LIGHTING EQUIPMENT NEWS

DECEMBER 1989

Tungsram takeover

The largest post-war business investment in Hungary by a western company has just been announced. GE Lighting, a subsidiary of General Electric of America, is to purchase 50% plus one share of Hungarian lighting manufacturer Tungsram for $150 million and to take over management of the company. GE has a further option to purchase up to an additional 20% of Tungsram in the future.

"This is both an excellent global move for GE and an historic moment in the reform of Hungary's economic system," stressed GE chairman, John Walsh. "This joint venture was made possible by the Hungarian government's policy of encouraging foreign investment and looking to world markets."

Commented Tungsram president, Andras Gabor, "Hungary is on the way to democracy and the development of a free enterprise system. There is no going back *now, only forward. GE's* participation in Tungsram gives us the opportunity both to grow our lighting business and to embrace this process of change."

Tungsram is one of Hungary's largest industrial companies with 12 manufacturing plants and annual sales of approximately $300 million, 85% of which comes from exports.

The companies plan to combine their European lighting distribution organisations into one unit, to distribute both GE and Tungsram products.

GE is the USA's third largest company in terms of market value. In 1988 it had revenues of $50 billion and net earnings of $3.4 billion.

The joint venture will manufacture and sell products ranging from household lamps and energy saving fluorescent products to high-technology discharge lamps. In addition, it will manufacture a full range of motor vehicle lamps and a number of specialist lamps ranging from miniature halogen lamps to infra-red quartz lamps.

GE Lighting will assist Tungsram in expanding its product range, particularly in the commercial and industrial fields.

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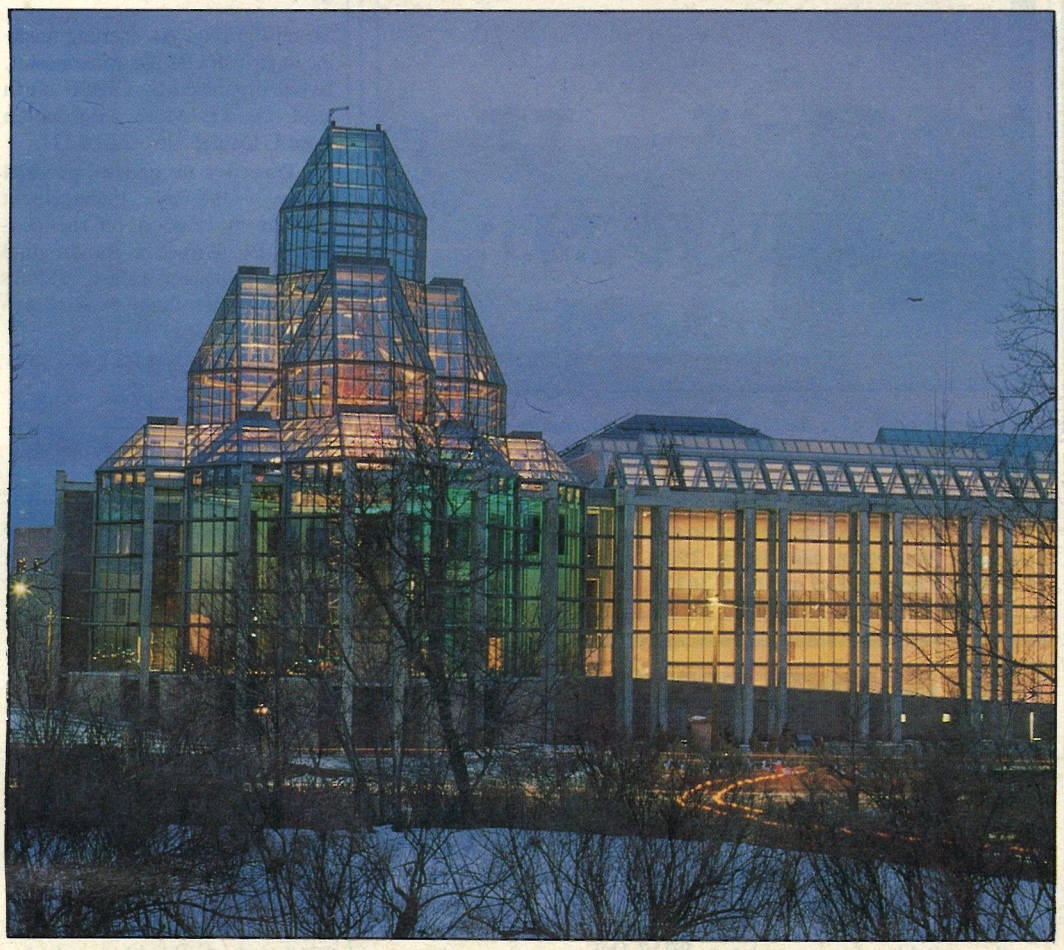
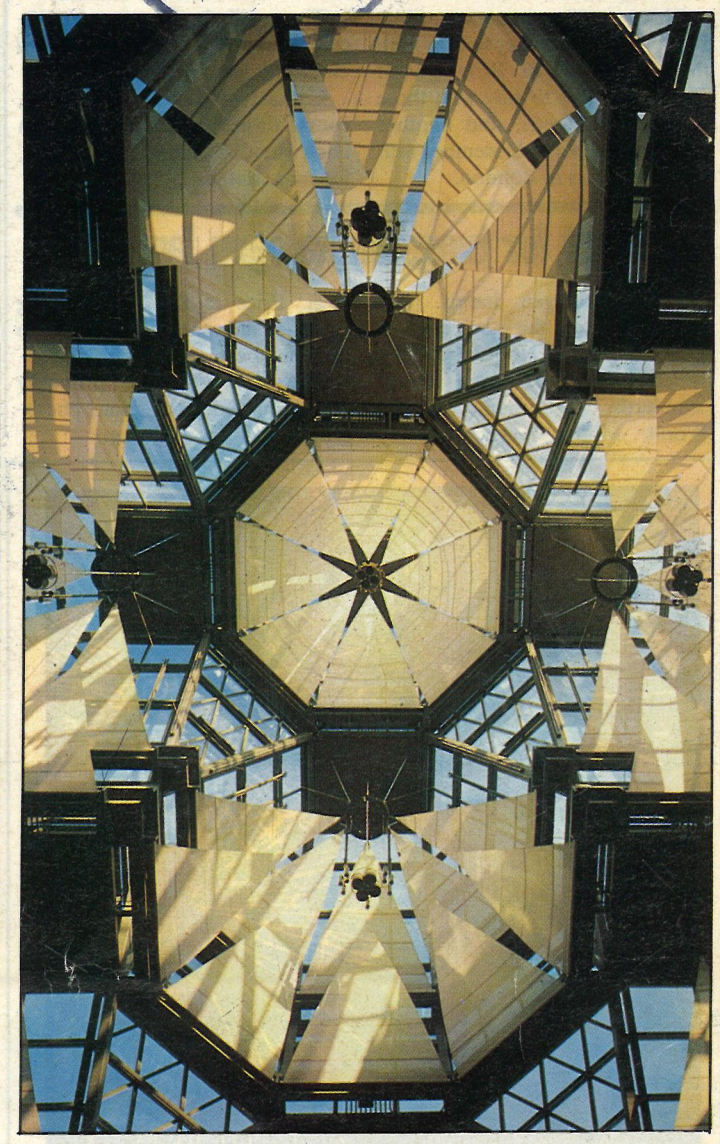




The art of lighting

An innovative lighting scheme gives the new National Gallery of Canada the night-time appearance of a great lantern overlooking the Ottawa River.

So excellent was the design in both technical and visual terms, that it won for lighting designers Fisher Marantz the coveted Award of Excellence of the International Association of Lighting designers.

Architects Moshe Safdie created a crystalline concrete,glass and steel structure conceived in the form of three separate blocks linked by glass-enclosed public circulation spaces.

The exterior walls of galleries appear to glow, their skylights incorporate fluorescent uplights which at night make the building alive with light.

In the Great Hall, the main ceremonial space, remote-controlled triangular fabric sunshades regulate light during the day, and at night are illuminated by concealed uplights as well as by light reflected from the door. The combination of reflected light and uplight completely fills the 45m high structure.

But it was the lighting for the galleries themselves that taxed the technical expertise of the designers. The brief called for high levels of daylight, coupled with an active daylight control system for conservation purposes and, since the museum is two storey high, a way had to be found to bring daylight through the upper galleries to the main floor.

The solution eventually devised was to bring light shafts from the roof, through the first floor down to the ground floor. The shaft is lined with a highly reflective silver-coated mylar, and, at the bottom, a lens provides bat-wing distribution of the daylight. Finally a 150mm slot in the lens grid allows visitors to see the workings of the light shaft.

Photos: Timothy Hursley

Over-sixties live in fear of the dark

Sixty per cent of Britain's over-60s seldom or never go out after dark, says a new social survey conducted on behalf of the all-party British Parliamentary Lighting Group.

The Group commissioned a Gallup Pool which shows that fear of assault, weather conditions and the inadequacy of street lighting are the three main factors in determining whether the over-60s go out after dark.

Forty per cent of those interviewed took into account the street lighting in their neighbourhood when deciding whether to go out after dark. More than half placed fear of assault or abuse as one of their main concerns in deciding whether to go out or not.

Of the 1051 people over 60 years of age interviewed by Gallup — 794 of them aged 65 and over — 34 per cent never go out after dark and 24 per cent seldom do so. Among women respondents, the figure was even higher — 44 per cent never go out after dark.

The representative poll was taken between 27 September and 10 October 1989 in urban and rural areas in England, Scotland and Wales.

It showed that almost one in five of the over-60s thought that the street lighting in their area was unsatisfactory and that 18 per cent of those going out at night actually vary their route according to the level of street lighting.

As Dr Ian Twinn MP, joint chairman of the British Parliamentary Lighting Group pointed out: "This survey shows the link between the level of street lighting and the fear many over-60s have of going out at night".

Added George Robertson MP, joint chairman of the BPLG: "The link between ill-lit streets and increased mugging and vandalism cannot be ignored by those responsible for lighting our highways.

"It is a scandal that so many people should feel like prisoners in their own home when better lighting would discourage crime and enable more people to go out at night."

In brief . . .

- **JEL Energy Conservation Services Ltd** has been renamed JEL Building Management Systems Ltd.
- **Ano-Coil Ltd,** which produces anodised aluminium coil and strip for louvres and reflectors, has been awarded BS5750 Part 2. The company states that it is the only coil anodiser to have an internationally approved quality control system.
- **Quest Lighting Ltd and Emess Lighting (UK) Ltd,** who merged to form Quest Emess, have moved to new premises at Unit 4, City Estate, Corngreaves Road, Cradley Heath, Warley, West Midlands B64 7EP.
- **Lampways Ltd** has become exclusive UK distributor of Elteva lighting products made in Denmark.
- **Optelma**, Swiss lighting manufacturer, has formed a UK subsidiary called Optelma Lighting Ltd which can be contacted at PO Box 200, Abingdon, Oxon OX14 1YY (telephone 0235 553769). It is selling low voltage track systems.
- **Hawker Siddeley Group** has bought Augier SA, a French company which makes transformers, including types suitable for public lighting and airport lighting.

NEWS

Training demand increases

Details of the Lighting Industry Federation's courses for 1990 are now available. To meet demand, the scope has been widened.

The aim is to provide specialist training on lighting equipment and installation design through correspondence courses plus two to three days of seminars.

Three certificate courses will be run: one from January to May with three seminars in Birmingham; one from April to July with three seminars in Leeds, and another from September to December with three seminars in London.

Advanced modules have been arranged as follows. One on interior lighting from May to July with two seminars in Birmingham; one on exterior lighting from September to November, again with two seminars in Birmingham, and one on light measurement with seminars in London in the autumn.

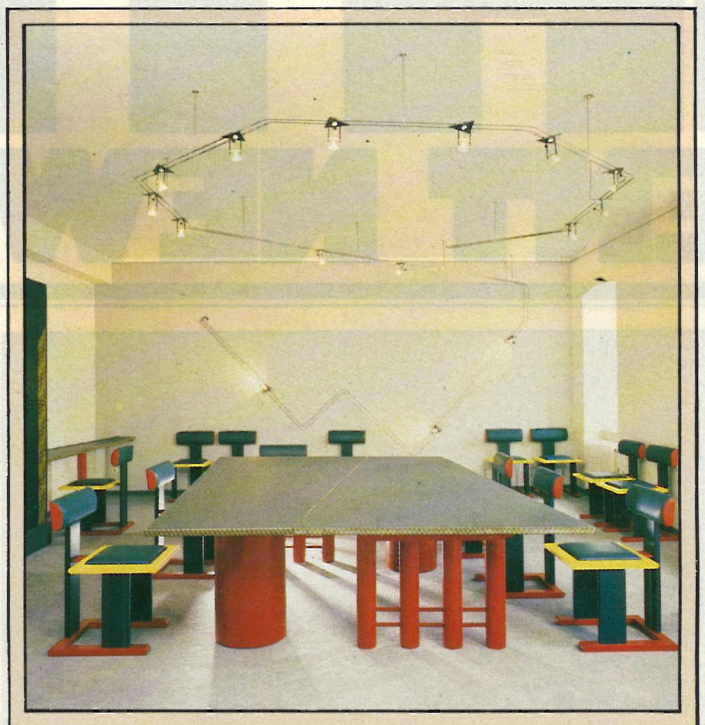
There will also be a post certificate short course called *Lamp and circuit update* on 19 July.

Contact David Pritchard, course director, LIF, 207 Balham High Road, London SW17 7BQ, for more details.

Standard for tungsten halogen lamps

Tungsten halogen lamps (non vehicle) are the subject of BS1075:1989 (EN60 357:1988), which is available from British Standards Institution, Linford Wood, Milton Keynes, MK14 6LE. Price is £62.30 including postage and packing; £31.15 to BSI members.

This standard deals primarily with lamps for projection, photography and floodlighting.



The boardroom of a design company in Germany who wanted something more than "just ceiling lighting". The low voltage system chosen forms a hexagon on the ceiling and then continues down the wall in a "W" shape, all using standard components. The transparent suspensions are so subtle that the system appears to float. Maximum capacity is 290A. More information from Crescent Lighting Ltd on 0635 36111.

Video on energy management systems

Building energy management systems is a 40 minute video which provides a guide to the application of energy management technology.

It assumes no prior knowledge of building services control or computing and is stated to be equally suitable for complete beginners and those involved in the building services field who wish to broaden their knowledge.

The script is by Dr Keith Rouse, head of the BEMS technical centre at the Building Services Research and Information Association.

Price of the video is £95 plus VAT. It can be ordered from Computer Class Video Production Co Ltd, The Old Rectory, High Street, Bury, Huntingdon, Cambs PE17 1NL.

Secundalux is relaunched

Secundalux, one of the longest established emergency lighting makers in the UK, is to be relaunched by owners FKI Cableform Ltd.

Since the acquisition from Babcock Transformers Ltd, FKI has been developing the Secundalux range for a relaunch at the end of 1989.

Production has been transferred to FKI's factory at Gratrix Works, Gratrix Lane, Sowerby Bridge, West Yorks HX6 2PH, where all enquiries should be addressed.

FKI believes it has the expertise to develop and market new emergency lighting products.

First for Chance

William Chance, who works for the London Borough of Greenwich, has been presented with the Lighting Diploma of the Chartered Institution of Building Services Engineers.

It is awarded to Affiliate CIBSE members for academic achievement in lighting and Mr Chance is the first person to receive this new award.

Top ILE student

John Hoare, of Hertfordshire County Council, has won the Institution of Lighting Engineers' student of the year award.

He obtained higher marks than any other student attending the ILE's lighting technology courses, which are run in conjunction with Wellingborough Technical College.

DIARY

DECEMBER

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The new lighting guides. An evening meeting at the Trinity Maritime Centre, Newcastle-upon-Tyne, arranged by CIBSE north east region. Details from David Buglass 091-258 7003.

6

Street lighting. An evening meeting at British Gas plc, Manchester. Event organised by CIBSE north west region. More information from L Daniels 061-228 2331.

EC Directive on general product safety. One-day management seminar in London on the proposed EC Directive for criminal law on product safety. Details from Product Liability Research Group 0227 362233.

JANUARY

Jan to May

LIF basic lighting course consisting of home study plus three seminars at Aston University. Information from Lighting Industry Federation 01-675 5432.

7-11

Lightshow at Olympia, London. Details from the Decorative Lighting Association 0588 4658.

12-17

Salon International du Luminaire, Decorative lighting exhibition in Paris. One of 11 trade shows which form Perspectives 90, the fourth worldwide week for decorating and equipping the home. Details from French Trade Exhibitions 01-225 5566.

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Update on emergency lighting practice. Evening meeting at the Drumkeen Hotel, Belfast, arranged by the Northern Ireland region of CIBSE. Details from hon secretary J Patton 0232 732121.

16

Problems of industrial lighting. Evening meeting at MANWEB, Chester, held by Merseyside and North Wales region of CIBSE. Details from hon secretary K R Roughley 051-530 1149.

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Short range photometry. Evening meeting in London organised by CIBSE Lighting Division. Details from Karl Pike 01-675 5211.

Diffuser design. Evening meeting in Croydon held by London and south east region of CIBSE. Information from hon secretary John Dallimore 0932 247717.

Clean rooms — design and maintenance. Evening meeting at the Old Royal, Birmingham, arranged jointly by West Midlands region of CIBSE and the Institute of Hospital Engineers. Details from CIBSE hon secretary A J Singleton, 9 Foley Road, Pedmore, Stourbridge, West Midlands DY9 ORT.

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Floodlighting Fair. One-day seminar with exhibition at the Building Services Engineering Centre, London. More information from Karl Pike CIBSE 01-675 5211.

NEWS

Better street lighting cuts inner city crime

Improved street lighting has brought a dramatic drop in night-time crime to parts of Hammersmith and Fulham, according to a recent survey.

The research, commissioned by the Council, Community and Police Committee of the London Borough of Hammersmith and Fulham, and Urbis, the manufacturer of the new street lighting, and backed by the Metropolitan Police, monitored the impact of improved street lighting on crime and fear of crime in the re-lit area. Among key findings were:

- ☐ 70 per cent of householders felt safer after the new lighting had been installed.
- ☐ No night-time criminal incidents were recorded in the six weeks after the lighting had been installed, compared with five incidents in the six weeks before relighting.
- ☐ Groups of young people who had congregated in the area ceased to do so, resulting in a reducton of fear of crime amongst elderly residents.
- ☐ Before relighting, 78 per cent of women said they feared rape in the area; after relighting this figure dropped to 25 per cent.

The re-lit area, Landor Walk in Shepherds Bush, was chosen for the study because it is a main pedestrian route and originally had poor street lighting. Relighting used new energy efficient equipment which provides much more light.

The five incidents recorded in the area in the six weeks before relighting included vandalism, robbery, assault, and threatening and abusive behaviour, including a youth brandishing a knife.

More than half of the Landor Walk residents had been frightened and upset by groups of young people who congregated in the area before relighting. After relighting no incidents of this type were reported.

Seventy per cent of residents felt their personal safety had increased — and every one of them felt this was due to the improved lighting.

A separate random survey of 400 pedestrians using Landor Walk between 5.00pm and midnight — 200 before and 200 after the area was relit — showed that the number of pedestrians using Landor Walk after relighting had increased by 93 per cent.

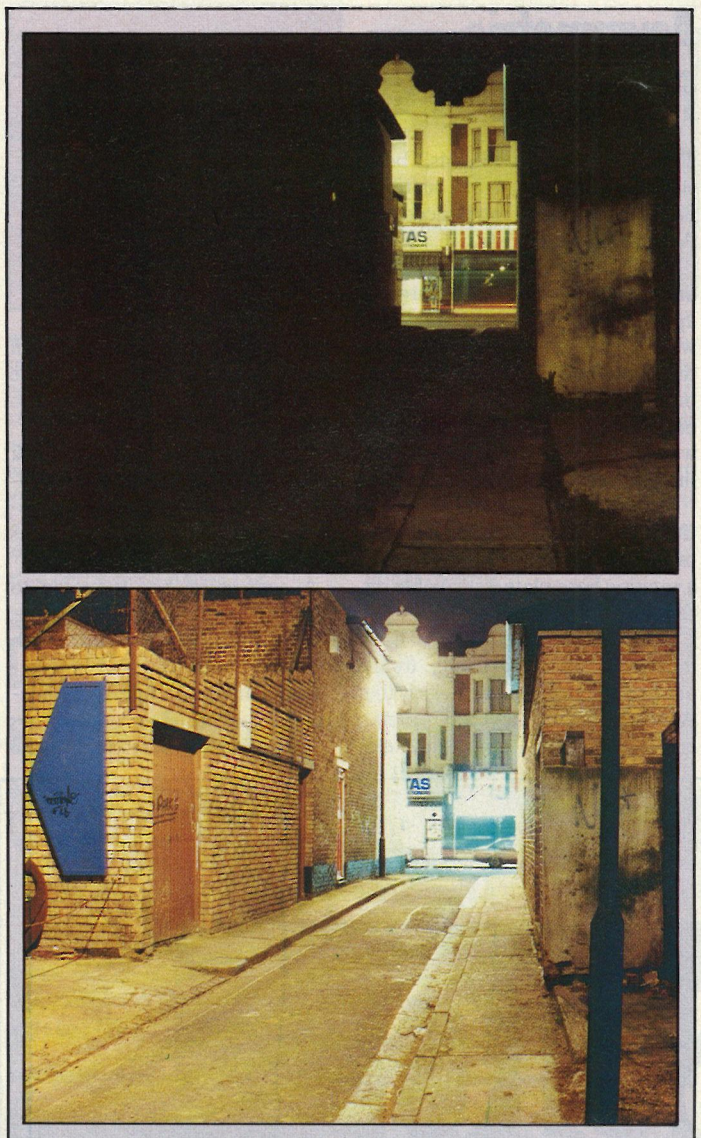
Researcher Ms Kate Painter, of the Middlesex Polytechnic Centre for Criminology, says in the report: "The improved lighting would appear to have prevented the incidence of night-time crime. After relighting there was a marked increase in personal and community safety and the improved lighting had a positive effect on residents' perceptions of crime problems in the area.

"Improved lighting appears to have decreased fear of physical attack and threatening behaviour at night and has also reduced fear of rape and sexual assault at night."

Both household and pedestrian surveys showed residents regarded better street lighting and increased police on the beat as the measures which would do most to prevent crimes such as street robbery, sexual assaults, threatening behaviour, burglary and vandalism, which had all become more common in the last five years.

Matthew Carrington, MP for Fulham, stressed, "Modern lighting is an essential public service and this report shows that where it is installed in areas of greatest need it can play a big part in reducing crime.

"This is a case where scarce public resources can be allocated and targeted to produce quick results of particular benefit to the elderly and women — those at greatest risk when out at night in ill-lit streets".



The borough was relighted approximately ten years ago with 70W high pressure sodium lamps in conventional lanterns. The columns chosen were galvanised steel tubular 5m in height; spacings typically were 34m. The average illumination level achieved over footways and roadways was about 5 lux but poor siting of columns in some roads, for example, Landor Walk, meant that minimum illumination levels fell, in many cases, below 1 lux. This level was less than the lowest of three categories in the British Standard.

A decision was taken to relight the borough in 1988. BS 5489: Part 3, covering subsidiary roads and related pedestrian areas was under review at that time and was in final draft form — it has since been published (September 1989). It was decided to retain existing columns, extend them to 6m and use 100W high pressure sodium lamps in new, more efficient lanterns.

Trials with high performance, sealed beam lanterns were carried out and it was found that the lighting levels recommended in the top category of the British Standard were comfortably exceeded. Category 3/1 of the British Standard (high crime risk, high public and vehicular usage) specifies a minimum illuminance level of 5 lux anywhere on the footway or roadway, with an average illuminance of not less than 10 lux. Lantern trials gave levels of 6 lux and 17 lux respectively.

Poorly sited columns were re-sited or added to. In the case of Landor Walk, the existing lighting was with just two lanterns. Achieving the minimum level of 5 lux meant that five lanterns were required, and this minimum was comfortably exceeded using 70W lamps in lieu of 100W lamps for energy conservation reasons.

People in brief

● **Rudy Inhelder,** for 17 years technical sales manager at Wotan Lamps Ltd, and a leading speaker at lighting seminars, retired at the end of September on health grounds. He will be dividing his time between his native Switzerland, the UK and Germany, and will translate technical material for Osram GmbH, Munich, and Wotan. He hopes also to write a book on lamp technology.

● **Rolf Wanke** becomes technical sales manager at Wotan Lamps Ltd. He was formerly patent department section head at Osram GmbH.

● **The Decorative Lighting Association's** expansion of technical advice and export services for member companies has led to the appointment of Brian Godwin as deputy director. He joins from Ashley and Rock, where he was industrial sales manager.

● **Mike Vincent** has joined Lampways Ltd as head of sales and marketing division. He was previously with GTE Sylvania Ltd as operations manager.

● **Alan Green** has been appointed operations manager at GTE Sylvania Ltd, where he is responsible for the management of materials, warehousing, distribution and all aspects of customer service.

● **Andrew Smith** is now chief executive of Marlin Lighting. He was previously managing director of Tenby Electrical Accessories.

● **David Grolman** has been appointed managing director of Tenby Electrical Accessories. His previous position was group purchasing executive with Emess plc.

● **Nigel Singer** has been appointed managing director of JSB Electrical plc, in succession to David Smith who has taken early retirement but will continue to be associated with JSB's Isle of Man subsidiary, Mannin Circuits Ltd. **Ann Clough,** works director, also retires from the JSB board and joins Mannin Circuits.

● **Peter Day,** who was marketing director at Orgatech, is now managing director of Office Furniture Lighting Systems.

● **Andrew White** is the new marketing manager at Moorlite Electrical Ltd.

● **Gerald Cameron,** ex county lighting engineer of West Sussex County Council, has been appointed managing director of Lasco Lighting Ltd.

● **John Collins,** president of the Illuminating Engineering Society on 1976 and known for his research in lighting at the Building Research Station before he retired to Cowes, died in September.

● **Stephen Haynes** has been appointed regional director of The Wholesale Fittings plc with responsibility for central, north and west London areas, while **Tony West** becomes regional director of the company's south and south east London areas.

● **Peter Jakeman,** project manager of Allenwest Electrical Ltd and chairman of the BEAMA Committee for Electrical Equipment in Flammable Atmospheres, has been appointed by the Health and Safety Executive as a member of the Electrical Equipment Certification Managment Board.

Thorn Lighting signs new distribution deal

In a new £3 million deal, Thorn Lighting has appointed Exel Logistics to deliver its products to retail outlets throughout the country.

The contract, which is initially for four years, will involve a 24-hour distribution service, delivering light bulks and fittings to high street stores during the day and trunking goods from production sites to regional distribution centres at night.

The business will operate out of two depots at Castleford in West Yorkshire and Romford in Essex, with outbased vehicles in the West Country, West Midlands and Scotland.

Exel Logistics' portfolio of electrical industry contracts also includes Currys, Dixons, Comet, Redring, Morphy Richards and Osram GEC.

COMMENT

Merry Christmas — and a prosperous New Year?

This is the season for reflecting on what has happened in our industry in the past year. It is also the time to look forward and anticipate what level of business activity the lighting equipment industry can look forward to in 1990.

In general, lighting would currently appear to be something of a mixed bag with some sectors doing very nicely and others definitely feeling the pinch. A recent ICC Industry Sector Analysis of 97 companies in the lighting industry takes quite an optimistic view of future trends — but hedges this attitude with some reservations.

The electrical trades, it maintains, as latecomers in the construction industry cycle, should sustain or even increase their workload over the next three years or so, while the number of projects coming into architects' offices is drastically reduced and the economy as a whole is slowing down sharply. However, much of this work is in new office buildings going up in development centres in London's Docklands and elsewhere, and it warns that if a major downturn is experienced, leading to a drop in office rental values, developers could conceivably leave new blocks unfinished for a few years.

Light sources show a very different picture. At the domestic end of the sector the incandescent lamp shows very low profit margins as a result of the purchasing policies of the large supermarkets. With more sophisticated lamps technological push can achieve a very positive effect on the market, as new products offer the promise of increasing energy efficiency. The report notes:

> "Amongst the suppliers there is an almost world-wide competitive battle which turns upon innovative products. So long as there is a stream of new products with enhanced performance features that customers find attractive the market will continue to grow at an above average pace."

For the decorative lighting industry the Mintel report, *Domestic Lighting* (see *LEN*, September 1989), forecast a steady, if unspectacular, growth of some 6% in real terms over the next five years. But this was prepared too early to take into account the latest round of increases in the interest rate and the subsequently lower disposable incomes in the pockets of home owners. Indeed, even at the time of publication it did not accord with the industry's own experience which was far gloomier.

Research shows that consumers only tend to spend on new lighting when they move home, and the current depressed state of the estate agency business suggests that this sector will remain sluggish for some time.

LIGHTING EQUIPMENT NEWS

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NEW PRODUCTS

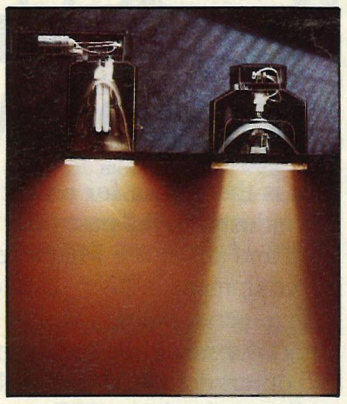
One hundred downlights

Marlin Lighting has launched a collection of 100 downlights.

To present the Matrix range in a logical way and to aid specification the luminaires are divided into three main groups: power, low energy and accent.

Power downlighting provides an extra punch of light. Using discharge light sources which provide high light output together with very long life and low maintenance, this group is for use in areas such as concourses, shopping malls and double height entrance areas.

Efficient downlighting with very low energy consumption is the characteristic of the low energy luminaires which have been designed to provide high light output and low glare. Applications include hotel corridors where lighting has to be in constant use.



Accent Matrix is for areas where lighting is required to be sharply focused and includes low voltage tungsten halogen spotlights.

To complement the low energy and accent series, a new range of decorative accessories has been produced.

Reader Service No. 151

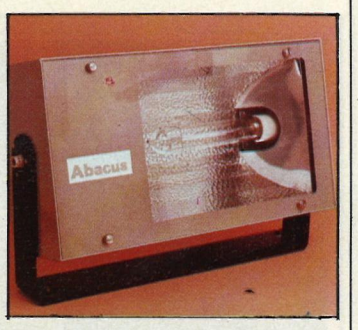
Asymmetric floodlights

Two series of floodlights, both with asymmetric light distributions, have been introduced by Abacus Municipal Ltd.

AM510 floodlights (illustrated) are suitable for general purpose applications. Designed for use with discharge lamps up to 400W, they can be wall or column mounted and are available in four models with a choice of narrow or wide beam light distributions and integral or remote gear.

A toughened glass front cover is fitted as standard. Installation is by means of a steel mounting stirrup; a rotating base plate is available on request.

Specially designed for small to medium-sized sports stadia, training fields and athletics tracks is the AM560. Using a 2kW metal halide lamp, the optical system



restricts glare while giving a high degree of uniformity. Illuminance levels of 100-350 lux are stated to be achieved.

The units have a 6mm thick glass front cover to prevent handling and moisture absorbtion problems. An aiming device provides fast and accurate beam setting.

A connection box mounted to one side gives adjustable lampholder positions for use with alternative voltages.

Both ranges are ingress protection rated IP55.

Reader Service No. 152

CIBSE

The Chartered Institution of Building Services Engineers

Mature candidate route to corporate membership

The lighting profession has always been in a bit of a quandary, never knowing to which group it properly belongs. Are we engineers, physicists or designers — and remember that many claim that 'lighting is an art rather than a science'. A consequence of this dilemma is that lighting education has been seen to lack a formal structure, each section of the lighting community concentrating only on its particular area of interest, rather than demanding a sound knowledge of lighting fundamentals **together with** a degree of specialisation in its own area. The various aspects of lighting, therefore, all tend to be taught to differing levels and the only way to qualify for membership of the Institution has been through another discipline.

The amalgamation of the IES and IHVE to form CIBS, and then CIBSE, with chartered engineer status for its corporate members has left a number of Lighting Division members thinking that they may never become corporate members of the Institution. However, a route to membership which appears to have been overlooked is that of the mature candidate. This route is a means of gaining the status of corporate member and chartered engineer **without the need to obtain a degree in engineering.**

The broad requirements of election to corporate membership by the conventional route are:

1 attaining the required academic standard;
2 meeting the necessary training requirements;
3 meeting the requirements for responsible experience.

The mature candidate route is designed for those persons who can comply with items 1 and 2 above, but who have not reached the necessary academic standard of a degree or equivalent in an appropriate engineering discipline. The applicant must be able to demonstrate that he or she has achieved a standard of professional and technical competence comparable to that of members who have been elected through the conventional route.

The various ways the applicant can demonstrate this competence are: presentation of papers on relevant topics and publication in journals such as Lighting Research and Technology; production of reports or design studies; and presentation of a submission on a building services topic. In each case the candidate for election must demonstrate an understanding and application of engineering principles of an equivalent standard to that required for a degree.

Where a candidate presents a submission, this must be concerned with the technical and managerial aspects of building engineering services, and deal with aspects of the theory, design, installation, specification or operation of these services. Most candidates will find it more profitable to concentrate in depth on an engineering achievement in which they themselves played a major part than to attempt to cover a wider field. A purely descriptive report is not acceptable as it is expected that design decisions and technical assumptions must be fully justified. The topic selected must be approved by the Institution and Engineering Council and the submission of 5000 to 10000 words completed within two years of the date of approval.

Entry Requirements

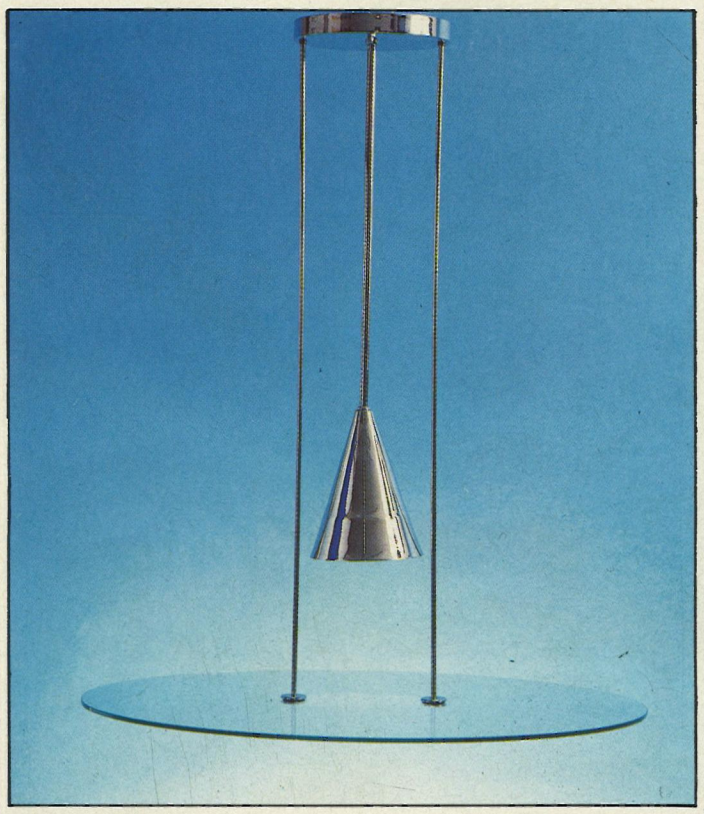
Candidates for mature entry route must:

- ☐ be over 35 years of age;
- ☐ have had experience of increasing responsibility in building services engineering for at least 15 years;
- ☐ have attained a position of responsibility which demonstrates a level of competence which would be acceptable for membership had the candidate obtained the necessary academic qualifications.

It must not be assumed that the mature candidate route to membership of the Institution is an easy option. Candidates must demonstrate their professional and technical ability in their presented work, and at an interview. Where a submission is undertaken, this requires a high degree of dedication and perseverence to complete the work within the time required. Nevertheless, for those who rightly believe that membership of the Institution is a worthwhile step forward in their career, this method does provide an alternative route.

There also exists a similar mature candidate route to associate membership based on a similar pattern, but at an academic level commensurate with HND rather than degree status. So, if you are over 35 and feel you'd like to apply for corporate membership of CIBSE — and, of course, of the Lighting Division — all you need do to start the ball rolling is contact Karl Pike, Lighting Division Secretary, at CIBSE, 222 Balham High Rd., London SW12 9BS.

NEW PRODUCTS



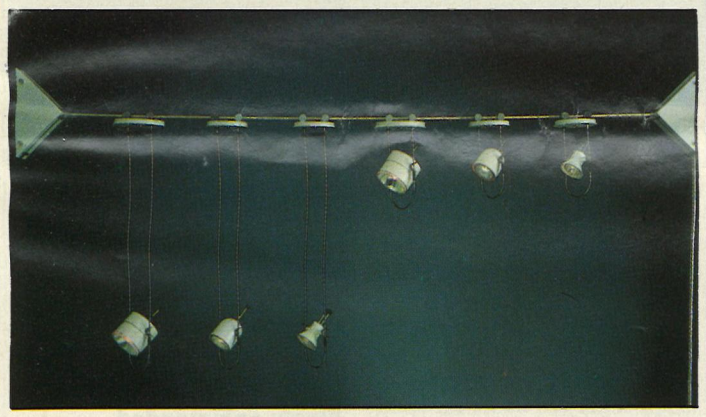
Decorative pendant

Armstrong is the name of an ultra modern pendant designed and made by a new lighting company, The Shillingford Concept.

The luminaire consists of an aluminium cone housing a GLS lamp suspended above a circular glass plate. The central area of the plate is frosted to diffuse the light and the glass is suspended on two steel rods.

Armstrong is available in two heights: 400mm and 600mm.

Reader Service No. 153



Single cable LV system

Monotrolli is a low voltage cable lighting system which operates on a single cable and has a choice of three luminaires. It is available from Prima Lighting Ltd.

The cable, which contains two conductors, is rectangular in cross section. When a luminaire is attached to the cable, thumb wheels are tightened and cause two needles to pierce the insulation, one making contact with each of the conductors.

Maximum loading of the cable is 300W; it can be tensioned for up to 10m between wall boxes.

Brando, the largest of the luminaires is cylindrical with a fixed dichroic reflector and uses a tungsten halogen capsule lamp rated at up to 100W.

Caro is bullet shaped and accepts an integral reflector lamp, while Tico, the smallest, is an adjustable cone.

Each is available on either 200mm or 550mm suspension rods. fittings on the longer rods can also be adjusted for height by sliding them up and down the rods.

Applications include task lighting and illuminating conference tables, as well as retail lighting.

Reader Service No. 154

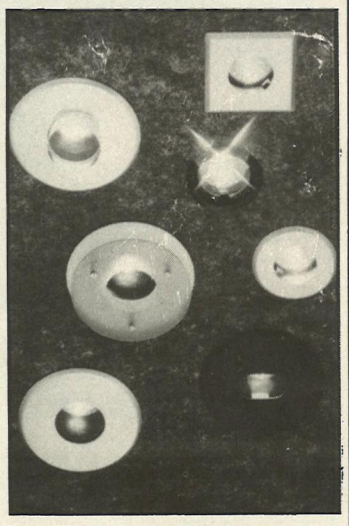
More miniature downlights

LightGraphix Ltd has added three downlights, to its Sapphire range.

Two recessed downlights are suitable for low voltage tungsten halogen dichroic lamps up to 50W. These are fitted with either a clear protective glass or glass in a variety of colours including pink, red, orange, blue and green.

An additional accessory is a honeycombe louvre which provides a sharper light cut-off.

These two downlights can be provided in either fixed or adjustable versions in a wide range of colours. LightGraphix can also produce the bezels in non-standard colours to complement any colour scheme.



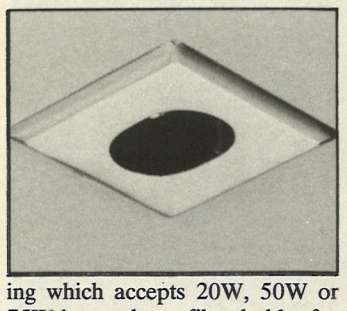
The third model is recessed but has a decorative, clear acrylic cylinder.

Reader Service No. 155

Recessed downlights

Lee Environmental Lighting has extended its low voltage downlight range by the addition of further recessed models for use with remote transformers.

The MR-16/C circular fitting, which weighs 140g and can be used with a magnetic decorative cover plate, has been introduced to complement modern ceiling grid arrangements; the MR-16/XQ, weighs 125g and includes a decorative acrylic cylinder, while the MR-16/OQ (illustrated) in 20W and 50W versions is fully adjustable and weighs only 115g.



MR-16/CO, an adjustable fitting which accepts 20W, 50W or 75W lamps, has a filter holder for either heat-absorbing glass, toughened safety glass, or coloured filters. Again, decorative magnetic cover plates are available.

The circular MR-16/CBL downlight is a low brightness fitting. Its compact design gives discreet light with accurate directional control.

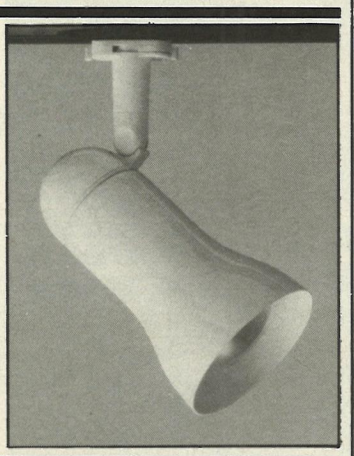
Reader Service No. 156

Domestic spotlight range

A budget priced spotlight range called Metzo 2 which uses R64 reflector lamps is available from Lumiance.

There are four fittings to meet a variety of lighting requirements. A twin spotlight model has individual switching and is suitable as a bedhead light. A triple version is designed for ceiling mounting.

Reader Service No. 157

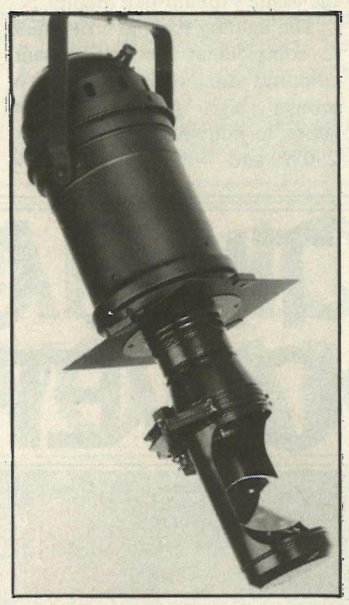


Powerful beams for discos

Masterlite directional beam system for disco and club lighting is available in the UK and Eire through M & M Lighting Ltd, who have been appointed agents for Rolight of The Netherlands.

It is an attachment designed to fit the standard Parcan luminaire and is complete with its own condensor lens and 500W lamp.

The mirror in Masterlite allows a powerful beam of light to be projected in any direction, the pan and tilt of the mirror being controlled



by separate channels. A colour changer gives rapid interchange between nine colours.

Reader Service No. 159

Lighting for racking

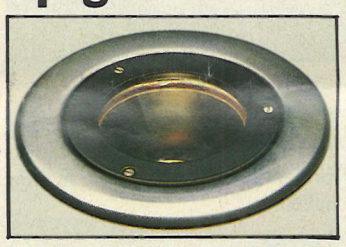
Slimline Racklight is an addition to the fluorescent lighting range of Lumitron Ltd.

Its highly polished, parabolic, aluminium reflector is designed to give a restricted light distribution, to concentrate the light in narrow aisles between warehouse racking.

There are single and twin lamp versions in 1200mm, 1500mm, 1800mm and 2400mm lengths.

Reader Service No. 160

Floor-recessed uplight



Light Projects Ltd has a low voltage uplight that can be recessed into floor or pavement. The weatherproof housing has a very tough glass cover which is stated to be strong enough to take pedestrian traffic.

The units can be rotated through 360° and the angle of the 20W or 50W dichroic lamp can be adjusted through 30°.

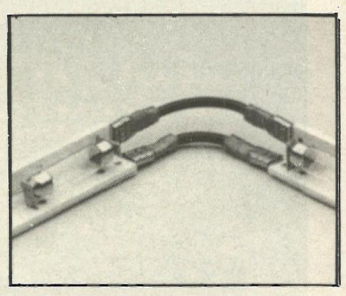
An example of their use is at the base of columns, or to light an overhead feature of a building.

These M16 uplights can also function as downlights when built into a ceiling, soffit or overhang.

Reader Service No. 158

LV system for display cabinets

A low voltage lighting system specially designed for display cabinets, pelmets, cornices and under-shelf lighting is available from Crescent Lighting Ltd.



The simple shape of the metal rail allows positioning with a minimum of fuss and gives designers the choice of using either 5W festoon lamps, 10W/20W tungsten halogen lamps, or 20W/35W reflector lamps.

Adaptors and connectors are available with the system.

Reader Service No. 161

LIF LINE

Light the way forward for better working conditions

With the advent of winter and the greatest proportion of time spent under artificial light, the importance and influence of a well lit work environment becomes a major focus and we should make every effort to exploit this attention to lighting.

The LIF National Lighting Awards highlight the quality of lighting achieved in many working environments and this underlines LIF's sustained efforts to raise the all round level of quality and design in lighting and thus improve the standard of the general environment with all the benefits that reaps.

The European Lighting Awards have, in some respects, grown out of the NLA. Organised and sponsored by the European Lighting Council in Brussels, their criteria and aims are very much akin to those of the NLA — quality in lighting, good, design, total integration of the lit/working/living environment, total involvement of all the parties associated with the job to achieve the best possible solution to the original brief etc.

The impact of the European Lighting Awards, however, which must distinguish it from the NLA, is the opportunity it provides to give lighting an EEC platform. With 1992 ever closer, the Awards concentrate public attention on the importance of lighting and, thus, intensify the support for lobbying the EEC Commission on matters affecting lighting and maximise the potential for a single European lighting market.

While there are also four sections in the European lighting Awards, only one section is featured every two years. The first 1987 European Lighting Awards concentrated on lighting in public places.

This year, with the EEC placing an important emphasis on worker health and safety by initiating a series of directives aimed at improving work environments, the 1989/90 Awards will cover interior and exterior lighting in industry. This will include a major section on installations in commercial, clerical, administrative, design and drafting offices — areas where lighting design plays a vital part in the effectiveness of the work place.

It is proposed that results of these Awards be put to use to develop European minimum guidelines for proper lighting at work and the Awards ceremony in June could be the opportunity to highlight the present poor state of lighting of most work places in Europe.

In evaluating the entries particular consideration will be given to improvements as reflected in performance and error reduction, productivity and quality, workers' comfort and safety, energy efficiency and good modern lighting design practice.

This will be adjudged by a panel comprising the Chairman of the ELC and past president of the CIE, Prof Dr D J de Boer, J Balladur, Ex president of AFE, Prof Dr H W Bodmann of the Lichttechnisches Institut Karlsruhe University, Guido Bonicelli of Azienda Elettrica Municipale and W R Stevens, also Past president of CIE.

In any field of endeavour a competition is an opportunity for the very best to shine out and inspire others to greater feats.

LIF is anxious to play its part in the European scene and encourage support from all those involved in lighting to participate in these Awards and, in doing so, ensure the promotion and safeguard of the interests of the industry and its customers.

Anyone who has been involved with refurbished or new lighting schemes which have been improved during 1 June 1988 — 30 April 1989 with features that could make it a winner, should contact LIF at Swan House, 207 Balham High Road, London SW17 7BQ, Tel: 01-673 5432 and ask for the relevant details and entry forms regarding the European Lighting Awards.

Presentation of the Awards will take place in London on 13 June 1989. Please note that the closing date for receipt of entries in Brussels is 28 February 1990.

Rewarding the best in British lighting

Lighting can do more for the enjoyment of our surroundings and quality of life than other building services, said the LIF president at the NLA ceremony.

County Library at Horsham — a two-storey pyramid.

A view of the atrium area at BP Oil's head office.

This year's National Lighting Awards winners have just been announced. These awards are presented to recognise excellence and innovation in the design of lighting schemes and to promote an awareness of the role that good lighting plays in everyday life.

BP Oil UK Ltd was the winner in the commercial section of the competition. The Civil Aviation Authority won the civic section, while the Highland Regional Council carried off the trophy for the leisure section.

A winner was not chosen in the industrial section because the panel of independent judges agreed that no scheme embodied the outstanding qualities they were looking for.

In each section two entries were highly commended.

Commercial

The new BP Oil head office on the outskirts of Hemel Hempstead is one of the largest stone-clad buildings built since the war, it is in the style of a stately country house.

The entrance is at the intersection of two wings, and from the reception area visitors move into one of two atria which run the length of each wing, rising through four storeys. Mosaic-like carpeting covers the floor and there is planting consisting of trees and shrubs.

High levels of lighting at night in the atria are provided primarily by 44 1500W linear metal halide floodlights high up in the roof structure. Illuminance in excess of 88 lux at floor level is achieved, creating an impression of spaciousness and vitality.

Intermediate level uplighting is provided by 26 moulded uplights with 250W metal halide lamps, wall mounted between the third and fourth floor office levels. These create a pattern of light and shade on the vertical surfaces and on the underside of a soffit above the fourth-floor offices, relieving the uniform pattern of light that would otherwise be obtained.

At ground floor level, additional decorative sparkle is provided by concealed lighting beneath the large tree planters.

Spill light from the uplights in the open plan office either side of the atria, at ground and first floor level, makes an important contribution.

The scheme was designed by Graham Hind of Renton Howard Wood Levin with Russell Phipps of Thorn Lighting and Terry Burke of Tilney Simmons and Partners.

Civic

An extensive investigation in 1982 by the Civil Aviation Authority looked at the entire working environment of air traffic controllers. This resulted in an outline brief for the lighting of the operations room at the London Air Traffic Control Centre at West Drayton, the centre which controls most civil and military aircraft movements over England and Wales.

Fifty-two specially designed fibreglass modules are fixed directly to the purpose-designed VDU console furniture. Each is fitted with two 58W triphosphor fluorescent tubes, one of which provides downward task lighting while the other gives upward light to provide indirect background lighting for glare-free and reflection-free viewing of VDU and radar screens.

Lamps giving the downward element of light are fitted with either symmetric or asymmetric low brightness reflectors, as appropriate. These have been specially designed to provide a particularly sharp cut-off at the console edges to prevent direct light falling onto the radar screens, while allowing up to 300 lux to be available on the key pad or writing shelf.

Fibreglass lighting modules are fixed to purpose-designed VDU workstations.

The design cut-off prevents any light source within the room from being visible to any operator, thus removing a potential distraction.

High illuminance levels are not necessarily compatible with the operation of radar equipment. To enable fine tuning of the installation, a Quantran Systems' programmable dimming system has been installed which allows independent adjustment of the task and ambient lighting using separate controls.

An important safety feature of the lighting installation is the provision of two separate electrical supplies, each having automatic battery back-up.

To simplify and speed maintenance, a gear tray complete with lamps may be removed from the luminaire by an engineer, so creating minimum distraction to the radar controller and minimum interruption of services.

Iain Maclean of Thorn Lighting, and the Civil Aviation Authority project team designed the lighting scheme.

Leisure

A spectacular floodlighting installation for Scotland's most photogenic castle won the leisure section of the awards for the Highland Regional Council.

Eilean Donan Castle is situated at the head of three lochs and is frequently used as a setting by film companies.

Built in the 13th century as a royal fortress, the castle is now dramatically floodlit in a project conceived by James Milne and Kenneth Robertson of the Highland Regional Council's Department of Roads and Transport, in conjunction with Reg Wilson of Philips Lighting.

"The key requirement of the project," said James Milne, senior engineer, "was to capture at night the castle's dream-like quality".

The lighting scheme is designed to complement the castle's sand coloured stonework, using 400W tubular high pressure sodium lamps to illuminate the keep and 250W and 400W metal halide lamps to provide contrast on the lower perimeter walls. Floodlights are positioned to create a three dimensional effect, for example by using shadows cast by windows.

On the bridge linking the castle to land, 2kW and 1kW mercury halide lamps light the vertical walls, while high pressure sodium lamps concealed under the arches emphasise their curvature.

Much time and effort was spent in concealing the large number of floodlights. Baffles are installed on a number of fittings to prevent discomfort glare to those viewing the castle from the carpark.

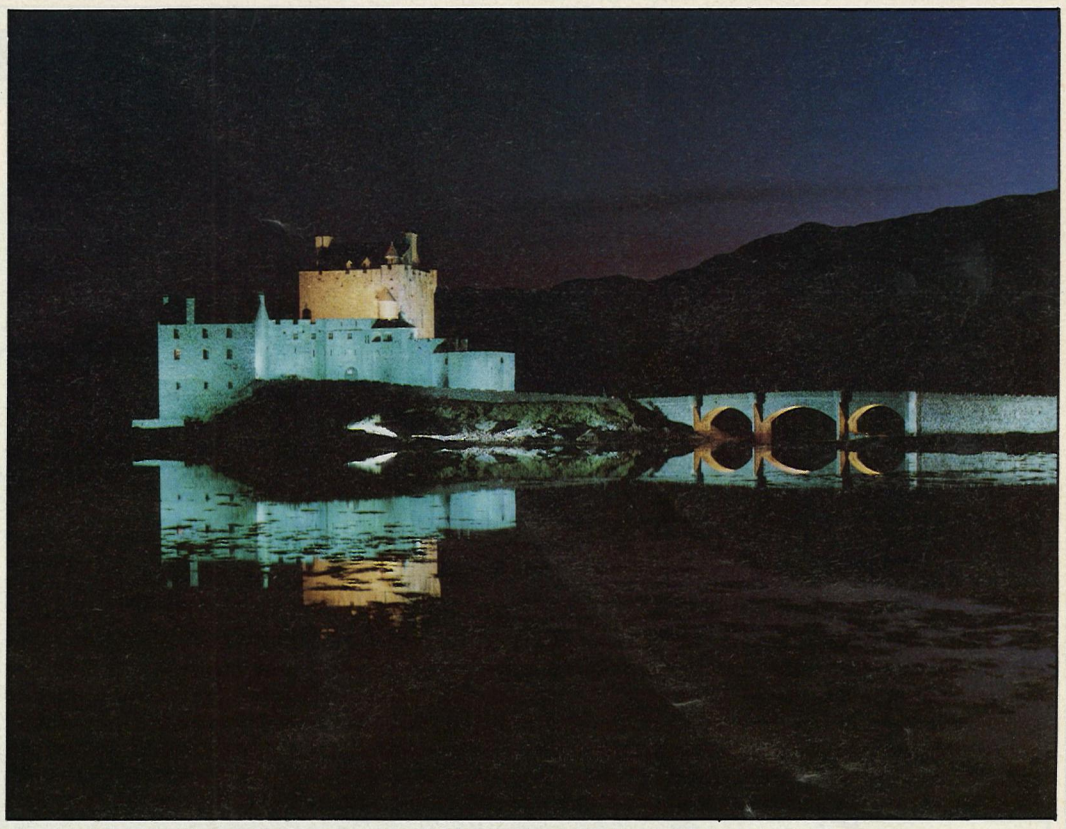
Installation and concealment of supply cabling, particularly within the castle, was given special attention. The main cable for roof top luminaires had to be threaded through the cobblestones of the entrance gateway and up three floors through a dumb waiter shaft.

Highly commended

In the industrial section the two installations highly commended by the judges were those at FFV Aerotech Ltd and Joshua Tetley & Son Ltd.

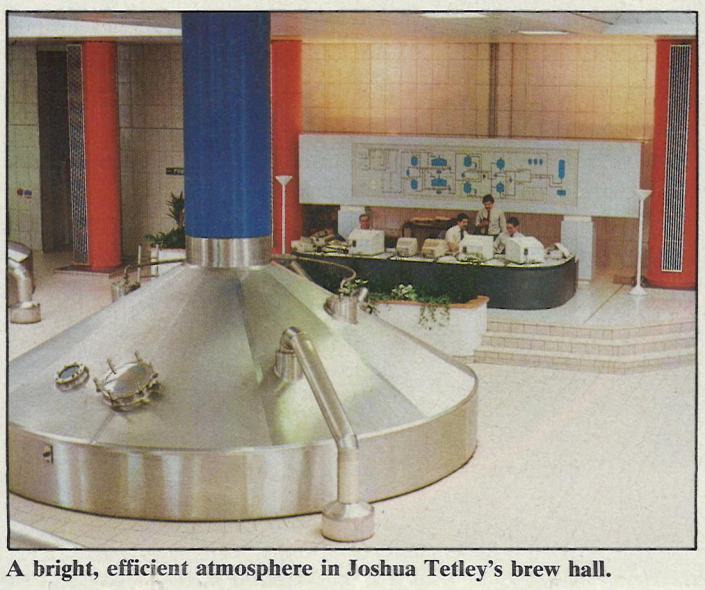
Designing the lighting system

London Air Traffic Control Centre required lighting with a sharp cut-off.

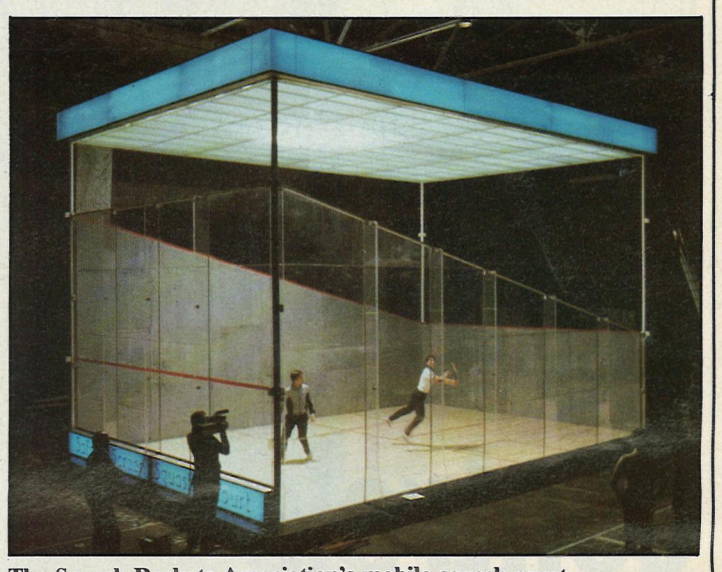


Floodlighting for Eilean Donan Castle, which stands at the head of three lochs.

Public restaurant at the British Museum.



A bright, efficient atmosphere in Joshua Tetley's brew hall.



The Squash Rackets Association's mobile squash court.

for FFV Aerotech's maintenance hangar at Stansted presented several problems. Firstly, the height of the building, over 20m., secondly, the high illumination level of 800 lux needed for very detailed work on engine and other complex systems, and finally, the requirement to spread the starting load to reduce cabling sizes. Good colour rendering and economy were also vital.

A special module was designed based on the Simplex Hibay reflector. The module consists of two reflectors on a mounting arm which is in turn fixed to a special gear box containing the control gear for one 400W high pressure sodium lamp and one 400W metal halide lamp. Incorporated also is a timing contactor wired for delay on energization to spread the starting load.

The two-light units were mounted in pairs to form clusters and held by two special straps to the main girder network.

Because of the extreme height of the work space it was necessary to create a staggered grid of four-light units. By mounting fewer luminaires in the centre and more to the edges the effects of under-spacing were overcome.

The hangar, claimed to be the largest, most technologically advanced independent maintenance base in Europe, is free from dark spots and local lighting for inspection is no longer necessary.

In Joshua Tetley's brew hall massive silver coloured vats and pipework are an integral element of the appearance and the lighting highlights these features, providing a bright, efficient atmosphere for the plant operators and their many visitors.

Through the use of different light sources, the lighting is designed to pinpoint various zones of activity in the brewing process. The use of air handling luminaires obtains maximum performance from the lamps.

The lighting is controlled by computer.

Highly commended in the commercial section of the awards were Tobacco Dock and Waterloo Station.

Tobacco Dock is London's newest shopping and leisure centre. The lighting highlights architectural features and makes extensive use of metal halide uplights while at the same time complying with severe restrictions on mounting fixtures on walls and ceilings.

A lighting scheme for the facade of London's Waterloo Station consists of three main elements: first, a background wash of blue floodlighting; second, white light to pick out particular features especially around the station entrance, and lastly, amber light at the main arch window to create a

The chef's efforts were to be lit like a stage set in the servery area.

feeling of inner energy and warmth.

Two very different installations were highly commended in the civic section: Horsham Library and St Mary's Church, Marylebone, London.

The County Library at Horsham, West Sussex, has a pyramid shaped roof with large roof light. Three continuous runs of recessed, louvred fluorescent lighting in the lower part of the roof echo its shape.

From both the ground and first floors, the lighting is seen as an integral part of the ceiling.

St Mary's Church is floodlit using a mixture of mercury iodide, mercury and high pressure sodium lamps. Some of the floodlights are mounted on adjacent buildings to achieve the desired effect.

Leisure installations highly commended by the panel of judges were the British Museum restaurant, London, and a demountable squash court for the Squash Rackets Association.

The lighting brief for the British Museum's public restaurant hinged on two requirements. De Blank Restaurants requested that the food servery area provide an appropriate ambiance for their chef's efforts, with lighting "like a stage set".

This has been achieved with low voltage lighting track and spotlights with dichroic lamps. Lower levels of light in the surrounding area and walkways increase the effect and influence the flow of customers towards the counters.

On the other hand, the British Museum wanted the restaurant to look bright and elegant with plaster casts of the Parthenon frieze around the walls strongly featured.

Mains voltage tungsten halogen uplights wash light across the high ceiling and together with low voltage tungsten halogen downlights over tables in lower ceiling areas a lively atmosphere has been created.

The problem of lighting the frieze and tables in the high ceiling area was resolved by suspending and bracing track from the walls, with low voltage spotlights angled onto the tables and others grazing light across the frieze to emphasise its sculptural quality.

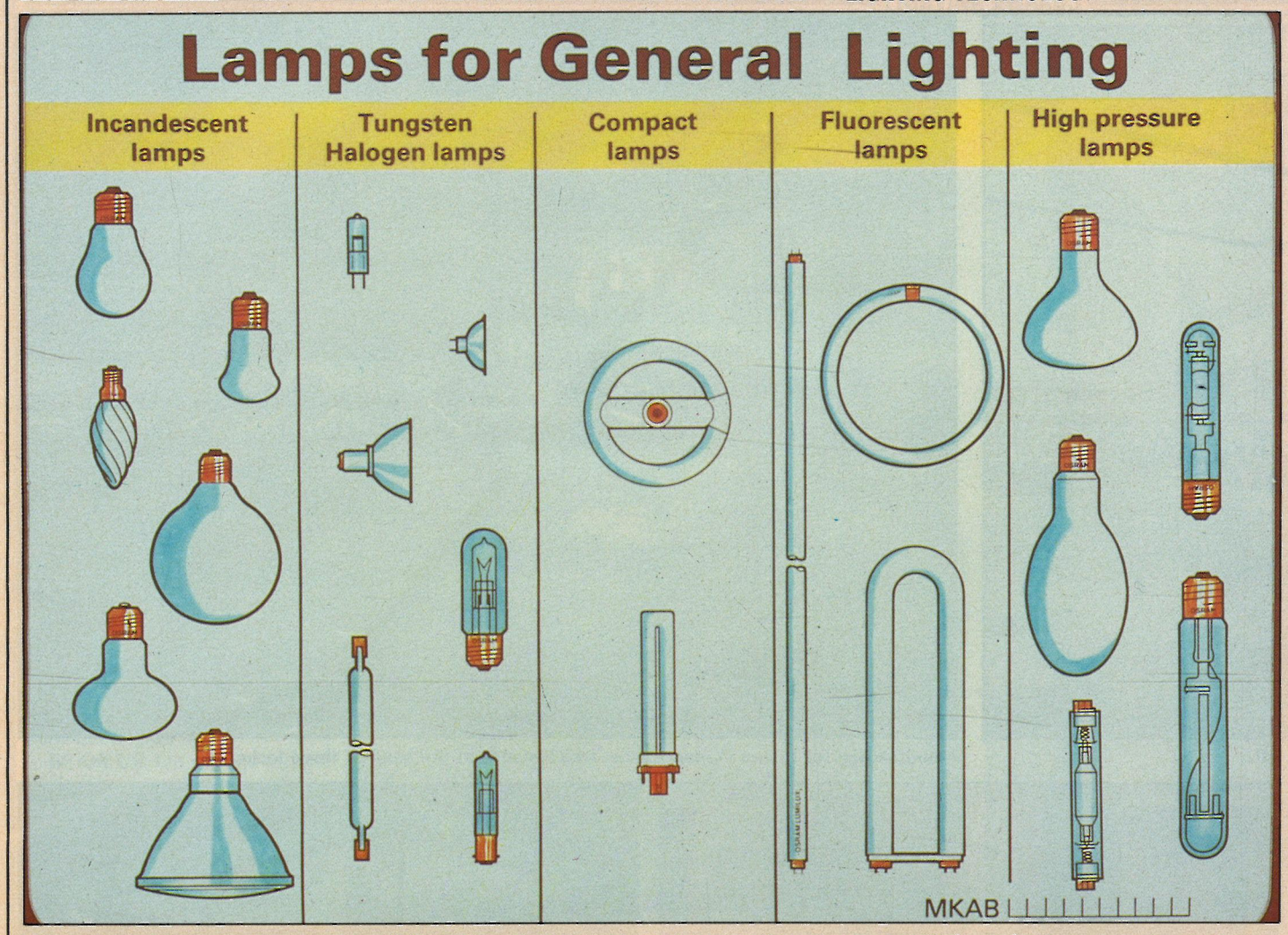
The demountable squash court, designed by the Squash Rackets Association in conjunction with ICI Plastics Division, is made of transparent Perspex embossed with tiny white dots superimposed on black dots and creates one-way vision when the court is internally lit and the exterior dark.

The lighting is crucial to the design concept. Thirty-two twin fluorescent Clipper luminaires are mounted above the court with a thermalucent panel below them which acts both as a diffuser and as a barrier for the ball.

This results in maximum downward light within the court and minimal spill light, to control the "net curtain" effect.

Players have found no problem in adjusting to the court and the lighting has facilitated improved TV coverage.

For transport purposes the court is demounted and fits into a trailer.



The three main groups used for indoor lighting: incandescent/tungsten halogen; fluorescents; and discharge lamps.

Lighting controls

In Part 1 of a two-part feature, Alf Mellor of Wotan looks at the controls required for the different types of lamps now available. Part 2 will conclude lamp controls and consider control systems for lighting installations.

This article sets out to explain lighting controls as applied to general indoor lighting. The subject falls into two basic and quite separate categories — lamp control and luminaire (or lighting system) control — so anyone designing a new lighting installation or updating or refurbishing an existing one should evaluate both areas.

In the area of lamp control three main groups of lamps for indoor lighting are explored (Figure 1): incandescent/tungsten halogen; fluorescent/compact fluorescent; and discharge. Each has different forms or styles of control options all aiming to obtain the best performance from the lamp.

Incandescent/ tungsten halogen

Incandescent lamps can be categorised as the simplest and cheapest (in lamp terms) type of lighting since no control gear is required. A suitable lampholder or luminaire is simply wired to the mains supply and switched on. Typical incandescent lamps are GLS, PAR, RO80. But whereas everyone knows what a light bulb is, many people do not realise that it is probably the most expensive form of lighting in terms of energy use.

Tungsten halogen lamps (Figure 2) are modern derivatives of the GLS lamp. They fall into two main types: mains voltage and low voltage. Mains voltage lamps operate in the same way as incandescent lamps but low voltage lamps (usually 12V) need a form of control as transformers are needed to deliver 12V to the lamp from the 240V mains supply. Two main types of transformer are available — conventional wire wound and electronic.

Conventional wire wound transformers are available in many different ratings (from 20 to 500+ VA) and construction styles. They are relatively inexpensive but care should be taken to choose transformers dedicated to lighting use as all tungsten lamps suffer if subjected to a voltage higher than their rated value (Figure 3). Since in the UK the CEGB has a voltage tolerance of ± 6% most lighting transformers are rated 240 −11.4V.

Put simply, if mains voltage rises by the maximum of 6% then the lamp will not be subjected to more than 12V, thus avoiding the over voltage problems. These figures, however, relate to a fully loaded transformer (eg 100VA worth of lamps on a 100VA transformer). If lamps fail on an installation where multiple lamps are on a large capacity transformer, voltage to the remaining good lamps can rise considerably, causing early failure. Good transformers can be regulated to alleviate this problem.

Electronic lighting transformers are now well enough established to be a serious consideration for new or refurbishment installations. Although more expensive than conventional transformers they have many benefits.

Luminous flux, efficacy and voltage are kept constant irrespective of load; electronics constantly monitor the supply and output to keep lamp conditions perfect. This is particularly important where voltage is concerned. The 80VA version illustrated will supply 11.7V to the lamp for any load between 20 and 80VA. This means that single lamps failing in multi-lamp installations, for instance 4 x 20W on one transformer, will not cause over voltage to the remaining lamps. This could lead to savings in maintenance as single lamp failures do not need to be replaced immediately.

Most electronic transformers offer dimming controls. The one illustrated uses conventional incandescent dimmers (conventional wire wound transformers need inductive dimmers).

Additional benefits include: light weight; low losses, typically around 5W; AC/DC operation, making emergency lighting easy; silent operation; and near unity power factor.

Fluorescent/compact fluorescent

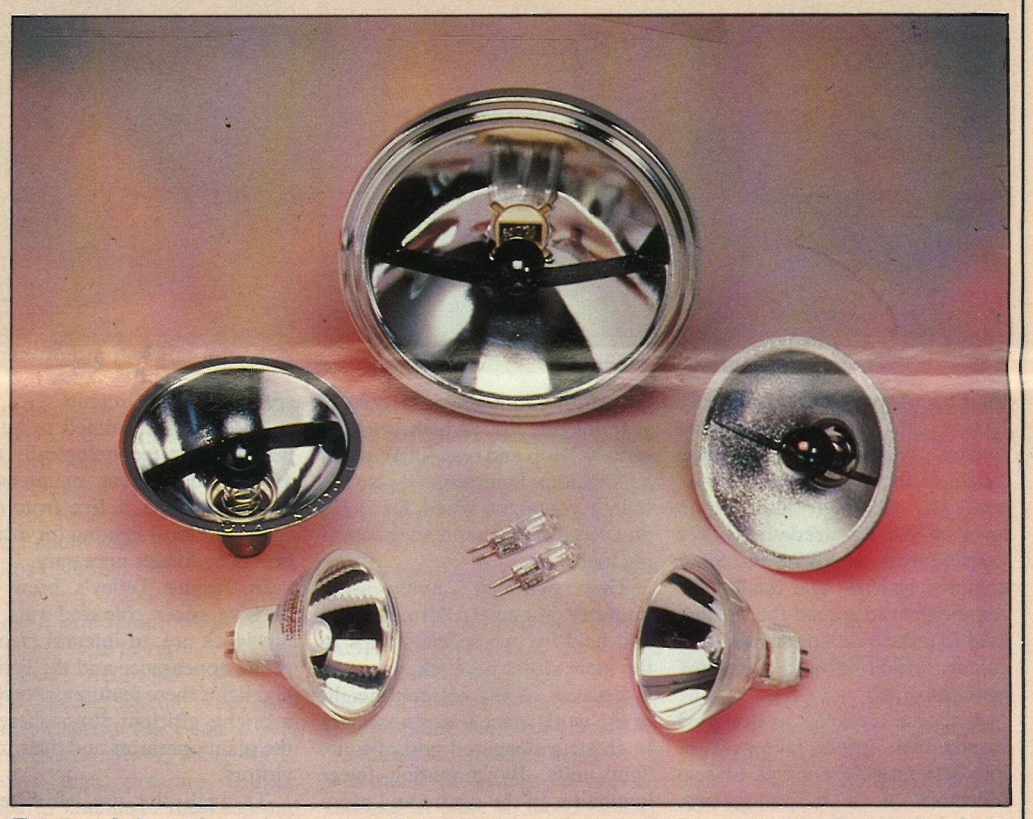
Today's 18-70W triphosphor or halophosphate lamps require some form of starting and lamp current control (or choke). We have two main options, a conventional wire wound choke/starter combination, or electronic ballasts.

Conventional wire wound choke-starters are relatively inexpensive in cost terms. The main components are a choke to limit lamp current, a starter switch to aid ignition of the lamp and a capacitor for power factor correction. Losses are fairly high, for instance a lamp wattage of 58W requires a circuit wattage around 70W, and, although recent power saving efforts have produced low-loss and super low-loss ballasts that can reduce this to around 64W, such ballasts can be both bulky and heavy.

The other major drawback is the standard starter switch which causes 'blinking' as the lamp tries to strike, and which cannot tell when a lamp has failed. This means that when a lamp does become inoperative the starter continues to try to strike it causing lamp 'flashing' and, potentially, the overheating of components. Recent technical developments have resulted in electronic starters which strike the lamp usually at the first attempt and isolate the circuit when the lamp fails.

Electronic ballasts (Figure 4) are more expensive than their conventional counterparts but they offer a multitude of benefits, making them not just serious contenders but an absolute necessity for many installations. Modern units are a one-piece design, and a twin lamp unit replaces two ballasts, two starters and a capacitor.

They offer low power consumption — the circuit power for a 58W

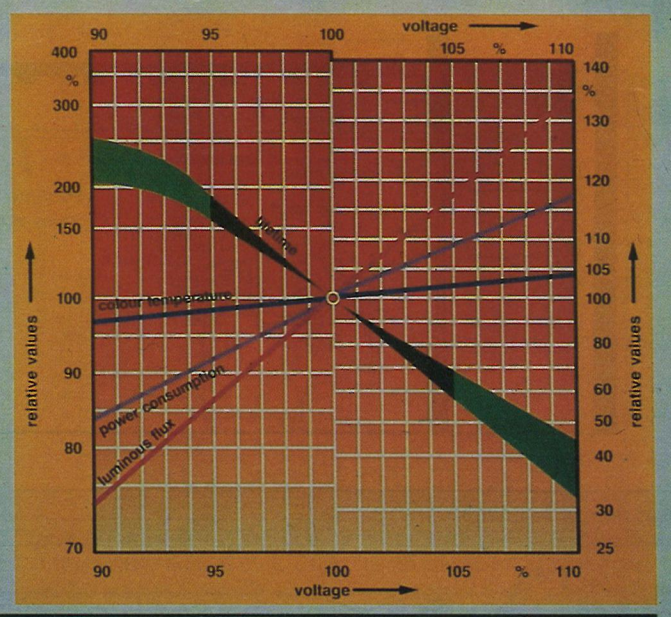


Tungsten halogen lamps.

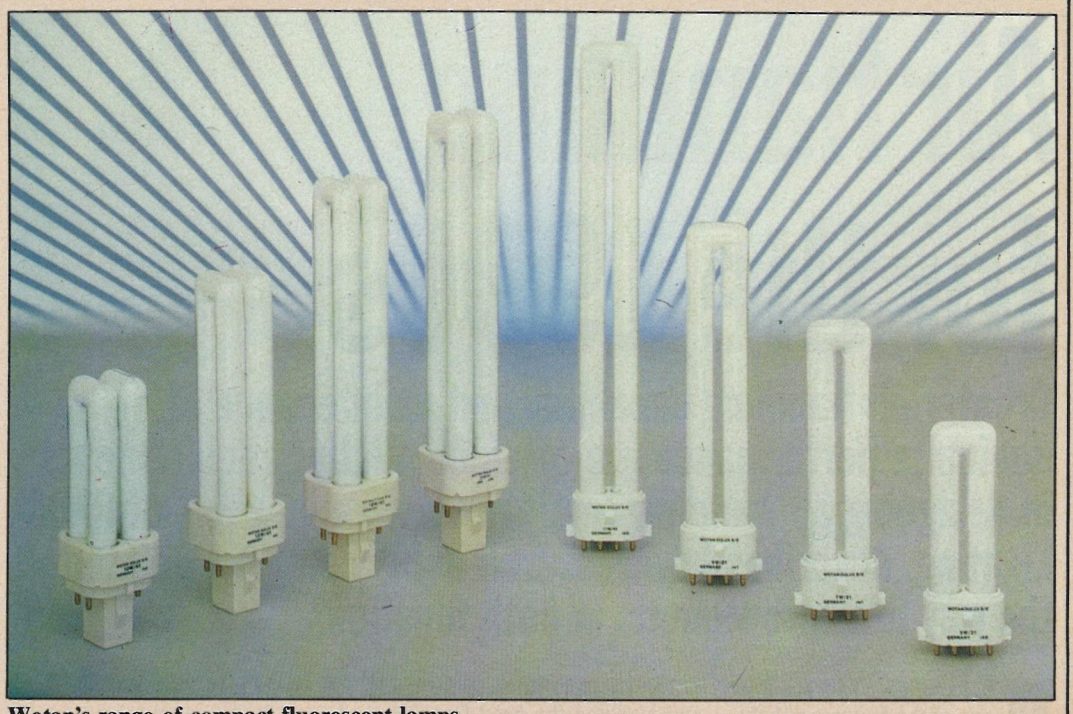
Operating characteristics of Halogen-lights

The diagram shows average values for a large number of Halogen lamp types and is therefore limited with regards to individual models. Reliability is only guaranteed upto 110% of the stated voltage.

The Halogen cycle is significantly correlated to the stated voltage. In a operating range of 90 - 95% of the stated voltage one can expect an increase in lifetime but not to the same extent as with conventional lamps.



Operating characteristics of halogen lamps.



Wotan's range of compact fluorescent lamps.

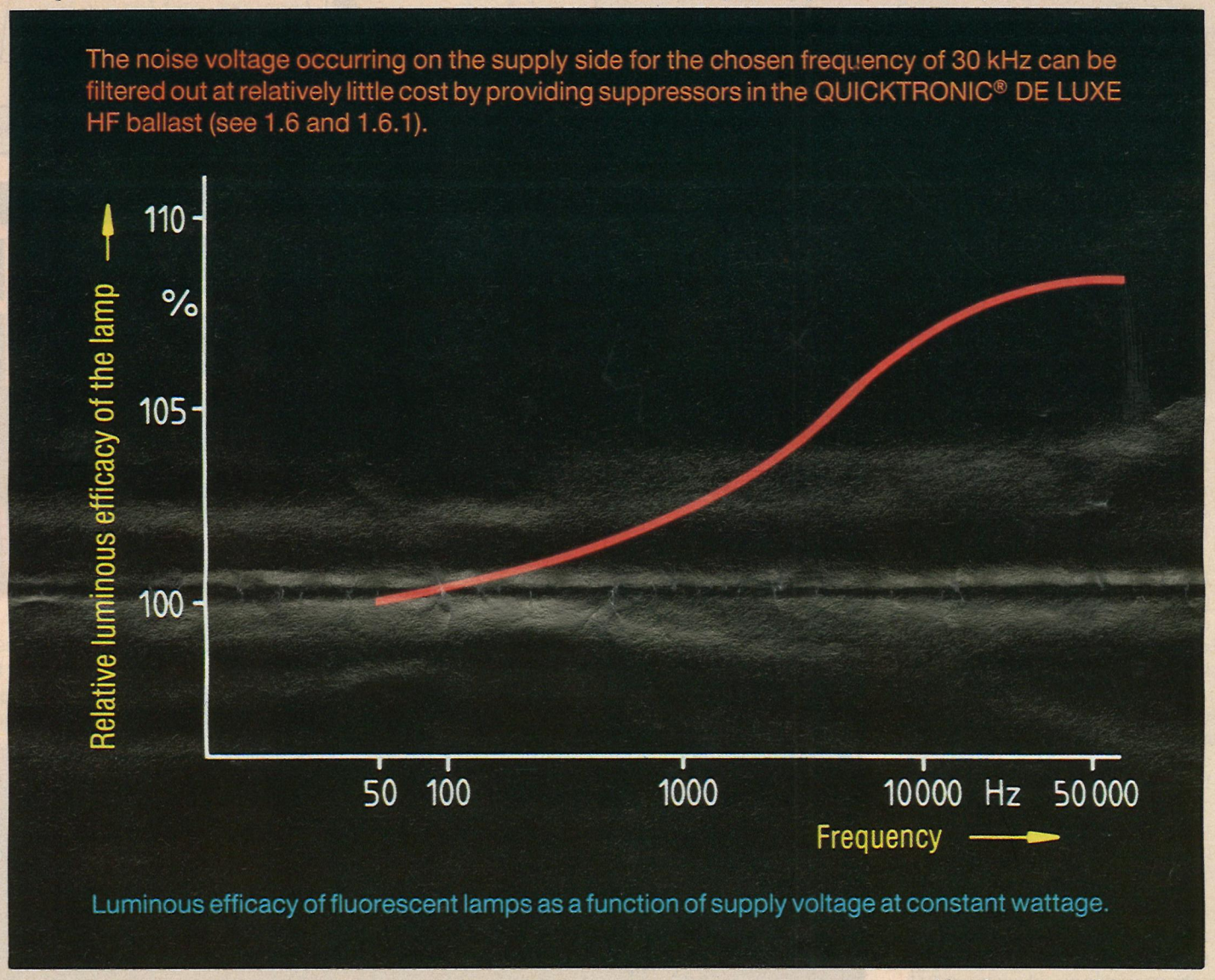
lamp is only 55W — and this is achieved because the lamp is run at a high frequency (typically 30kHz) at which it becomes more efficient (Figure 5). Ballasts, therefore, effectively under-run the lamps (eg a 58W lamp runs at 50W) to give a similar light output to conventional ballasts. This means that circuit power can be reduced by up to 31 per cent.

On conventional control gear (even when electronic starters are used) the lamps are operated at the

'Electronic ballasts are more expensive than their conventional counterparts but they offer a multitude of benefits . . .'

mains frequency of 50kHz which causes the lamp to 'extinguish' 100 times a second as the wave form changes from positive to negative. The resulting flicker is evident in the lamp particularly at the ends and can be discernable to the human eye, especially where lamps arc in the peripheral vision area. It is the most common cause of so-called fluorescent headaches. The 30kHz operation of electronic ballasts eradicates this flicker as this frequency is outside the response range of the eye.

The instant start and high frequency operation can increase lamp life by up to 50% and AC/DC operation is made possible



When a lamp is run at high voltage it becomes more efficient.

with the same light output achieved. Additionally the unit illustrated is interference suppresed to VDE 0875: Part 2 making it suitable for use in sensitive areas like hospitals and operating theatres.

High frequency naturally runs the lamp at a high power factor making additional correction unnecessary. The unit illustrated has a power factor of 0.95 and, in terms of power regulation, the unit illustrated provides constant lamp power irrespective of supply voltage between 198V and 254V, resulting in constant luminous flux.

An automatic shutdown facility isolates the circuit when a lamp reaches the end of its life, thus eliminating flicker.

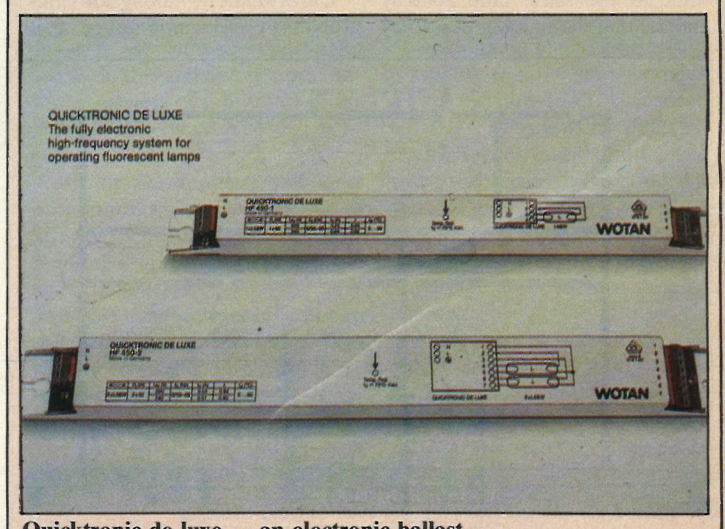
'Compact fluorescents basically have the same control options and benefits as fluorescnt lamps . . .'

The stroboscopic effects, such as moving machinery apearing to be still, caused by lamp operaton at 50Hz, is eradicated at 30kHz by electronic ballasts which have the additional benefits of being lightweight and offering silent operation.

Compact fluorescents (Figure 6) are the latest generation of lamps, combining fluorescent technology with compact shape and size. Manufacturers each have their own family names for these lamps, but an international format has evolved for description:

- ☐ **TC-S** Single compact with integral starter, 5W, 7W, 9W and 11W.
- ☐ **TC-D** Double compact with integral starter, 10W, 13W, 18W and 26W.
- ☐ **TC-L** Long compact without integral starter, 18W, 24W, 36W and 40W.
- ☐ **TC-S/E** Single compact without integral starter, 5W, 7W, 9W and 11W.
- ☐ **TC-D/E** Double compact without integral starter, 10W, 13W, 18W and 26W.

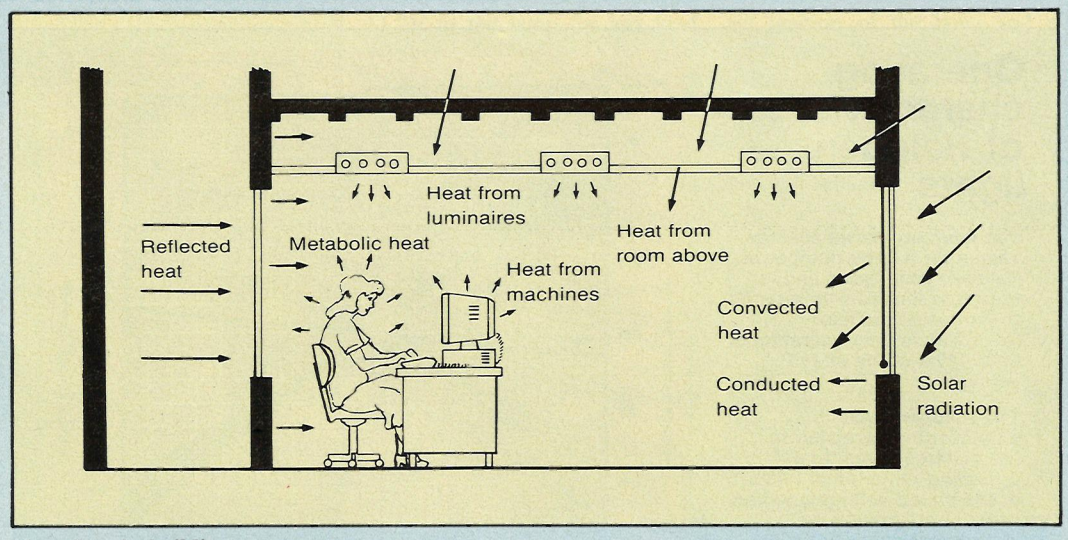
Compact fluorescents basically have the same control options and benefits as fluorescent lamps although the following exceptions should be noted. Single and double compacts with integral starters can only be operated on conventional wire wound control gear since they have an integral starter in their base. Single and double compacts without integral starters are suitable for electronic ballast operation, but only really benefit from low voltage or dimming use due to their low power rating.



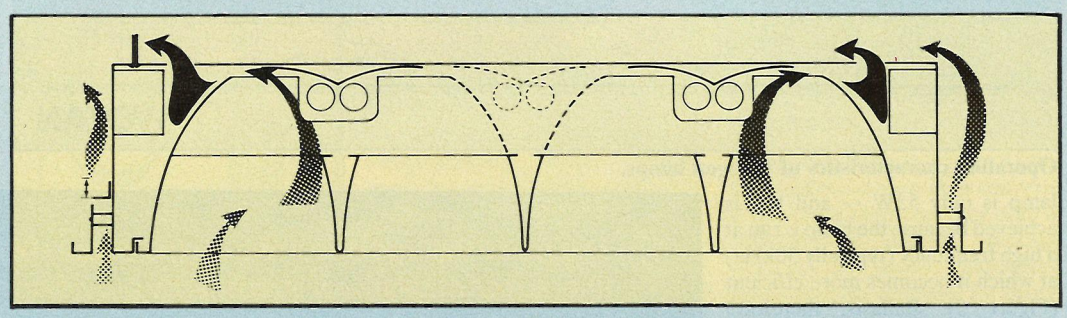
Quicktronic de luxe — an electronic ballast.

Air handling for the 1990s

Greater air handling capability and maintenance of luminaire performance are often conflicting requirements in designing air handling luminaires. *Alan Maxwell*, of RADA Lighting, describes how research in his company pointed the way to improvements in both functions.



Heat flow in buildings.



Air passes over lamp control gear and bypass air cools outside of control gear in lamp compartment.

Air handling could again be one of the features of lighting development over the next decade. We are already reaching a point where virtually every major new lighting scheme demands some degree of air handling. The signs are that the demand for increasingly sophisticated air handling luminaires at an acceptable cost will grow.

The prime reason is the modern electronic office. Computerisation creates heat, and the degree of computerisation is going to increase during the 1990s.

It is already forecast that by 1995 one in three office workers will operate an electronic work station, generating even more heat and needing greater quantities of air to be changed to maintain comfort.

Alongside this we have developed compact fluorescent light sources that are sensitive to overcooling and need to be kept within a narrow temperature band for optimum performance.

And thirdly, we have the natural reluctance of architects and interior designers to see their ceiling cluttered with extract air grilles.

Consequently, we need a way to cool modern offices without affecting the lighting efficiency and without adding to the cost or aesthetic disadvantages of air conditioning extract systems.

In-built flexibility

The answer appears to be an air-handling luminaire with considerable in-built flexibility.

Of course the air handling luminaire is by no means a new idea.

It has been around for years in a variety of forms. The point is that, traditionally, air handling luminaires have been designed specifically for each individual installation. And that can be expensive and time-consuming.

It is to overcome this that RADA Lighting has developed the Airlux luminaires, which gives the air-conditioning engineer all the flexibility he needs in a standard fitting and satisfies the architect and lighting consultant as well.

It can handle the high flow rates demanded by the modern office — while at the same time actually maintaining the lighting efficiency of the compact fluorescent lamps and avoiding the need for ceiling extract grilles.

What is an air-handling luminaire?

An air-handling luminaire is, essentially, a ventilated lamp box.

Its objective is to remove excess heat from the lamps and the control gear, usually by directing the exhaust air through the luminaire, round the lamps and over the control gear before it returns to the air conditioning plant.

This means, in effect, that the luminaire acts as an air exhaust grille and the concept can be used with most types of lamp: tungsten; high-intensity discharge; or fluorescent lamps.

The extract air itself can return to the air conditioning plant by the negative plenum exhaust method, in which the entire ceiling void becomes a large extract air box.

The air is drawn through the luminaires and then from the ceiling void by one or more stub exhaust ducts connected to the return air side of the air conditioning plant.

This reduces exhaust air ducting in the ceiling void, and it helps the air conditioning engineer by achieving self-balancing of the air flow through the luminaires.

On top of this, air handling luminaires can substantially reduce the overall conditioned air flow rates.

70 per cent less

Up to 70% of the total power input to the luminaires can be removed in the form of heat carried away in the exhaust air stream without it entering the room below.

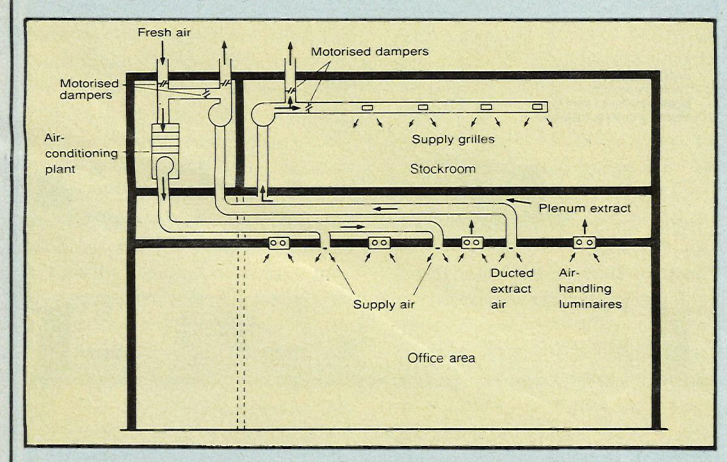
By reducing the cooling load in this way, the air-handling luminaire can mean smaller supply air ducts, smaller plant and less fan power.

And, with all manner of electronic equipment proliferating in the office, this is now a pressing need.

Computers, word processors, printers, fax machines, and so on, may individually be moderate in power consumption but together they create a marked heat gain for the air conditioning engineer to deal with.

Unfortunately, alongside this growth in electronic usage that demands higher air exhaust rates, we are seeing the introduction of lamps that use less power and need less cooling.

Hence, the need for more sophisticated air-handling luminaires that are, nevertheless, acceptably priced.



Simplified air circuit showing plenum extract system.

With a possible heat gain to the room of 50W m^{-2}, or more, the air conditioning engineer could be asking for 70 ls^{-1} of exhaust air from compact luminaires that can only tolerate 15 ls^{-1} otherwise the lamps will be overcooled.

This is important because the krypton/argon-filled T8 lamps can lose light output dramatically with over-cooling.

Lamp engineers have developed fluorescent lamps to give peak light output at an ambient temperature of 25°C.

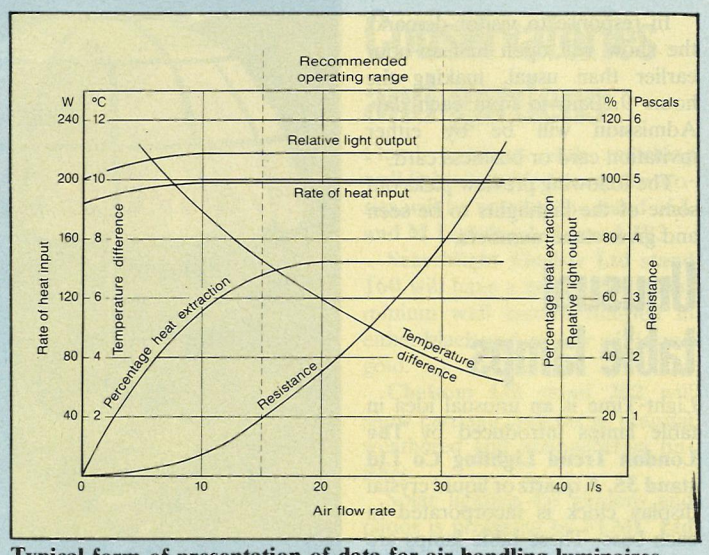
At this ambient temperature, the lamp wall temperature will be around 40°C.

With a bare lamp — say in a batten type of fitting — this is achievable under normal conditions.

Heat build-up

However, with the lamp enclosed in a luminaire — even a luminaire with an open reflector — the heat will build up and light output will suffer.

A lamp wall temperature of 50-55°C is quite usual under static conditions and at this point the light output of the lamp could easily fall some 15% below peak.



Typical form of presentation of data for air handling luminaires.

Bringing the temperature back down by air-handling will clearly restore the performance.

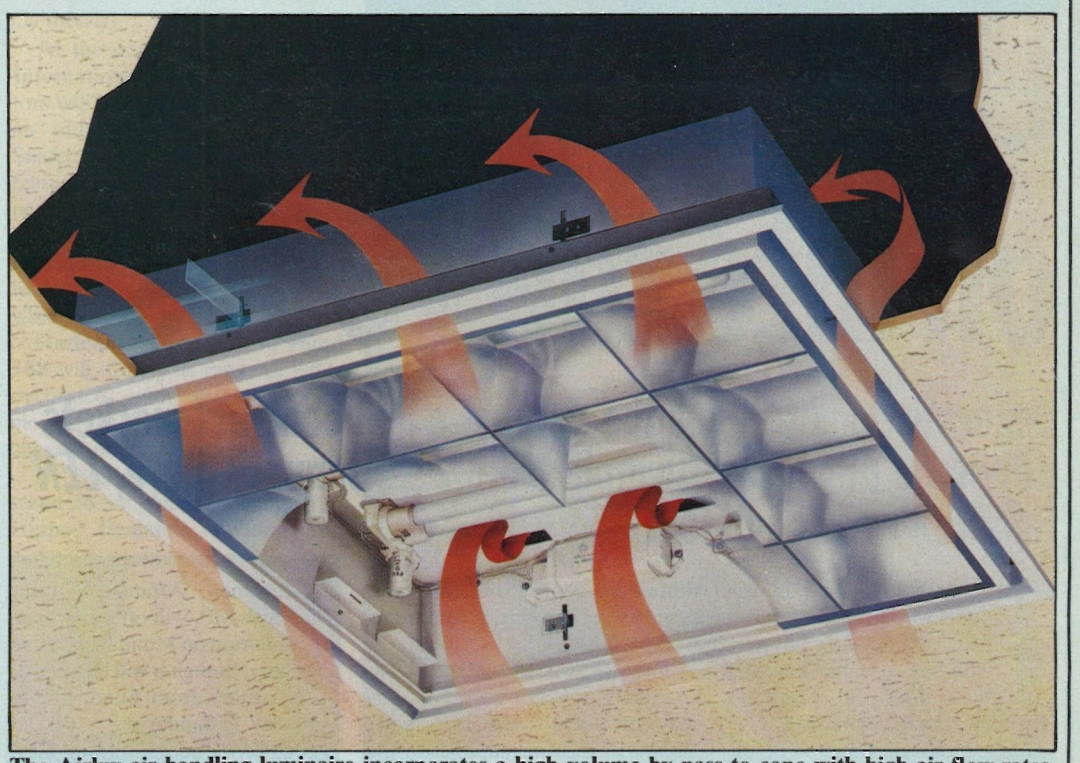
However, this has been complicated by the development of the krypton/argon filled lamp.

With the older, argon-filled T12 lamps, losses in light output occurred in roughly the same proportion whether the lamp were over-heated or over-cooled, and 40 ls^{-1} of exhaust air has become the usual maximum per luminaire.

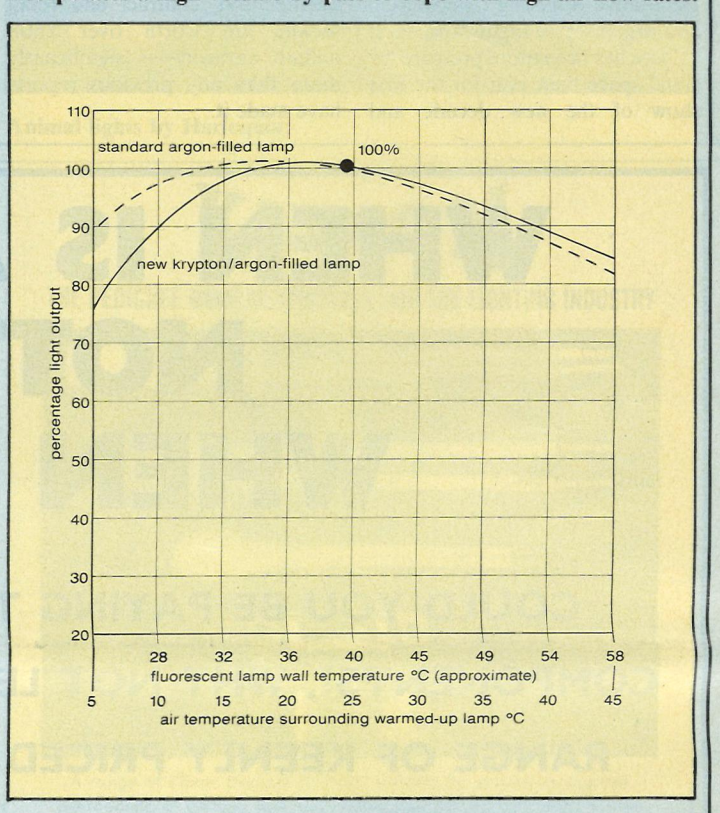
But this is not so with the modern lamps. With today's krypton/argon filled T8 straight lamps, over-cooling can produce a more emphatic drop in light output.

The main problem is with the 1200mm straight lamp, where 40 ls^{-1} is far too much.

Moreover, with the compact lamps, although they do not usually contain krypton, the reactions may vary between ratings even of the same lamp type. Some may even reach peak light output at higher temperatures.



The Airlux air handling luminaire incorporates a high volume by-pass to cope with high air flow rates.



The effect of ambient temperature on lamp output.

Add the complication of running conditions that will vary according to 50Hz or high-frequency control gear, and it is small wonder that confusion and difficulties arise.

Meanwhile, the air conditioning engineer wants 70 ls^{-1} through a luminaire that can only take 15 or so.

Therefore, we need some form of bypass for the extra 55 ls^{-1}.

One answer is to bring back the air exhaust grille to act as a bypass, but the architect is not going to favour this because it clutters up the ceiling, and the client will not want the additional cost.

Moreover, it has always been seen as a prime benefit of the air-handling luminaire that it could replace the exhaust grille.

Attractive solution

The most attractive solution, both aesthetically and financially, is to incorporate a bypass into the design of the luminaire itself.

It is feasible to draw all the air through the lamp compartment, but to do this and divert more than three quarters of it away from the lamps themselves can be very difficult.

By far the simplest and most economical way to do the job is to arrange for bypass slots to be incorporated round the outside of the lamp compartment.

At the same time, careful design can ensure that a restricted air flow will pass over the lamps to achieve just the amount of cooling required for their maximum performance. The rest of the air then passes directly into the ceiling void. This is what RADA's new Airlux luminaire does.

Airlux is a modular luminaire, 600mm square, that takes two or three 36W compact fluorescent lamps and has VDU-type reflector/louvres. The air flow via the lamp compartment is only 16 ls^{-1} with three lamps.

Light output rises

At these flow rates it has proved possible to achieve an increase in light output of about 4% in the twin lamp luminaire and approximately 10% in the three-lamp luminaire.

At the same time, the path of the extract air flow has been designed so that the control gear has double cooling.

This is especially important for electronic gear, which does not respond well to high temperatures, but it is expected to extend the life of all types of control gear.

The bypass consists of four air slots round the lamp compartment. These have the added advantage of allowing a range of air flow rates by means of optional blanking plates that can be set open or closed.

By using these blanking plates it is possible to provide for a range of air exhaust rates from 24 ls^{-1} second to 72 ls^{-1}, in increments of 12 ls^{-1}.

This means that the fitting provides the flexibility to cope with most of the likely needs of the air conditioning engineer, while satisfying the lighting engineer's requirements — all in a standard luminaire.

This concept solves the two crucial problems of temperature-sensitive modern lamps and the heat gain from the electronic office, and may well mark the beginning of a new era in the combining of lighting and air conditioning technologies.

Lightshow shines on into the 1990s

Decorative lighting for the domestic and contract markets will be on display at Olympia from 7-11 January. Here, *LEN* tells you what's in store.

The 26th Lightshow is well on its way to success as this issue of *LEN* goes to press, with both ground floor and first floor at London's Olympia completely booked.

John Tengwall, director of the Decorative Lighting Association and organiser of Lightshow, says: "There has been more pressure for stand space than ever for the first show of the new decade and despite a quiet time in retail stores it shows the industry is continuing to grow."

The DLA states that it has conducted a major survey among its members which shows decorative lighting supplies to the architectural, contract and retail sectors are worth over £608 million annually — significantly more than any previous reports have made it.

Consumer Affairs Minister, Eric Forth MP, will officially open the exhibition on Monday morning 8 January, though it will be open to trade visitors from Sunday 7 to Thursday 11 January.

On the Monday morning also, two design awards will be presented: the Russell trophy for modern lighting design and the Pegasus trophy for traditional style lighting.

In response to visitor demand, the show will open half-an-hour earlier than usual, making the hours 9.30am to 6pm each day. Admission will be by either invitation card or business card.

The following preview picks out some of the highlights to be seen and gives stand numbers.

Unusual table lamps

Light-Time is an unusual idea in table lamps introduced by **The London Trend Lighting Co Ltd stand 35.** A quartz or liquid crystal display clock is incorporated in each base. These table lamps are available in either black or white with hand finished 22ct gold trim and a matching pleated gold trimmed shade.

Winter Pansy is a new table lamp from **Philipinalia Ltd stand 157** in colouring that compliments the darker fabrics and wallcoverings appearing in 1990.

Each capiz shell shade is hand painted with a border of pansies in crimson and violet and is supported on a brass rod. On the wooden base is a flower arrangement of pansies and leaves, all handmade in capiz shell.

Winter Pansy, a table lamp by Philipinalia.

Matching pendants are available in two sizes, along with accessories such as trinket boxes.

Philipinalia will also be introducing six designs to complete its Twelve Months of the Year series of lights which are painted to show pictures of fruit and flowers.

Brass candleholder table lamps will be shown by **West One Ltd stand 231.** Each is sand cast and hand polished by Thai craftsmen then assembled as a lamp in England.

A recently introduced model, the Designer Lamp, has a transparent central column which holds co-ordinated fabric or wallpaper. Lampshades can be specially made to match.

Another of the company's products is a solid brass hurricane lamp with hand blown glass decorated with a brass rim.

Drimmer Lampes stand 220 will exhibit many new ranges of table lamps in materials such as stone, mother-of-pearl, talc-finished oak, terracotta and porcelain. Colours will include violet, pink, bronze-green, dark red and palm. A new range called Japan is glazed in either black and red or beige and black.

Astral table lamp with matching telephone.

English Country Pottery Ltd stand 57 will be celebrating 21 years of hand decorated pottery with new ranges of table lamp bases to co-ordinate with textiles, furniture or customers' own decorating themes for the coming year. Modern pastel colours are used and inspiration is drawn from the English countryside.

Table lamps by West One match furnishing fabrics.

Painting lamp bases at English Country Pottery.

L and M Lighting Ltd stand 183 will be showing a range of hand painted Italian porcelain table lamps which are available in a limited edition only.

Astral International Ltd stand 32a for its first appearance at Lightshow will display a range of decorated telephones, with matching bone china table lamps and picture frames.

There will be an increase in Japanese products at the show this time, in particular from the following companies.

County Shades stand 215 is adding 14 new models to its range of Japanese Kutani table lamps.

All are slip-cast earthenware, antique glazed and hand painted in traditional designs.

RoChamp stand 200 will also show Kutani and other oriental table lamps, with silk, satin and stiff shades.

PLMC Ltd stand 156 has increased its selection of Japanese lamp bases with models such as the cherry garden design.

A new concept in table lamps, called the Marco Polo, is also promised.

The Base and Shade Co Ltd stand 84 will have Japanese lights among the ranges on its stand.

The Silk-Gate Collection stand 12a is exhibiting its table lamp bases for the first time at Lightshow. These bases have been carefully selected for their Chinese art motifs of birds, flowers and pictures and their attractive colour schemes to make them suitable for both traditional and contemporary interiors.

Shapes include vases, temple jars and ginger jars.

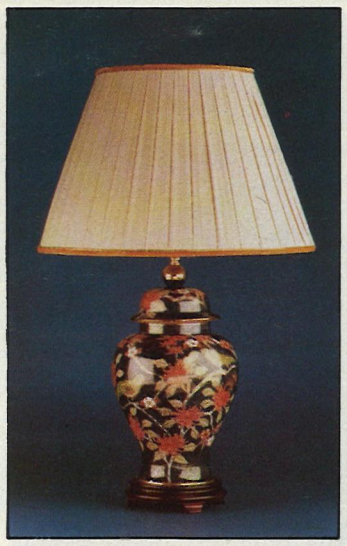
Another new exhibitor is **Cartref Trading Ltd stand 6**, showing two types of table lamp base from Taiwan.

Bases in refined porcelain are painted with traditional Chinese pictures and designs. Most of this range has a candle lamp inside the base which can be switched independently of the main light.

The other bases are in crystalline glazed porcelain. Crystals bloom naturally from the firing process and no two bases have exactly the same pattern. There is a choice of five colours in different shapes and sizes.

Lamp base from Taiwan to be shown by Cartref.

Cresswell Lighting Ltd stand 167 will be introducing a range of classic table lamps with floral transfers inspired by Chinese and other Far Eastern influences. A new lampshade fabric with a silk appearance will be used for the China Blue table lamp range.



An example of County Shades' Japanese lamps.

The Eastern promise collection of contemporary table lamps will be seen with ornate transfers on rich base colours of Capriz Blue, Monarch Red and Beryl Green, complemented by rolled edge coolie shades.

Paisley fabric shades will be added to the Sculpture range of lights, while the City Limits collection will have its black glossy bases stylised with chromium and gold transfers. Egyptian and Mediterranean will be other new ranges.

Lampshades

For buyers looking for soft shades, **Limelight Lighting Ltd stand 148** will have a selection in flame retardant fabrics to fill a gap in the contract market. These will be in chintz and Nottingham lace in a variety of styles for pendants and table lamps.

Other shades in a material that closely resembles parchment will be introduced in traditional designs.

A wide range of handmade soft shades will be displayed by **The Base and Shade Co Ltd stand 84** in many designs and materials.

Bathrooms

Two ranges of bathroom lighting will be introduced at the show by **Chelsom Ltd stand 202.** One is an inexpensive series using Venetian glass panels that give a crinkled ice effect, the other a prestigious range combining chromium plated or gold plated metalwork with solid glass rods.

Metamec Clocks and Lighting Ltd stand 61 will have bathroom striplights — three multi-use models with a choice of diffuser, and one shaving light.

Wall lantern by Searchlight.

Conservatories and gardens

Floral pendants with matching wall lights suitable for conservatories will be seen on the stand of **L and M Lighting Ltd stand 183.**

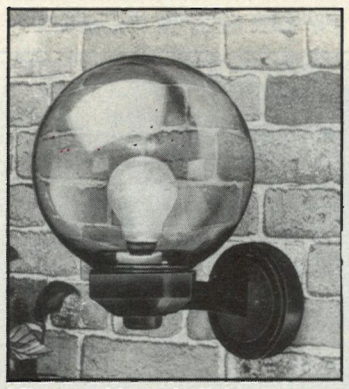
Searchlight Electric Ltd stand 160 will have a new outdoor aluminium wall lantern finished in either black and gold or white and gold.

Chelsom Ltd stand 202 will show carriage lanterns in unusual weathered and antique brass finishes.

Solar lighting for gardens and patios is promised by **PLMC Ltd stand 156.**

From **Metamec Clocks and Lighting Ltd stand 61** there will be the Coronet Royale, low voltage, festoon lighting. These sets consist of 10 modern lanterns on 14.25m of cable. Submersible pool lighting and heavy duty festoon lighting will also be shown.

Micromark stand 20 will be making a feature of garden lighting, ranging from spherical patio wall lights to floodlights. Some will be available with infra-red detectors and photo-electric switching.



Micromark's patio light.

Omega Lighting stand 195 will also be featuring garden lighting and will add the Approach lantern to its security range.

Poole Lighting Ltd stand 209 is strengthening its position in the outdoor lighting market with the introduction of a wrought iron lantern that incorporates an infra-red device to detect people or cars approaching within a distance of 9m.

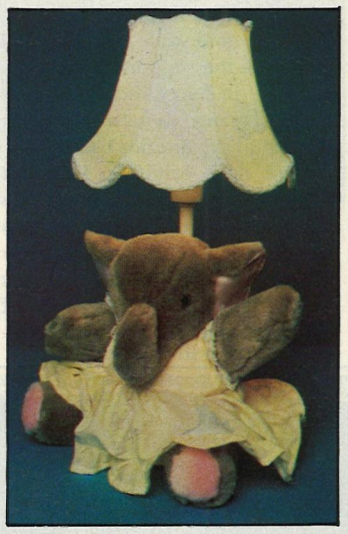
Nursery lights

Chootles will be heard on **Micromark's stand 20.** He swings below a pendant shade and when a child makes a sharp noise, such as clapping hands, he bleeps plaintively!

At the stand of **House Martin International Ltd stand 40** visitors will be introduced to Barney, an old English sheepdog, and Snatch, a mongrel, who are featured on pendant shades and bedside lights. The Snatch shade has pictures on the inside as well as the outside, so that when children look up they no longer see a blank white space.

Harlequin Lighting Ltd stand 188 will display its range of lights decorated with oriental dolls, clowns, animals and Disney characters.

At **Sophie International Ltd stand 36** Sapphire Elephant, Jo Jo Hippo, Benjamin Bulldog and other soft toys will be appearing on table lamps and pendants.



Sapphire Elephant on a lamp by Sophie.

Revolite Ltd stand 12 will show nursery and novelty shades which rotate on a plug-in motor that fits either BC or ES lampholders.

Talking lighting by Micromark.

Animal lights by Harlequin.

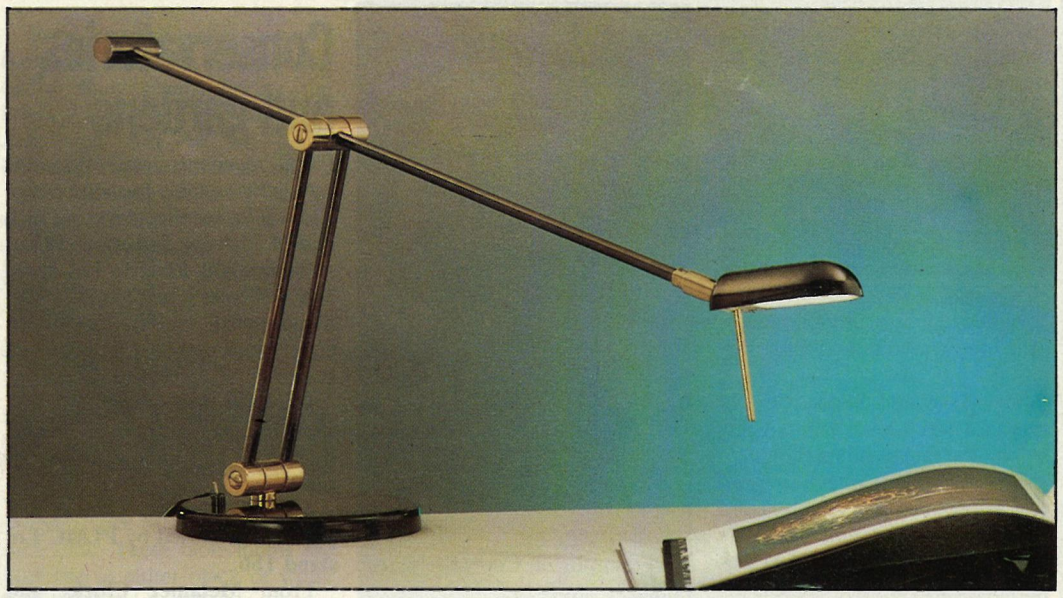
Part of the Images range to be shown by Tally Ho.

Modern

A striking modern range called Images will be exhibited by **Tally Ho Lighting Co stand 227**. This collection of 50 low voltage lights made in Italy includes floor, wall and ceiling models, with several uplights and some downlights. In addition, there is a wire suspended system which has a variety of accessories.

Danish designs will be shown by **Farmer Design ApS stand 203**. The Contrast series has floor lights and table lamps which are adjustable in height; there are matching pendants and wall lights. Metal panels on the supporting stem are available in selected colours from the RAL range to harmonise with the rest of the interior decor.

First time exhibitor **Deknudt Lighting Ltd stand 31** will be showing some of its latest models from Belgium. These include a low voltage desk light called Focus with a switch that offers a choice of two lighting levels, and a low voltage, brass and glass chandelier on a stem of adjustable length.



Desk light by Deknudt.

Quest Emess stand 181 will launch an extensive range of spotlights for R50, R63 and R80 lamps. There will be nine shapes and five finishes, including black chrome.

White, surface mounted downlights for domestic and light commercial use will be seen. These use Dulux type compact fluorescent lamps.

Poole Lighting Ltd stand 209 will also show new spotlights for the home. They are easy to install and are available in pewter, black chrome and hammered metal finishes.

Crompton Parkinson Ltd stand 80 is now UK agent for Raak lighting and will include on its stand a limited selection of Raak luminaires using low voltage and compact fluorescent lamps.

Philips Lighting stand 5 will include on its stand the Manhattan and Harvard low voltage desk lights. There will also be modern wall lights.

Contrast series from Farmer Design.

Traditional

Impex (Glassware Ltd stand 134 will be introducing Heritage handcut crystal to mark the Blake family's 120-year association with the manufacture of crystal chandeliers.

Heritage crystal is ground on an iron wheel, cut on a special sandstone wheel and finally each facet is polished on a wooden wheel with marble dust. The result is a prismatic brilliance which splits white light into the colours of the rainbow.

Heritage crystal chandelier from Impex.

Brass and glass chandelier by Focus.

Focus Lighting Ltd stand 188 will display traditional chandeliers dressed in Czechoslovakian and Strass crystal, some with gold plated frames.

The company has recently started Focus Chandelier Services Ltd to clean and restore chandeliers to their former glory.

The Profili low voltage range consists of small tulip shaped flowers and leaves made of rows of Strass crystal buttons. Each flower

contains a 50W tungsten halogen lamp. There is a wide variety of styles to choose from.

Brass and glass lighting will also be shown.

Among the crystal on the stand of **Chelsom Ltd stand 202** will be chandeliers designed for lower ceilings in modern homes, classical Bohemian crystal baguettes and wall lights.

Turn-of-the-century solid brass designs will also be seen. This versatile Economy range can be used as uplights or downlights and with or without spring-clipped glass shades.

Two picture light ranges will be launched,, one traditional and one contemporary.

Micromark stand 20 will be showing traditional brass and glass luminaires and rustic style fittings.

Besa Lighting Ltd stand 87 has added several ranges of brass fittings to its selection, including pendants, table lamps and floor standards.

Art nouveau lamps in layered glass, shown by Franz Feeberger.

Art nouveau/ deco

Franz Feeberger stand 64a, UK agent for La Rochere SA, a French glass manufacturer founded in 1475, will exhibit its most recent art nouveau collection. It has revived the glass making tradition of the School of Nancy, which was frequently used by leading French art nouveau glass artist Gallé.

The table lamps are made from layers of different coloured glass. Dome, mushroom and tulip shaped designs have classic art nouveau motifs such as vine leaves, dragonflies, birds and landscapes.

Chelsom Ltd stand 202 will also show art nouveau style lamps.

Odeon Lighting Ltd stand 27a, making its first appearance at Lightshow, will display its unusual chrome and glass art deco style lighting made in the North Midlands and intended for the contract market.

Included are designs such as twin-arm floor standards, suspended uplights, hemispherical wall lights and table lamps with curved metal arms. A new range will be available for the exhibition.

Accessories

Among its light sources **Crompton Parkinson Ltd stand 80** will have a new range of globe lamps suitable for use with lampshades or other open luminaires. They are rated from 25W-100W and are available in clear and opal finishes.

A simple-to-fit adaptor to convert standard lampholders to accept compact fluorescent lamps will be shown.

Omega Lighting Ltd stand 195 will have a display of Mazda lamps, plus a range of Jewel lamps in three sparkling finishes in candle and round shapes for wall lights and pendants.

A new size in the Softglow tungsten lamp range will be exhibited in four pastel colours and the new Mazda Triple Life lamp will be on the stand.

Philips Lighting stand 5 will unveil a new low voltage tungsten halogen light source.

L B Technic stand 187 from Denmark plans to demonstrate the cost benefits of using compact fluorescent lamps with adaptors and reflectors.

Tridonic Ltd stand 70 will have a range of dichroic reflectors for use with tungsten halogen capsule lamps, to save on lamp replacement costs.

Tridonic's range of electronic and wound transformers, lampholders, terminal blocks, connectors and Eutrac three-circuit track system will be seen.

J M Clarrke Ltd stand 10 makes both conventional and electronic low voltage transformers. Of particular interest will be an all-insulated, wound transformer of compact modern design in a flame retardant enclosure with several safety features.

Electronic transformers rated from 20-105VA will also be shown by this first time exhibitor. There will be units for remote mounting and others to fit inside luminaires.

Light Source Electrical Equipment Ltd stand 209a will be featuring its latest electronic low voltage transformers rated from 20VA-105VA. Important benefits are auto setting short circuit protection and auto dimming overload protection circuits.

Golden Peakock Overseas Pvt Ltd stand 27 will exhibit its lampholders, including B22 switched types and porcelain versions. These can now be bought from stocks in the UK.

Turned brass and spun aluminium parts are also supplied to the lighting industry.

Metamec Clocks and Lighting Ltd stand 61 will have electronic timers and security devices.

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At Osram we have always demonstrated a commitment to producing superior, top quality products, whether domestic or industrial. It is a quality that has made us a leader in our industry.

Our continued success means we now have an opportunity for an experienced lighting/electrical engineer to join our Street Lighting Division.

A highly responsible position, you will be assisting the Project Manager with both technical and commercial matters. Your duties, which will be both varied and challenging, will include overseeing major projects that are underway both in the UK and overseas and liaising with our technical and design departments to co-ordinate, prepare and document the overall design and tender of major lighting projects.

Your extensive lighting experience, together with your ability to understand and interpret technical specifications and shop drawings, will all be fully utilised.

Based at our Wembley headquarters, you will need to be a good motivator and have excellent communication and administration skills.

In return we can offer a salary in line with your expectations, a generous benefits package and good career prospects.

Interested? Then please send your CV to Marjorie McIlroy at Osram-GEC Ltd, PO Box 17, East Lane, Wembley, Middlesex HA9 7PG.

OSRAM

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Please write enclosing a CV to: The Managing Director
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Tel: (0895) 72275

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A young, energetic sales representative with experience in selling lighting components to O.E.M's, distributors, end users and specifiers is required to assist the launch of a new range of fluorescent lighting products and accessories.

This is a real ground-floor opportunity and will suit an ambitious and accomplished seller who is ready to take on a management role at an early stage.

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British Rail are currently looking for Engineering Assistants in the Regional Civil Engineer Department's Principal Building Services section to produce schemes, surveys and designs for British Rail stations and premises throughout the Southern Region.

Ideally, candidates should have a Technician Engineering qualification in Building Services or Electrical Engineering and experience in The Control of Building Services Contracts.

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For application form and job description please contact:

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for the attention of Mrs J. Starks,
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DISTRICT ENGINEER & SURVEYOR'S DEPARTMENT

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Based at Loughton but will transfer to Epping on centralisation of offices in 1990.

Salary from £8592-£12873

Applications are invited for the above post to assist in the design and maintenance of highway lighting equipment in the Epping Forest District area.

The post would suit an ambitious young person currently working in the electrical industry who wishes to develop his or her career to Incorporated Engineer status.

The person appointed will work with the latest computer assited lighting design and highway lighting management systems and will be given the opportunity to study for corporate membership of the Institution of Lighting Engineers.

We offer a salary which accords with personal achievement and one of the best benefit packages around. This would cover your removal expenses and help with resettlement costs. As an alternative to moving, long distance commuters can get assistance with travel costs. This post carries an essential user car allowance (max. 1450cc) or a leased car.

Should you require further information regarding this interesting post, contact Colin Crudgington on 0378 560000 extension 3055 for an informal chat.

Please telephone 0378 560100 (24 hour answering) for an application form and further details and return by 18th December 1989.

Please quote ref: ES/62A

Epping Forest District Council

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We rank among the worlds top 3 lighting companies preparing lighting schemes with architects, specifiers and metropolitan authorities across Europe.

As a result of technical advancement and product expansion we are adding to our team. An ability to demonstrate a successful sales track record combined with technical knowledge will be the prime consideration.

Essential qualities are superlative communication skills and the enthusiasm and determination necessary to succeed within a competitive industry.

In addition to a very attractive earnings package a superb career path is offered within the group and you can expect to receive a full programme of product training.

For an early interview in the first instance, telephone or write to our consultants.

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Formlight, specialist luminaire manufacturers for all types of Open-Cell, Linear Metal, and Solid ceiling systems, are looking for high-calibre Sales Executives to join its expanding UK sales force. Ideally applicants will have proven sales experience in the commercial or decorative lighting markets, possess excellent communication skills coupled with an ability to successfully negotiate within the Architect/Design/Specification client base.

The successful applicants will manage and develop one of two vacant Regions. An exciting future with career potential for the right people. We offer an excellent salary and bonus package together with Company Car and other benefits associated with a large organisation.

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Formlight, due to rapid expansion are looking to employ a Lighting Design Engineer, based at our West Yorkshire H.Q. Ideally the applicant should have at least two years experience in lighting design, preferably in the Decorative and/or commercial sectors. Good drawing skills are essential and the ability to prepare lighting schemes from initial concept to design completion. A familiarisation with a C.A.D system would be advantageous.

Initially office based, offering full career potential to reward hard work and dedication. We offer an excellent salary package, together with most benefits associated with a large group operation.

Please post or fax your full C.V. to:-
The Sales Director, FORMLIGHT LIMITED, Conway House, Heckmondwike, West Yorkshire WF16 0NS. Fax. 0924 400073.

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UP TO £10,023

Based at Headquarters in Glenrothes, you will be responsible to the Principal Engineer (Street Lighting) for the design, preparation, supervision, maintenance, surveying and testing of street lighting installations and other electrical projects.

You should hold ONC or HNC or equivalent in electrical engineering; holders of HNC will start at not less than £8,967. Street lighting experience is an advantage, but not a condition of appointment. A clean, full, current driving licence is essential.

Application forms and further details are available from the Director of Manpower Services, Fife House, North Street, Glenrothes KY7 5LT, to whom completed forms should be returned not later than Friday 22nd December 1989. Telephone Glenrothes 754411, Extension 3822. Reference No. DMS/48/T/133.89/LEN.

Disabled workers are good workers — Award Winner 1988

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Please contact him on:

01-521 5485.

or write to:

Brian D. Radley
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Adding a sparkle to wine

Off licences do much of their trade at night, so lighting was an important part of the refurbishing of 21 Wine Rack shops.

This was a major element in the brief when Marlin Lighting were called in by designers, Pentangle Interiors, to design and supply interior lighting. Moreover, the lighting scheme had to be capable of creating an inviting, cosy atmosphere and of illuminating a large number of products as well as spotlighting different target areas.

To provide this flexibility Marlin specified Modupoint fittings, which were specially adapted to meet the needs of each shop.

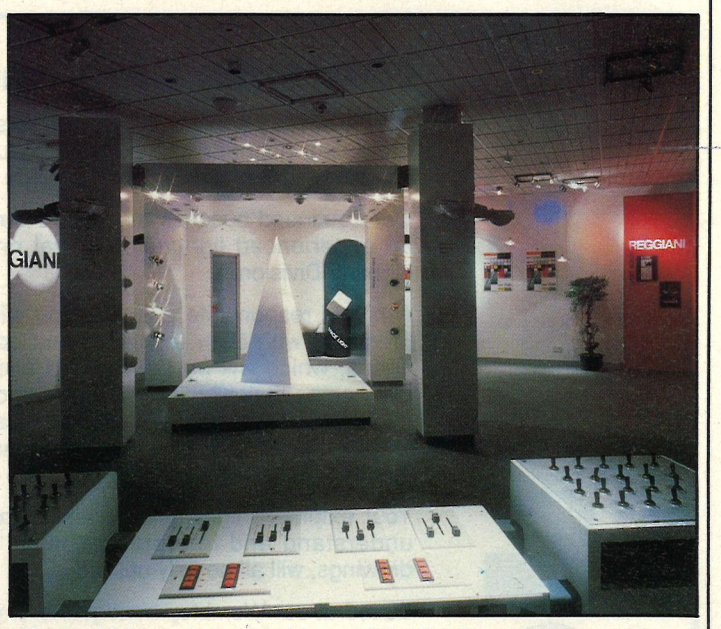
The fittings comprise 300 and 500mm black swivel sticks which are plugged into specially designed sockets, some of which are provided as complete kits with cable for direct conection with the transformer. This gives a unique ability to highlight any selected part of the display. A special pane has been designed to control interior lighting and allow for easy adjustment.

Reggiani open light gallery

Reggiani UK has opened a light gallery at the company headquarters in Borehamwood, Hertfordshire. It has been designed as a working environment where specifiers, wholesalers, contractors and end-users can study lighting, evaluate lighting effects on a given environment and experiment with techniques and mixed light sources.

A fully automated scene-setting device with 10 pre-set combinations provides a smooth assessment of various lighting techniques on a central podium. On manual control, the console allows separate switching of every group of luminaires in the gallery. Altogether, a total of 178 scenes can be created.

The podium has been designed as a stage where props can be placed in order to simulate the



effects which can be created in a given environment, whether shop window, office, hotel or restaurant. This allows the effects of backlighting, uplighting, downlighting, side lighting, spot, accent and highlighting to be evaluated alongside the colour temperature and colour rendition from individual lamps or a mixture of light sources.

Development in electroluminescent sheet

The latest development in electroluminescent technology, a new material, named E-Lume, is now being marketed in Europe. It is manufactured in a new way which is stated to make it suitable for a wide range of applications.

E-Lume's major advantage is the design freedom it offers. It comes in thin, flexible, tough sheets, which can easily be die cut to any shape; is durable, not susceptible to delamination and has brightness uniformity right to the edges.

It is easy to connect to a power supply, draws a low current and can be dimmed or brightened by altering the voltage or frequency. The cold light source means no power loss through heat emission and no possibility of heat damage to adjacent material.

Applications include signs, laboratory and test equipment, house numbers and aircraft and boat display panels. It is also in use in America for emergency exit routes, runway markings, film, stage and television lighting, and special effects.

E-Lume is available in amber, white, blue and green.

It is marketed by Litron Ltd, PRW House, Howard Chase, Pipps Hill, Basildon, Essex SS14 3BD, from whom more information is available.

IN YOUR NEXT ISSUE

In January, *Lighting Equipment News* will feature the lighting of industrial areas. In particular there will be an article on lighting in hazardous environments which describes the zoning of hazardous areas, selection of explosion protected equipment and the procedure for BASEEFA certification.

There will also be industrial lighting case studies.