LIGHTING EQUIPMENT NEWS

MAY 1992

In brief...

● **Edison Halo** has taken over sales and marketing of the range of tubular lighting systems launched last year by Menvier, who are now concentrating on emergency and fire protection systems.

● **Kalmar** has relocated to 3 Willow Business Park, Willow Way, London SE26 4QP. At the same time, its Kalmar, Annell, Leucos and Woka ranges are being brought together under the name MW United Group.

● **Ano-Coil** has been granted the Queen's Award for Export Achievement for its performance in building and maintaining its overseas markets.

● **BDC** has gained BS5750: Part 2 quality assurance certificate in respect of its head office complex in north London.

● **Shower Lights**, which has recently changed ownership, has moved to larger premises at 5 Horsefair Mews, Romsey, Hants SO51 8JG.

● **M & M Lighting** and **Camelont London** have moved to Unit 2, Cameron House, 12 Castlehaven Road, London NW1 8QW.

● **Litetask** is to supply lighting equipment to the value of almost half a million pounds for the new Leeds Magistrates Court development.

● **Thorn Lighting**'s distribution and sales operations have been granted BS5750: Part 2, making the company the only UK lighting manufacturer offering quality assurance from factory floor to delivery.

● **Eterna Lighting** has acquired from Light Ideas the manufacturing rights of the Energy Saver range of fluorescent luminaires. These will be marketed as Eterna Slim by Euroelectric.

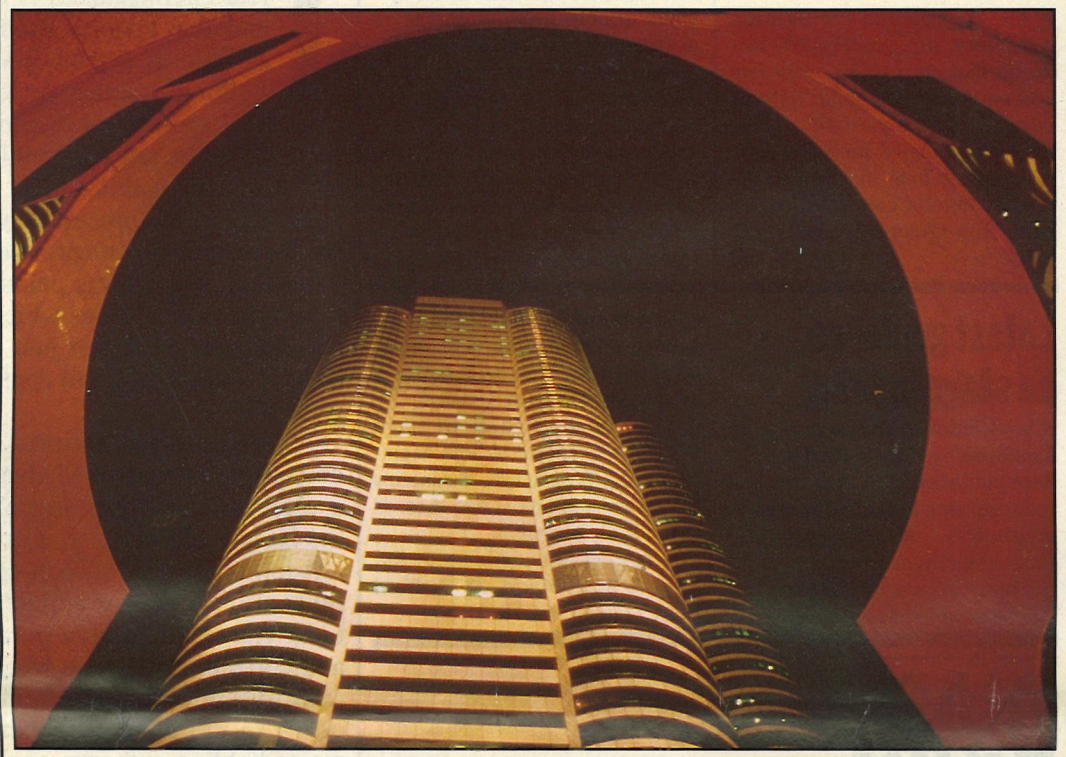
Concord wins top German design award

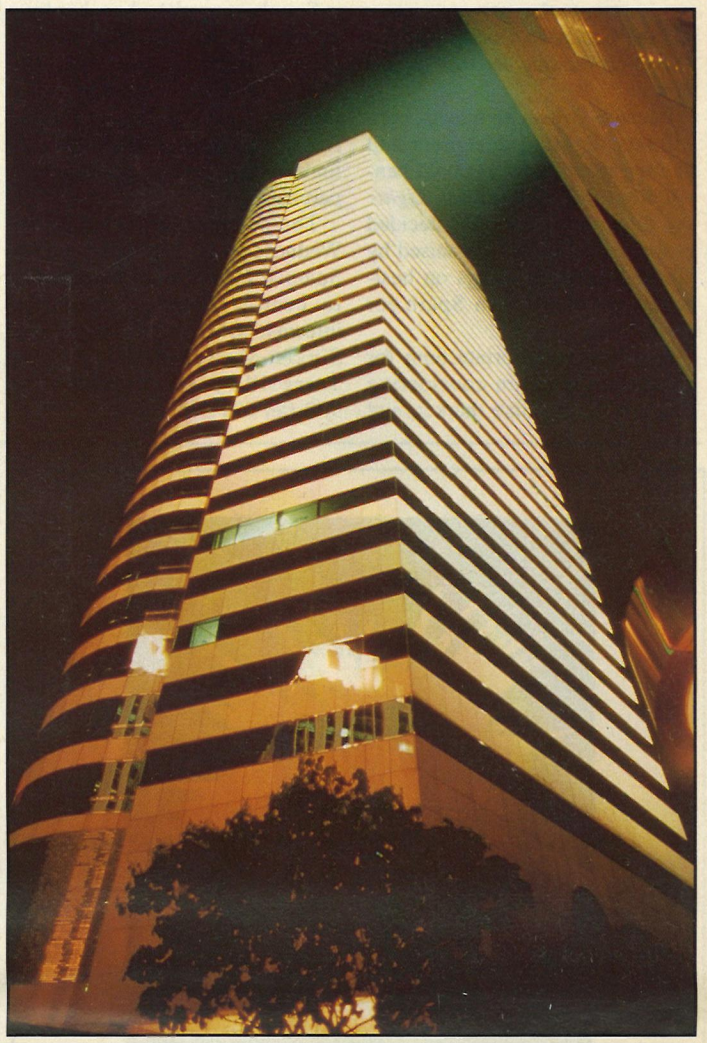
Concord's Infinite range of fittings, designed by Terence Woodgate, has won the design award "the Best of the Best in Design Innovation '92" competition organised by the Design Centre in Essen.

The competition attracted an entry of 794 products from 162 firms, of which 148 (or about 18% of those submitted) were commended. Only 17 products were designated as the "Best of the Best", including Infinite which was the only commercial lighting product to be selected.

INSIDE THIS ISSUE

A brighter prospect for the market





The famous pink marble clad towers of Hong Kong's stock exchange have recently been floodlit in a scheme by Thorn.

As a result, the buildings of Exchange Square now dominate the Hong Kong skyline as much by night as they have for the past five years by day.

A total of forty five 1kW compact metal halide floodlights illuminate the twin 180m high curved towers and single 130m tower which together comprise the trading hall and administrative offices.

The height of the towers and the relatively small area of the entire site considerably restricted the number of suitable mounting positions available for luminaires.

But the high levels of optical control achieved from the reflectors of the floods, and the use of a wide variety of different glass lens attachments have ensured that the floodlighting is uniform and even, with no hot spots or glare.

The scheme has been designed to achieve an average lighting level of 90 lux. Such a high level is necessary because the congested city of Hong Kong has a high surrounding brightness level. The floodlights are very efficient, and the engineers have been able to keep the electrical loading to 50.4kW.

At present the scheme illuminates only one each of the fascias of the tower, but an extended floodlighting scheme is currently in progress.

Energy efficiency — a crucial role

The splitting of the functions of the energy department between the Department of Trade and Industry and the Department of the Environment made it vital to ensure that the crucial need for energy efficiency did not become submerged in DOE with wide-ranging concerns, warned Lord Ezra.

Speaking at the LIF annual lunch, he stressed that lighting in the home and in public places was important to the whole energy efficiency campaign.

He admitted that LIF had made considerable progress in getting across the importance of modern lighting, and every government department now had to declare how much progress it had made with energy saving. But it was important that Whitehall continued to support the drive to emphasise the need for efficiency and high standards.

In reply, outgoing LIF president Michael Keevill said that in the list of duties for the environment ministerial team nobody had been given the responsibility for energy efficiency. That was a worrying omission. But LIF members welcomed what looked like new thinking about industry's role under Michael Heseltine.

"We want to see the DTI moving up in the government pecking order and ranging alongside the treasury where it should be. It is after all overseeing that part of the national effort which is creating the wealth that other departments are spending."

At the luncheon Andrew Osmond, head of commercial operations for GE Lighting Europe, assumed the office of president of LIF for the year 1992-93. As president he is keen to develop business opportunities for LIF members in the single European market and to encourage the relation ship between LIF and the Lighting Association. The new vice president is Peter FitzGerald of Fitzgerald Lighting.

Computer modelling project goes ahead

Real time lighting simulation is to be carried out in what is expected to become the largest virtual reality centre in Europe.

The research project, which will initially run for a two-year period, aims to provide dynamic lighting and environment modelling for adaptive lighting for highly complex interiors. By means of this technique designers and their clients will be able to enter a highly realistic building modelled in virtual reality and change the location and intensity of light fittings or even modify the eviroment itself.

London Parallel Applications Centre, the Central Research Laboratories of Thorn EMI and Division Ltd are to collaborate on this major project which is aimed at developing commercially useful products and services. Each partner in the project team will bring specialist skills to the consortium: Thorn has extensive experience in lighting; the LPAC is strong in parallel computing; and Division is a major supplier of VR systems for science and engineering.

Work will bring together the existing research and development activities of the partners: Queen Mary and Westfield College has been working on imaging, human computer interfaces and visualisation; Thorn has been engaged on lighting simulation and parallel computing; while Division has developed the necessary hardware.

The centre will be fully operational by summer 1993. The system will consist of a standard ProVision integrated VR system plus a next-generation scalable visualisation engine based on 16 Intel i860 processors capable of providing 1280 MFLOPS.

LPAC is a London based consortium of industry and universities. Its academic members are Queen Mary & Westfield College, Imperial College, University College London, and the City University.

NEWS

Business opportunities in Spain to be unfolded

Spain is investing heavily in new buildings, which is creating a demand for professional services, technical know how and capital equipment. Central and regional government, the private sector and the European Community are providing funding for this expansion.

Because British architects, consultants, lighting designers and lighting manufacturers could benefit from this opportunity, *Lighting Equipment News* has decided to sponsor a seminar organised by Single Market Briefings on business opportunities in Spain for our readers.

It will be appropriate both for companies who are considering entering the Spanish market, and for those who are already doing business with Spain but would like more information. This briefing will save management time in research and travel.

Speakers will be leading authorities on Spain and will include representatives from the Banco Hispano Americano, the Department of Trade, and Market Research Spain. Subjects will include the role of government purchasing.

The seminar will be held on Wednesday 16 September at the Spanish Chamber of Commerce in central London. For more information contact Robert Owen, Single Market Briefings, 41a Turneville Road, London W14 9PS (tel 071-385 2674).

How to turn green

The importance of protecting the environment has never been greater and consumers are demanding environmentally friendly products and services. BSI has therefore introduced BS7750 *Environmental management systems* to help businesses to develop, implement and maintain a responsible environmental management plan.

A one-day seminar on applying this standard, which is the first of its kind in Europe, will be held on 22 May in London. For details contact BSI, 0908 220022.

Designing lighting for low vision

A one-day course for lighting designers on aspects of low vision that need to be taken into account when designing lighting schemes for the partially sighted has been arranged for 6 October.

It will be held in London and further details can be obtained from Bob Greenhalgh, 071-722 9703.

Measuring light

There will be a three-day course in London from 6-8 July on light measurement. This is one of the Lighting Industry Federation's advanced modules. For further details contact the LIF, 081-675 5432.

Advanced course in lighting

A course of advanced studies in lighting is to be held by the Building Engineering Department, UMIST, University of Manchester. It is in the form of 16 one-day modules on Wednesdays commencing on 30 September.

Communication and presentation skills are included in the syllabus to help lighting engineers to communicate with architects.

On successful completion, a certificate will be awarded. The course is aimed at both new entrants to lighting and those who wish to broaden their knowledge and obtain a qualification. Further details can be obtained from Moira Kinnersley, 061-200 4241.

Latest guidance on stage lighting

A new edition of *The stage lighting handbook* by Francis Reid has just been published by A & C Black. It incorporates recent advances in equipment, including remotely focused spotlights.

There are new chapters on computer aided design and on the education of lighting personnel. Advice on designing and implementing a lighting scheme for a production has been updated.

This standard guide to stage lighting will appeal to both beginners and professionals. It contains a glossary and index, and there is also a bibliography.

It is available, price £11.99, from A & C Black, 35 Bedford Row, London WC1R 4JH.

DIARY

MAY

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Lighting basics 2: lamps and luminaires. One-day seminar in Newcastle-upon-Tyne arranged by the Mid Career College. Details from 0223 880016.

7

Lighting of the Channel Tunnel. Afternoon meeting in Bristol held by Institution of Lighting Engineers Western region. Details from Dennis Wilson, 0272 223223.

Exterior lighting design practice. One-day seminar at Newcastle-upon-Tyne held by Mid Career College. Details from 0223 880016.

12

Environmental aspects of lighting. Evening meeting in London organised by CIBSE. Details from 081-675 5211.

Building management systems and direct digital control. Afternoon meeting in London arranged by CIBSE London and south east region. Details from Peter Bennett, 0372 459066.

In the light of experience. Evening meeting organised by CIBSE south west region. Details from J C Treeby, 0272 223215.

Lighting basics 3: lighting design calculations. One-day seminar in Newcastle-upon-Tyne held by Mid Career College. Details from 0223 880016.

Overview of passive solar design. One-day course in London for building services engineers organised by CIBSE. Details from 081-675 5211.

13

Exterior lighting design practice. One-day seminar in London held by Mid Career College. Details from 0223 880016.

17-21

IDI. Interior design exhibition at Earls Court, London. Details from ID Exhibitions, 071-486 1951.

19

Electricity at Work Regulations. One-day seminar in London organised by IEEIE. Details from 071-836 3357.

20

Negligence and the duties of the designer. Evening meeting in Croydon held by CIBSE London and south east region. Details from Colin Ashford, 0923 894040.

28

15th/16th Edition: the differences. One-day course in London arranged by CIBSE. Details from 081-675 5211.

JUNE

2

CAD drawing, modelling and management. One-day course in London held by CIBSE. Details from 081-675 5211.

4

One-day exhibition at Sandown Park Exhibition Centre arranged by ILE London and south east region. Details from Steve Lain, 0276 683082.

9

An introduction to daylighting. One-day course in London organised by CIBSE. Details from 081-675 5211.

CIBSE

The Chartered Institution of Building Services Engineers

Beyond the Code?

The question of the practical application of light in real circumstances is one with which CIBSE must and does concern itself. The wholly artificial divide of light as a science v light as art perpetuates bad lighting practice since there is virtually no single successful application in which the objective or quantitative element is not tempered by some degree of intuitive or interpretative skill.

As long as the processes of visual psychology, subjective reaction and perception are not fully predictable, it is inevitable that lighting practitioners will continue to confront design challenges which require solutions based on several principles (not just illuminance on the working plane!) and an ability to apply these in varying degrees of priority.

CIBSE, as the national lighting authority, ought to demonstrate its acknowledgement that successful lighting application comprises something more than adherence to the largely objective criteria laid down in the Code.

Additionally, the subject of lighting relates directly and inherently to that of architecture; the majority of architects view CIBSE as a purely technological institution and correspondingly do not consider the Code has much effective relevance to them or their work. This breakdown in communication between architects and our major lighting authority could be eased by CIBSE translating the principles contained in the Code into practical, real-life examples of successful lighting applications to which architects and others responsible for our visual environment could relate.

Good lighting practice generally creates conditions in which:

(a) light is applied on a selective rather than totally uniform basis, thereby creating degrees of contrast, stimulus, choice and visual interest. In general terms this results in lower energy usage than in those conditions where uniform levels of light are applied throughout an interior;

(b) use of artificial light is related to the various functions within an interior. Contemporary control systems of varying sophistication may be used to vary the quality and quantity of light for differing functions and activities. Such a design approach can result in significant energy reductions compared to installations where the lighting operates continually in a static mode;

(c) natural light is harnessed to provide practical, working levels of illuminance within areas which only at night become artificially lit. Again, daylight activated control systems can offer the designer substantial potential energy savings, particularly in buildings where glass plays an important part in the architectural expression, and

(d) the old adage of "less is more" is increasingly significant. The age of excessive abundance is over and is replaced by the need for greater visual analysis, a more discerning application of light and a closer relationship between architecture, function and people's visual needs in lighting terms. This approach can only result in reduced energy demand.

In short, the move towards a lighting design approach based on a philosophy in which lighting quantity is only one consideration among many qualitative issues, will result in a reduction of lighting related energy use.

How to translate this concept into a practical working tool for all involved in the lighting design process is currently being confronted by CIBSE Lighting Division.

Karl Pike, Secretary, Lighting Division

(with acknowledgement to André Tammes, member of the Code Task Group).

Daylight effect for software company

Reconciling high levels of natural daylight with effective artifical lighting was the challenge posed by lighting the Microsoft headquarters at the Winnersh Triangle, a new industrial park just outside Reading. As the interior environment attempted to encompass the outdoors, and both the atrium and cafeteria comprise large sections of tinted glass, it was essential to produce a lighting scheme as close as possible to daylight.

The atrium – a 14m high space housing the reception area and central staircase – is dominated by a wall of angled glazing resembling the face of a pyramid. Ambient lighting is provided by metal halide Techne downlighters from Reggiani. These are set in a series of diamond formations interspersed with Reggiani lv Downspot fittings taking the Superspot lamp. The luminaires can be used as fully recessed downlighters or pulled down to 60° to become directional spotlights.

The combination produces a uniform spread of light in the large two-floor area. The resulting colour temperature of 3000K has been muted by a monochromatic interior: white walls, granite floors, stainless steel handrail and glazing bars on one complete wall painted Microsoft's corporate grey.

Techne fittings using low voltage dichroic reflector lamps give a warm interior colour temperature nearer to the offices, while the central reception and staircase have a more clinical ambience.

The cooler colour temperature has been reinforced by the use of Spacelights, direct/indirect high output fittings positioned on the glazing structure, which use metal halide lamps with a 4300K colour temperature – effectively bridging the gap between exterior and interior environments.

The 250 lux level of the atrium is uniform by day, with the artificial lighting compensating for the lower levels of natural lighting in the reception area. At night, however, the atrium is underlit to produce a more dramatic effect. Lighting becomes targeted on the staircase, entrance and reception desk, throwing them into relief.

The cafeteria comprises two areas: the servery, which has little natural light, and the eating area, which is bordered by a north-facing semi-circular glazed area which admits high levels of daylight. The priority in lighting the servery was to create a warm ambience with good colour rendition which was important for food choice. Interior designers specified a mix of Techne downlighters, using compact fluorescent lamps in warm white, along the centre length of the servery, and lv adjustable Downspot fittings in the rest of the area. In the eating area, the atmosphere is cooler, with the indoor/outdoor theme featuring strongly. There is a greater use of compact-fluorescent downlighters here, balanced with pairs of lv downlighters. Lighting levels are boosted by Spacelight fittings positioned on the columns to emphasise the post-modernist look.

A colour temperature which graduates from 4300K nearest the glazing, to 2700K in the interior where there is little natural light, effectively bridges the division between internal and external environments.

Light Sources expands

As part of the company's expansion two new operating divisions have been formed at Light Source.

Components, under MD Michael Cole, will continue to supply the lighting industry with components and accessories. Altima Lighting, under David Clarke, will concentrate on the production on low voltage systems.

This will enable both businesses to enhance customer service and improve their market position.

Playing the game in style

Light pollution and glare are a major consideration when illuminating exterior sports grounds requiring high lighting levels. Nuisance is primarily caused by being able to see the illuminated face of the light fixture against a dark sky, and is of particular importance in residential areas where there may be strong local opposition to any form of floodlighting.

The installation designed for Teddington School hockey pitch, which is situated in a built-up area, is one scheme where light pollution was a potential problem. DPA Consultants produced a floodlighting scheme for Richmond District Council that provided the necessary lighting levels while minimising light spill.

At the heart of the design is the LDMS-SILL 2kW metal halide projector with an asmmetrical distribution giving a sharp cut-off. Eight 16m columns, each taking four fittings provide an average of 300 lux on the pitch.

A detailed study carried out from the two worst positions overlooking the pitch established how much of the open part of the fitting would be in sight. Even where the residents' viewing angle was at its maximum of 10°, very little of the reflector was visible. To further reduce this a baffle was added to the back of the reflector.

In practice, half the lighting provides an adequate lighting level for school play, and the full lighting system is used only for important matches. Moreover, the school reports that, despite strong initial opposition, there have been no complaints since the installation has been in use.

Mercia Theatre Services bought

Luff Light and Sound has acquired East Midlands hire and sales company Mercia Theatre Services. Simon Nickerson, founder of Mercia Theatre, will continue as a director of the company.

For Luff Light & Sound this marks the start of a UK expansion programme. Mercia secures its financial future and gains access both to Luff's hire equipment and to the buying power of one of the UK's major sound and lighting distributors.

The new Somerfield store at Nailsea, typifies the new upmarket image that supermarket chain Gateway are adopting. In this case it meant a complete refurbishment of the store from the flooring through to an expensive ceiling system. The perimeter lighting shown is the Crescent/Hovik white SON downlight This has an extemely high light output ratio, approaching 70%. The fitting uses electronic gear to ensure colour stability, and because the downlights are manufactured in accordance with Scandinavian approvals the running temperature of the control gear is extremely low.

Supermarket tests have shown that white SON is a particularly good light source for fruit, vegetable and delicatessen areas as it gives a warm comfortable atmosphere which contrasts with the slightly brighter levels required for general lighting elsewhere in the store.

In addition, low voltage downlights are installed in the wine department to give sparkle, and metal halide downlights are used over the checkout area to give a clear white light for cash transactions.

COMMENT

Getting the message across

How committed is the new government to energy efficiency?

"If you replace a lighting scheme which is over ten years old you will reduce the electricity consumed by that lighting by 50% and achieve paybacks in three years"; this is the simple message presented by outgoing LIF president, Michael Keevill at the federation's annual luncheon. But obvious as it may appear to those of us within the industry, the move by the new administration to divide energy matters into the Department of Energy under the aegis of the Department of Trade and Industry and the Energy Efficiency Office in the Department of the Environment would seem to indicate a lack of conviction about the importance of energy saving.

The net result of the ministerial shuffle is that the Energy Efficiency Office is to be swallowed up by the Environmental Protection Group with the threat that it will essentially lose its identity. Its new position is within the DoE, undoubtedly the most unwieldy of all the ministries. Here, the major danger is that the vast range of interests and the natural orientation of the DoE towards development and town planning will ensure that the office will form such an insignificant part as to be lost from view.

LIF intends to maintain the pressure: it is currently producing a document emphasising the importance of lighting to the energy efficiency campaign. Schemes such as the energy audit made available to offices in the City of London by London Electricity should be implemented by other electricity companies.

On the home front, although only 20% of the consumption of electrical power in lighting can be attributed to the domestic consumer, it is not a negligible figure, and this area has been almost totally neglected in the UK.

We have a lot to learn from our European neighbours. Over the two year period 1989/90, for instance, electricity companies in Sweden, Denmark, the Netherlands and Germany operated some 40 schemes offering financial incentives to encourage the use of compact fluorescent lamps in the home. These included various offers such as direct installation, give-aways, rebates, wholesale discounts, and pay-on-the-bill schemes.

This led to just under 40% of eligible households acquiring a total of 2 million compact fluorescents. In Sweden, Denmark and Holland these promotions have been responsible for 80%-95% of all lamps of this type in the residential sector. And – an unexpected bonus in a price sensitive market – continuing demand for the lamps has enabled retail prices to decrease by between 20% and 50% and remain at these lower levels.

LIGHTING EQUIPMENT NEWS

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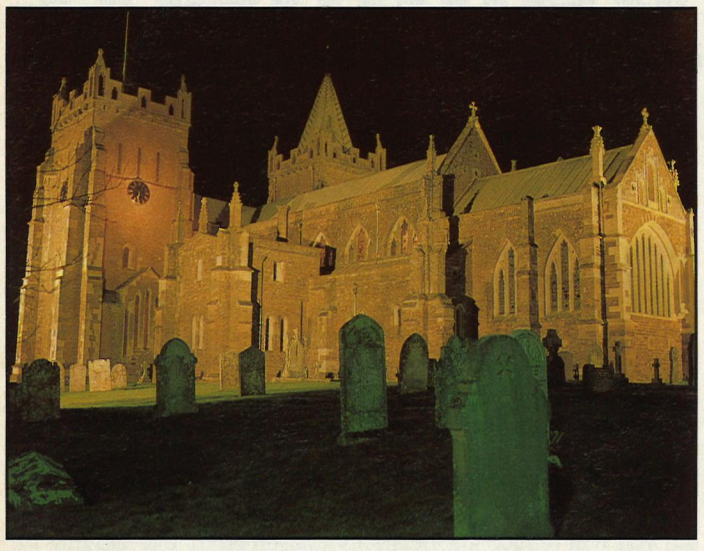
NEWS



New light at Devon church

St Mary Ottery church in east Devon has a new floodlighting scheme which illuminates the church on all sides, though the total electrical load is only 1.8kW.

Six Jet 1 floodlights by Fael Luce, using 250W SON de luxe high pressure sodium lamps, provide the main illumination.

The previous floodlighting consisted of only two luminaires, a 300W GLS fitting which lit one clock face and has been transferred to light the clock tower, and a 300W linear tungsten halogen floodlight that continues to light the other clock face.

Lighting consultant John Chatfield, in Honiton, designed the scheme for this building which is over 650 years old. The parish church was transformed into a great collegiate church, modelled with much care on the architecture of Exeter Cathedral 19km away, about 1342.

Lighting for the new motor showroom of BMG Bletchley at Milton Keynes had to be functional, practical and aesthetically pleasing.

Glamox engineers designed the installation to give good colour definition on showroom vehicles with an effective layout and a highlighting facility. The Lumilok and TST luminaires were selected for their ease of installation and flexibility in use.

The LL louvre was used to minimise glare and the Globe 3000 low voltage spotlights enables showroom staff to highlight special features.

University of light

The new faculty of arts building at London University's Queen Mary and Westfield College presented a lighting problem. The top three floors of the new block, comprising staff and seminar rooms did not have suspended ceilings and an attractive, purpose-designed lighting system was required.

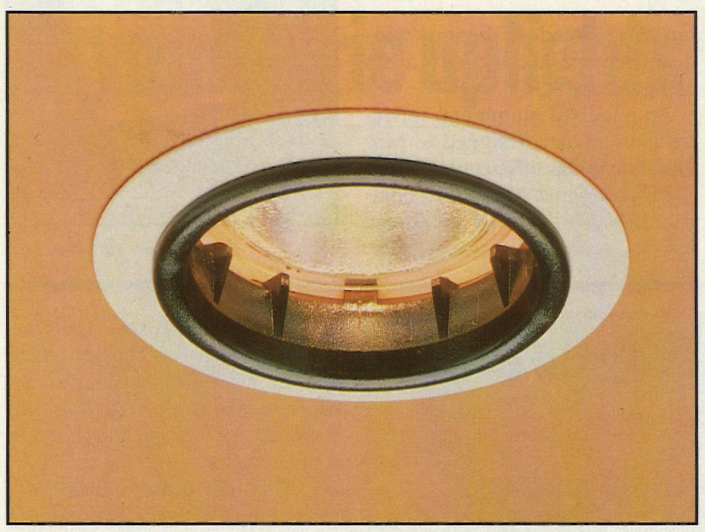
Architects and engineers for the project, RMJM, approached Siemens with a brief which called for oval-shaped fittings with fluorescent uplighters and downlighters to be suspended from the soffit of the concrete structural slab and fed from high level wall sockets. The need was for up to 300 lux at worktop level.

The system as designed comprises 330 x 36W and 160 x 58W units giving a total length of 1kM of lighting fittings! Each unit is fitting with two tubes: one providing uplighting and one for downlighting.

Trade literature

- **Electrak International** has new brochures for its power and lighting tracks (tel 081-547 2121).
- **Megalit** has a catalogue of its commercial display lighting, wall uplights and outdoor spotlight (tel 071-352 1777).
- **Wever & Ducré** has a catalogue of its display and other commercial lighting made in Belgium (tel 0243 869783).
- **Craig & Derricott**'s 1992/93 160-page catalogue details its switchgear equipment (tel 0543 375541).

NEW PRODUCTS



Reduced glare from LV downlight

A recessed, low voltage downlight from Light Years has a glare-reducing ring and requires a ceiling cut-out only 65mm in diameter.

It has a central section that is pulled down for relamping and maintenance and which incorporates an aluminium reflector for use with a 50W GY6.35 tungsten halogen capsule lamp.

Available with either white or brass finish, the fitting, which is fully enclosed, is spring mounted for ease of installation.

Reader Service No. 151

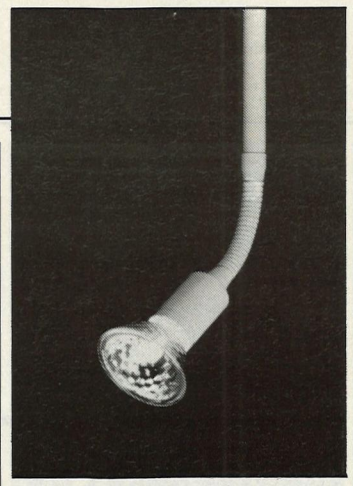
Switch converts outdoor lights to security system

A wall sensor switch and detector that converts existing exterior lights into a passive infra-red security lighting system is available from Smiths Industries Environmental Controls.

The system not only turns on lights automatically when anyone enters its detection field, but also sounds an internal buzzer.

This sensor switch is wired in as a direct replacement for the normal internal wall switch controlling the exterior lights. The detector, mounted outdoors, has a detection field of 22m through an angle of 90°.

The internal switch operates in either automatic or normal on/off mode. Electrical capacity is 500W of exterior lighting. Up to three additional sensors can be added to extend the detection range. **Reader Service No. 156**



Spotlight has a swan neck

Environmental Lighting is offering its Collesque Minuet low voltage spotlight on an extension rod with flexible swan neck. The rod can be made to customer specification.

Collesque Minuet can be used with 20W, 50W or 75W dichroic reflector lamps on either a ceiling plate or track adaptor.

There is also a three-way 20W light bar with integral electronic transformer.

Reader Service No. 160

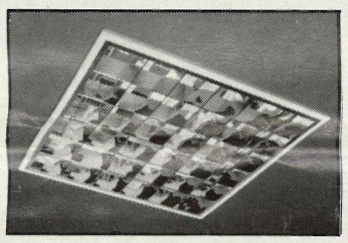
LV downlight has integral transformer

Intram Barwell has launched a recessed downlight with integral electronic transformer. It is designed to be wired directly into the mains in minutes and needs no further attachments or special wiring. Each unit incorporates overload and short circuit protection and is stated to be compatible with domestic and commercial dimmers.

The fitting, which is part of the Fusion range, accepts 20W-50W dichroic lamps.

Reader Service No. 152

Modular range with choice of louvres



A series of recessed, modular fluoresent luminaires is available from Profile Lighting Services for VDT open plan and cellular offices.

Designed for use with exposed or concealed grid suspended ceilings, the RX range is stated to be engineered to provide good sound attenuation. It is finished with an epoxy powder coating. Module sizes are 500 x 500mm and 600 x 600mm, with trim options and provision for air handling if required.

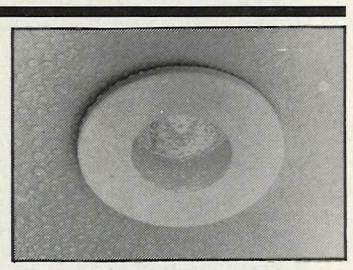
Variations are achieved with multi-cell arrangements of aluminium, low iridescent louvres, including a deep parabolic design, with polished or semi-specular finish. There are options of linear or compact fluorescent lamps and a selection of control gear from switchstart through to high frequency with dimming.

Reader Service No. 154

Downlight for humid areas

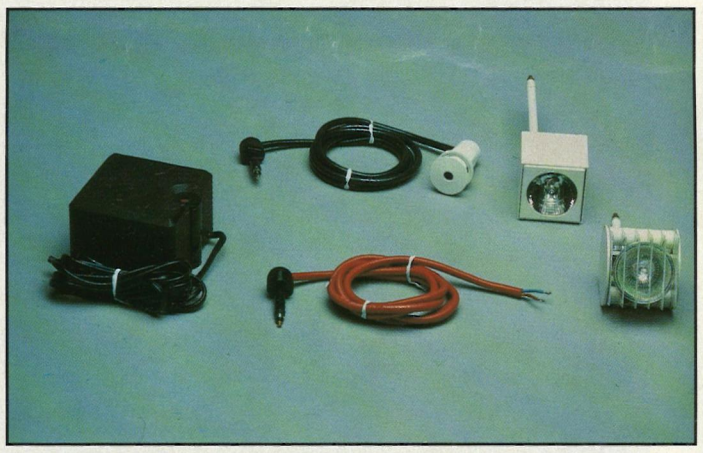
A fully enclosed, splashproof, recessed downlight has been introduced by Edison Halo. This low voltage luminaire uses a 20W-50W GX5.3 dichroic reflector lamp. It is ingress protection rated IP54.

Being splashproof, it is particularly suitable for potentially wet or humid areas in hotels, schools, hospitals, swimming pool changing rooms, or under outdoor canopies.



A magnetic plate with clear, borosilicate glass lens and foam gasket covers the underside of the luminaire.

The housing is steel and incorporates a heatsink and porcelain terminal block. White, silver or gold painted finishes are available. **Reader Service No. 157**



Sockets for spotlights

Lumiance has introduced Primopoint, a plug-in socket for its range of Primostar low voltage spotlights on supporting rods of different lengths. Three versions are available.

The basic Primopoint is for use in ceilings where there is access from above.

Primopoint Uni is for installations that are completed from below.

Primopoint Solo is a surface mounted socket for ceilings with a shallow plaster finish or a solid surface. **Reader Service No 158**

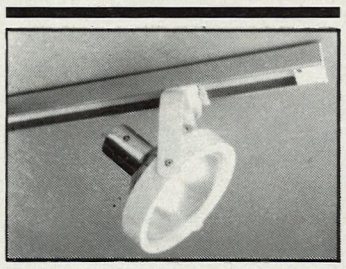
Batten range is versatile

Major benefits of Philips' Streampak range of fluorescent batten luminaires are ease of installation and maintenance. Snap-lock assembly means no tools are required for any parts of the range, while rotary lampholders and snap-release attachments make relamping fast and easy.

Streampak is a comprehensive range with a choice of control gear and six optional attachments which can be combined to meet a wide variety of lighting needs. There are single and twin lamp battens in 600, 1200, 1500, 1800 and 2400mm lengths.

The sleek styling makes the battens appear slimmer than others on the market, but they are in fact fractionally wider, so they align neatly with new or existing BESA boxes.

Reader Service No. 153

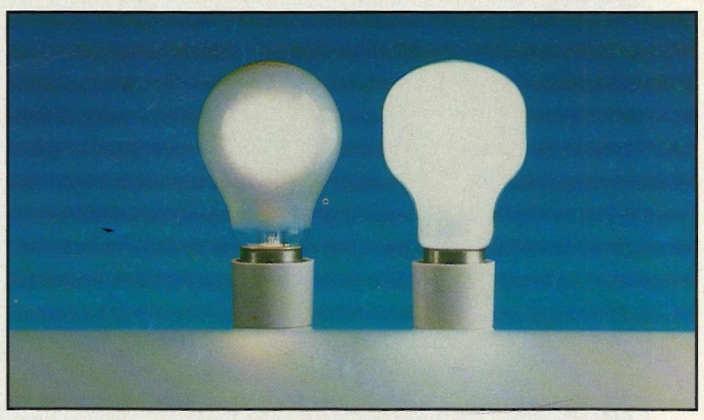


Spotlight for retail displays

A low voltage 50W spotlight for retail display lighting is available from Profile Lighting Services.

It uses a capsule lamp in a spun aluminium reflector and is fitted with a curved glass lens. The luminaire is adjustable on a stirrup mounting and can be used either on track or individual fixing plates.

Reader Service No. 155



Non-glare lamps for the home

Philips Lighting has launched Brilliant White, a GLS lamp with an unusual shape, for areas in the home where diffused light is needed.

Brilliant White is stated to avoid glare and uncomfortable dark spots inside the lamp. It is being priced just above the standard pearl lamp. Wattage range is 40W, 60W and 100W.

Reader Service No. 159

LIF LINE

A slice of the cake for lighting

A dozen members of the Public Lighting Section of the LIF gathered recently in a discreet club tucked away between Piccadilly and Green Park for an informal lunch.

John Skehens, well-known to many in the industry through his years with Philips Lighting, had recently celebrated his seventy-second birthday and found himself the principal guest at this gathering which was called to honour his imminent retirement. There were messages from various MPs in the British Parliamentary Lighting Group including George Robertson, Ian Twinn, Joan Walley and Andrew Hunter; and it was only an unfortunate clash of dates with an ILE Council meeting that prevented ILE President Graham Channon, his deputy David Paylor and old friend and colleague Dorothy Barnes from attending. Their messages of goodwill however, were warmly received.

Lighting Industry Federation President Mike Keevill took the opportunity to reflect on John's role in the success of the LIF's campaign for better public street lighting and also his role as a public lighting consultant to the British Parliamentary Lighting Group.

The 100-strong British Parliamentary Lighting Group was officially formed around 10 years ago, and is now one of the biggest and most active all-party groups in Parliament. It originated with a number of MPs who believed that more needed to be done to raise the profile of street lighting. MPs know from the people they meet of the fear, especially among women, about going out at night. It is a basic human right to be able to walk the streets of Britain, yet for millions the streets of our country are simply 'no-go' areas after dark.

For the past five years John Skehens was given a leading role in the British Parliamentary Lighting Group's 'Light against crime' initiative and took their roadshow to many councils and municipal conferences. He was able to persuade elected members to give greater thought and, consequently, funding to public lighting, not only to combat crime but also to improve the quality of life for rate-payers.

To most lighting engineers the message is so obvious that it hardly needs a messenger but people did listen and followed the advice given. Salford, Tameside, Barnet, Enfield, Humberside, Borders and Dumfries and Galloway were among the many local authorities who allowed the 'Light against crime' display to be shown, and invited John Skehens to address their highways and transportation committees.

As a result of these visits there were many instances where lighting budgets were saved and where the message got through so that special funding was granted to upgrade lighting and replace 30 to 40 year old installations.

During the last 8 to 10 years, as local government has become more political and as authorities have become larger and more remote, there has been a tendency to treat lighting as a 'low priority' in the municipal engineering league table. Maybe the lighting engineer has got all the answers and maybe he knows how much money is needed to complete schemes, but if no one asks him the questions or gives him the opportunity to justify his budget, funding will not be sanctioned.

Another worrying trend is the tendency to merge lighting into the wider engineering discipline, and to do away with the role of the lighting engineer altogether. Cutbacks and financial constraints have meant that several London boroughs in particular have lost lighting engineers in the past two years.

As the 'all-party Parliamentary representative' John Skehens was the non-partisan outside observer; and like any independent consultant, could speak objectively and authoritatively on behalf of the group about the state of street lighting in that particular district and, where necessary, draw comparisons with other districts. In this way the British Parliamentary Lighting Group was able to express its views to decision-making influential committee chairmen.

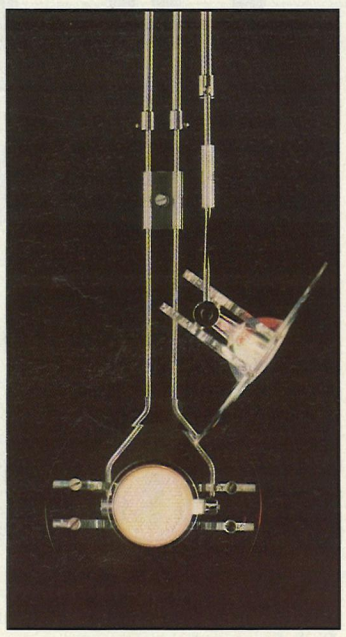
This is a position of some privilege, and it is, therefore, not surprising that so many local authorities have taken advantage of the free 'lobbying' service. Barry Ramsay has now taken over this role for the British Parliamentary Lighting Group. He has spent many years in the lighting industry, and is now co-operating with a number of local authorities so that he can deliver a custom built presentation. This process of consultation assists not only the lighting engineers but also the local authorities and the industry.

So the campaign continues, as there is still undoubtedly substantial room for improvement in the nation's street lighting stock. but proposed investment in street lighting must compete with other important claims on expenditure arising out of the many issues with which local authorities have to deal every day. And, even when resources have been allocated, the sudden and ever-changing calls on local government and the reassessment of priorities to meet unexpected new responsibilities can thwart the best-laid plans.

When the cake has to be sliced into so many pieces, lighting can sometimes only pick up the crumbs. But lighting, although among the most visible, has also been among the most neglected of public services, and has been allowed to deteriorate for far too long without proper regard for the effects on safety, security, maintenance and long-term funding. It is high time for public lighting to receive a larger slice of the cake.

NEW PRODUCTS

Acrylic spotlight



Kotzolt Lighting UK has introduced a low voltage spotlight called Virgo for prestigious display areas and high-tech offices. It is designed to be used with the company's system of Uni-CLIC individual plug-in low voltage sockets.

The luminaire housing and adaptor are made of clear acrylic. Mounting is on either a telescopic arm that adjusts from 800-1370mm long, or one that can be adjusted from 350-600mm, or a fixed arm 175mm long. It uses a dichroic tungsten halogen lamp rated at up to 50W.

A matching table lamp, in a choice of either chromium or 24ct gold plated finish, with black base, also uses a dichroic lamp. An electronic, dimmable transformer unit is wired in-line so that it can be placed on the floor unobtrusively; it plugs into a 13A socket outlet.

Reader Service No. 161

Energy saving floodlight

Tamlite Lighting's Litecaster floodlight uses a 70W SON-E high pressure sodium lamp with internal igniter.

The floodlight has ingress protection rating IP55, is of lightweight construction and has an injection moulded glass reinforced nylon body with ultra-violet stabilised polycarbonate lens.

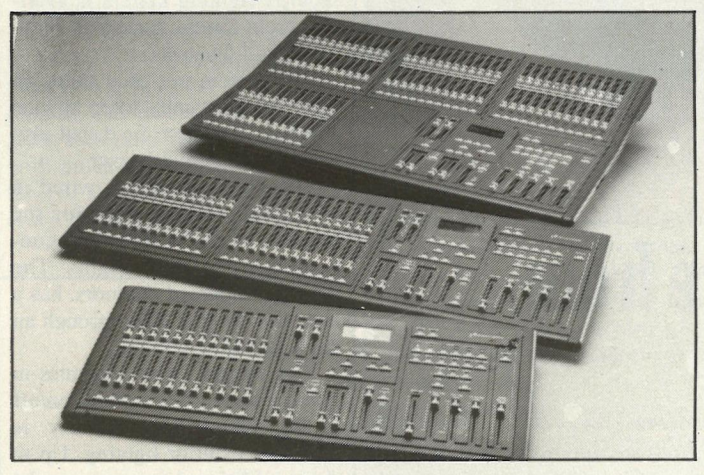
It is designed for a wide range of interior and exterior applications including illuminating signs, building facades, display windows, car parks, security areas and gardens.

An anodised aluminium reflector is computer designed to provide maximum efficiency.

Photocell and twin PL18 compact fluorescent lamps are among options available to special order.

Reader Service No. 167

Control desks for stage lighting



A range of manual lighting control desks has been launched by Strand Lighting to supersede the ACT and Tempus ranges.

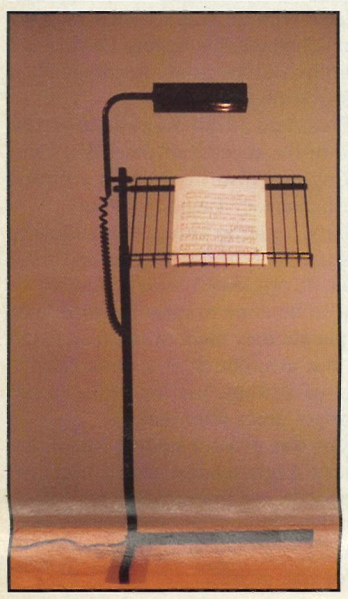
LX is a two-preset desk with wire-per-dimmer connections to -10V dimmers in 12, 18 and 24-ways. Control panel design copies that of Strand's MX Memory desk.

Each channel has an LED indicator which illuminates in proportion to the channel levels, and a bump button. Presets are controlled by separate master faders and are moved together to give a dipless crossfade. LX has two internal time circuits connected to a time master – one for each preset. This new feature allows the operator to delay either of the presets in a timed crossfade.

The blackout pushbutton has a short-term memory so that if power is temporarily cut, it will not flood the stage with light when the power is restored.

A separate version is available for North America.

Reader Service No. 168



Illuminated music stand

A music stand fitted with a directional luminaire is available from Donmar.

The rectangular luminaire uses either a 25W or 40W golf ball type tungsten lamp. A slot in the rectangular housing limits the spread of light and can be fitted with a colour filter, usually blue, to reduce glare on the music sheet.

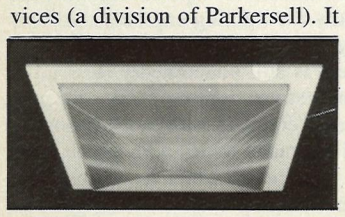
The luminaire housing rotates and the arm also pivots. Curly cable is used.

An improved design for the music stand, with an L-shaped base, allows more space for the musician's legs and floor standing instruments than the traditional three-legged design.

Reader Service No. 162

More light for petrol stations

An under-canopy luminaire for petrol station forecourts is available from Retail Petroleum Services (a division of Parkersell). It



is designed to provide increased light at filler cap level.

The Canolux ST accepts either high pressure sodium, metal halide or mercury lamps from 250W-400W. The light controller is made of polycarbonate. There are recessed and surface mounted versions. **Reader Service No.163**

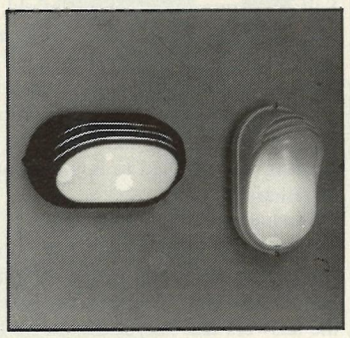
Electronic transformers can be dimmed

Mode Electronics has two dimmable electronic transformers for use with low voltage lighting. They are designed to provide smooth and stable dimming with all types of domestic and hard fired dimmers.

Model ET-85-C has a maximum lamp loading of 85W, while model ET-105-C accepts up to 105W. They are stated to operate reliably in ambient temperatures up to 60°C.

Short circuit and overload protection are built in.

Reader Service No. 164



Range of outdoor lights

Glamox has a range of amenity lighting called Ibis which is made from diecast aluminium. Round and oval shaped wall lights are available with matching bollards either 1m or 0.55m high.

There are three lamp options: a 60W GLS lamp in a luminaire with ingress protection rating IP54, and either single or twin 9W PL type compact fluorescent lamps in a fitting rated IP55.

Metalwork is finished either black or white and the diffuser is made of polycarbonate.

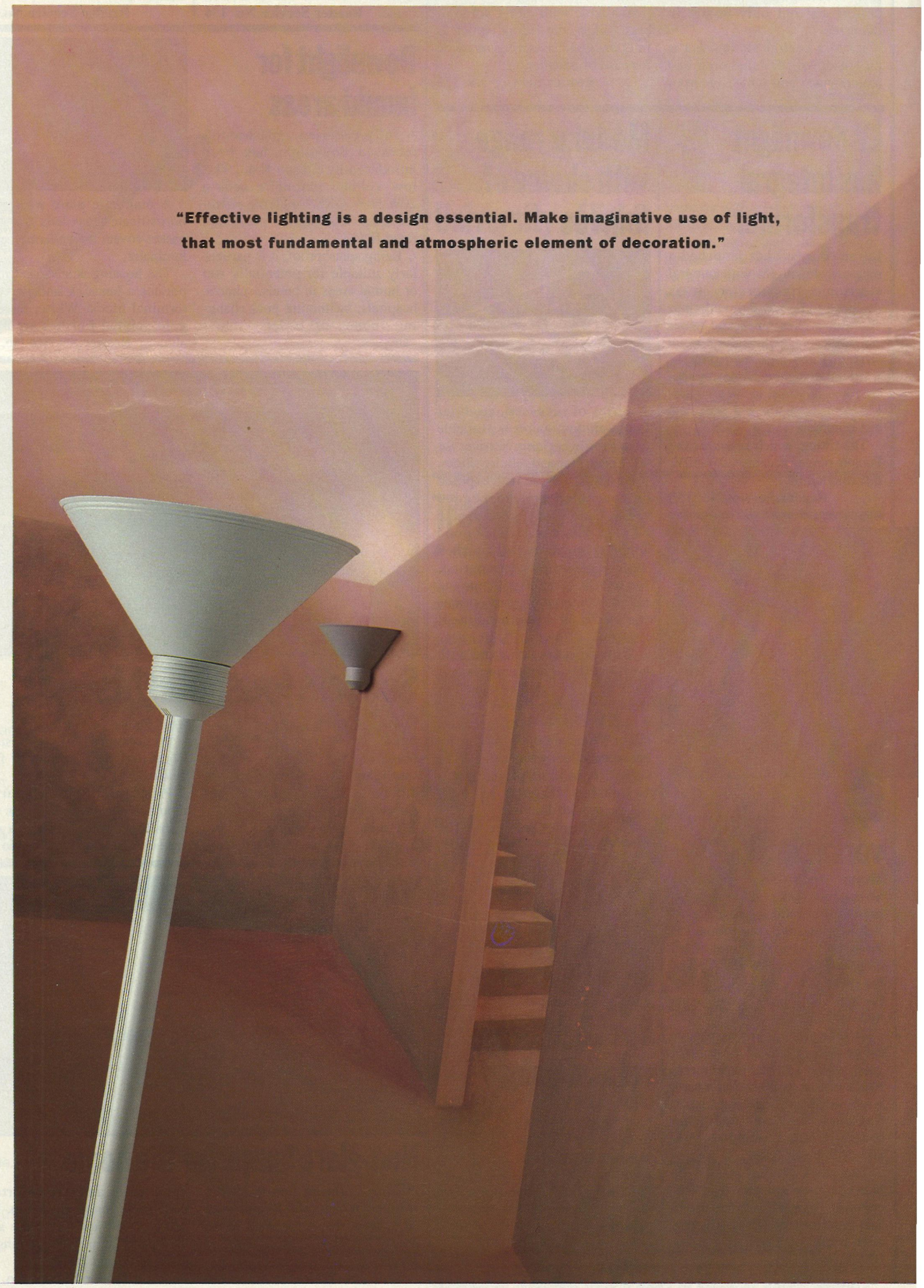
Reader Service No. 165

Nickel silver accessories

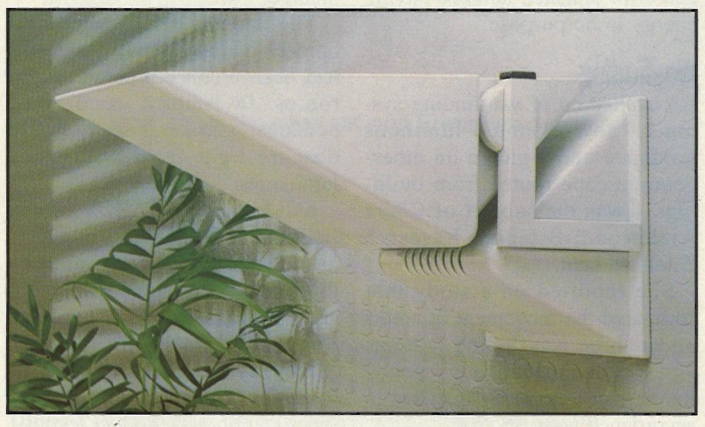
Forbes and Lomas has introduced a range of light switches, dimmers and socket outlets with solid nickel silver front plates. The switch also has a nickel silver plated "dolly".

The range blends particularly well with simple, elegant, modern interiors.

Reader Service No. 166



Asymmetric uplights



A range of metal halide uplights, consisting of wall light, floor standard and a ceiling suspended model, is available from Prolight Design.

They give an asymmetric light distribution and the lamphead is also adjustable. An ultra-violet absorbing glass cover is fitted as standard.

Called Stratos, the range uses either 70W or 150W lamps and has integral control gear. There is a choice of colours and textured finishes.

Reader Service No 169

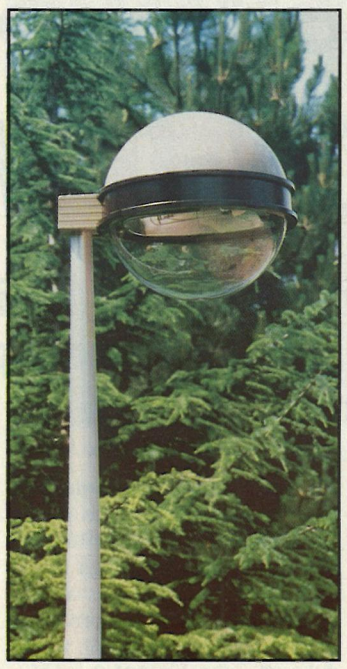
Outdoor lighting is adjustable

Thorn's Visage amenity light combines an attractive appearance with high performance.

A single-piece, high purity aluminium reflector controls the light to give good optical performance. An adjustable lampholder means that light distribution can be tailored to meet the requirements of outdoor schemes and provide even illumination.

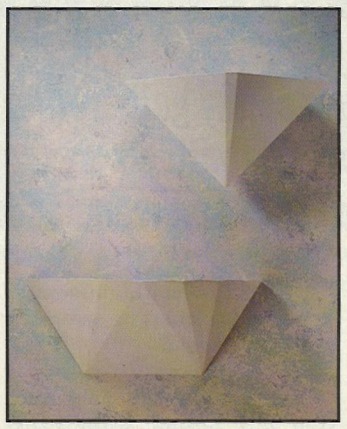
It has also been designed to look good during the day. For example, the bowl is made of glass which will retain its sparkle for years. In areas where vandalism is a problem, however, a polycarbonate option is available.

Visage uses 100W-240W tubular high pressure sodium lamps and is sealed to IP54 standard. It is quick to install either as a post top or side entry luminaire. The bowl hinges down and the gear tray is removed via a plug and socket.



Reader Service No 170

Wall mounted uplights offer a choice



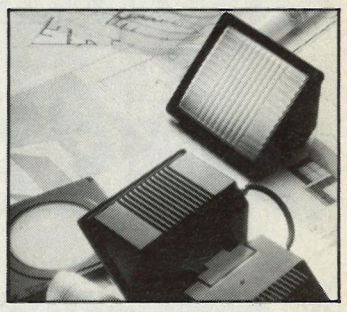
Quadrant, Saturn, Oyster and Pyramid are wall mounted uplights from Commercial Lighting Systems. They are designed for offices, hotels and reception areas and can be fitted with emergency lighting facilities if required.

There is a choice of lamp types and the integral control gear is power factor corrected for all versions. Each has a ventilated built-in top plate.

Saturn and Oyster 2 also give subtle downlighting from the rear of the luminaire by the use of a compact fluorescent lamp in addition to the main light source.

A plug and socket connection makes installation easy.

Reader Service No 171



Floodlight has accessories

The Wip range of floodlights from Crescent Lighting is made by Simes, Italy.

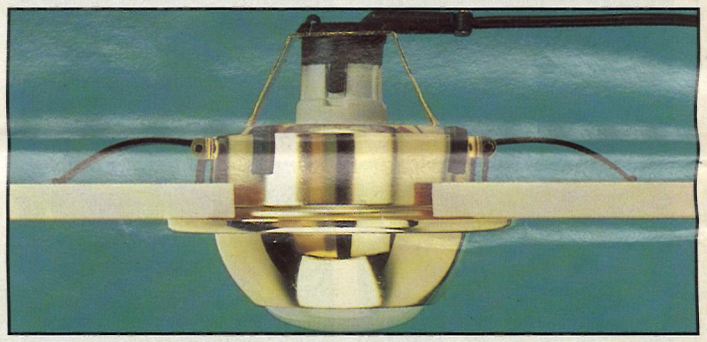
Produced to IP65 ingress protection rating, luminaires are capable of accommodating a choice of light sources, including 100W incandescent, 18W compact fluorescent, 300W tungsten halogen, and 70W or 150W metal halide lamps.

The diecast aluminium housing with tempered and toughened, acid-etched glass diffuser is common to all the floodlights.

A range of accessories offers further options: a directional protection guard where anti-glare or vandal resistant lighting is called for, a recessing box for burying the housing into a wall, aluminium columns and base plates for conversion to bollard fittings, and an adjustable stirrup-holder.

Wip can be mounted for downward or upward lighting.

Reader Service No 172



Downlight with F mark

Linolite's R80 100W downlight carries the "F" mark, making it suitable for mounting on flammable surfaces.

It is available as a fully recessed, fixed type for general lighting in corridors and reception areas, and as a semi-recessed directional eyeball for display lighting and wall washing. There is a choice of white or brass finish.

The product has a mild steel body and bezel, with ceramic lampholder. Installation is simplified by two hinged fixing clips suitable for ceiling thicknesses of 2mm-30mm.

Reader Service No. 173

Emergency light for hazardous areas

MEDC has launched its first hazardous area, fluorescent, emergency lighting fitting. The FL1 has been designed for offshore and onshore use and is stated to be certified by BASEEFA to the latest EN standard EExedm IIC T4.

The light source is an 11W PL compact fluorescent lamp powered via totally encapsulated electronics. The whole assembly is mounted in a stainless steel EExe IP66 enclosure with a toughened glass dome.

Available in maintained or non-maintained versions, it gives a minimum of three hours' emergency light. Main applications are for walkways, muster stations, obstruction lighting, helideck lighting and accommodation illumination.

Reader Service No. 174

Desk light has a colour change

Keos, a low voltage 50W tungsten halogen desk light from Crescent Lighting, owes its projectile appearance to Italian designer Bertone.

Produced in black thermoplastic, the base accommodates a transformer and dimmer switch. Both the support arm and reflector head are adjustable.

The clip-in black panel in the head may be replaced with a bright green, blue or lilac coloured panel, standard accessories which are included with the desk light.

Reader Service No. 175

Exchanging lighting news and know-how

The lighting profession recently gathered to hear about the latest installation design techniques, problems with emergency lighting and other topics such as computer graphics, research and manufacturers' data.

Office lighting and associated problems was the subject of more papers at the 1992 National Lighting Conference than any other aspect of lighting, although the 33 papers, plus workshops and technical poster displays ranged widely over lighting topics and overflowed into architecture. There was also a small display of lighting equipment.

Some 160 delegates gathered at the new conference centre at the University of Manchester for four days in April and discussed enthusiastically the latest developments in lighting design, research and products.

Because emergency lighting is designed to save lives, and one of the papers on this subject threw doubt on the effectiveness of some types of equipment in use, this part of the conference is reported first.

Exit signs in smoke

Peter Boyce reported on research into the visibility of exit signs in smoke, conducted at the Rensselaer Polytechnic Institute, New York.

He pointed out that current standards for exit signs did not specifically consider the presence of smoke. There was no guarantee, therefore, that exit signs which met current standards would be visible in smoke.

Studies had shown, he said, that different signs using different technologies were obscured by very different smoke densities.

Professor Boyce described the model used in the experiments in which the visibility of exit signs in smoke of known characteristics had been treated as a forward scattering problem in physics.

The luminance distribution of six different types of exit sign had been measured:

1. stencil, electroluminescent sign with the letters on an opaque white background;

2. stencil, internally illuminated sign with opaque white background using a 7W compact fluorescent lamp;

3. letters and an arrow formed by light emitting diodes (LEDs) spaced 10mm apart on a white opaque background;

4. letters and an arrow formed by miniature incandescent lamps spaced 22mm apart on a white opaque background;

5. stencil, internally illuminated sign with opaque aluminium background, lit by two clear 15W incandescent lamps, and

6. panel, internally illuminated sign with letters on a translucent white background, lit by two clear 15W incandescent lamps.

All the signs in the experiment had red letters.

When measurements of the signs seen through a clear atmosphere were compared with the signs seen through black smoke, the most noticeable difference was that the LED sign could not be seen at all, while the images of internally illuminated signs had disintegrated.

The only sign that remained clearly visible was the sign with letters formed by miniature incandescent lamps.

In white smoke, there was a similar pattern of change, but because the optical density of white smoke is less than that of black smoke all the signs were more visible. Also, scattering of light caused a halo around the highest luminance points of some of the signs.

An important aspect of the research was that the model constructed could be used to predict the luminance distribtion of any-object when seen through smoke of known characteristics at concentrations which produced mainly forward scattering. Potential applications included:

- estimating comparative visibility of existing exit signs in a given smoke condition (useful to purchasers and specifiers);
- estimating relative visibility of a proposed sign in a given smoke condition (useful to designers and manufacturers);
- estimating the distance at which a sign would be visible through a given uniform smoke condition (useful to regulators of emergency exit systems);
- estimating the time after the start of a fire when a sign would become invisible at a fixed distance, given a model of the development of smoke in the fire (useful to regulators of emergency exit systems), and
- given information on the optical density of smoke in different layers in a fire, the effect of smoke stratification on the visibility of exit signs could be estimated (useful to both regulators and designers of emergency exit systems concerned with the location of signs).

Professor Boyce concluded by saying, "We have gone on too long using compact fluorescent and twin tungsten lamps – saving energy to no purpose".

Wayfinding

An evaluation of wayfinding systems – low-mounted luminous guidance and signage on emergency escape routes from buildings – was the subject of Claire Aizlewood, Building Research Establishment.

She reported on a study that compared the movement of adults under three wayfinding systems and a conventional emergency lighting system newly installed in accordance with BS5266.

In this first phase of the work, the aim was to evaluate the wayfinding systems in smoke-free conditions.

The three systems consisted of a "track" of miniature tungsten filament lamps, a "track" of electroluminescent lamps, and an enhanced system of photoluminescent material.

Information collected included speed of movement along an escape test route with a staircase, and opinions of the 24 subjects as to difficulty and satisfaction with each system.

The study showed that the performance of users of wayfinding systems in smoke-free conditions could be as good as, or better than, that of people using the traditional emergency illumination method.

The impetus behind the development of low mounted systems had been a concern about escape routes in smoky conditions, because smoke rising could obscure light from emergency luminaires.

Ms Aizlewood said the study indicated that wayfinding systems needed serious consideration by the lighting industry, designers and specifiers. New European and British standards were required, she stated, to address the question of design guidance, performance specification and product testing.

During the discussion that followed, Professor Boyce said that direction signs could be built into wayfinding systems to lead people to exit signs.

Office lighting

The CSP Index, which gives a measure of office lighting quality as perceived by the office workers, was described by Bob Bell and Bob Bean, consultants, (see *LEN* February 1991). This rating system for comfort, satisfaction

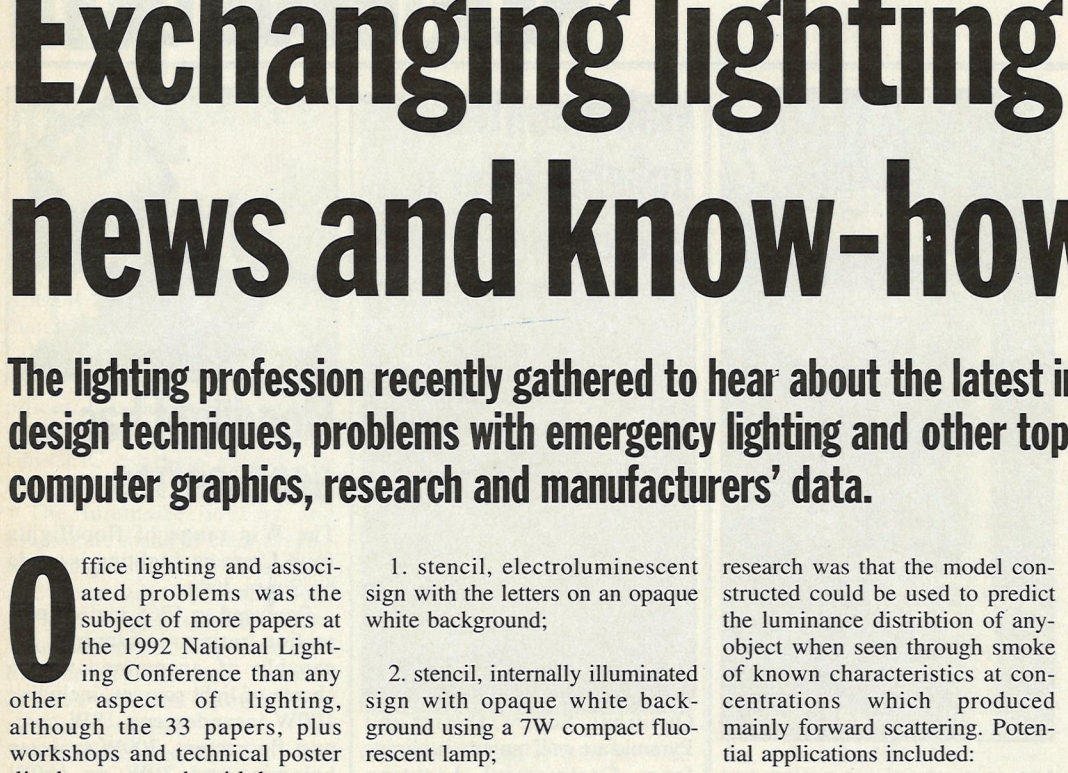


Fig 1. Photograhic compilation of luminance distributions of six exit signs seen through a clear atmosphere. Numbers refer to numbered signs in text.

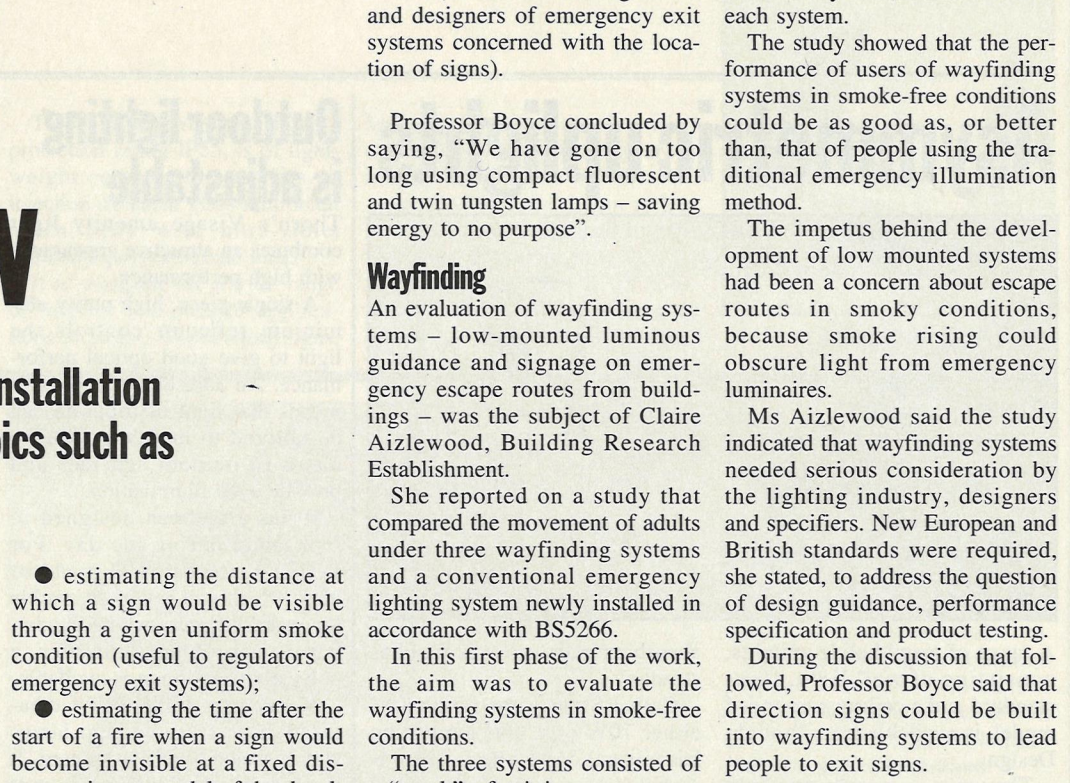


Fig 2. Photographic compilation of luminance distributions of six exit signs seen through black smoke of optical density 2.225m^{-1}. Numbers refer to numbered signs in text.

1) All data to be on a 1000 lamp lumen basis.

2) Illuminance diagrams be to an agreed standard.

3) Data to meet the requirements of TM5 and TM10.

4) No confusion between UK and European definitions.

5) Ceiling reflectance of 0.8 should be considered.

6) Data should be monitored and checked.

David Pritchard's recommendations for standardising the presentation of photometric data.

and performance was developed because people working in offices found lighting a major cause of stress.

It had been tested independently by university and polytechnic staff in studies involving over 650 workers in 44 offices.

Currently it could be used for offices with or without VDUs, but was expected to be developed for wider application.

Bob Bean urged delegates to make use of it.

Designing the ideal scheme

Following this, P J M van der Burgt of Philips reported on a study to find out what luminance distribution office workers preferred.

Conventional office lighting with fluorescent luminaires on the ceiling, generally gave a uniform illuminance, but new trends led to schemes with a more varied pattern of brightness.

The experiment was limited to a desk orientated task in a middle management style of office. There was a fixed luminance on the desk top and observers were asked to adjust the luminance of the wall in front of the desk to suit their preference, within the range 40-600cd/m^2. This was repeated for four desk luminances: 70, 100, 110 and 160cd/m^2.

Individual preferences showed a large variation in choice of luminance contrasts, leading to the conclusion that there was no ideal luminance distribution in an office that would satisfy all individuals.

However, the researchers said that did not imply that an ideal lighting system did not exist. They believed that with modern lamps, luminaires, and high frequency electronic ballasts with built-in dimming combined with an intelligent integrated light control system, a scheme of great flexibility could be designed. Such a scheme provided an ergonomic task luminance and also allowed individuals to choose their own luminous surroundings in the office.

Computer graphics

Peter Dehoff, of Zumtobel, discussed the use of computer graphics in studying lighting effects and concluded that they were helpful. As well as being easier for clients to understand they were cheaper than building models.

J R Henderson, of Thorn, spoke about a new visualisation program called LVS that could be applied to many areas of interior and exterior lighting design.

It took account of reflected light and to speed up the productionn of new visualisations, maintained a "library" of surface and photometric data.

Different grades of images could be produced to assist lighting designers. For instance, a simple geometric representation could be produced in 15min, or a high quality image in 3hr 40min.

Maintained illuminance

Referring to the impending change from service illuminance to maintained illuminance in lighting design calculations, Bob Venning, of Arup Research and Development, speaking as a lighting designer, said he had come to believe that maintained illuminance was preferable, but did not believe that sufficient data was yet available to carry out the design process professionally.

For example, did lamps with different colour rendering have the same rate of lumen depreciation? Did designers know the basis on which polar curves were produced and did all manufacturers use the same criteria?

Most manufacturers, he said, based fluorescent lamp mortality curves on a three-hour switching cycle, but was that the right switching rate for most users? He had experienced great difficulty in obtaining mortality curves for compact fluorescent lamps. What about data on discharge lamps, especially when used in uplights in offices?

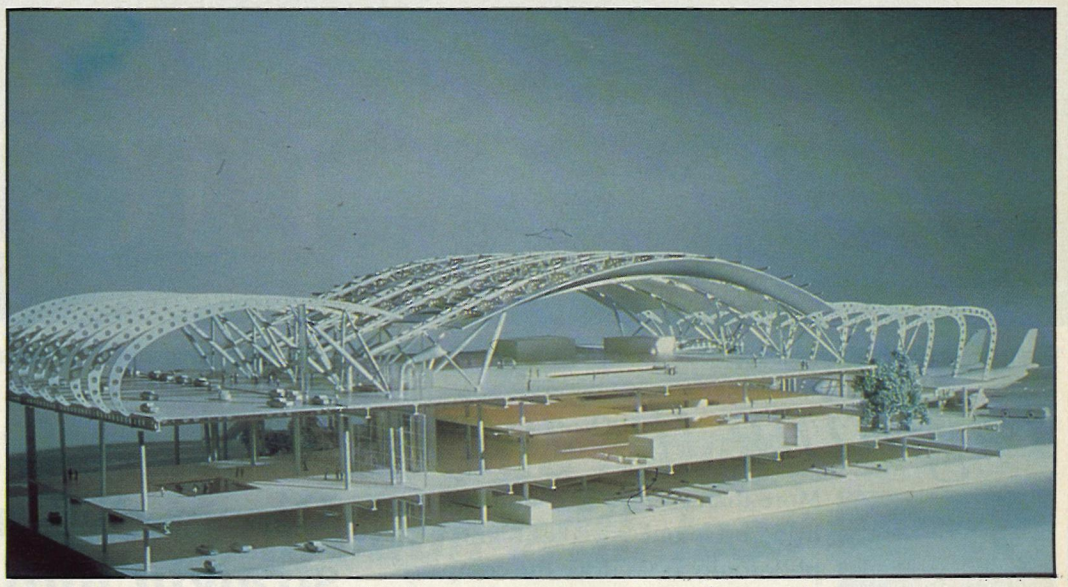
Lamp manufacturers needed to publish all the appropriate data in a useful format.

Technical Report No 9 *Depreciation and maintenance of interior lighting* published in 1967 was out of date. Mr Venning urged that a CIBSE technical committee start updating this immediately.

In addition, CIBSE should institute a research project to obtain new data on luminaire and room surface depreciation due to dirt and dust.

Information was also needed from building occupiers about frequency of interior cleaning and redecoration for a wide range of building types.

In order to protect themselves in the event of legal action, lighting designers would need to specify not only design conditions but also the maintenance programme to achieve those conditions.



Model of main terminal building, showing continuously curving roof, at new Japanese airport.

(Illustration by courtesy of Renzo Piano Building Workshop.)

Lush planting in the atrium of the Renaissance Hotel, Brighton.

Presentation of data

David Pritchard, independent consultant, was concerned about lack of standardisation in presentation of photometric data by manufacturers. He called for an improved set of guidelines to be drawn up and said a central advisory service would also be helpful.

Lighting plants in atria

Some of the environmental conditions necessary for growing plants successfully in an atrium were discussed by Eric Maddock, YRM Engineers. Choosing the type of plant and achieving an environmental and economic solution needed a team effort between different disciplines, he said.

Plant requirements included suitable temperature, humidity, and lighting quantity, quality and duration.

The lighting designer should include in lighting calculations the daylight available in the atrium in question and use photocells and time clocks to switch off artificial lighting when daylight was sufficient.

Typical illuminances suggested for survival of trees and plants were: 3000 lux for 12 hours a day for 8-9m trees; 2000 lux for 12 hours a day for plants 2-8m tall, and 1000 lux for 12 hours a day for plants under 2m high.

In his experience, metal halide lamps gave best results. For the health of the plants, light should shine downwards onto the leaves; upward light should be used only for decorative effect.

Daylight in atria

Influence of well geometry on daylight levels in atria was the subject of a technical poster display by T J Neal, of Melling Ridgeway and Partners, and S Sharples, Sheffield University.

The general conclusions of their study were that splaying the well walls greatly increased daylight in the atrium well; in adjoining rooms, daylight could be increased to satisfactory levels. In many cases gains from splaying the walls were small once a splay of 20° was exceeded.

It was not easy, however, to produce a generalised predictive technique, due to rapid changes in the amount of sky seen and the level of interreflections.

Airport floats in Japan

A major international airport being built by the Japanese on an artificial island in the bay of Osaka was the subject of a talk by Andrew Sedgwick, Ove Arup and Partners.

Italian architect Renzo Piano had designed the main terminal building, which had a continuously curving roof, while British consultants, Ove Arup, were responsible for the design of the structure and the building services.

The roof had long, wide skylights which accentuated the circulation pattern for passengers. These needed to be shaded and asymmetrical egg-crate louvres were to be used for this purpose.

Average natural light levels in the departure areas on the top floor would exceed 350 lux for more than 65% of the daylight year, giving large energy savings. In addition, an external photocell would control artificial lighting.

A desire to emphasise the curved roof and avoid visual clutter led to an uplighting scheme.

Luminaires, public address equipment, signage and flight information were all to be mounted on floor standing posts, which the Japanese had called technology trees.

Designed illuminance was 200 lux, which was to be achieved using 252 1kW metal halide floodlights, some of which were to be mounted on the check-in counters.

An analysis system called Radiance was used, which is a ray tracing software package, together with Mpalm, to produce illuminance values and colour visualisation images.

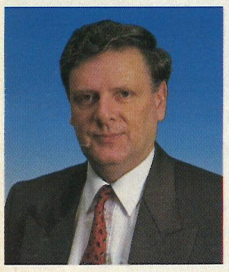
Emergency lighting must also be mounted on the technology trees and the solution decided upon was spotlighting aimed at various angles. To convince the Japanese authorities that this was a satisfactory solution, plans of the building were produced overlayed with numerical lux levels at 0.5m x 0.5m spacing. Over half a million calculation points were involved in preparing these scale drawings.

The first passengers will use the airport in 1994. Each of the 42 boarding gates will be able to accommodate a jumbo jet – and all this on an island created by moving a mountain and dropping it into the Pacific Ocean!

Copies of the full conference proceedings are available, price £50 (£38 to members) from CIBSE, 222 Balham High Road, London SW12 9BS.

LIGHT Spectrum

Lighting the way



More than ever we're committed to living up to our Speed of Light philosophy as we drive the company towards the final phase of integration. Our new distribution facility at Northampton is all geared up ready to accept the main bulk of product stock and the major task of bringing together the various sales office functions is now complete and fully operational here at Mitcham. This month's LIGHT Spectrum gives more detail about the new sales office, how we have restructured sales areas and, most importantly, how we now respond to sales office calls through dedicated teams.

Branding is the next step and on this point Speed of Light is definitely the pace of change being demanded by our customers! Whilst we welcome such enthusiasm, I must re-iterate now that the size of the business dictates a step by step approach and this is still our policy. You have known for some time that the new products which are starting to come onto the market are branded GE and that familiar and established products, such as premium performers like Arcstream, will also gradually start to appear in distinctive GE packaging.

But because of their high volume, Thorn tubes, will be last in our wide product portfolio to go over to the new GE branding and therefore it is highly probable that you will be handling and installing product in the two different types of packaging. This will be a temporary overlap period and old packaging Thorn product will be clearly identified as being manufactured by GE Lighting. More about our brand strategy and packaging in next month's issue.

Moving onto Electrotech '92. We have a great deal to talk about to our customers and an exhibition forum provides the ideal sales platform.

We'll be previewing the new UK catalogue and unveiling an exciting new concept for selling light. Mark the date in your diary now - July 20 - 24 at the NEC, Birmingham - I promise that your visit will be more than worthwhile. Thank you for taking the time to read this message - I hope that you enjoy the latest news in LIGHT Spectrum.

Mike Murphy
Managing Director GE Lighting - UK Commercial

Direct dial numbers straight into your own sales team

The direct dial numbers allocated to each region will be advised to individual customers. This new, fully computerised facility automatically passes incoming calls to the next free line allocated to that region.

Wholesale & Retail regions
North 081-687 3448
Central 081-687 3401
Western 081-687 3444
Eastern 081-687 3407

OEM & Specialist lamps
081-687 3452

GE-Tungsram
081-687 3458

Government Departments
081-687 3423

Main switchboard
081-640 1221

Customer service - only the best will do

"The essence of the new internal sales office is to make GE Lighting a company that's easy to do business with" says Trevor Jaggard, *(photo 1)* Director of Finance, IT and Administration, commenting on the new, integrated sales office facility based at Mitcham, Surrey. Key improvements in customer service are being implemented to deliver a speedy and more accurate response to sales office calls. Also, the move to a fully integrated IBM computer system, which will be on stream by the end of July, should further improve customer service. Roy Hyde, *(photo 2)* UK Commercial Manager explains, "specialisation in order administration and direct dial numbers dedicated to individual regions all play a significant role in our new-look, focussed customer service package." Teams have been allocated to look after the four specific regions - a move which Christine Pettit, *(photo 3)* Customer Services Manager for Regional Sales C & I and Consumer says will help her staff quickly develop a greater understanding of each customer's business needs. This personalised front line customer contact - the same sales contact each time to build an effective working partnership - will enable GE Lighting to respond quickly and accurately with the right information and data required. Ensuring the rapid transition from receipt of order to despatch will be under the watchful eye of David Dishart, *(photo 4)* Customer Services Manager - Administration C & I and Consumer. Working closely with Christine Pettit's team, David will provide full order processing support. The principle of specialist teams being responsible for specific customers is best illustrated by David Cleaver's *(photo 5)* role as Customer Services Manager - OEM & Specialist Lamps whose team complements the main stream activity whilst concentrating on satisfying the special needs of GE Lighting's OEM, auto, specialist applications and stage and studio customers. A special department will continue to handle Government tenders. Also GE-Tungsram orders previously administered by Daventry, will be handled by a separate team. until the amalgamation into one company GE Lighting UK. Looking forward GE Lighting are developing full EDI trading capabilities, and will be talking to major customers later in the year.

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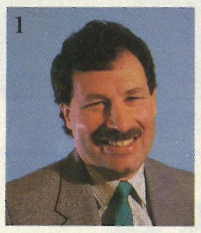

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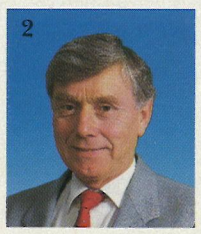

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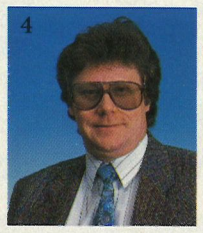

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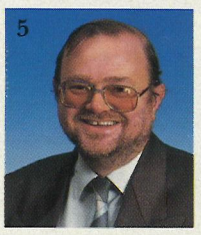


The new offices at Mitcham

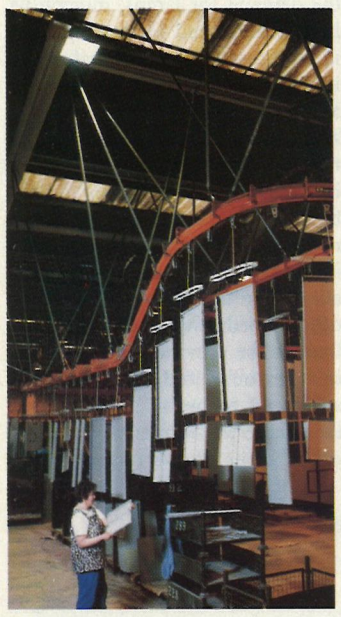
Distribution Centre

GE Lighting's new distribution centre in Northampton

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

GE Lighting

May 1992



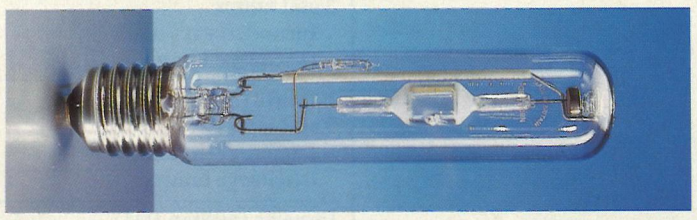
Colour matching at Triumph

A triumph for Kolorarc MBI-T colour

Designers of today's office interiors favour lighter pastel shades, creating feelings of space and airiness. Office furniture too reflects the bright new look and at Triumph of Merthyr Tydfil, traditional filing cabinets are now manufactured in delicate shades of soft beige, pale grey and pale blue. Distinguishing these subtle colour differences during component parts assembly posed a lighting problem. Triumph have always found SON DL lamps good for colour identification, particularly at the warmer end of the spectrum. But when it comes to identifying cooler pastel shades, the new Kolorarc metal halide MBI-T lamp has proved a real winner. The company has now switched to all metal halide lamps which can be used on the SON circuit with no change to the fitting.

Reader Service no.**60**

Kolorarc MBI-T metal halide lamp cuts run up time to 2 mins



Run up time reduction - from the industry standard of 4 minutes to 2 minutes - is just one of the many selling features of the Kolorarc 250W MBI-T metal halide lamp. Developed out of Arcstream technology, its new chemical system based on sodium, indium and halium enables the lead wire to run close to the Arctube without creating sodium loss and allowing a small diameter outer jacket.

Kolorarc's high efficiency levels of 76 lumens/watt, good colour rendition of Ra 70 and crisp white light, 4000 - 6000K, makes this lamp the ideal lighting solution for commercial and industrial interiors where high quality white light, excellent colour rendition and energy efficiency are major considerations. Its precision shaped Arctube, just 22 mm in size, gives consistent colour between lamps and accurate optical control.

Kolorarc MBI-T is available in 250W with a rated life of 6000 hours.

Mazda low energy lamp

Reader Service no.**61**

Mazda goes green

Mazda, the UK's leading retail lightbulb brand, is sponsoring one of five environmentally friendly homes in Green Street, a major feature at the National Garden Festival to be held in Ebbw Vale from May to October this year. The aim of the Festival is to encourage consumers to make a conscious effort to save energy in their homes - low energy lighting being one of the most effective ways. Indoors and out - Mazda's low energy lightbulbs can reduce consumers' electricity bills. With the same light output as a standard 60 watt lamp, Mazda's highly successful **low energy lightbulb** for interiors uses only 14 watts of energy and lasts eight times longer than a normal bulb, reducing electricity costs by over 75%

Exclusive breakthrough technology turns wasted heat into light

Previewed at this year's Hannover Fair, Halogen IR™ is the exciting new technology developed exclusively by GE Lighting from thin film coating technology. Dramatically increasing lamp efficacy by capturing otherwise wasted infra-red energy, this technology recycles it to produce more visible useful light. For example, a 100 watt tungsten halogen lamp with an energy-saving coating on the quartz tube of Halogen IR™ can produce the same light output as 150 watts. Halogen IR™'s compact coil also produces a smoother beam pattern.

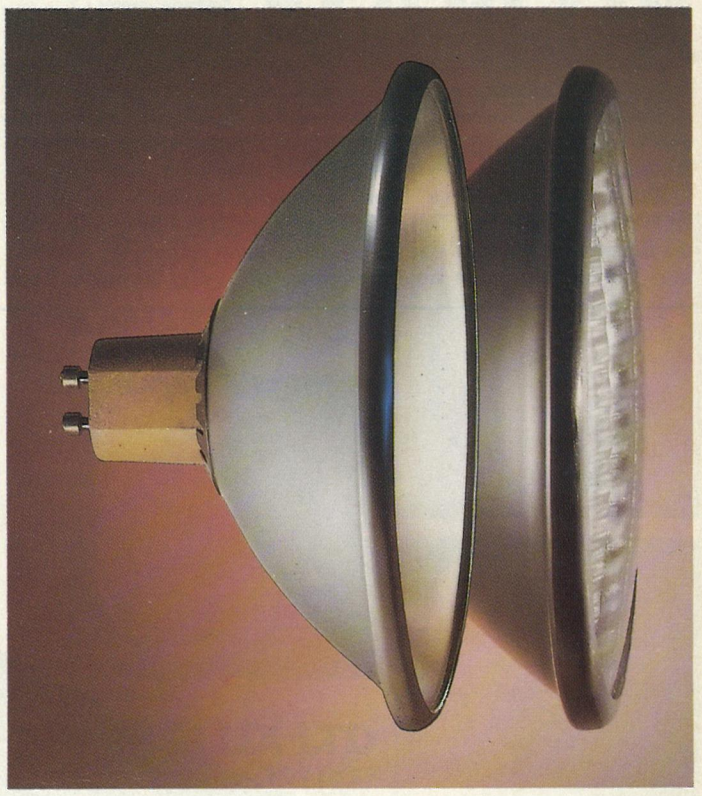
New low voltage lamps punch through with less watts

The diversity of light sources available for display, exhibition and accent lighting has spurred greater sophistication in their application. Now the user demands light sources that give his display lighting a fresh feel, a competitive edge, lighting that truly 'accents'.

*GE **TAL100** reflector lamps respond to these demands in a variety of ways. Principal among them is the power of their beams that adds good light even where high levels of illuminance are present: for instance in shop windows where metal halide lamps, such as Arcstream, are used. or where daylight impinges on the display.*

*The very narrow beams of **TAL100** will also deliver substantial levels at long distances: the **TAL 139**'s 50W give 550 lux at 10 metres, or 7 times the amount produced by a 150W metal halide at the same distance.*

***TAL100** achieve intensities up to 17% higher than comparable metal reflector lamps and this advantage is maintained throughout 3500 hours average life, thanks to their front glass cover. **TAL** also enjoy the engineered toughness of the unique **TAL** base that makes for simpler, safer luminaires.*



Reader Service no.**62**

A setting firstly only illuminated by a 150W metal halide Arcstream.

When two TAL100 spots are added the central subject gains in prominence.

When only the TAL lamps are used the spatial context is greatly diminished and the central subject is lifted out of its surrounding to dramatic effect.

GE USA

GE Lighting

Miles Road, Mitcham, Surrey CR4 3YX
Tel 081-640 1221, Fx 081-685 9625

Germany: the lighting market

Europe's most powerful lighting market and in 1991 its only expanding industry, Germany has nevertheless had to come to terms with the prospects of slower growth rates and a massive increase in imports.

Continued, although decceleratng, growth but clouds on the horizon, is perhaps the best way of summing up the prospects for the German economy. Industry continues to expand, but the costs of reunification are proving considerably greater than anticipated and are tending to force up interest rates. And recession in neighbouring western European countries has led to pressure from imports which has weakened the domestic market in several sectors including lighting.

Lamps

The German light source industry continued to expand during 1991 as a result of the spur to growth given by the former East German territories. This growth was principally brought about by an increase in the use of high technology lamps headed by halogens and compact fluorescents which experienced the greatest growth in turnover.

Halogen lamps, have been dubbed the incandescent lamps of the future. Their smaller size permits the design of the smaller, more elegant luminaires and, in comparison with gls lamps, halogen sources in both low voltage and mains voltage versions offer up to twice the output and four times the lamp life while giving a more pleasing quality of light. More than 25 million halogen lamps were sold in 1991.

Compact fluorescents are the energy saving lamps par excellence. Available in versions ranging from 5W to 55W, they boast a life span up to eight times that of the gls lamp and require up to 80% less energy to produce the same light output. Their use is increasing in almost all traditional applications and in the longer term they look likely to replace conventional fluorescents in many areas. Twelve million compact fluorescents were sold on the German market in 1991.

Metal halide lamps are growing in importance as an economic, long life light source approximating to a point source. In miniaturised form these lamps are now finding an application in automotive lighting. The new D1 gas discharge lamp permits the construction of very compact and powerful headlamps but in the near future is only likely to be available for performance cars because of cost considerations. At present halogen lamps constitute the major form of the automotive lighting.

In street and amenity lighting where cost is a major consideration high pressure sodium is increasingly replacing high pressure mercury. The most economical of all the high pressure discharge sources, high pressure sodium also offers a long life span and very high light output.

The overall increase in turnover in 1991 reached a level of 10-12%, boosting the value of the production of electric lamps by nearly 2 milliard DM, but this global figure conceals that fact that growth rates vary considerably between the various light sources. For example, it includes an decrease of 3% for incandescents and an increase in discharge lamp production of around 2%. At the same time basic products can still be manufactured in large quantities because of demand for improved basic lighting in the public, commercial and private sectors.

Trends leading to innovation in light sources include miniaturisation (particularly noticeable in the case of halogen lamps); increase in light output (in metal halide lamps for motor vehicles); better light colour and improved colour rendering (especially important for compact fluorescents); and improvements in comfort and economy (through the use of electronic transformers).

In addition to new construction work which is reflected in the building statistics, the lighting industry has developed a large secondary market in the rennovation and modernisation of lighting installations. Certain lamp and luminaire products are particularly appropriate for this field.

The year has witnessed various manpower changes in the sector. A 6% decrease in the labour force, to 11 200 employees, increased the annual production level per employee by some 5%. In addition, the percentage of white collar workers in the industry continues to grow and now amounts to 28% of the total labour force.

The difficult economic situation in several European countries, also reflected in a decrease in motor vehicle production, adversely affected foreign trade. In spite of this, over a half of all sales were generated abroad and lamp exports over this period increased by 6% (1.4 milliard DM) – rather less than the large increase of 1990. But imports grew even faster at 8% (0.7 milliard DM).

In 1992 a continuing growth in the demand for lamps, innovative light sources and lighting systems is forecast. Stimulating factors include an increasing customer awareness of lighting, environmental considerations and the need for rennovation, particularly in the former East German territories. If the business situation remains relatively stable, growth in the domestic market will probably be in the region of 5-6%, in other words, will be about half that for the previous year. Growth in the new federal states is expected to be be greater than eleswhere in Germany and some other areas of the country may experience no growth whatsoever. In the medium term, the domestic market is expected to revert to more normal growth levels after the very pronounced increases in demand of the past few years.

One particular cause for complaint in the German lamp market now looks set to disappear. The German lamp tax (Leuchtmittelsteuer) finally seems to be on its way out.

The minister of finance has announced his intention of submitting a bill to the Bundestag aimed at amending the Turnover Law and other legislation whose provisions could adversely affect German competitiveness in the single European market.

This includes the unpopular lamp tax which has been seen as a curb on the use of high technology light sources. Tax on lamps varies from around 13 pfennigs on gls lamps to a hefty 30DM on lamps over 1kW. The principle behind the Leuchtmittelsteuer is to tax lamps used primarily in domestic, industrial or commercial illumination. Lamps used for signalling, in photocopying or

Figure 1. The German lamp market.

	1989	1990	1991*	% change 1991/90
Production (million DM)				
Total lamps	1921	1959	1950	-0
Incandescent lamps	1043	1041	1012	-3
Discharge lamps	878	918	938	+2
Exports (million DM)				
Total lamps	1214	1337	1419	+6
Incandescent lamps	515	608	642	+6
Discharge lamps	699	729	777	+7
Imports (million DM)				
Total lamps	603	634	687	+8
Incandescent lamps	328	327	331	+1
Discharge lamps	275	307	356	+16
Domestic market (million DM)				
Total lamps	1310	1256	1218	-3.03
Incandescent lamps	856	760	701	-7.76
Discharge lamps	454	496	517	+4.23

** preliminary figures*

Figure 2. Employment and productivity in the German lamp industry.

	1989	1990	1991*	% change 1991/90
Employees (monthly average)				
Total lamps	11200	11900	11200	-6
Incandescent lamps	6700	7200	6800	-6
Discharge lamps	4500	4700	4400	-6
Annual productivity/per employee (in thousand DM)				
Total lamps	172	165	174	+5
Incandescent lamps	156	145	149	+3
Discharge lamps	195	195	213	+9

** preliminary figures*

enlarging equipment and those used to start chemical, physical or biological processes are exempted, as are those used in medicine, photgraphic flash equipment or in projectors.

Unless this tax is abolished before the single market comes into operation, it will be paid by German manufacturers not only on domestic sales but also on their exports, leaving them in a position of disadvantage with respect to their European competitors.

Industry has welcomed this decision, taken against the background of German budgetary problems caused by the costs of reunification, as the abolition of this tax represents an important factor in ensuring continuing job security for more than 11 000 employees in the lamp industry.

Luminaires

The run up to the single European market has seen the continued expansion of production in the German luminaire market. This reached 13.3% in the course of 1991. Large increases in production capacity and the changeover to higher added value products have both contributed to the increased turnover of the past few years.

But one new factor has recently become evident. The market has been affected by a disproportionate increase in imports – 36% or 530 million DM in 1991 – while exports have levelled off, albeit at a relatively high level. This growth in lighting imports has been particularly noticeable in the decorative lighting sector.

The weakness in the export market was primarily caused by recession in most of the traditional markets for German lighting, in geographical terms Western Europe and the Middle East. The Gulf War affected the market generally but some manufacturers were particularly badly hit. In tandem with the loss of the traditonal European markets to German exporters, other European exporters have been forced to turn to the only European growth market, namely Germany. So manufacturers in Belgium, the Netherlands, Austria and, in particular, the Italian lighting industry profitted, and their share of the German import market has risen by 25%.

The share of domestic decorative lighting in total luminaire production has decreased over the past few years from 30% to around 20%. Together with display lighting, this product group represents just over a quarter – to be exact, 27% – of total luminaire production. During 1991 domestic lighting to the value of more than 1 milliard DM was manufactured.

Professional lighting experienced an above average growth rate of 17%; the total value of production was around 2.6 milliard DM. This was in the main due to the growth in the market for fittings for discharge lamps – up by nearly 20%, to give a 1991 production value of 1 450 million DM. This sector has grown rapidly over the past few years. In 1985 production of these fittings was on more or less at the same scale as domestic lighting, but the share of the market has since increased to almost one third of total luminaire production.

The value of exterior lighting grew by around 18% to 550 million DM. Growth occurred primarily in incandescent lighting but the use of low voltage halogen outdoor fittings for decorative purposes also increased.

In 1991 the price index rose by six points (see table 3), giving a true market growth of 7.7%. Above average price increases – in the region of 6.5% – occurred in the decorative lighting sector. Many of these products are manufactured in craft workshops and small assembly plants and there has been a clear trend towards the use of more expensive materials and components, so this sector has offered little opportunity for cost cutting. In fact, price increases have barely compensated for higher taxes and material costs.

Manpower changes may well take place next year. In 1991, 26 400 workers on average were employed in the luminaire industry. As the growth of production slackened in the course of the year the number of employees in the sector has now become more than the market would warrant. Annual productivity per employee increased by 6% in relation to the previous year, to give an average of 182 000 DM. But this figure covers a wide range of variations in output and wealth creation between the various sectors, and statistics show productivity level to vary between 100 000 DM and nearly 300 000 DM in this respect.

The buoyant market for lighting fittings in Germany is connected with the expansion in the national economy. According to domestic statistics the demand for luminaires in the former GDR states constitutes some 10% of the German market, but this figure is difficult to verify. As wholesalers and retailers have become established in the former GDR states, it is increasingly difficult to estimate the flow of goods from west to east.

The former mass market suppliers in Eastern Germany are finding it hard to hold their position in the market economy. Some of the formerly large manufacturing plants are still in the hand of the Treuhand. Others, principally specialist concerns, have been privatised or put onto a new operational basis with western help, and this has resulted in the formation of some interesting new companies in the lighting industry. This also holds true for the German market as a whole where many new firms have appeared to fill gaps in the market. Technological innovation and design, and growing product demand have created new opportunities to enter the market.

Factors determining the development of the lighting market are the overall business situation, the level of building activity and technical progress within the sector itself. In the professional lighting field the connection between building permission and the sales of luminaires is evident. The forecast for 1992 and 1993 is for building permits to decline by about 10% for commercial building and by 15% in public work.

So, the rennovation and refurbishment market becomes increasingly important. Figures for this sector are not included in building statistics, but they have consistently boosted the turnover of the lighting industry. When the use of fluorescent lamps with electronic ballasts and the installation of suitable reflectors can cut the power consumption of an office lighting system by up to 50%, the advantage of investing in a replacement installation becomes obvious.

This replacement market gives a key to the very different development of the lamp and luminaire industries. Higher light output and increased lighting system efficiency lead to less lamps being used per luminaire – while the unit value of each luminaire has increased. This trend to added value has encompassed the use of electronic ballasts giving instant flicker-free start and the ability to dim lamps. The net effect of this has been to reduce costs through lower losses and longer lamp life. In this connection it should be mentioned that non-electronic energy saving ballasts are now in a position to force conventional gear out of the market.

In 1991 the production of ballasts reached the value of 320 million DM, or 9% more than in 1990. With low voltage tungsten halogen electronic transformers are increasingly gaining in importance over traditional technology, as the use of electronics in this sector reduces the consumption of gear considerably.

Electronic controls and connectors linked to BUS controlled building system technology are increasingly coming onto the market. This would seem to have particular growth potential in applications in energy management, for service and intensive care systems and in emergency lighting.

Within the decorative lighting field, architectural lighting is a growing market. German statistics do not recognise this luminaire type as a separate category, either within the building industry figures or in the market for single fittings. Applications range from museums through foyers and meeting places to retail and even exterior lighting. Architectural lighting could come to represent as much as 20-25% of the total volume of luminaire production.

Domestic lighting, supplied by over 200 firms, is driven by the halogen wave and fashions in materials and colour. In its daytime function, decorative lighting is seen as an essential element in interior design. A few years ago any lampshade was acceptable as long as it was white, while today the consumer is again opting for powerful, saturated colours.

After years with almost no private and public sector house building an attempt to remedy the housing shortage could lead to domestic lighting becoming an area of rapid expansion, by up to 20%. The current state of the market encourages manufacturers to be optimistic about the potential of this sector.

Manufacturers of professional lighting throughout the EC countries have been directing their efforts in the field of harmonisation. Thus, in Germany in the field of workplace guidance for instance, DIN standards for lighting have provided an essential basis for work within the framework of the CEN standards. The first draft European standards were presented right at the begining of the single market. This has given industry a head start in advanced technical products to meet the challenges of the competition in the European lighting market.

Information supplied by the Lamp and Luminaire sections of the Zentralverband Elektrotechnik-und Elektroindustrie, April 1992.

Figure 3. All luminaires (million DM).

	1988	1989	1990*	1991*
Production	3509	3797	4241	4804
Exports	1248	1510	1542	1545
Imports	881	1091	1187	1518
Total domestic market	3142	3378	3886	4777
Price index (1985 = 100)	108.7	112.0	115.9	121.9
Annual productivity/employee (thousand DM)	160.2	162.6	171.6	182.0

** provisional figures*

Figure 4. Decorative lighting and spotlights (million DM).

	1988	1989	1990	1991*
Production	971	1082	1200	1310
Exports	265	294	306	304
Imports	292	330	388	529
Total domestic market	998	1118	1282	1535
Price index (1985 = 100)	109.1	112.5	116.7	123.2

** provisional figures*

Figure 5. Professional lighting (million DM).

	1988	1989	1990	1991*
Production	1850	1961	2232	2620
Exports	644	727	799	840
Imports	278	354	428	525
Total domestic market	1484	1588	1861	2305
Price index (1985 = 100)	108.2	111.5	115.4	121.4

** provisional figures*

Figure 6. Other luminaires components and accessories (million DM).

	1988	1989	1990	1991*
Production	688	754	810	874
Exports	339	489	437	401
Imports	311	407	372	464
Total domestic market	660	672	645	937

** provisional figures*

Figure 7. Professional lighting by product groups.

	1988	1989	1990	1991*
Interior luminaires	1118	1223	1443	1700
Exterior luminaires	389	418	463	550
Lamps with increased protection (ie vandal resistant, or for hostile environments)	343	320	326	370
Total value of production	1850	1961	2232	2620

** provisional figures*

One area where it pays to be in the red is in lighting. Lamps in the infra-red region of the spectrum provide an effective and economical solution to a wide range of heating applications.

In the red

Short-wave tungsten halogen lamps are heat sources which can be optically controlled in the same way as light. The lamps heat objects in the energy path by direct radiation; convection and conduction play only a minor part in the process. The short wave output means transmission losses through air and moisture laden atmospheres are low.

The lamps are capable of being continuously dimmed to control heating levels, giving the same rapid reponse levels and degree of regulation as gas. Moreover, the small diameter of the filament (usually in the region of 8mm-10mm) allows the lamp to be accurately positioned in a purpose-designed reflector so that the direction energy is emitted in can also be closely controlled.

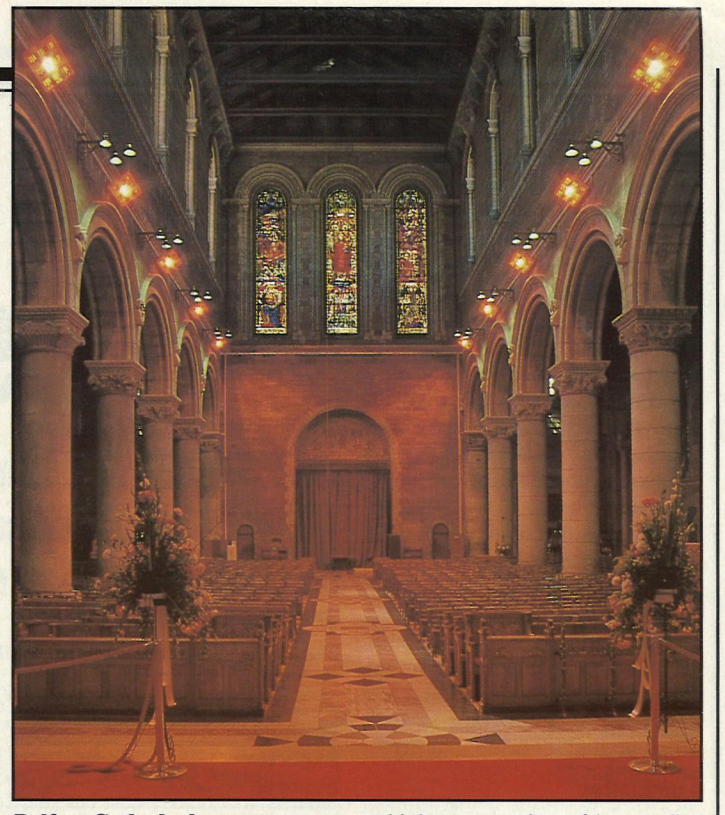
Osram Halotherm infra-red tungsten halogen lamp for heating.

The use of quartz for the lamp and any protective sleeve enables the lamp to withstand a far greater thermal shock than glass. It also permits the use of thinner bulb walls thus decreasing bulb size.

Protected by special ceramic glass, the lamps can replace conventional heating elements in cookers. This 'cooking by light' is now a popular method both in the home and in the catering industry. Lamps for cookers were developed from the linear tungsten halogen lamps to operate at a lower colour temperature and emit most of the radiation in the short wave infra-red region, peaking at 1.1–1.2 microns. The advantage of using this particular wavelength is that the radiant component of the energy offers good penetration of many foods while allowing almost instant control.

Space heating

The property of short-wave infra-red lamps to heat any object in their path through radiation means these sources have rapidly become established for zonal space heating. This can enable the engineer or specifier to provide a satisfactory solution to difficult heating situations. The classic example of this is the medieval parish church whose delicate fabric could well be damaged by other light sources, where the pattern of heating is, to say the least, intermittent so the time lag in heating up the building by more conventional means would be considerable. This technology has also been successfully used in sports hall and zoos which have a similar need for intermittent but rapidly controllable heating, and for use in temporary buildings such as inflatables and marquees.



Belfast Cathedral – a recent 270kW installation by Strinex.

The filament in this lamp operates at a colour temperature around 2400K and approximately 80% of the output of the lamp is emitted in the short wave infra-red energy region peaking at 1.1 – 1.2 microns. Conventional electric heaters using resistance wires, by contrast, radiate only 50% of the energy in the 3 micron wavelength region and suffer greater heat losses through absorption by the water vapour in the air.

Heaters with a multiple arangement of lamps provide a flexible heating installation. An individaul lamp can be switched off or dimmed allowing the same area to be heated. But it should be noted that reducing the output of the lamp tends to shift the peak radiation towards the long wave as the temperature of the filament is reduced. Thus, it is often better to switch off one or more sources rather than dimming to maintain the energy output at the most effective wavelength.

Industrial processes in which the heat properties of lamps are exploited have been growing in line with the development of lamp technology. The reasons for this are the economic and ecological benefits of lamps compared with more traditional methods.

Technical heating applications are energy intensive and any technology which can speed up these processes without any ill effect on the finished product is welcome. Key factors, therefore, are the efficient use of energy, the ability to supply directional heat, and the shorter drying times this technology permits.

Infra-red halogen lamps have proved to be an ideal heat source for many industrial applications. Heat is produced primarily through radiation in the short-wave infra-red range. This can penetrate the atmosphere more easily as less heat is absorbed by atmospheric moisture. It also offers a degree of control which is not available with medium or long-wave infra-red sources.

The use of quartz glass ensures a higher proportion of heat radiation. The use of reflectors means this heat can also be computer controlled in, for example, the heating stages for paint baking in a drying line. High energy densities give shorter drying lines and allow the use of water-soluble, more environmentally friendly paints.

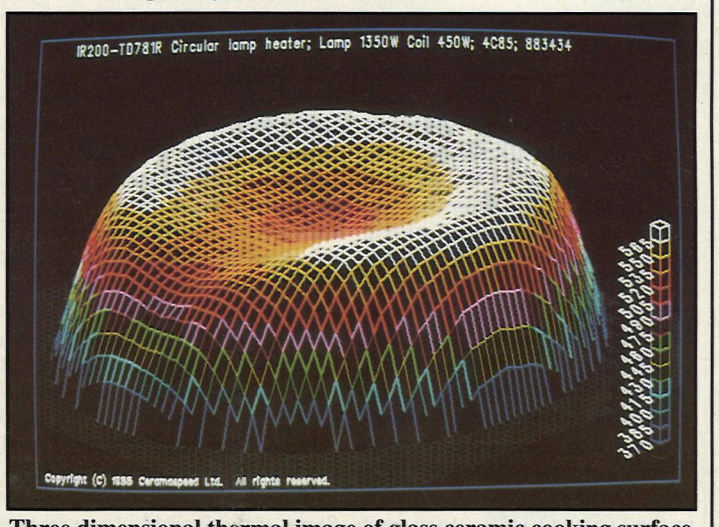
Traditional heating methods such as hot air or black radiators suffer from long warm-up times, resulting in the waste of energy and reduced control over the process. With halogen lamps, the heat is available almost instaneously, thus speeding up the production process.

Apart from paint-drying, halogen infra-red lamps are used extensively in industrial drying processes which include the evaporation of water or solvents from materials and localised heating of large components and assemblies. In paper-drying, for instance, they offer higher operational safety than processes using gas flames. Other drying processes include stoving and powder baking, printing ink drying and thermographic printing processes, textile processing and cement and glue drying.

Production lines

The lamps are particularly suited to continuous and batch process lines, where flat or regularly shaped products are being treated. However, where irregular shapes are involved, it is often possible to devise jigs to ensure even heating, or the products may be rotated while travelling through the heating area on a conveyor system or monorail.

In the plastics industry they are used for heating and shaping elastomers in manufacturing processes, such as deep–drawing, and in shrink wrapping, especially where the packaging medium is a dark plastic sheeting. In electronics, they can be used in sensitive applications, including recrystallisation and for drying the solder-stop paint on printed circuit boards. Finally, in chemical plants they are utilised in the curing and polymerisation of materials.



Three dimensional thermal image of glass ceramic cooking surface over circular infra-red lamp heater (Photo: Ceramaspeed).

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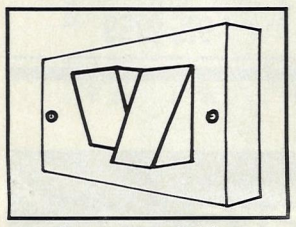

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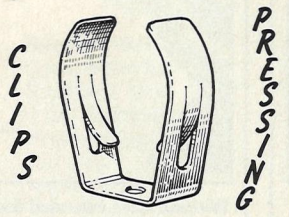

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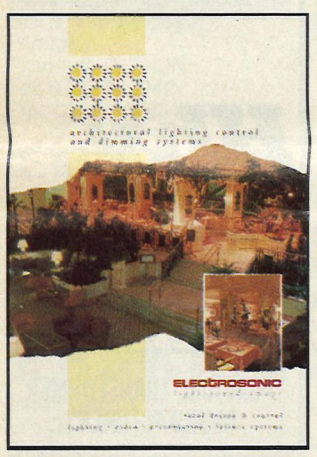

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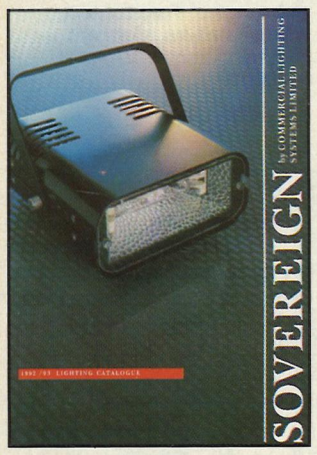

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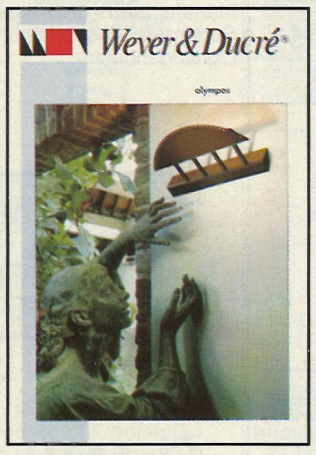

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NEWS

The art of lighting

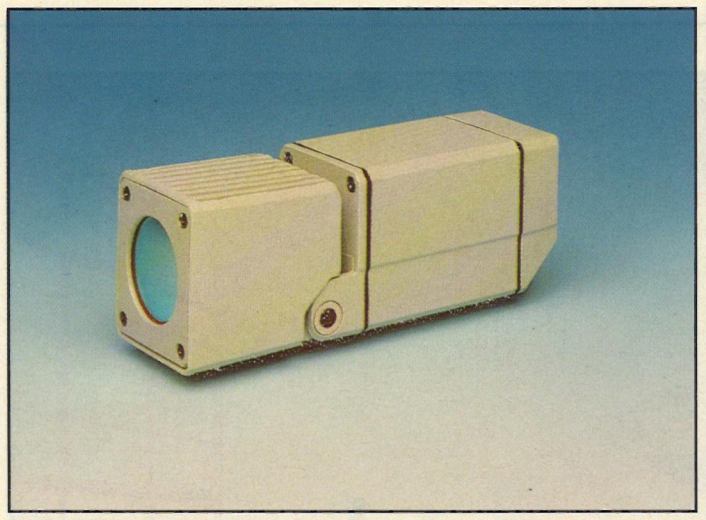
The use of infra-red for surveillance systems is well established, but these lamps have also found a number of less obvious applications. A miniature infra-red lamp designed for security purposes has found a valuable role in conservation and restoration work for the Area Museum Council for the South west at Bristol Museum and Art Gallery.

Using a digital electronic transformer launched recently by GTE Lighting, this mini-lamp has been designed and manufactured by Molynx, a manufacturer of CCTV systems for security surveillance. Molynx has just introduced what is believed to be the first unit of its type with an integrated power supply intended specifically for short distance applications.

The lamp itself is fitted with a 50W halogen bulb and light sensor with automatic operation, together with an integral dichroic filter. The beam produced cannot be detected by the human eye, but will provide camera ranges up to 20 m when combined with a high sensitivity CCD camera and lens assembly.

The miniature infra-red lamp provides a new dimension to reflectography, the non-invasive investigation of underdrawings which plays an important part in the conservation and restoration of works of art.

Until recently only the largest galleries could take advantage of infra-red technology and, even then, the technique had its limitations – lamps were large, bulky, expensive and could be easily damaged. They gave off considerable heat which was potentially damaging, and required large rooms for safe operation. More importantly, the lamps often contained flaws which when used on a closed circuit could reproduce misleading images.



The miniature infra-red lamp used in Bristol Museum overcomes these problems – it's safe, compact, cost effective and easy to install and use. The infra-red beam penetrates layers of varnish and paint film and relays the underdrawings to a closed circuit television, producing a reliable image of what exists beneath the suface. And these underdrawings can often be of more significance than the surface image in revealing much about the composition and history behind the painting.

Two into one

The ability to provide both standard and air handling versions of the same luminaire led to Thorn receiving an order for 3000 fittings for the presige office block, the Aplha House in Munich.

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Lighting a classic

A new technical centre to restore and service classic Ferraris presented a need to meet architectural lighting requirements while projecting the corporate image of the famous racing marque.

The lighting brief for the £1.7m building opened by Maranello Concessionaires at Egham, Surrey stressed the need to provide high levels of ambient lighting throughout the two-storey building. This was achieved using a combination of metal halide, low voltage, conventional recessed and suspended fluorescent lighting. One consideration was that the colour of the suspended luminaires specified for the workshop, training room and technical department should be Ferrari red.

The two storey reception area – with its balcony, reception desk and space for one or two cars – called for high intensity lighting with a warm colour temperature. Recessed projector fittings using a 150W metal halide lamp are recessed into the open cell ceiling to project up to 1000 lux onto the show car while the curved reception desk is lit by a triangular formation track mounted spotlights and a row of low voltage recessed fittings. The whole area has floor to ceiling tinted glass walls which, together with the backlit prancing horse logo and high light levels, were designed to create maximum impact after dark.

The core activity of the 2000m² building is carried out in the workshop which comprises areas for chassis jig lifts, welding systems, metal shaping and forming, rustproofing, and body building. It was essential that the lighting was maintained as customers are admitted to this area to view restoration work. But the sloping ceiling, which follows the roof purlins, was too low to use high bay lighting, and the low bay alternative was ruled out as being too utilitarian. Light Years suggested a suspended modular tubular fluorescent lighting system to provide shadow-free horizontal illumination. The system was supplied in a Ferrari red enamel housing and gives the necessary level of 400 lux on the working plane. Lighting levels are boosted by natural daylight through translucent rooflights immediately above and the high level of reflectance from the cream coloured walls and beige tiled floor.

Edinburgh's North Bridge which links Princess Street to the Royal Mile now has a floodlighting scheme which picks out its features in golden light using Sylvania AlleyKat exterior luminaires. The fittings, mounted on their backs to create the best effect, use 70W SON-E lamps. The scheme was designed by Hawthorne Boyle for Edinburgh District Council.

CIBSE fund grows

Mitsubishi Electric UK has given £20 000 to the CIBSE Research Fund. This brings the total of donations received since the launch of the fund in March 1991 to £250 000.

A CIBSE project to determine the feasibility of recycling domestic water is nearing completion and a research contract to examine the effectiveness of air to air heat recovery is being negotiated. Other research projects which are receiving support include a comparison between UK and French regulations and building techniques and a multivariable investigation into health and comfort in offices.

Move to compatible education

The Construction Industry Council has received government funding to establish the scope for greater compatibility in the education. training and continuing professional development of construction professionals, following a successful conference on the future of education and training.

A Department of Employment grant has led to the establishment of a 3 month project headed by Sir Andrew Derbyshire of RMJM and Professor John Andrews of University College London.

The project team is looking for evidence, comment, opinions, experiences and examples of interdisciplinary education and training for professsionals in the construction industry.

CIC has agreed to accelerate its policy on developing compatible areas of professional education and training following an urgent request form the Construction Industry Sector Group of NEDO in late 1991. The project team's conclusions will be present to the Group's meeting in June.

IN YOUR NEXT ISSUE

What's new in Europe is the theme of the June issue of *LEN*. This year's Hanover Fair provided a chance to gain an overview of European lighting on the eve of the Single European Market.

Eurodisney offers few concessions to its European location but provides interesting reflections on American lighting practice. Finally we look at Italy, one of Europe's most sophisticated lighting markets, and Italian companies operating in the UK.