £22 to members.



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Top: This National Power team raised £500 by a sponsored parachute jump.

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Reader Service No. 17  
Page 17

# Frightened of bribery?

Trade literature is only second best when it comes to learning about new lighting products. *Jon Butler*, of Staff Lighting, speculates on why architectural practices are reluctant to send staff to trade exhibitions and manufacturers' briefing sessions to find out what's new in the market.

In common with many companies involved in the design and production of high quality, technically innovative products, Staff Lighting spends millions of pounds on research and development to improve the products we manufacture. Imagine the frustration of

companies like ourselves when we find recently built or refurbished property lit with out of date, inappropriate lighting systems merely because the specifier is not up to date with current products. It is doubly frustrating when the same specifiers shy away from invitations from manu-

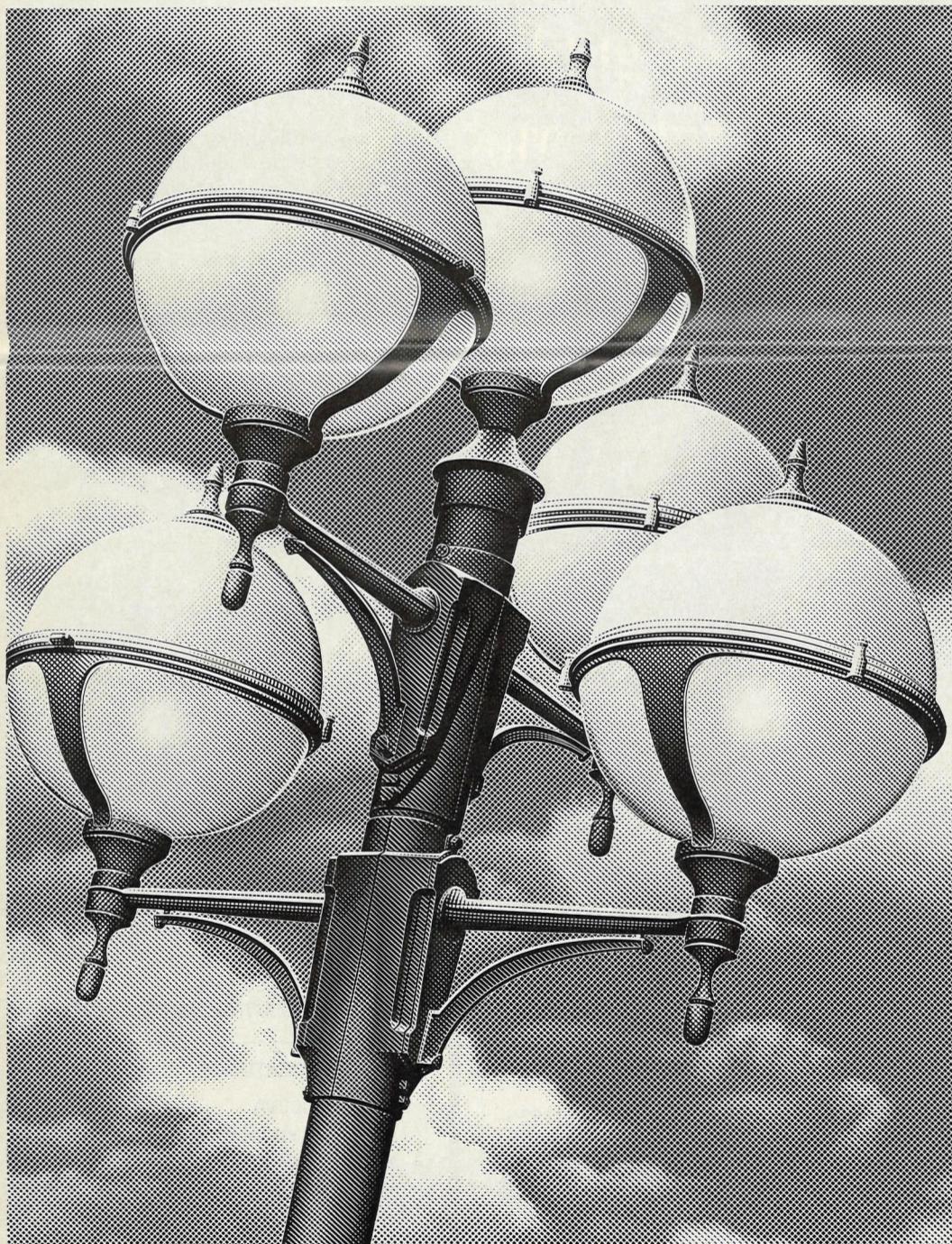
facturers to attend information-giving trips or exhibitions as if the manufacturer was offering some kind of bribe.

Surely, if specifiers are to give their clients a high quality finished building it is their duty to be aware of developments and new products – and to do this



A general view of Electrex '90.

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requires a modicum of application. Architects, for example, may qualify after 7 years, but their education of necessity must continue as long as they practise. Products change and develop long after the last exam, a fact which too many professional architects and other specifiers seem to ignore or dismiss – along with the consideration that those best qualified to give information on new products are the manufacturers. Of course, manufacturers want to sell their product, but it is also in their interests to supply accurate advice and information. The difficulty often lies in persuading the specifiers to listen.

With a product range that is continually being updated and expanded, it is impossible for a company of any size to provide sufficient literature to give an accurate impression of the appearance and performance of its entire product range, standards and specials, at any given time. And being only two-dimensional, literature serves a vital function for reference and to give an introduction to product ranges, but it can never compete with a demonstration.

The simplest and most efficient way for any specifier to get an accurate idea of the breadth of product ranges available and watch the products functioning is to see them in action at the relevant trade exhibitions and seminars. These provide the opportunity to see and find out about competing products available in any particular market area.

**'It is the duty of specifiers to be aware of developments and new products'**

Under one roof the visitor can see standard products and innovative new designs as they would appear in an installation, not simply as a well-lit brochure photograph, as well as gaining informed advice from the staff on the stand. This scenario should equally serve as an opportunity for manufacturers to gain a more detailed understanding of the needs and preferences of the specifiers to whom they will ultimately market their products.

It all sounds ideal, yet time and again the visitor analysis shows only a tiny proportion of visitors are architects by profession. In our own experience, we continually encounter reluctance from specifiers to attend exhibitions or

receive any education from the manufacturers. In some cases, specifiers who have been to see our design and production facilities in Germany have had to take holiday to do so. It appears that the attitude to attendance of a number of senior staff is that specifiers will have their opinions unduly swayed by corporate hospitality. Do they seriously think that staff will be persuaded to buy products on the basis of a couple of whiskies in the hospitality suite?

**'Only a tiny proportion of visitors are professional architects'**

Surely exhibitions should be seen as opportunities for specifiers to educate themselves. Exhibitions, particularly when backed up by informative seminars should be seen as educational opportunities not wasteful 'jollies'. Most importantly, each company should have a prescribed system for disseminating information gained from the exhibition. If only one member of staff attends, is there a system in place for reporting back to the rest of the practice?

Education should be a two-way process. Manufacturers should take the opportunity to listen to the specifier to understand his needs, and to gain useful pointers as to how products could be modified. Again, trade fairs are an ideal opportunity to establish this dialogue.

Having said all this, exhibitors must also be aware of the need to attract the relevant professionals to exhibitions. That is to say the stand should be staffed with people who really do know about the products in sufficient detail to advise the specifiers who use them, and to make use of the comments and opinions they receive.

There is also an argument for upgrading the quality of stands. If an exhibition is to look like a professional information centre rather than some kind of Sunday morning market, then the quantity and quality of 'shell scheme' stands should be looked at carefully.

If the trade exhibition is regarded in the right way – as a mutual education exercise – and not represented as a time wasting jolly, then the contact that is essential between manufacturers and specifiers can finally be established in a time and cost effective forum.

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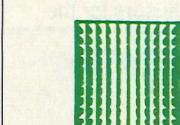
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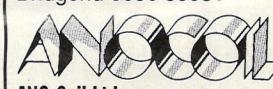
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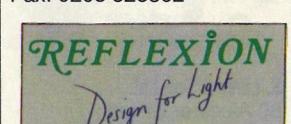
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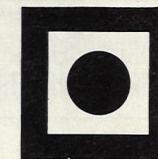
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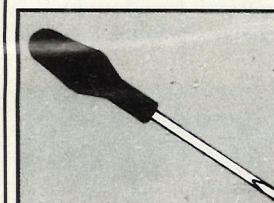
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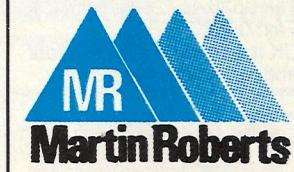


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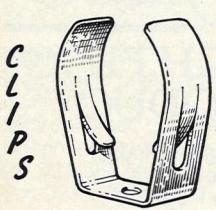
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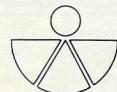
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# CLASSIFIED ADVERTISEMENTS

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## EXPERIENCED SALES AGENTS REQUIRED

For established manufacturers of Emergency Lighting, Fire Alarm and Security Products selling nationwide to Wholesalers, Specifiers and Local Authorities.

Please reply to: Box No. 1516, Lighting Equipment News,  
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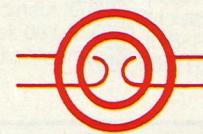
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New agents must be "on board" ready for a national sales conference in April 1992.

Please reply to: The General Manager,  
Security Lighting,  
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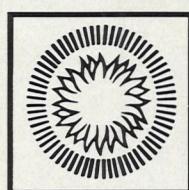
The Trade Mark set out below was assigned on 9 December 1990 by POWERLITE ELECTRICAL PRODUCTS LTD of 122 North Street, Leeds, LS7 1AF, to F W THORPE PLC of Merse Road, North Moors Moat, Redditch, Hereford & Worcester B98 9HH without the goodwill of the business in the goods for which the Trade Mark is registered:

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MARCH ISSUE IS 20 FEBRUARY**



# illumia

## Lighting Engineer Uxbridge

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We now require a Technical Sales Person to work at our Head Office in Uxbridge dealing with telephone enquiries, preparing quotations and lighting schemes.

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Applicants must have experience in lighting applications and will be required to call on architects, interior designers and retail lighting specialists.

Apply in confidence, in writing, with full C.V. to  
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## CATALOGUE DIRECTORY

### International Lamps Ltd

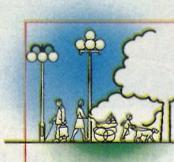
#### GENERAL LIGHTING & DISPLAY LAMPS



The first of a new series of lamp catalogues is now available illustrating the most complete range of lamp products by the major manufacturers under one cover. The catalogue contains easy to read text and illustrations for busy Engineers and Buyers. Full technical support is also available from International Lamps: circle 90

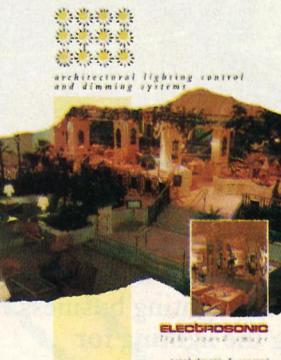
### Kingfisher LIGHTING LTD

#### "GLOBELIGHT" PRODUCT DATA



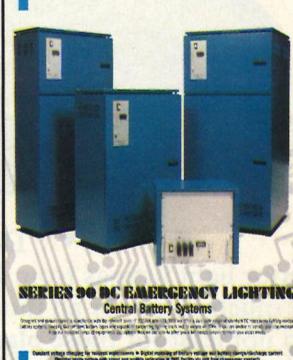
Globelight offers a comprehensive range of amenity lighting products. Diffusers are polycarbonate, bases are diecast aluminium, with integral control gear, available in a variety of light sources. A full range of columns and brackets complete the suite providing you with a designer range at competitive prices: circle 91

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### CHANNEL SAFETY SYSTEMS



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 93

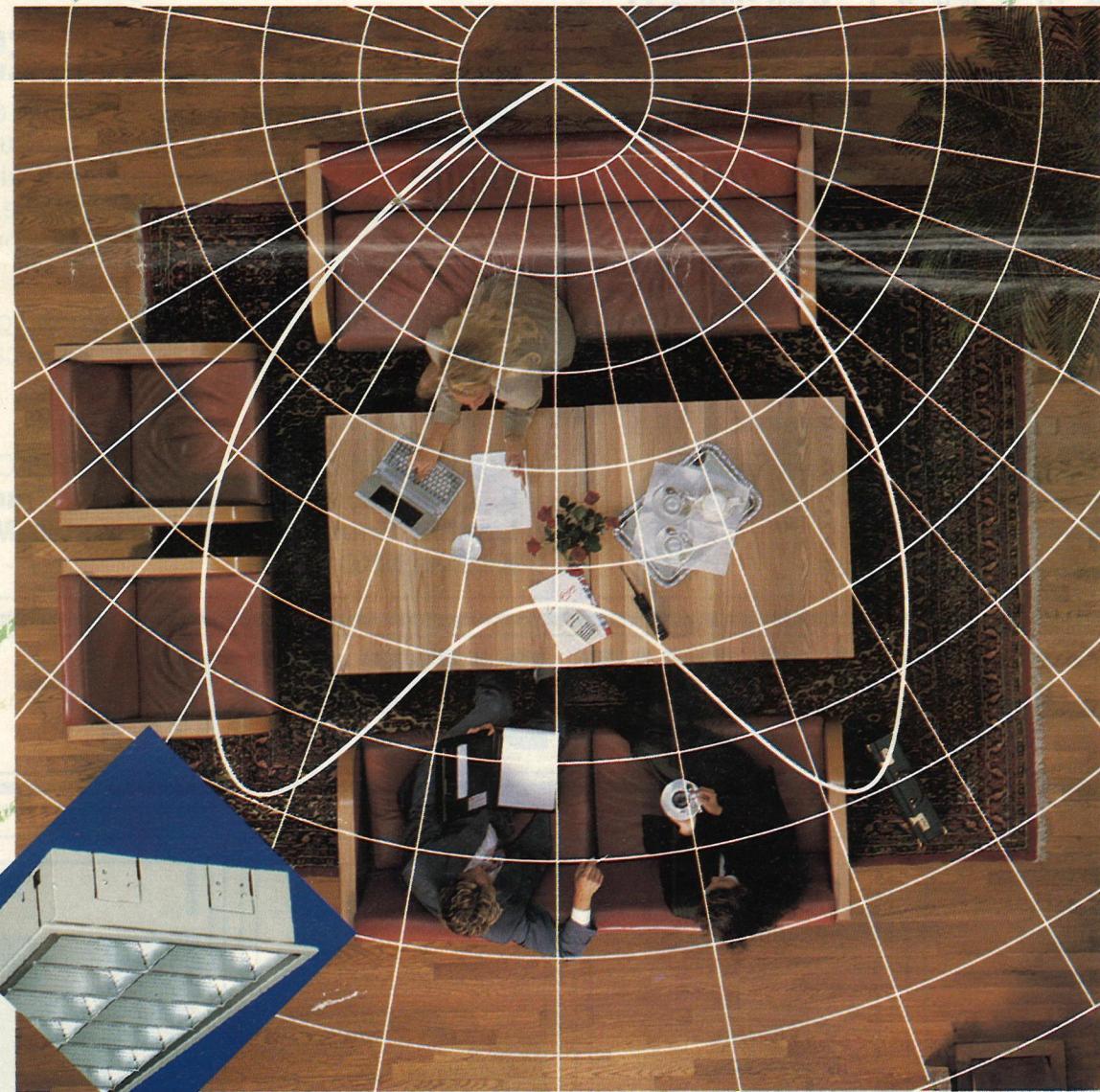
The themes of this year's Carnival in Venice were peace and ecology. To highlight the need to save energy, the International Greenpeace Organisation launched an energy saving campaign in close co-operation with the city of Venice authorities. Osram provided 1700 Dulux EL lamps to promote the replacement of conventional incandescent bulbs with electronic energy-saving lamps.

The lamps were installed in famous buildings and squares such as the Piazza San Marco, Piazzetta San Marco and Riva degli Schiavoni. E27 bases made the lamps quick and easy to install, even in the famous Venetian street lanterns. So now as you glide up the Grand Canal the light you see is not only romantic, but ecologically sound.



## BUSINESS IN A NEW LIGHT

# DeLight



DeLight. The new series of interior light fittings from Glamox - now making life that much easier for all those in the lighting business. And not least for those planning the lighting for business reception areas, hotels, conference centres and all commercial needs.

The DeLight Family - 85 versions can now be combined with 10 different types of louvre - it's what our customers said they wanted. With its inherent

product quality and plenty of new and carefully researched features, DeLight now offers an exceptionally versatile lighting system.

There is no area of interior lighting application where DeLight concedes anything to competition. We know that. Definitely.

Ask for a catalogue. It will prove the point. That Glamox DeLight gives better value all the way.

**GLAMOX** DeLight

Glamox Electric Ltd.: Anderson House, 29 Coast Road, Wallsend, Tyne & Wear NE28 8DA. Tel.: 091 262 7126. Fax: 091 262 4118.  
Glamox House, California Lane, Bushey Heath, Hertfordshire WD2 1EZ. Tel.: 081 950 0046. Fax: 081 950 0346.

## Draft workplace regulations

Proposals to update the law on basic health, safety and welfare requirements in the workplace have just been published as a consultative document by the Health and Safety Commission (HSC).

The regulations that follow from these proposals will implement the European directive on minimum safety and health requirements for the workplace (to be known as 'the Workplace Directive') and are issued as draft workplace regulations, together with an accompanying draft code of practice. Implementation is due by 31 December 1992.

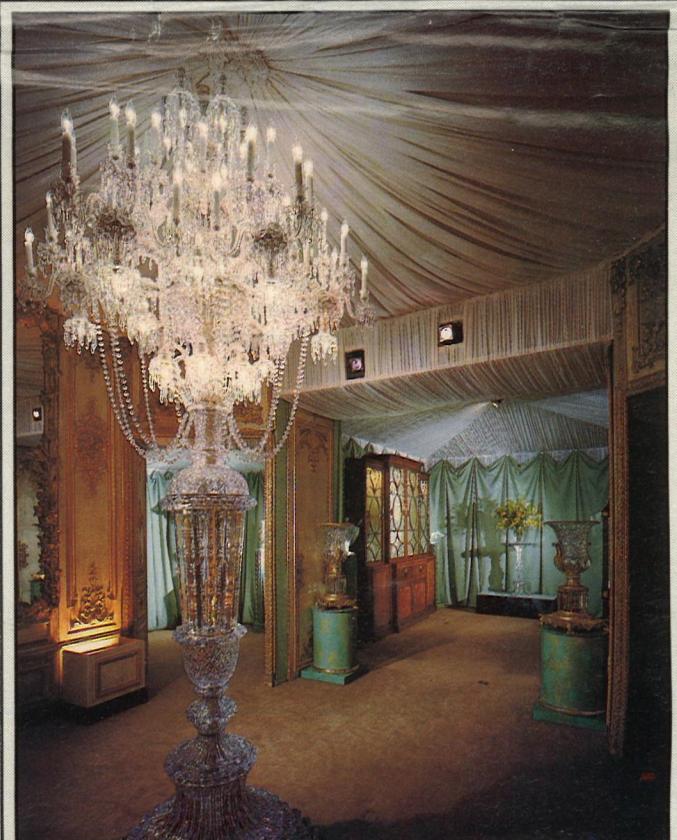
Introducing the proposals, Sir John Cullen, Chairman of the Health and Safety Commission, said they could be described as a combined Factories Act and Offices, Shops and Railway Premises Act for Europe. 'Many of the proposals we are putting forward deal with familiar issues, such as the requirement to maintain a reasonable temperature in the workplace and other workplace basics such as lighting, ventilation, and sanitary facilities.' So employers will find these proposals will involve few changes in practice.

But some of the requirements will be less familiar. These

include the safe cleaning of windows, and safety devices on certain doors. Two other requirements may have widespread implications; these require arrangements to be made to protect non-smokers from discomfort caused by tobacco smoke in rest areas, and the provision of a rest facility for any worker who is a pregnant woman or nursing mother.

The proposed regulations will cover the great majority of workplaces, whereas much current British law is limited mainly to factories, offices and shops. For instance, schools will now be covered.

For new or modified workplaces, the proposed regulations will take effect from 1 January 1993, so architects currently designing a place of work which will come into use after this year will have to take the proposals on board now. The Department of Environment is considering changes to the Building Regulations to make sure that they dovetail with the proposed workplace regulations, and especially the window cleaning and ventilating provisions. For workplaces already in use on 1 January 1993 employers will have a three-year period, until 1 January 1996, to comply with the new regulations.



A candelabrum made for Tsar Nicholas II of Russia and comprising 3320 pieces was recently put on show by Asprey of New Bond Street. It was cut by craftsmen at Baccarat the French crystalware manufacturers founded in 1764. One of a set of twelve ordered by the Tsar, only ten candelabra were actually delivered before the 1917 revolution broke out. These may still be seen in St Petersburg.

The 3.6 m high piece, with a list price of £650 000, originally used candles but has been refurbished with a new stainless steel base and stem and 97, 40W, 120V minican lamps. To recreate the original candlelight effect JSA Consultants used 500W CCT Minutte floodlights and profiles with Rosco colour correction filters.

## IN YOUR NEXT ISSUE

The Single European Market will be upon us at the end of this year offering a challenge to those firms which are prepared to meet it and a threat to those who have just been sitting back hoping it would never happen.

Europe's premier lighting event is undoubtedly the Weltlichtschau at Hanover, and in March LEN will preview the new products to be seen there, providing an opportunity to see what is now available in Europe.