

LIGHTING EQUIPMENT NEWS

FEBRUARY 1991

Hospital ship dash

Gewiss UK won an order for a 300 bed floating hospital due to leave for the Persian gulf within five days because it was the only manufacturer that could deliver on time.

When Plymouth Electrical Wholesalers were given only 5 days in which to supply heavy duty fluorescent fittings which needed adapting to shipping requirements, they selected Zenith luminaires because of availability.

Commented Mervyn Burt, general manager of Gewiss UK, "What gave us so much satisfaction was that we rose to the challenge. We had to adapt from 60 to 50 hz and voltage from 240 to 220. We got 50% of the fittings delivered within 3 days and the remainder, which had to have special emergency lighting packs fitted, were delivered within the next 48 hours."

But the rush wasn't over yet! It got so near to sailing time that Plymouth Electric arranged to meet the company's van and direct it to the dock and straight on board ship so that they could unload and start work without a moment's delay.

New modern venue for Lightshow

Lightshow next year moves to the newly built, multi-million pound exhibition hall Earls Court 2, at London's Earl Court exhibition complex. It will open on 26 January.

For further details contact the DLA at Bryn, Bishop's Castle, Shropshire SY9 5LE.

Hanover Fair '92

Dates for the 1992 Hanover Fair have now been changed to 1 April 1992 to 8 April to prevent the fair overlapping with Easter week. The build-up period for the fair has now been brought forward to 23-31 March.

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Lighting fit for a queen

Queen Elizabeth can be seen in style these days thanks to the refurbishment programme being carried out at London's National Portrait Gallery.

A new scheme to illuminate the museum's entrance hall and first floor landing was undertaken by Montrose International under the supervision of the gallery's architect, Roderick Grandidge.

The walls and ceiling are painted in a Gothic style so the lighting had to continue the theme. The lighting systems combine a traditional feel with high-tech performance.

The result is a luminaire with brass and bronze finish, with

flamebeau torch lamps which are a replica of a fitting located on the third floor. The central band of the luminaire houses a self-maintained emergency lighting system and a series of 12V dichroic spot lamps to illuminate the adjacent paintings. Each concealed aperture for the spotlights a UV filtered borosilicate lens to protect the paintings. A smoke alarm is also fitted into the ceiling plate.

The same style has been adopted for a number of wall fittings which illuminate the passageways and stairwells. The staircase wall brackets also incorporate low voltage spotlights and emergency lighting.



New lamps for old

Germany's old Reichstag building in Berlin has been modernised to house the sessions of the country's all German Bundestag since unification, and the 35m long by 39.5m wide chamber has been provided with an up to date lighting system, worthy of the refurbishment.

Ambient lighting is provided by downlights located in a steel coffered ceiling. The ceiling had previously housed an uneconomic incandescent lighting installation. This has now been replaced by Sill downlighters equipped with Osram Powerstar HQI-TS lamps. The three or four rows around the edge of the ceiling take 150W lamps. To avoid interruptions caused by fluctuations during run up of the installation and following an interruption of the power supply, the system automatically switches onto Halolux halogen lamps.

By contrast, 70W HQI lamps are used for the centre of the metal ceiling. These are controlled by Powertronic electronic gear which allows for the safe

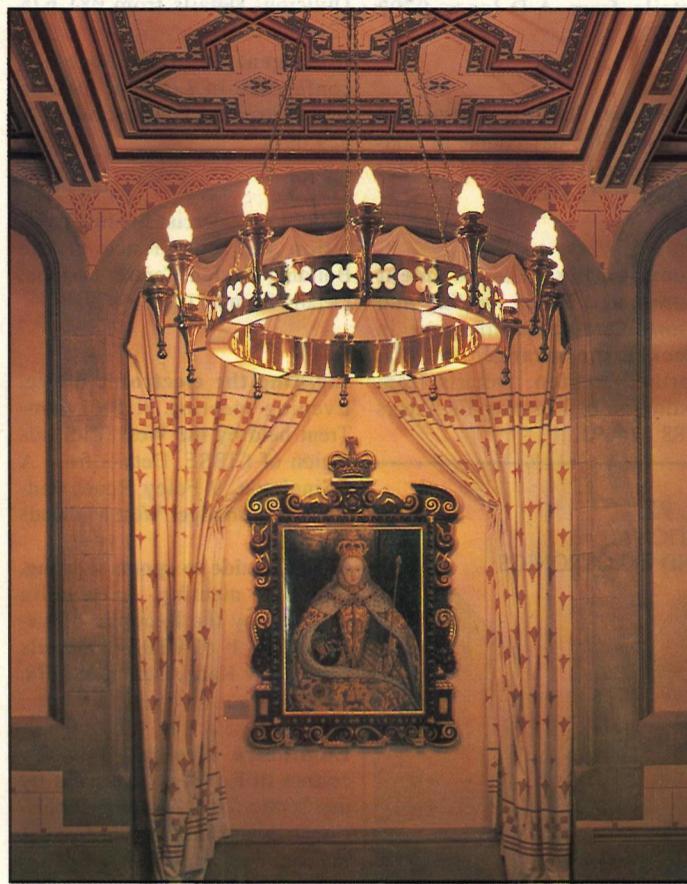
hot restrike of the lamps in case of a power failure.

Additional lighting is provided by the up-lighting of the acoustic panels in the centre of the assembly chamber. Sixteen 5m square acoustic pyramids are each uplit with three, 150W HQI-TS lamps. This indirect lighting is complemented by a direct lighting component provided by two 18W Lumilux fluorescent lamps operated by Quicktronic de luxe control gear.

Finally, to provide accent lighting within this large space, pendant lamps fitted with 150W HQI-TS-lamps are suspended below the apex of nine of the 16 acoustic pyramids. The neutral/de luxe white colour of the HQI lamps used throughout enhances the neutral greys and blacks dominant in the interior design.

In short, not only can German MPs be delighted by the aesthetics of their new lighting system — they also have an outstanding example of workplace lighting, providing them with an illuminance of between 1000 and 1500 lux.

It is known that improvements in lighting quality, and thereby the working environment, make workers happier, more comfortable and more productive.



In brief . . .

• **Maylectro** has been acquired by Gent Ltd with effect from 31 December 1990.

• **Reynolds of Raphoe**, County Donegal, has been appointed Irish distributor for Lamp effects lighting.

• **Mattalex Group** has formed a new division to market amenity lighting. It is being managed by George Mela and is handling products by Roger Pradier (France), Popp (Germany), and Wunsch (Germany).

• **Program Lighting** is now UK distributor of Kotzolt lighting from Germany. The range includes display, office and sports lighting equipment.

• **Lab-Craft** has acquired the fire alarm business of Carters of Burnley.

• **Economy Lighting's** ELTRAN-H range of low voltage lighting transformers has been approved to European standard EN60 742.

• **Chelsom** is planning to open a London showroom.

A quality rating for office lighting

The first rating system to measure the overall quality of office lighting and give it a single value is now available. Using this new index, specifiers, employers and employees can gain a reliable indication of the quality of office lighting and also maximise its effectiveness. In addition, it can be used to compare the quality of lighting in different offices.

Introduced by Thorn, the index is the result of a two-year research project co-ordinated by Dr Robert Bean, a lighting research consultant, with the proving trials conducted by a number of UK academic bodies.

The so-called CSP index — the initials stand for visual comfort, satisfaction and performance — is based on the theory that these three key criteria are interactive.

The practical value of the CSP Index is that it takes into account factors including illuminance, glare, light distribution, colour rendering and degree of VDU use. Each of these elements is rated and applied to a formula which produces a single CSP value between 1 and 100.

To arrive at this value, Thorn's CSP Index software is used, a computer model that calculates the complex interaction between these different elements. The software package is IBM-compatible.

A quality level can now be specified in the same way as a lighting level has been in the past. The system is complementary to the CIBSE code for interior lighting.

According to Bob Bell, Thorn's chief lighting engineer, "Poor lighting visually handicaps employees."

It is known that improvements in lighting quality, and thereby the working environment, make workers happier, more comfortable and more productive.

able and less stressed. This, in turn, has a direct effect on performance and increased productivity, with inevitable benefits to employers.

Recent studies have shown that the quality of office lighting is a major issue. Nielson (for Reed Employment) found that 41% of office workers felt stress from poor lighting.

The results of a Gallup survey in November showed that one-third of VDU operators suffered

from various forms of discomfort, many of which were attributable to lighting. It also showed that most offices do not meet a new EC directive relating to reflections in VDU screens.

At present, the CSP rating can be calculated only for offices with conventional lighting. However, Thorn are continuing to develop the system to enable it to be applied to offices with uplighting, local or task lighting, and to industrial installations.

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DIARY

FEBRUARY

5

Lighting in the electronic age. Evening meeting in Leicester arranged by CIBSE East Midlands region. Details from S Nicholson, 19 Greathorn Drive, West Bridgford, Nottingham NG2 7GG.

6

Lighting in the electronic age. Evening meeting in Manchester organised by CIBSE North West region. Details from L Daniels 061-228 2331.

7

Exterior lighting. One-day course in Birmingham. Details from Mid Career College 0223 880016.

7-8

Daylight and energy manage-

ment systems. Two-day course in London held by the Centre for Continuing Professional Education. Details from A H Fuad, director, 071-928 8989.

12

Lighting: emergency, high frequency, uplighting. Evening meeting in Cardiff arranged by CIBSE South Wales region. Details from A D Jones 0792 641172.

13

Emergency lighting design and practice. One-day course in London. Details from Mid Career College 0223 880016.

14

Floodlighting the Student Games, and Street lighting and crime. One-day conference in Cleckheaton arranged by ILE Northern region. Details from Institution of Lighting Engineers 0788 576492.

19

Lighting for offices. One-day continuing professional development course in London arranged by CIBSE Lighting Division. Details from 081-675 5211.

Biological effects and protection standards for optical radiation. Evening meeting in London organised by CIBSE Lighting Division. Details from 081-675 5211.

Intelligent buildings. One-day conference in London. Details from Eurodata Foundation 071-629 0991.

20-23

Hilight commercial lighting exhibition and conference at the Building Design Centre, London. Details from 071-288 6479.

21

Lighting the electronic office. Evening meeting at Stoke-on-Trent held by the West Midlands region of CIBSE. Details from A J Singleton, 9 Foley Road, Pedmore, Stourbridge, West Midlands DY9 0RT.

CIBSE Guide to sports lighting. Evening meeting in Dublin arranged by the Republic of Ireland branch of CIBSE. Details from Larry Kane, Dublin 688278.

21-22

Luminaire design. Two-day course in London organised by the Centre for Continuing Professional Education. Details from A H Fuad, director, 071-928 8989.

26

Lighting design principles. One-day course in Manchester. Details from Mid Career College 0223 880016.

27

Lighting for sport and leisure. One-day seminar in Bristol arranged jointly by CIBSE and ILE. Details from J C Treby 0272 223215.

28

Floodlighting Fair. Half-day seminar and exhibition in London. Details from CIBSE 081-675 5211.

MARCH

6

City perception planning. Evening meeting in Manchester organised by North West region of CIBSE. Details from L Daniels 061-228 2331.

12

Sick buildings. Evening meeting in London held by London and South East region of CIBSE. Details from Gavin Scarr Hall 0753 23871.

19

Lighting for display and merchandising. One-day course in London. Details from CIBSE 081-675 5211.

Trotter Patterson Memorial Lecture. Evening event in London. Details from CIBSE 081-675 5211.

Efficient use of energy in a modern supermarket. Evening meeting in High Wycombe arranged by London and South East region of CIBSE. Details from Andy Robinson 081-953 6282.

CIBSE



The Chartered Institution of Building Services Engineers

Maintenance — do we practise it?

In our eagerness to promote and implement the use of the latest high efficiency lamps and luminaires to save energy, the importance of and the resources for maintenance of the lighting installation are often neglected. This must not be allowed to happen. Unless both the structure of the building and the lighting equipment are well maintained, the aims of the well-designed lighting scheme will, in time, be defeated.

The lighting — be it daylight or electric light — will no longer fulfill its objectives adequately. The cost of providing useful light will increase and the appearance of the building will deteriorate. It is not uncommon to find in industrial or commercial unmaintained fluorescent lighting installation, that the average loss in light output after just one year is 30%. After two years the loss could be as high as 50%.

It is well known that immediately a lighting scheme is put into use it begins to deteriorate. A film of dust or dirt begins to reduce the transparency of windows, roof lights, lamps and translucent optics surface and to reduce the reflecting power of all exposed luminaire and room surfaces.

If this process is unchecked, it will result in the illuminance falling to very low values. Only through regular cleaning of windows, lamps, luminaires and room surfaces and by the renewal of fading or failed lamps can the performance of the lighting system be maintained at design level.

Of course, during lighting design calculations, we do make allowances for the inevitable reduction with time by the use of an appropriate maintenance factor. This maintenance factor is based on a number of assumptions, including a properly planned maintenance schedule.

Maintenance factor costs money. But high value does not always mean cheap. For example, a scheme based on high maintenance factor for use in a very clean environment could cost less to own as it allows us to use fewer lamps and luminaires, and possibly smaller windows or roof lights to achieve the recommended illuminance. But high maintenance factor for the same scheme in a very dirty environment will mean very frequent servicing of the installation, following the instructions set out in the maintenance schedule religiously.

As yet, we do not have the perfect lighting system which requires no maintenance. The philosophy of the 'fit and forget' approach is a wonderful idea and is fine with the right equipment in the right situation — but such systems are not yet with us and we could waste a lot of usable light and energy.

Maintenance should be part of a way of life. We must design with maintenance in mind: selecting the right shape window or roof light, specifying the most appropriate lamp, circuit, luminaire and surface finishes. Of course, easy access to light sources, emitting surfaces and luminaires should be thought of during design.

The most economic cleaning intervals can be established from the type of luminaire used, the rate at which dirt accumulates, the cost of electrical energy and the cost of cleaning. It is the interval at which the cost of cleaning equals to cost of wasted energy.

Good maintenance calls for replacement of lamps when they have reached the end of their economically useful life. It is an economic advantage to link lamp replacement intervals to luminaire cleaning intervals. In large installations or where the failure of an odd lamp does not handicap the lighting levels, it may be preferable to replace all lamps at the same time. Roof lights in which the glazing is horizontal or inclined at a small angle collect dirt at a much greater rate than vertical glazing and, therefore, should be cleaned more frequently.

Clearly active maintenance of lighting systems is essential. It reduces deterioration of the equipment, promotes safety, keeps the lighting within design objectives, helps to minimise the electrical load and capital costs and maintains the appearance of the installation to the user liking.

Operating a regular maintenance programme makes good sense — so let's do it.

Lou Bedocs
Chairman, Lighting Division

NEWS

Night blindness and lasers at Marques talk

Professor Paul Cook, MBE, will present the 15th Charles Marques memorial lecture in London on 26 March. His subject will be *Night blindness*.

Professor Cook has developed a laser technique which demonstrates that approximately one in four drivers seriously suffers from a condition known as night myopia. This way in which this affects a driver is for their eyesight to become progressively more short sighted as the light fades.

A further condition researched by Professor Cook is low retinal delay (LLRD), in this case, visual information received by the eyes is delayed before being processed and transmitted to the brain. The delay becomes progressively longer as the light fades. A laser technique has been developed which reduces excessive LLRD times.

Tickets are available from the Institution of Lighting Engineers, 9 Lawford Road, Rugby, Warwickshire CV21 2DZ.

solutions and new lighting products will now find it easier to locate individual companies and products.

The show, which will take place from 19-23 May at London's Earls Court, will be divided into separate product areas — and lighting will occupy a prime position on the ground floor.

includes home interiors.

The EC's share of Japan's overall imports in the product sectors, chandeliers, ceiling and wall lights, is around 70%. For standard lamps made of wood and marble, EC countries have a share of 42%.

For further details contact Sabine Alsdorf in Frankfurt on tel: 010 49 69 7575-6622.

Lighting up IDI

For the first time, Interior Design

International will feature a specific lighting area, more than 50

exhibiting companies representing

a broad spectrum of recent develop-

ments in lighting for contract

interiors. So, specifiers and buy-

ers looking for specific lighting

products will now find it easier to

locate individual companies and

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Page 2

NEWS

Inn lights

LightGraphix completed a contract within only three weeks from receipt of brief, to design and supply special lighting at a restaurant in London's Chinatown — The Kirin Inn. The interior was designed by Jeffrey Kwan, the man behind a number of Chinese restaurants.

The restaurant has made use of low voltage fixed and adjustable downlights to create an intimate atmosphere. The luminaires use dichroic lamps, which ensure that lamp heat is reflected upwards, not down onto the heads of the diners.

The luminaires were designed with a special adaptor plate to fit into a new type of grid ceiling.



Looking ahead to electromagnetic compatibility

BSI is holding a one-day seminar on the implications of the EC Electromagnetic Compatibility Directive which comes into force from 1 January 1992. The seminar, 'Looking Ahead', will take place on 28 February at the Sedgwick Centre, London E1 8DX.

The directive's aim to unify standards of electromagnetic protection and methods of test. In effect, it will mean that almost all electrical or electronic products made or sold within the EC will need to be constructed so as

not to cause excessive electromagnetic interference nor to be unduly affected by electromagnetic interference.

Manufacturers will need to certify that apparatus complies with the directive and to ensure that new products also carry the CE mark as further proof. The directive will cover not only future products but also those actually in production.

For further details contact Mrs Pamela Danvers, BSI Standards, on 0908 220022 ext 2093.

Lighting over a barrel

The distinguishing feature of Southampton University Library used to create difficulties in lighting the interior effectively and efficiently. Now, specially developed luminaires enable students to enjoy twice the light level to aid their reading — and the university's budget benefits from a power saving of nearly 60%.

The 6m high barrel-vaulted ceiling of the 672m² library, contributes to the atmosphere of the interior. By using specially designed low glare luminaires from Moortite, suspended in two continuous rows, 400 lux has been achieved at desk level while illuminating the vault. The total installed load is only 6.6kW.

A feature of the luminaire is

the inclusion of slots in the upper surface of the body which direct the upward component of the light output to the ceiling.

This upward light component would normally be lost in the interior of the luminaire, so the configuration remains energy efficient. Low loss ballasts in the luminaires also aid the efficiency of the installation.

The previous lighting arrangement comprised 2.45m long 4-lamp 125W luminaires with egg crate louvres. This produced 200 lux at deck level from a power loading of 15kW and was also noisy in operation. As it was primarily a downlighter installation, the barrel vault was left almost in darkness.

Domestic energy efficiency stressed

'It pays to be energy friendly' is the theme of a new domestic advertising campaign by the Energy Efficiency Office to run between January and April.

The theme links environmental and cost benefits of energy efficiency and is aimed at people in the domestic sector who are most likely to implement energy saving measures — those moving home or making home improvements, movers and improvers.

Commenting on the campaign, John Wakeham, Energy Secretary said, "The energy consumption in the domestic sector in this country is around £11.4 billion p.a. and at least one fifth of this is wasted through a lack of adequate insulation and inefficient heating systems. The current building regulations will improve the energy efficiency of new homes but this will take time to affect the overall housing stock."

CIBSE meets in Canterbury

Over 80 papers have been offered for the CIBSE National Conference to be held at the University of Kent at Canterbury from 7 to 9 April 1991.

For the first time an international session will include papers from France. The display of poster papers will be enlarged, and there will be workshops on thermal storage and computer modelling plus a young designers'

forum.

In the area of lighting, conference sessions will focus on: energy efficient hospital lighting, outdoor lighting and the question of quality in lighting. Further sessions deal with environmental issues, ventilation and airflow, and maintenance.

The conference will open with a celebrity lecture and will incorporate the Institution's AGM and presidential address. For full details contact the CIBSE Member Services Department, Delta House, 222 Balham High Road, London SW12 9BS, 081 675 5211.

Call for lighting papers

Papers are being invited on all aspects of electrical and natural lighting for the next National Lighting Conference which will be held from 5-8 April 1992 at the new Manchester Conference Centre.

It is hoped to give prominence to the more spectacular lighting applications, such as those for stage and studio, shopping complexes, floodlighting and architectural lighting. However reports on achievements in all commercial

and industrial fields will be welcomed, as well as fundamental studies on organics, human factors and health and safety. Papers should describe original work and be of interest to the whole lighting community.

Brief, topical papers suitable for a poster session are also required.

Contact member services department, CIBSE, 222 Balham High Road, London SW12 9BS for more details.

Spanish firm opens up in UK

A new company, DNA Capacitors (UK) Ltd, has recently been set up in the UK, supplying capacitors to the electrical and lighting industries.

The parent company, Madrid-based Alexander Boxall SA has been supplying the international market for over 15 years, and the products have been available in the UK for the past 18 months.

Alan Runnette, MD of the UK

firm, based in Berkhamsted, confirms their products meet BS 5750 and BS 4017, and the company has had registered firm status since August 1990.

Fifty per cent of material costs are UK sourced, and the parent company is involved in a three year expansion programme with capital investment currently running at £2 million pa.

Automated production lines in the Spanish factory will assist the company's long term plan to become one of the top three European capacitor manufacturers.

New showroom in Manchester

THORN Lighting's North West regional sales office, lighting engineering department and showroom has moved from Clayton to Didsbury.

The purpose-designed, green glass pavilion style building is situated on a landscaped develop-

ment the centrepiece of which is a mansion built in 1865.

The showroom has a comprehensive selection of products, but is primarily a workshop to enable clients to "mock-up" a proposed installation.

A series of lighting seminars will be arranged at the new premises which are at The Towers, Wilmslow Road, Didsbury, Manchester M20 8SE.

COMMENT

It's an ill wind

Whatever we may individually feel about the morality of the military action, the development of the Gulf Crisis into the Gulf War has been the major factor in all our lives over the past month. Seems a long time since Christmas now, doesn't it?

But even out of this desperate situation comes heartening proof that the firm which thinks on its feet is the firm that survives. This month's front page story of how the combination of Gewiss UK and Plymouth Electrical Wholesalers managed to complete a contract to equip a hospital ship with lighting to the exacting requirements of the Ministry of Defence within five days proves that all is not wrong with British industry. Congratulations to all concerned. Perhaps we are rather too inclined in the UK to run ourselves down.

One possible side-effect of the political turbulence in the Middle East is to undermine confidence in the reliability of traditional sources of energy, leading to an increased emphasis on the use of energy efficient resources — at least as far as lighting is concerned. In one respect at least we seem to have struck lucky. In David Heathcoat Amery we do at last appear to have found an Energy Minister who is genuinely interested in the industry's considerable potential to contribute to energy efficiency. Two recent occasions — the first a visit to Thorn's Enfield lighting laboratories, the second the unveiling of new, low energy lighting installations using Philips' light sources in the Houses of Parliament — have both produced the same favourable impression that here is a man who is prepared to listen and who seems to be on our side. Long may this happy state of affairs continue.

But governments are ultimately judged not by their good-will but by their achievements — so it will be interesting to see what, if any, initiatives emanate from the Department of Energy, especially in terms of persuading the domestic consumer to invest in energy saving lamps. So far their track record is not good. In spite of the many precedents set by northern mainland Europe, ministry efforts in the UK seem to stop short at producing a series of booklets on energy in the home.

And, on an industry level, the recent floating of the electricity companies and the imminent privatisation of the generating companies means there is little incentive to encourage the cutting of energy consumption. They would rather seem to indicate an attempt to encourage us all to consume more.

LIGHTING EQUIPMENT NEWS

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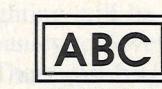
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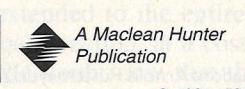
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NEWS

DLA director dies

John Tengwall, director of the Decorative Lighting Association since its inception and organiser of the International Lightshow, died suddenly on the opening day of the exhibition — 6 January.

The unexpected news shocked exhibitors and visitors to the Lightshow exhibition, which he had been instrumental in building from its original dozen exhibitors in a Harrogate hotel to the major London-based event of recent years.

He will be remembered for his dedication to the cause of decorative lighting, and for his insistence that large companies should never dominate the Association at the expense of smaller ones.

Working with his Council of Management and committees, John Tengwall developed the

DLA into an increasingly active and effective body on a variety of fronts.

A deep working knowledge of lighting enabled him to guide the organisation with an energetic combination of strong advice, charm, assertiveness and, on occasions, sheer intransigence, as former DLA president Robert Chelsom remembers well.

Ready to listen

"John had the whole industry at heart. He maintained absolutely the ethos of looking after small companies and made it clear in actions and words that he did not want the industry dominated by a few big firms. His strong and unwavering convictions on many issues resulted in detractors among his many admirers. But,



even after the most lusty row with someone, resentment never lingered. It was not part of the man. A handshake, a twinkle, and life carried on. He was always ready to listen, quick to help if he felt it was justified. We are going to miss him."

John Tengwall was instrumental — in collaboration with BSI

Testing — in developing and introducing the Code of Safety and Double Indemnity schemes which set new standards of safety for the industry.

Other recent innovations have included the launch of a training course for lighting retailers and the Student Lighting Designer of the Year competition; while the annual home lighting promotion to the general public has become an established feature of the DLA calendar.

Of recent days the DLA and LIF were heavily involved in ensuring that Britain's voice was heard in Europe's new representative body for lighting, CELMA. In this connection, John Tengwall had attended several meetings in Europe and, had he lived, he was due to have taken part in negotiations immediately after Lightshow to put Britain in the chair of that body in 1992.

John William Lars Tengwall was born in London in December

1924 of a Swedish father and a French mother. It was in the late 1940s that he first became associated with lighting. He partnered his father in Barons Court Products, a company producing electrical products and decorative lighting.

Principal officer

In tandem with developing the family company, John Tengwall also had a strong interest in the growing Decorative Lighting Association, of which he was a founder member and honorary secretary.

As it came to take up more and more of his time, he sold his own

company and became the DLA's first full-time officer, running it from Anglesey until 1982, when he moved the organisation's offices to their present location, Bryn, near Bishop's Castle, in Shropshire.

He remained the DLA's principal officer until his death, the Association's membership figure bearing testimony to his success. From an original half dozen companies, DLA membership in January 1991 stood at over 400, or more than 90 per cent of the British decorative lighting industry.

John is survived by his wife, Marion, sons Tony, Erik and Ian and granddaughter Sonja.



level of 500 lux.

The retaining nozzle which holds the fitting onto the ceiling was manufactured to the architect's design, and is protected from corrosion by epoxy powder paint.

These fittings replace the original 18 tungsten halogen floodlights, which provided an inadequate level of lighting, while presenting problems of maintenance and glare.

The new system, which has a lamp life of 20 000 hours, is easy to maintain. The MS 400, 3K

Super Metalarc lamp, with an output of 36 000 lm, is one of the most powerful white light sources on the market. Its colour rendering index of 70 CRI is particularly suitable for interiors where high efficiency and high colour rendering are required.

The fittings are completely enclosed to IP65 with special vitreous enamelled reflectors, which give added protection against the moist and steamy conditions within the building. Luminaires have been installed in two rows to achieve an average illuminance

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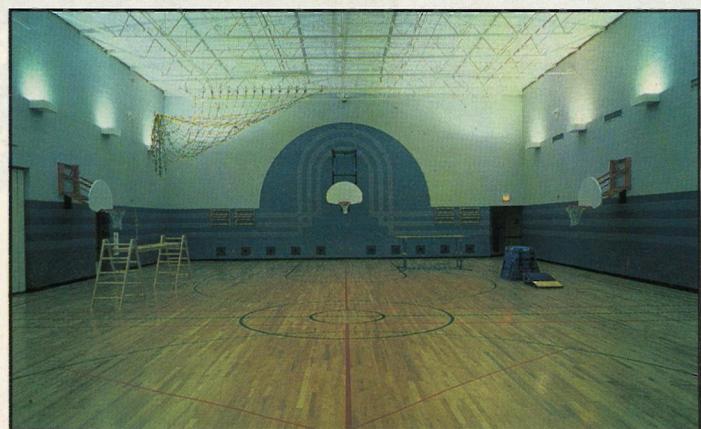
Further information: Arnold Rustemeyer, 25 Hurst Way, South Croydon Surrey CR2 7AP, Tel.: (081) 6 88 95 41, Fax: (081) 6 8100 69

 **DEUTSCHE MESSE AG, HANNOVER/GERMANY**

Reader Service No. 3

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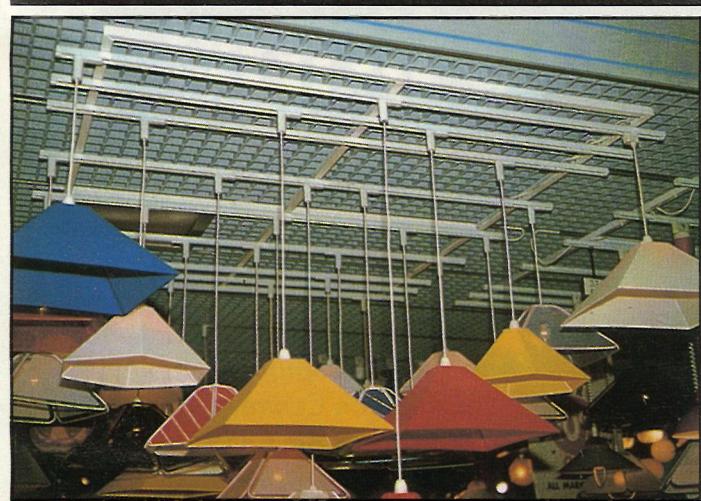
NEW PRODUCTS



Asymmetric lighting

Elliptipar range of asymmetric lighting by Marlin features a reflector that is designed to project light evenly across a plane from one edge.

There is a choice of high quality aluminium luminaires using either tungsten halogen, high intensity discharge, or fluorescent lamps. Reader Service No. 158



Display frame is quick to install

Alto track frames by Wholesale Fittings provide an answer for retail lighting displays where high density lighting points are required.

Supplied in kit form, the basic metal frame is square in cross section, finished white as standard, and is quick to install. Attached to it are lengths of single-circuit Concord track.

Reader Service No. 159



Inspection lighting range

A range of high intensity, fibre optic inspection lights is available from Gallex. They have a wide variety of applications, such as in microscopy, electronics, photography and health care. A series of internal filters allows the light output to be tailored to the need, for example, if samples are sensitive to heat or particular colours.

The standard, mains powered model, LS15, uses a 150W linear tungsten halogen lamp. In the LS15T version there is also a

standby lamp of the same type. If the working lamp fails it takes only seconds to change over to the standby light source. An electronic sensor and indicator is included which monitors the state of the standard lamp.

All models have a step-control dimmer switch which offers 10 pre-set intensity levels and can be used to extend lamp life or as an economy setting. It also ensures repeatable illuminance.

A choice of light guides is available for some models, for instance, 10 or 15mm diameter types, fully flexible or swan neck guides and a ring light.

Reader Service No. 160

Unit monitors current for LV lighting

A current monitoring module for use with low voltage lighting transformers has been introduced by REO (UK).

It provides overload protection without nuisance tripping, which sometimes occurs with multiple lighting installations. When a current rise to a pre-set level is detected, the lighting circuit is switched off. The unit can be reset within a few seconds.

Another advantage is that a soft start is provided.

Reader Service No. 161

Protection for lamp circuits

Multiload Technology has an LC2000 lamp conserver which protects GLS lamp circuits and mains voltage and low voltage tungsten halogen circuits.

Based on specially designed phase control and 'softstart' technology, developed over seven years by the company and successfully field tested over the last year, the LC2000 eliminates surge currents and resets within milliseconds.

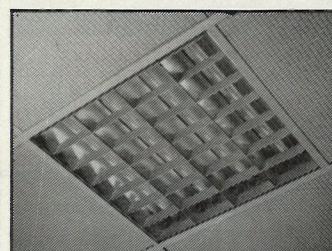
Advantages include extending lamp life, switch deterioration is reduced so allowing a standard rating for switch contacts, and reduction of transformer maintenance.

A specially developed circuit can be used to "tweak down" the supply voltage which extends lamp life and makes commensurate savings on electricity bills.

Reader Service No. 162

Recessed modular luminaires

A recessed fluorescent luminaire system from Philips is easily installed and suitable for commercial, leisure and public area applications. Facta is made for



use with 300mm and 600mm modular suspended ceilings.

It comes in six versions with a choice of four different controllers, low brightness mirror, mirror with white cross louvres, mesh louvre lamellae or prismatic panel.

Reader Service No. 163

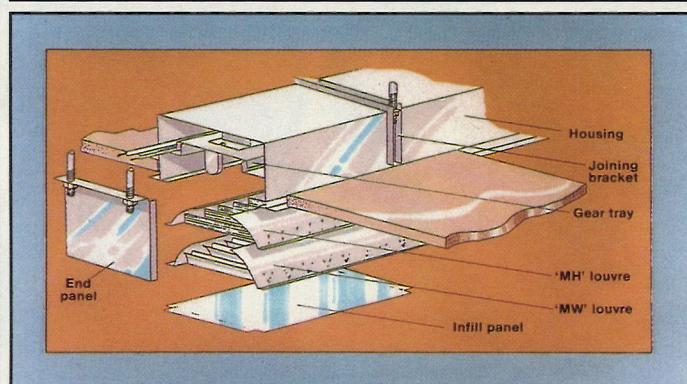
Hazardous area floodlight

Simplex Lighting has introduced a BASEEFA certified floodlight for Zone 2 hazardous areas.

Sonscan N is suitable for potentially explosive atmospheres requiring type 'N' protection. The dust-tight weatherproof GRP body, with a hinged polycarbonate diffuser, is designed on the restricted breathing principle.

It uses a 70W high pressure sodium lamp with a high performance aluminium reflector and can be either wall or column mounted.

Reader Service No. 164



Continuous lighting system

Tamlite's System Link is a continuous lighting system for existing and new ceiling installations. It provides an uninterrupted and flexible lighting solution to suit the building shape and the working environment.

A basic luminaire housing is supplied with louvres and gear trays for 1200mm, 1500mm and 1800mm fluorescent lamps.

Louvres can be placed at any position along the assembled bod-

ies and the remaining sections infilled with a suitably sized panel.

Low glare MW wedge louvres are available for areas requiring exceptional glare control, both in axial and transverse directions, while the high efficiency MH louvre, with fir-tree cross blades and polished reflector, is suitable where a cost efficient, low glare installation is required.

Sturdy brackets are used for joining adjacent housings. These also provide for suspension of the system from the primary ceiling structure.

Reader Service No. 165

Control system saves money

The Elf system from Fitzgerald Lighting consists of an electronic ballast installed in a fluorescent fitting, a central control unit which regulates up to 100 luminaires simultaneously, and a light sensor.

The control unit regulates the electronic ballast; the sensor continuously monitors the lighting level to maintain it at the pre-

determined figure.

In areas illuminated by fluorescent lamps, the Elf system is claimed to result in substantial savings in energy costs. In addition, the high frequency operation eliminates flicker and starts instantly.

Reader Service No. 166

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

LIF LINE

A brighter future for UK roads

The government will shortly be introducing road traffic legislation to implement the proposals set out in the White Paper *The Road User and the Law* published in 1989. This legislation will update the framework within which drivers use roads, and is intended to make a significant contribution to road safety.

Road safety is closely related to personal responsibility. Nine out of every ten accidents involve human error — the BMA estimate that over 35% of these casualties each year are directly attributable to alcohol — and could so easily be avoided by the greater application of care and common sense. On average, 14 people are killed and 165 seriously injured on our roads every day of the year. In addition to the price in wasted and ruined lives, the financial cost — at some £6 billion each year — is equally daunting.

However, Britain's road safety record is one of the best in Europe. We have a casualty rate of 9.2 deaths per 100 000 population, compared with 33.2 in Portugal, 22.7 in Luxembourg, 22.1 in Spain, 20.6 in France and 13.4 in what was the Federal Republic of Germany.

Despite this, the government has set the target of a one third reduction in casualties of their 1981-1985 average annual level by the end of the century. Christopher Chope, the Minister of State for Roads and Traffic, recently stated that, "The government's strategy is to concentrate on three areas: first, to raise the level of public awareness and response so that road safety is an issue for society; secondly, to focus on the most vulnerable road users — children, the elderly, pedestrians, cyclists and motor cyclists; thirdly to concentrate on proven cost-effective casualty reduction."

All major road building developments are subject to cost-benefit analysis. The monetary value to be placed on preventing a fatality has been increased to £630 000. The BMA estimates that in 1988 no less than £4000 million was spent on medical and ambulance services treating the victims of road accidents. The government is encouraging local authorities to eliminate known accident blackspots with practical road safety measures by extending eligibility for transport supplementary grant to schemes on all local authority roads rather than limiting it to roads of more than local importance, as has been done in the past. There is also the prospect of more financial assistance.

As a proven cost-effective casualty reduction measure, lighting clearly has an important contribution to make to road safety. Adequate road lighting can dramatically reduce night time accidents, by improving driver vision, reducing eye strain, tension and driver fatigue, and is of equal benefit to pedestrians, cyclists and the elderly.

In Oxfordshire, the county engineers have been monitoring the benefits of the relighting of several accident blackspots on trunk roads in the county. The roads were monitored between 1979 and 1990, and in all cases there was a reduction in accidents of at least 30%, in some cases 80% after the provision of lighting. The majority of accidents that did occur during the period after relighting were during the daylight hours where improved lighting could not have a significant effect. There were no fatalities on these roads after the provision of street lighting.

Other studies have reinforced these figures. Good road lighting can significantly reduce road user casualties and injuries. The provision of good street lighting can achieve an average 30% reduction in the night-time accident rate. This figure of 30% has been established as a standard by many local authorities for calculating cost-benefit analysis for lighting improvement schemes throughout the UK.

Turning to motorways, lighting costs on average 50% more to install after the motorway has been built. This figure does not allow for the consequent disturbance and delays. For a large percentage of the nation's motorway network lighting after construction is the only possible remedy. However, in the case of roads which are now being widened to dual-four lane width lighting at the time of conversion is possible and is advocated by all those concerned about safety standards.

The cost-effectiveness of good road lighting and its potential for accident reduction has been confirmed by the announcement in December 1990 by Malcolm Rifkind, the Transport Secretary, of plans to widen parts of the M25. Lighting will be extended to the entire route apart from the Swanley to Sevenoaks section, at a cost of £20 million.

There can be little doubt now that the case for good road lighting as presented by the LIF over many years is becoming widely accepted by the government.

Where bright ideas come to light!

The Lighting Industry has at last, got the major national exhibition it deserves. Light Fair 91.

Light Fair 91, the definitive lighting exhibition, will take place at the prestigious Wembley Exhibition Centre, on the 22nd, 23rd and 24th October 1991.

Every major participant in the Lighting Industry will be there. Light Fair has been designed as a forum for the best and brightest new products and ideas within the Industry. A single platform from which the most innovative companies can inform and inspire consultants, architects, designers, contractors, wholesalers and maintenance engineers.

A major national show demands a major national venue. Wembley Exhibition Centre, with its excellent facilities, is purpose built to fulfil that role. It's just a 13 minute tube ride from Central London, well served by motorway and has parking space for over 6,000 cars.

To discover how the definitive lighting exhibition will be throwing new light on the Lighting Industry's brightest ideas, simply phone the following office Hotline numbers:

Head Office: 0732 359990.

Midlands Office: 0675 467255.

Northern Office: 061 445 7729.



A series of 'Lighting - The State of the Art' seminars will take place in the Wembley Conference Centre at the same time as Light Fair '91. These will be organised by the Lighting Division of CIBSE and provide an opportunity to hear internationally-known speakers from the industry. Full details will appear in the trade press.

An Exhibition

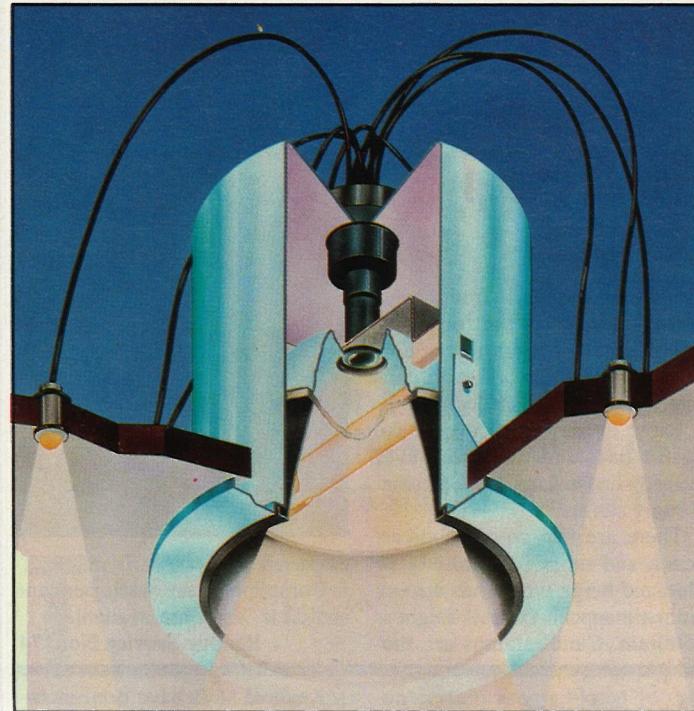
LIGHT FAIR 91

22-24 OCTOBER 1991 · WEMBLEY ·

electrical
PRODUCTS

Reader Service No. 5

NEW PRODUCTS



Fibre optics kit adds glamour to downlights

A fibre optic kit for use with mains voltage downlights offers additional decorative and effect lighting at no extra running cost. Applications include stores, hotels and reception areas.

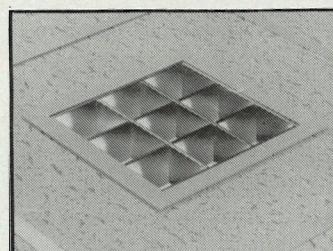
Introduced by Existalite, the system is called Flex-Lite. A collector assembly picks up waste light from the "dead" zone of a reflector and channels it through fibre optic cables to provide points of light in ceiling tiles or luminaire bezels.

The company states that in most cases this does not affect the downlight's normal photometric distribution. Best results are obtained when the kit is used with downlights containing double ended metal halide lamps from 70W-250W.

Luminaire for small offices

Philips' 300mm modular FBS330 luminaire is for ceilings with exposed or concealed tee bars. The luminaire is suitable for small offices and display areas.

It has a choice of three interchangeable mirror controllers or a prismatic panel.



Lamps, which are ordered separately, are twin 18W PLL type.

Reader Service No. 152

Time delay pull cord switch

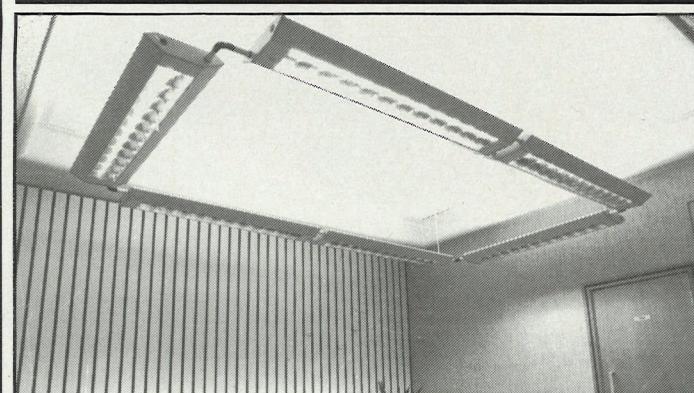
DEM Controls' latest energy saving lighting control is the type LC3070 time delay pull cord switch.

It is suitable for buildings such as libraries and warehouses, where

there are corridors and aisles which are infrequently in use yet the lights are left on continuously. By using the LC3070, lights are brought on for a predetermined length of time, after which they switch off automatically.

The lights can be restored manually by operation of the pull cord if still required.

Reader Service No. 153



Suspended fluorescent luminaire

Vector is a suspended fluorescent luminaire from Moorlite. It uses the upward portion of light that is sometimes lost internally in stan-

dard luminaires, but in this fitting provides soft illumination on the ceiling above the luminaire.

Reader Service No. 154

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

Low energy ceiling light

A low energy ceiling luminaire has been introduced by Marlin. The 3930 series is designed for compact fluorescent light sources and uses either a Dulux D or PLC 10W lamp.

The lamp is enclosed in a clear wellglass. Two horizontal, white metal discs surround the wellglass and as well as protecting it, act as reflectors to increase downward light.

Semi-recessed and ceiling mounted versions are available.



The semi-recessed model requires a 75mm cut-out in the ceiling and has a depth of 100mm.

Reader Service No. 155

Powerful film lighting

Lumo Lighting's latest addition to its Super range of daylight, flicker-free, Fresnel film lighting systems is a 6kW model.

The electronic ballast weighs only 32.1kg and can be specified for either 220/240V or 12V operation.

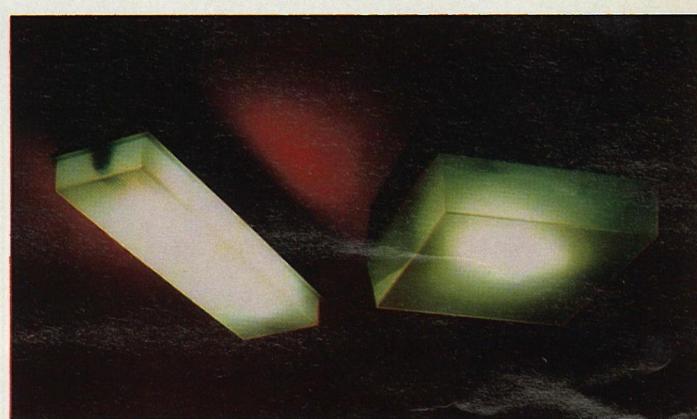
Self-diagnostic indicators show lamp running, over heating, over current and earth fault.

Reader Service No. 156

Emergency lighting range

Zettler UK has two additions to its emergency lighting range: the Elan and Focus fittings.

Elan is an 8W non-maintained, fluorescent emergency light with a black ABS base and polycarbonate diffuser. It can be surface

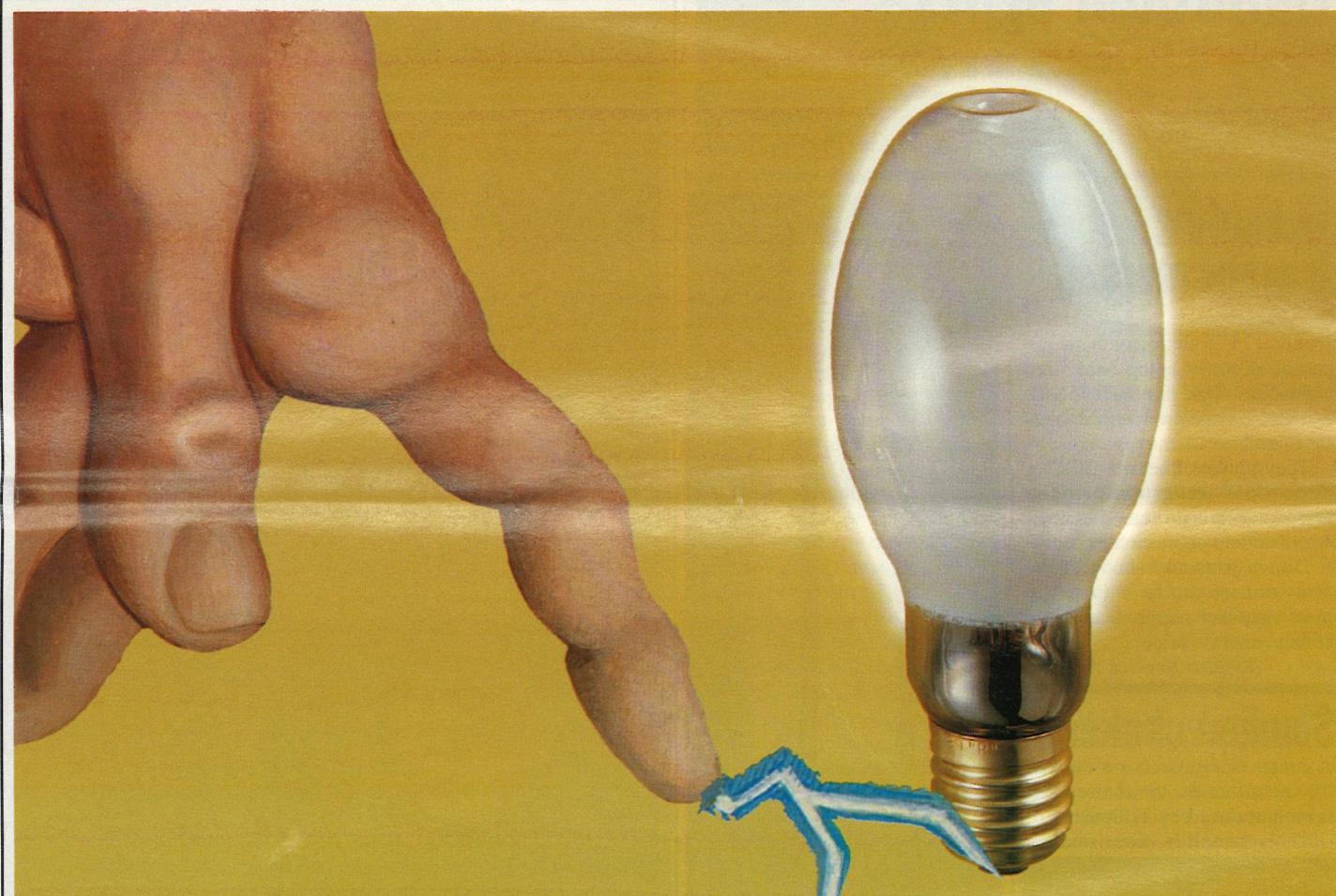


mounted or recessed.

The BW model of the Elan, for exterior use, is ingress protection rated IP54.

Focus also operates in the non-maintained mode and is available in two different housings and with a choice of either a 4W fluorescent or a tungsten lamp. There is also a matching mains-only luminaire.

Reader Service No. 157



THE NEW FORCE IN LIGHTING IS ALREADY ENJOYING LONG LIFE

The SON range of high pressure sodium lamps is an important part of the GE-Tungsram family.



All the lamps combine high efficacy with long life and good lumen maintenance. They are guaranteed for 8000 hours and are well suited to a variety of industrial, commercial and street lighting applications. There is a wide choice from 70W to 1000W in tubular and

elliptical form with output varying from 6000 to 120,000 lumens.

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GE-Tungsram Lighting

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Reader Service No. 6

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NEW PRODUCTS

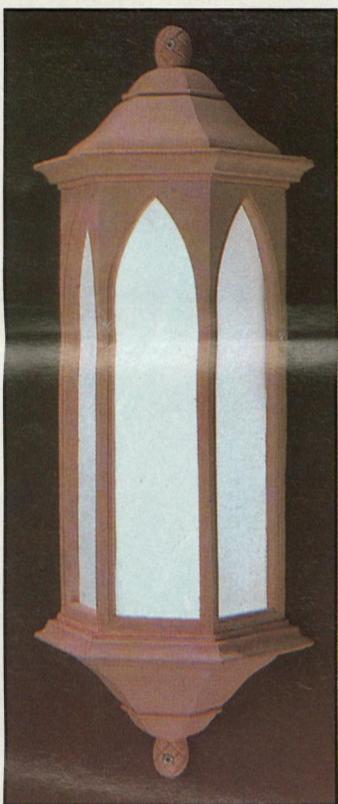


Bathroom lights

Coral is the name of a bathroom light by Dar Lighting. It is designed for wall mounting in pairs, either side of a mirror and

is in the shape of a sea shell. These white opal coloured fittings accept 60W golf ball lamps.

Reader Service No. 167



LV lighting transformers

ILP Electronics has two electronic 12V transformers which can be dimmed using hard fired techniques. One, the HET75X/D, can also be operated with domestic dimmers.

They power either one 50W or three 25W tungsten halogen lamps and are protected against overload and short circuit.

Dimensions and shape of the transformers can be adjusted to meet customer requirements, still at an economic price.

Reader Service No. 168

Slimline chokes

A range of slim-section chokes for metal halide luminaires has been introduced by Tridonic.

Their smaller size makes

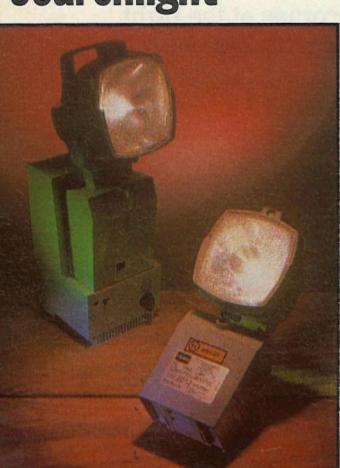


them suitable for use in tubular fittings or wherever space is at a premium.

Reader Service No. 169

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

Portable searchlight



Low energy lantern

Specially designed for the PL compact fluorescent lamp is a half lantern from David Hunt Lighting. It can be used either outdoors or in bathrooms with 5W, 7W, 9W or 11W lamps.

There is a 25 year guarantee on the Winchester's three outdoor finishes: black, white or verdigris. Indoor finishes include pink and blue.

Reader Service No. 170

A portable, rechargeable searchlight with emergency lighting facility has been introduced by Briticent.

It has an approximate lighting range of 90m using an 8W 4.8V lamp with a duration of 3.5hr. A secondary 1.4W 4.8V lamp gives the user a further 20 hours' light.

Ingress protected to IP52 standard, the 15553 weighs 2.2kg and comes complete with a 7AH nickel cadmium battery and wall-mounting battery charger with over-charge protection. The battery is automatically recharged when the mains is restored.

An explosion-proof version is also available for (Ex)s G4 areas.

Reader Service No. 171

Emergency kit for dichroic downlights

Selite has a re-designed emergency lighting conversion kit for low voltage downlights.

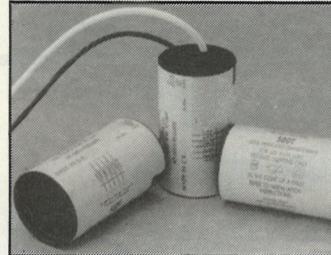
It operates dichroic lamps up to a maximum loading of 50W for three hours.

The power pack consists of

Selite's newly developed constant voltage charger, a sealed lead acid battery pack and feed back protection changeover device. The latter enables a remote transformer to be used while the mains is healthy and ensures there is no feedback path between the 12V a.c. supply of the transformer and the 12V d.c. emergency output.

With its compact design, this conversion kit is easily concealed above a false ceiling.

Reader Service No. 172



Reader Service No. 173

Transformer for LV lighting

Accent Lighting has a 12V transformer for low voltage lighting. The diameter measures 64mm and both primary and secondary cables come from the same end, enabling it to be used in the upright position.



Flower group from Italy

An Italian floor light from LightHouse Interiors in the form of a group of tall flowers is made of stippled, painted wood with delicate Murano glass shades.

Large overlapping leaves make up the base and the five flower shaped shades hang from slender, curving stems.

There are two colour choices: peach and moss (illustrated), or blue and beige which has a more dramatic appeal. Overall height is 1600mm. Candle lamps are recommended.

Complementary wall, pendant and table lamps are available.

Reader Service No. 174

Downlight is friendlier

Mattalex has an improved version of its 75W emergency downlight pack.

Keyhole slots have been incorporated and terminal blocks realigned to separate the incoming mains supply from the low voltage output. The box now allows space for larger capacity batteries.

Reader Service No. 175

ADVANCED EQUINOX

CATALOGUE AVAILABLE

Creating a lighting strategy for cities

Derek Philips calls for a masterplan for cities that would give a coherent lighting pattern and provide delight, enchantment and excitement. Designers should look for lighting opportunities.

The first Waldrum lecture, to honour the memory of Jack Waldrum, was held in London recently. It was presented by Derek Philips under the title *City Lights*. Mr Philips called for strategic plans for lighting cities.

He put forward the following objectives for the lighting of a city: to provide a coherent traffic system for cars, where orientation was assisted by visual emphasis;

to plan routes for pedestrians; to ensure that the night appearance of buildings was relevant to their use and created an overall harmony; to create special emphasis on certain areas related to their function, and to use lighting opportunities to create delight.

Too much attention had been paid to basic engineering function in the past and too little to the creation of a satisfactory visual environment, he believed.

The latest British Standard dealing with urban centres admitted that lighting road surfaces for traffic movement was not the only or main consideration. It recommended that a masterplan be prepared for urban centres, placing importance on the choice of lighting equipment in relation to the architectural scene, control and integration of permanent floodlighting installations into the visual plan, and protection of res-



A famous street scene in Paris, leading the eye to the Arc de Triomphe.

idential areas from light pollution.

Mr Philips believed the success of such proposals would depend entirely in the first place on the visual masterplan, and in the second place on who drew it up. It should be done by a team consisting of city planners and architects



Hasbro restaurant at Stockley Park, Heathrow, Middx.

together with lighting designers.

An analysis must be made of each city to identify its unique aspects — the lighting for Athens would be very different from that for Amsterdam or London. To be successful the strategy should lead to a rich texture of variety.

"A city is a dynamic entity," he said. Photographic surveys of towns made over a 24-hour period had shown changing visual patterns, certain features standing out at certain times, then fading, with others replacing them.

He also felt that the designer must look for lighting opportunities, either of a permanent or ephemeral nature — "driving or walking through a city should be a sequential visual experience, varying with time and space, and aimed at providing delight, enchantment and excitement."

Tactics

Discussing the strategy for road lighting, Derek Philips wanted a masterplan developed not purely for the physical needs of pedestrians and motorists, but to work towards a coherent pattern for the city, a unity of expression.

It might be appropriate for all main traffic routes to be identified by metal halide lighting, while smaller roads and pedestrian areas were lit by high pressure sodium lighting.

When considering the lighting of buildings, their function should be expressed by their night-time appearance.

Windows gave residential buildings their form at night and associated with low level pedestrian lighting the effect should be restrained and private.

Shopping areas varied considerably. In small shopping areas where shops could be persuaded to act together, lighting could provide some degree of unity while maintaining individual character and the overall appearance of the area could benefit.

There was also a variety of office buildings, for example, some had glazing that allowed a full view of the interior from out-

side when lit at night, while others had no view to the interior at all. To be appreciated at night, others required floodlighting.

City areas devoted to theatres, cinemas and other entertainment should be exciting, vibrant and provide an element of magic. At one end of the scale there were the casinos of Las Vegas, at the other, cultural centres such as London's South Bank, which needed more restrained treatment.

Monuments such as the Tower of London or the Statue of Liberty had an important and symbolic role which could not be overemphasised and in general were already illuminated. However, the speaker regarded "small incidents" as very important, for example a cross at a road junction or a statue. These could assist orientation in a city and should be identifiable at night.

Lighting for special occasions should also be encouraged, including fireworks displays.

Transport buildings must be clearly identified and should make an impact on their surroundings at night as well as by day.

The "spaces in between" roads and buildings needed thoughtful attention; parks could be made special places at night, as could squares and forecourts.

A long term strategy for the night appearance of a city should be developed — and the speaker included London in this statement. What was needed was people working together who understood not only the functional needs of the situation, but more importantly the aesthetic needs.

Mr Philips said he believed, as Jack Waldrum had believed, that lighting should go beyond engineering. A visual masterplan for London should lead towards a city that provided a living, vibrant nightscape where every prospect pleased.

The lecture was sponsored by Osram and organised jointly by the Chartered Institution of Building Services Engineers and the Institution of Lighting Engineers.

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In case of emergency

The emerging European and international standards will bring about major changes in emergency lighting practice in the UK. Mike Kormanic, of ICEL, explains the implications of these moves, and looks forward to the possible certification of buildings.

European Standardisation is currently of great importance. With 1992 just around the corner and something like 8000 standards still to work on, time is a precious commodity in this work area.

At this point in time it is worth stopping to take a look at the field of emergency lighting to see exactly what we can expect to come out of all this activity.

Generally speaking work on standardisation proceeds legislative requirements, and the area of emergency lighting is no exception. In this article we will look at the emerging international standards, the framework of supportive European standards and the imminently changing UK standards of emergency lighting, and see what the UK industry is doing to prepare itself for the changes.

International electrical standardisation work in emergency lighting is carried out within the forum of the IEC. Here, Technical Committee 34 has the responsibility for luminaires, and has produced the International Standard IEC 598.2.22 which covers the construction of safety of emergency lighting luminaires. IEC 598.2.22 itself lends quite a change to the standard of emergency lighting luminaires allowable in the UK.

Many would argue that it is a retrograde step in safety standards, allowing materials with a lower flammability point to be used than previously permitted by the ICEL code in the UK. Other differences lie in transformer specifications and points of determining light level output. But,

more on this particular point later. The IEC standard has been adopted by the EEC as a Euro Norm (EN), published as EN 60598.2.22, and will shortly appear as a new publication of BS 4533 in the UK — and those luminaires certified to BS 4533 will be able to use the Kitemark.

IEC work tends to cease at this level of standardisation, and there is no doubt that we do well to obtain this level of consensus in the international community.

The Common Market goes further, however, and its electrical standards-making bodies, CEN and CENELEC, are currently both working on supportive standards.

The CENELEC work is of great importance because it covers the specification of installation aspects of central battery systems, which are a predominant method of achieving safety lighting in some European countries, most notably Germany. This is covered by CENELEC 62.8 which details the practical considerations necessary for making light performance requirements called for in CEN 169.

CENELEC 62.8-4 is a code of practice which is still at committee stage. A first draft has been circulated to member states, embodying inputs from the UK, France, Germany and Belgium, and the reactions to the draft will be considered at the next round of meetings in February 1991 in Frankfurt. When agreement is reached this will become a part of BS 5266.

CENELEC 62.8-6 is a product standard for emergency lighting systems largely based on the ICEL standard, which submitted

through LGL/24, became the base document. This standard covers all those product areas not covered by the luminaire standard EN 60598.2.22 and, like CENELEC 62.8-4, is still in its draft stage.

The emergency lighting drafts cover the basic requirements of electrical safety and conform to good accepted UK engineering safety practice in most areas.

The key features of the draft 62.8-4 are:

- The requirements for the protection of all lead acid batteries used in systems by use of a low voltage disconnecton circuit.
- Additionally, the battery systems will have to be sized to ensure they meet their operational duty at the end of their life. In most cases this will mean an overrating of 25% of capacity of the battery at the design stage.
- The maximum distortion of the waveform in the output of inverters is defined as a total of 5%, thereby excluding some of the early square wave output inverter systems.
- Additionally, the inverter must be able to clear any output fuses in the event of a short circuit at the load.
- Group inverter systems — a favoured German approach to central inverter systems — will be covered in the standard. These systems have yet to emerge in any great number in the UK but do appear to offer some advantages, at a price!
- Distribution circuits between the central battery cubicles



Stricter fire precautions could help to prevent disasters such as the fire at Bradford City Football Ground.

and the luminaires are to be deemed to comply with the standard if they have either dual alternative routes with automatic changeover to the healthy route, or they utilise fire resistant cables as is the current practice in the UK.

- A significant change has also appeared in the draft, in that the maximum tolerable volt drop allowable in the system will be tightened to between 3% and 5% from the current levels of 10% in the UK. This will affect the choice of voltage of the system and the size and routes of cabling in distribution. The internal cabling

must still be colour-coded but a problem currently exists on the harmonisation of colours.

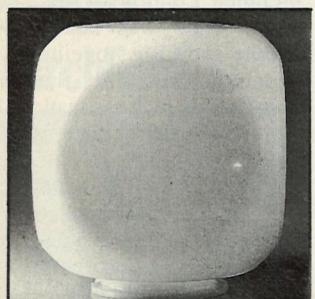
For this reason the standard will not state a particular colour code at present but refer to national standards.

CEN TC 169 is also working in the emergency lighting area and, based upon the product standard IEC 598.2.22, has produced a draft covering the requirements of lighting levels, uniformity, glare and colour. This standard will define minimum light levels for different applications and determine the quality of that illumination, taking uniformity, glare and colour rendering factors into account.

In addition, the standard will cover the duration and response times for emergency lighting systems.

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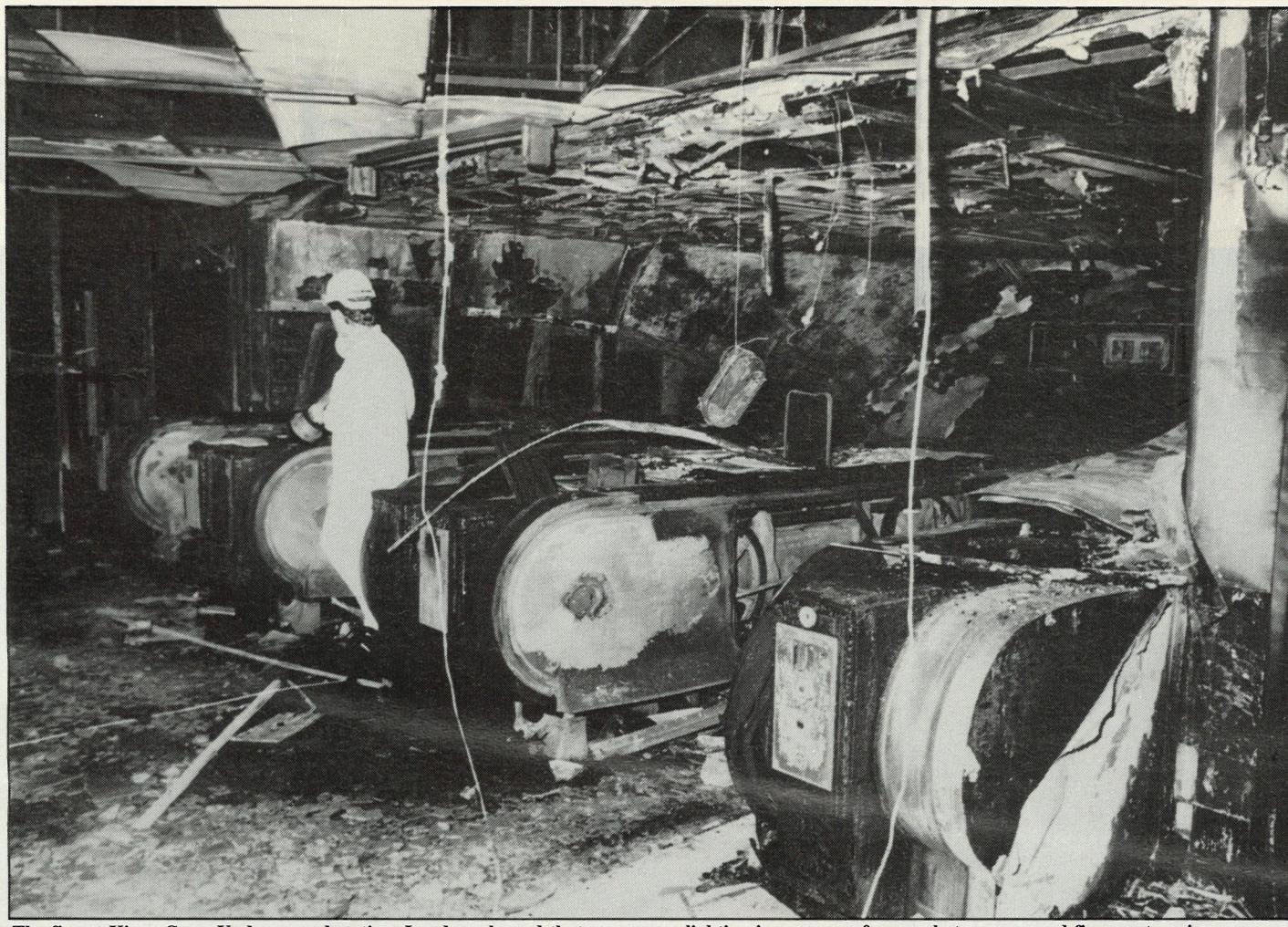
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The fire at Kings Cross Underground station, London, showed that emergency lighting is necessary for people to escape and firemen to gain access.

The level of conformity throughout Europe is currently very varied, but the intention of all parties to agree on a common standard is impressive. The UK is being asked to compromise by reconsidering the current 0.2 lux minimum light level for escape routes. In Germany, levels of up to 15 lux or 10% of normal lighting levels are demanded for some applications. It seems likely that minimum light levels will increase in the UK to a figure of, perhaps, 1 lux.

Although it may appear to the casual onlooker that work is going on haphazardly in a number of quarters, the Lighting Industry Federation and ICEL, in particular, are concentrating a great deal of effort in this area. This work on the part of CEN and CENELEC in this instance is fortunately coordinated because the convenor and secretary of these working groups are common in both cases — and both from the UK.

So what of the UK? Unlike France, we lack the legislation to enforce the use of certified emer-

gency lighting luminaires in all but domestic premises.

This means that while the adoption of these merging standards remains voluntary we will continue to see events like the Kings Cross Underground fire and the Zeebrugge ferry disaster.

In order to overcome this some would say tragic situation, the Lighting Industry Federation together with CELMA (the Committee of European Lighting Manufacturers Association) has been aggressively pursuing the production of a European directive for the safe evacuation of buildings. A recent symposium in Brussels gave unanimous support for such a directive which would require emergency lighting to be obligatory, certified, and inspected and maintained.

In the end this could come about by use of one of the following instruments:

- 1 A recommendation that hotels provide for a safe means of evacuation.
- 2 Construction products directive requirement that products

used for new construction and refurbishment should be safe and fit for their purpose.

- 3 Health and safety at work directive requiring employers to provide a safe means of escape from the work place.
- 4 Liability service directive which would give building liability for 10 years after construction.

Or, indeed, a new Directive could be produced, categorising premises other than domestic dwellings according to risk and requiring that emergency lighting and other similar services meet the guidelines. Whichever approach is used, I have little doubt that it will come about.

It will then be the duty of the UK government to produce the necessary legislation to enforce such a directive in this country. Whether or not we will have to wait for a directive to appear before we act we will have to wait and see.

ICEL (the Industry Committee for Emergency Lighting) anticipated the directive on safety in evacuation and, realising that the

standards for product design, performance and application were already in place or at least in the pipeline, started looking at two new areas which will have a marked effect on the UK market.

First of these is a photometric performance verification procedure. As an adjunct to EN 605098.2.22, it now offers the ICEL mark to manufacturers whose luminaires meet the new EN standards for luminaires, who have BS 5750: Part 2 and who also photometrically test their luminaires and log the data with the ICEL secretariat. This scheme will start in April 1991. So, for the first time, manufacturer's performance claims can easily be verified by an independent trade authority.

Developing this faith in manufacturer's data for use in design of an emergency lighting scheme turns the whole subject from a best guesstimate plus a safety factor added by the designer, to the optimum number of luminaires guaranteed to achieve the standard. Thus, ICEL marked luminaires will be directly comparable between ranges and manufacturer

ers to ensure the most effective and cost effective system for a particular scheme.

This call for third party verification of photometric performance data and the presentation of data in a standard and easily usable format is now reaching standardisation bodies, and there is soon likely to be a similar move for all types of luminaires.

Having achieved the implementation of a product standard and verified the performance of luminaires, ICEL is very keen to see that installation, testing and maintenance of emergency lighting systems are carried out to an equally high standard.

The Committee is currently conducting talks with the ECA and BSI to develop a training scheme for installers and major users and hopes that a certification of buildings to the new ICEL code will emerge from this. Only in this way can systems introduced for the safety of workers and consumers be guaranteed to be of the correct quality, perfor-

mance and design and be assured of being maintained in this state.

Conclusions

The situation in the field of emergency lighting is very much a changing one. As standards began to be used their shortfalls and the need for supportive application standards emerged, and these are now being considered at a European level. Once we have these European standards it is likely that legislation will follow.

Legislation has already proved its worth in France. Its need on a European scale is widely recognised. Consumer groups certification and licensing authorities and the general public are becoming aware of the growing list of disasters which legislation could have either prevented or minimised.

In the near future, the introduction of certification of buildings seems likely as federations and associations identify the responsibilities of their members and, in turn, fulfil their own obligations to public welfare.

Manufacturers speak out on safety

A survey into disasters that have occurred in Europe found that lack of lighting was an important factor. The Lighting Industry Federation, in conjunction with similar European trade associations, organised this survey last year under the auspices of the Committee of European Lighting Manufacturers' Associations (CEMLA). Subsequently, CELMA arranged a conference in Brussels to discuss the safe evacuation of premises.

It was felt that a European directive should require emergency lighting to be obligatory, certified, inspected and maintained.

The need for simple, comprehensive European legislation on this subject was demonstrated by Barrie Hurst, speaking on behalf of the UK's Industry Committee for Emergency Lighting.

He reminded the conference audience of catastrophes such as the Zeebrugge Ferry capsizing, where emergency evacuation was not provided for and loss of life resulted.

In addition, Mr Hurst pointed out that national legislation on this subject was often incomplete, complex and hard to find.

In the UK, he said, there were 10 Acts of Parliament impinging on fire safety, two statutory instruments, plus recommendations, codes of practice and technical memoranda. This legislation had been built up piece-meal following various disasters. And it was still not comprehensive, for instance schools were not covered.

He quoted examples of incidents where if emergency lighting had been in place more people would have been able to escape.

In addition to emergency lighting being necessary for those inside to get out, the Kings Cross Underground fire had demonstrated that it was needed by the emergency services trying to gain access, and to assist location of fire fighting equipment.

In countries where there was a single piece of legislation that was easy to find and understand, the likelihood of citizens accepting, implementing and enforcing it was much higher.

A new, all embracing directive should be introduced, Barrie Hurst concluded.

Copies of the conference proceedings, including Mr Hurst's summary of the legislative position in other EEC member states, are available free of charge from the Lighting Industry Federation, Swan House, 207 Balham High Road, London SW17 7BQ.

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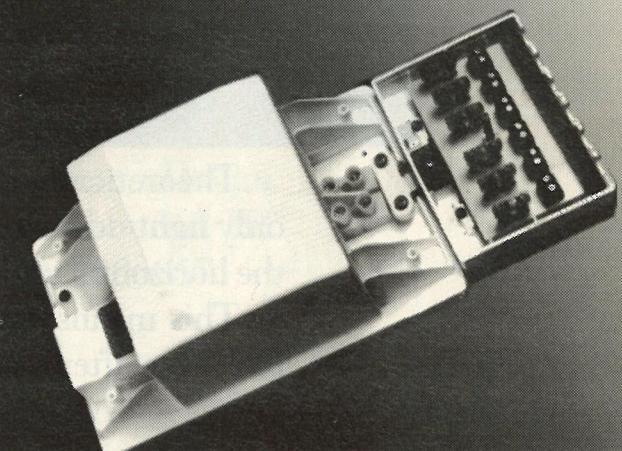
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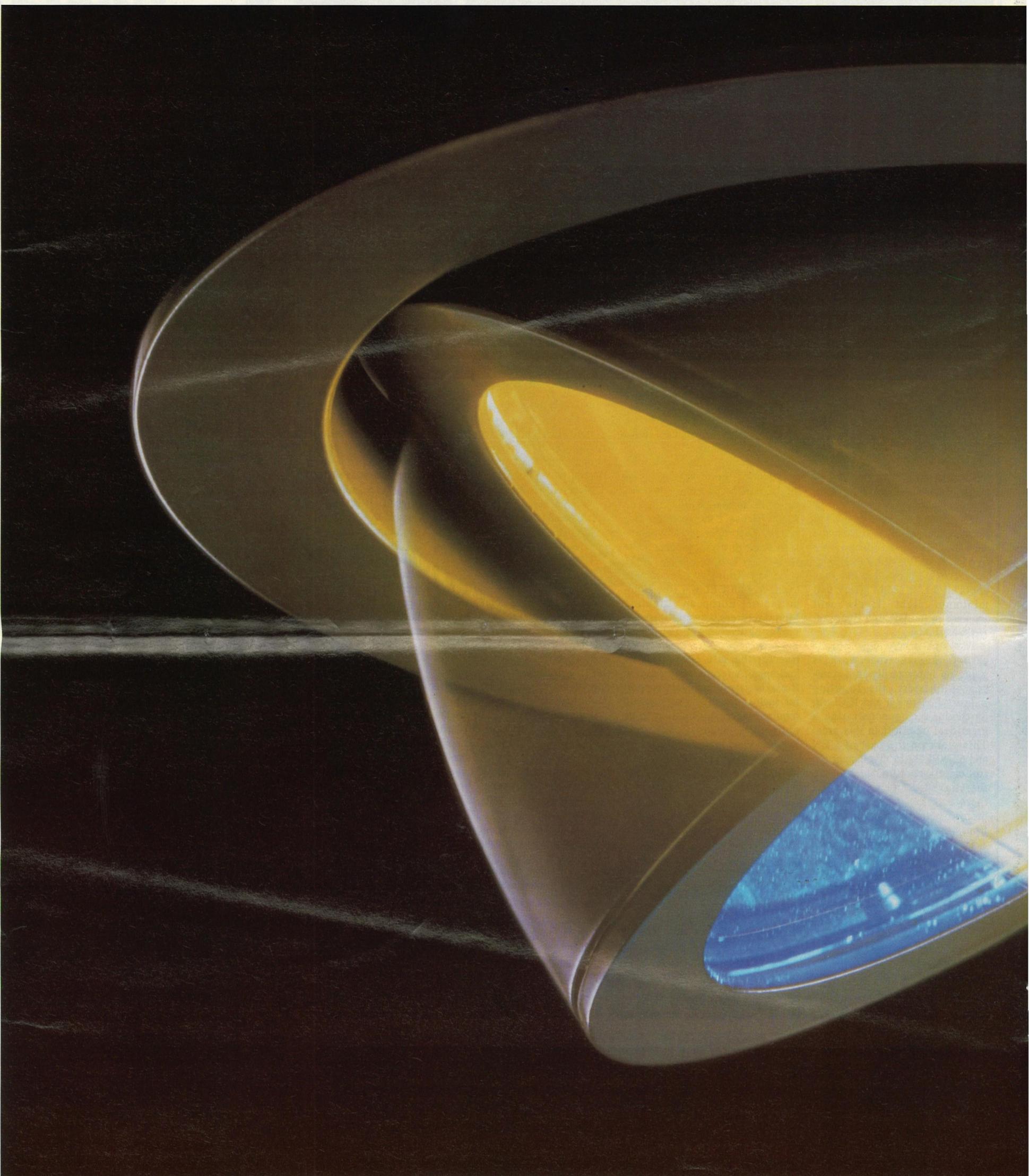
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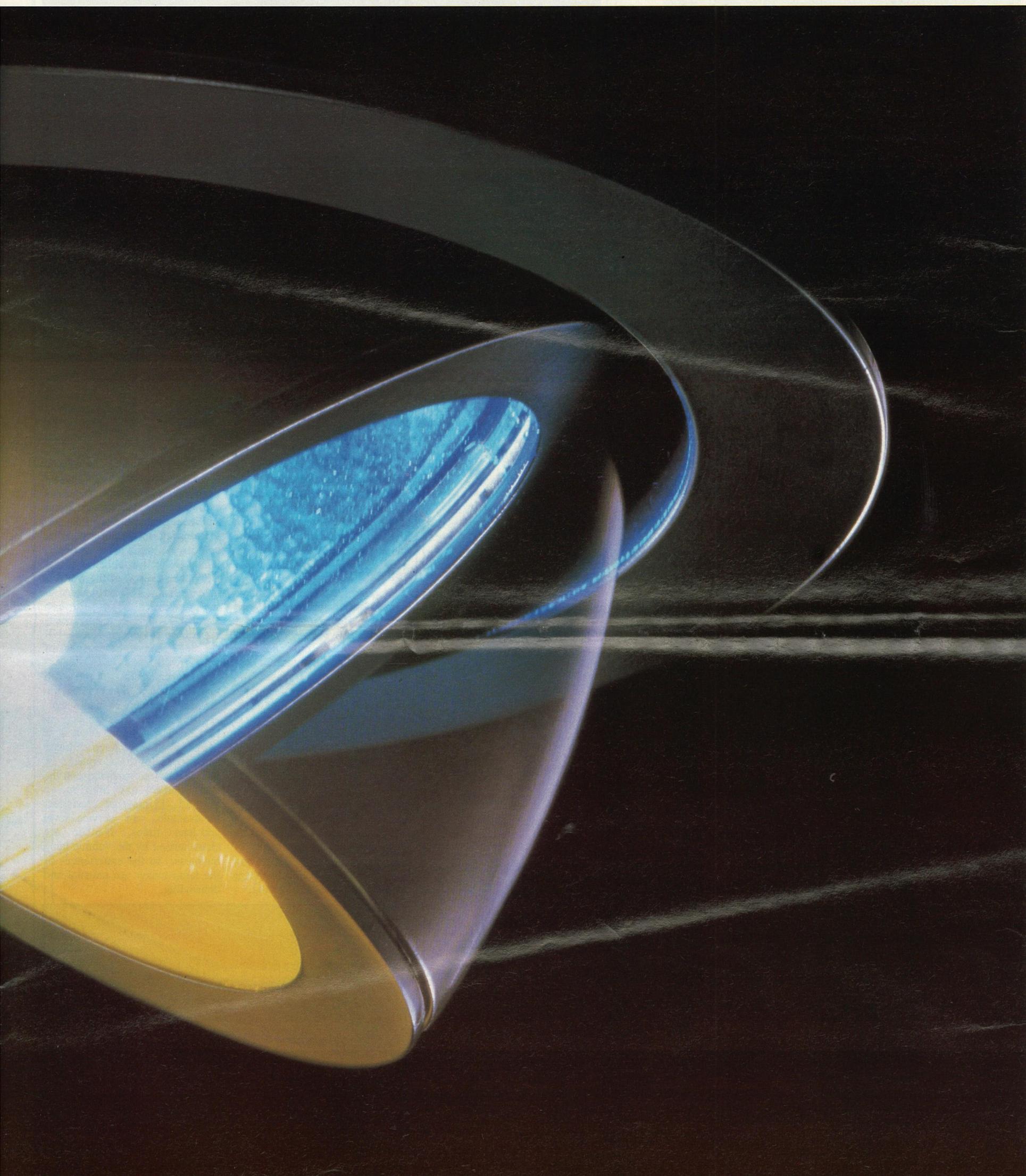


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All change in OEMs

Lamp companies are increasingly market driven. What is true for the mass lamp market is equally true of original equipment manufacture. *Keith Neilson*, of Philips Lighting, takes a look at the effects of changing market forces in this field.

Recent years have seen front page leaders in Lighting Equipment News and financial articles in the dailies featuring one lamp company taking over another. In all instances the company losing its primary identity has cited the modern need for high capital investment to meet market prices as a prime reason for its acquisition.

A parallel argument could also be advanced that R & D costs to enable a company to stay at the forefront of proliferating lamp technologies have become pro-

hibitively high. This applies not merely in "glassware" but also the necessary control gear.

Industrial concentration perhaps implies that volume will be the 'great god' in the future. In short, if a market opportunity does not present sufficient volume, then lamps will either not be made, or alternatively will carry a hefty price tag to meet a target return on assets employed.

Restructuring

The implications of such industry restructuring can cause luminaire and other OEM's con-

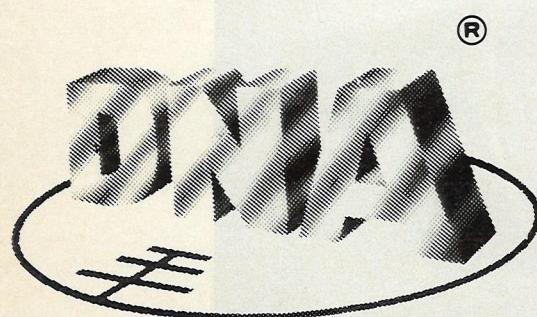
cern. Do the moves mean that some lamps will no longer be available, with no improved replacement? Within the normal lighting industry where, in contrast to the lamp business, companies have expanded, concern is likely to approach zero.

Here, the industry tends to develop and market luminaires using standard volume lamps.

Companies using lamps for embodiment purposes, where volumes are markedly lower, should not be too concerned. This area has always been subject to a short term return on assets cri-



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terion. But these facts do not mean that the French expression 'everything changes, nothing changes' is valid. Market factors are as relevant to lamp technology as breakfast cereals or chocolate bars hence the concentration of companies.

The result of these very market factors, therefore, is that OEMs are likely to be better served, with lamp companies becoming more market driven.

Commitment

To amplify this point, embodiment lamps have always provided good examples of 'opportunity' lamp business. However, they invariably demand not only the normal high degree of commitment but an application base and market awareness well outside standard lighting applications. Some examples in recent years have been cooking, horticulture and germicidal applications.

In lighting terms, market demands via specifiers and OEMs are influencing lamp companies more than in the past. This accounts for many novel lamps introduced in recent years. Obvious examples are some of the energy effective lamps and high lumen package discharge lamps used for accent lighting.

In particular, lamps such as White SON are a reaction to a market profile demanding warm, high intensity, well defined outlets. This is part of the well known series of matrixes involving retail or commercial market positions, against lighting parameters such as colour, temperature, accent factor and average lighting level.

Referring to specific examples, cooking by light using halogen lamps is well established in the UK but in the rest of the world is in its infancy. UK set makers — the companies making the hob element — have a *Boston theory* experience advantage. Hence, UK set makers have the prospect of rapid growth.

However, both set and lamp maker have a market problem in the sense that cooker manufacturers have different lamp specification needs for such varieties as length, wattage, voltage and cap, and surface finish. Coupled with this, is the need to understand the end market and distribution method. Prime characteristics, for example, are service level and lead times. Neither are characterised by the volume lamp business, so the experiences of the lamp maker are unusual and demanding.



UK set makers have a built-in advantage.

The lessons are obvious. OEMs specify a lamp and the lamp maker needs to develop variants, without the time to carry out the very rigorous procedures of a normal lighting lamp. It's a matter of getting it right first time, from development through to production. Unusual tests can be included here, such as dropping lead ball weighted pans onto a hob with the lamps operating. This honestly is part of a BS procedure.

Another market where demand has led to lamp technology is horticulture. Here, the market has manpower stability in that people remain within the industry, from publisher to glasshouse worker. A net result is that trust is only established over a lengthy period — and it is certainly true that suppliers must understand the industry's problems. In this case, while the issue is one of lamp development, the system solution is critical, as the horticulturalist must be able to use the lamp effectively for plant growth and flower stimulation. This involves variants for flowers, pot plants, vegetables and scheme design.

Trend

For many years metal halide and SON have been used in glass houses with the trend towards SON, on economic grounds from the mid 1980s onwards. This has happened despite the known spectral limitations of the SON lamps vis à vis the average plant spectral response curve. At the beginning of 1990 a new lamp, the SON/T Agro, was introduced after several years' trials — hence seasons and crop cycles — both within universities and in the harsh economic climate of the professional grower. The lamp



SON-T Agro lamp, specially designed for glasshouse applications.

was designed to introduce more blue into the spectrum and thus move more towards the red/blue ratio of the plant response curve.

Simultaneously, there is the need to ensure that the lamp can be used as a retrofit in order to upgrade existing installations. More critically, the market

needs to accept the lamp maker's credibility. Crop failure would undoubtedly be attributed to the lamp or luminaire manufacturer, despite the fact that lighting is only one contributing factor among many others.

As a final example of OEMs influencing lamp specification, in the near future we can anticipate an increase in the wall load of lamps for germicidal purposes and, to a lesser extent, for EPROM erasure. The increasing use of germicidal lamps has been promoted by legislation on liquid purity standards — legionella problems making major headlines — and the increasing use of hand-held stock counting machines which need chip erasure in shorter periods.

Improvement

Increased production speeds in industry generally mean increased productivity, a normal goal for manufacturers. Corresponding improvements are demanded from component suppliers, hence 115W (32W LIV-C) lamps have emerged in a four foot format. An ever more novel development is a PL LIV-C lamp with an output capable of wiping EPROMs in a much shorter period than current products. Along with these developments the market has influenced a parallel improvement so that effective life (an important concept) has been extended from 3000 to 8000 hours.

In conclusion, we can expect that specifiers, OEMs and other influential sources will have an increased impact on lamp makers. It's as simple as market factors are the real issue. Certainly in the embodiment area this has always been evident, and in the lighting areas product innovations are already acknowledging the direction.

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Design in conference

A Harrier jump jet and the mock-up of a Spitfire, part of a recent Royal Air Force exhibition, show off the lighting in the Purbeck Hall, a new exhibition space, opened in September 1990, as an

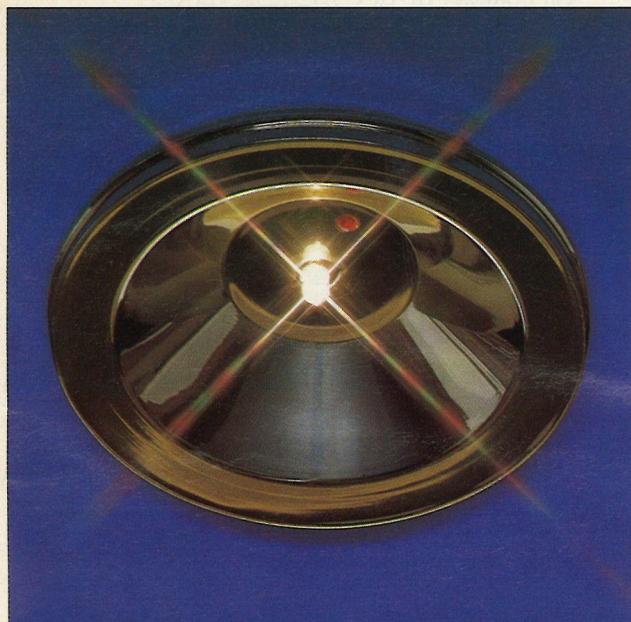
extension to Bournemouth's International Conference Centre.

The building is basically a twenty sided polygonal dome, 50m in diameter. Internally the cladding is natural timber, and the structure is formed by twenty



The RAF (old and new) on display at the conference centre.

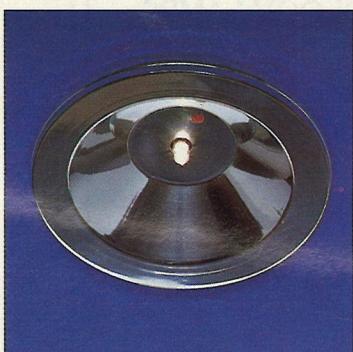
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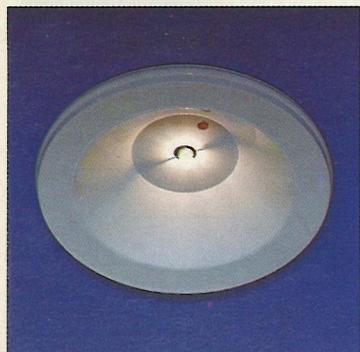
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laminated glued beams.

The dome is surmounted by a cupola which comprises a chamber housing extract fans and a suspended platform approximately 5m in diameter immediately below.

Contractors William Steward provided two independent systems of lighting in the Hall. The first is a general high level ambient system for use when exhibitions are taking place, and the second is for public performances. A common emergency lighting installation is also installed, of the central battery maintained type.

The exhibition lighting is provided by 16, 250W metal halide floodlamps installed on the edge of the balcony directed upwards and 40, 250W and 15, 400W area floods installed on the walkways and cupola and directed downwards. Seventeen 250W recessed lay bay luminaires with 250W metal halide lamps surround the edge of the hall under the balcony except over the bar.

The lights are controlled through three distribution boards each with its own contactor so that alternate downlights can be switched off to reduce illuminance levels to one half on two of the boards. The uplights are on the third board. The lights have an MCB to each pair to achieve precise lighting of any area. The metal halide lamps give good colour rendering for the exhibits and using the uplighting can be used alone as a security lighting.

A selector switch within the hall allows the lights to be controlled either locally or from the security office at the front of the building.

For public performances a second set of lights is installed around the balcony and on the walkways. Luminaires are 1000W tungsten halogen lamps which are dimmable.

Walkway lights are downlighters while the balcony lights are uplighters. Underneath the balcony are 200W floods illuminating that area. Four Strand theatrical spots, one to each quadrant, focus on the underside of the cupola.

The lights are dimmed on three faders, one controlling the down lighters and under balcony lights, one controlling the uplighters, and the third controlling the spotlights. The design sequence of dimming is for the down lights to be faded leaving the dome illuminated, then to fade out the

dome leaving the cupola spot lit which is then, in turn, faded to darkness.

In use it has been found that turning the walkway lights upwards into the dome, thus making them effectively uplights, has a more pleasing effect in many circumstances.

Fader controls are installed in one hand-held box with flexible lead which can be moved about the dome so that performers or their stage staff can have control of the house lights as necessary.

Stage lighting for the various events formed no part of the original design, but a distribution system allowing three-phase supplies to be available in any part of the dome has since been installed for this purpose.

A maintained 110V centralised emergency light system has been adapted which consists of recessed lamps under the balcony, and standard surface fittings on the balcony, walkways and cupola. The main body of the hall is lit by 4, 110V, 150W tungsten halogen uplighter which supply a general illumination in the centre of the hall of 1 lux.

Flexibility

Where the performance requires a near blackout, these four lamps can be extinguished. All lights can be maintained and adjusted without use of ladders as each can be reached easily either from the balcony walkway or cupola.

Lights may also be disconnected individually by unplugging the plug-in ceiling roses on the inside of the balcony walkways and cupola.

The lighting installation was designed in conjunction with Thorn Lighting and used their area flood luminaires with MBIF lamps of either 250W or 400W rating.

The average measured level of illumination at floor level is 500 lux, and the spacing and rating of each luminaire has been based on the beam axis being at an angle of elevation of 52°. This means that the top of the luminaire requires to be level and is, thus, easy to check with a spirit level.

The audience lighting again uses Thorn fittings, this time from their Haline range. A much lower level of illumination is required in this instance, and as most lamps are directed upwards an even illumination is achieved with low glare.

When small is beautiful

An effective floodlighting scheme need not be expensive to install or run. *Maria Trezzi*, of Thorn, describes an installation first presented as a Young Lighters' Award paper.

In November 1989 the London Borough of Enfield invited two of its local industries — Thorn Lighting and the Eastern Electricity Board — to provide them with a floodlighting installation for the Enfield civic centre, a ten-storey building housing the local authority. This was to mark the Borough's Silver Jubilee on 1 April 1990.

The approach to design was to provide them with a floodlighting installation for the Enfield civic centre, a ten-storey building housing the local authority. This was to mark the Borough's Silver Jubilee on 1 April 1990.

The building was a difficult one to floodlight as it was finished in glass and stainless steel. Lighting the building from inside — an obvious approach — had to be dismissed as too expensive. Feelings were running high about the poll tax at that point in time and low maintenance and running costs were a major design consideration.

It was finally decided to pick out the triangular stainless steel cladding mullions, some 40m high, with precision spotlights

A sculpture of the borough



The main facades showing 'The Enfield' sculpture.

and to backlight the wider of the two facades with a slightly warmer coloured lamp to enhance the modelling effect.

Single-ended metal halide lamps were chosen for their cool colour appearance, good colour rendering and high efficiency. Their long life also promised to keep maintenance costs to a minimum. The lamps were housed in compact, narrow beam, high intensity floodlights that produced a pencil thin beam of light, capable of projecting up the height of the building.

River location

The fittings had to be positioned roughly 3m away from the building in the middle of the river. Although this had the advantage that the location discouraged vandalism, it did mean that the river had to be dammed and drained to allow piers to be constructed for housing the luminaires. A total of only 18 floodlights were required to achieve the design level of 100 lux, and initial trials proved the effectiveness of the scheme.

A sculpture of the borough



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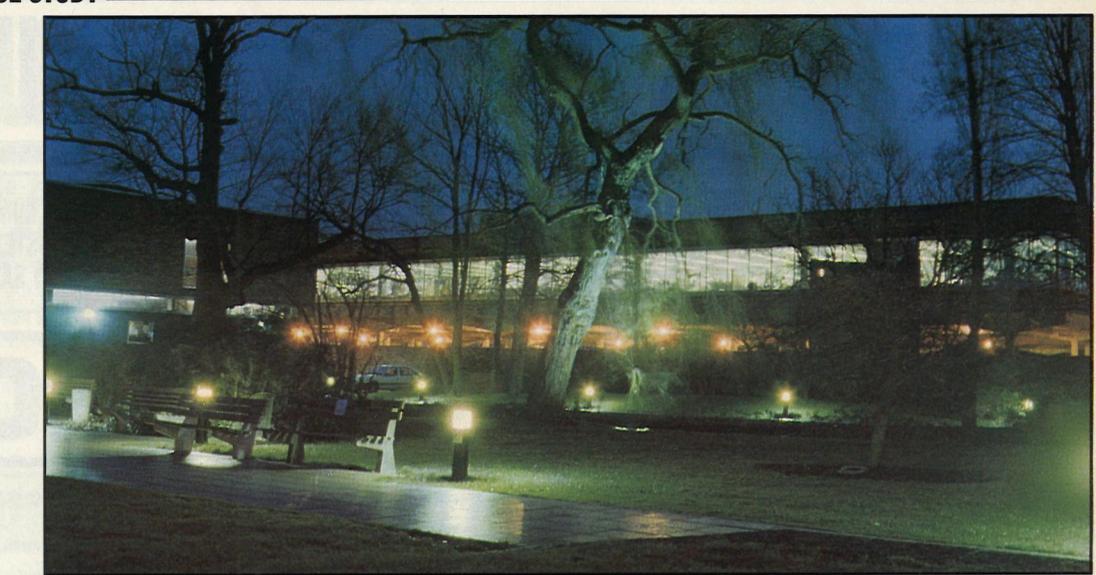
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Reader Service No. 16

Lighting Equipment News, February 1991



Amenity lighting gives the garden a new evening function.

symbol, a mythological beast called 'The Enfield', was lit by a single floodlight concealed with a black box which hid the light source from normal viewing angles. A profile placed in front of the floodlight lens avoided any spill light.

The opportunity was also taken to provide amenity lighting to the surrounding public walkway and garden area. Bollards positioned

along the footpath next to the river allow people to walk safely and confidently through the garden. A focal point for this open space was achieved by uplighting a large willow tree using a buried floodlight close to the tree trunk with a mercury source to enhance the foliage and produce almost a daylit effect. However, this location is far from ideal in the autumn when the fitting gets buried under piles of leaves.

Running costs

In the event, the low running costs indeed proved low. When the borough subsequently published costs for maintaining the floodlights of the main building

and borough emblem this was found to be equivalent to running just nineteen 6 foot fluorescent luminaires — or about 0.1% of the total lighting load for the civic centre. So, a small investment in amenity and floodlighting was able to bring alive a previously dead public area for the benefit of the community.

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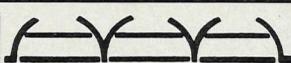
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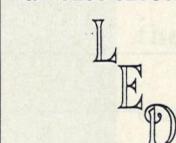
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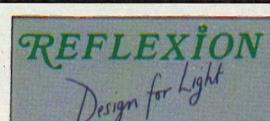
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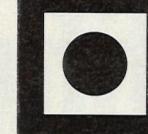
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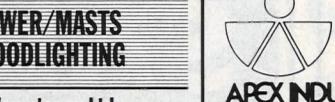
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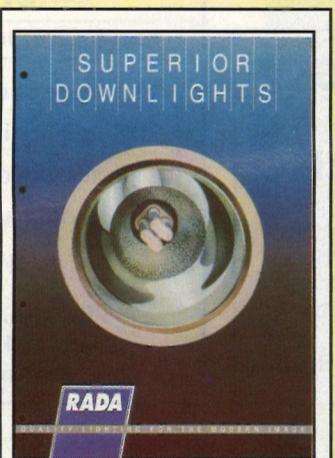
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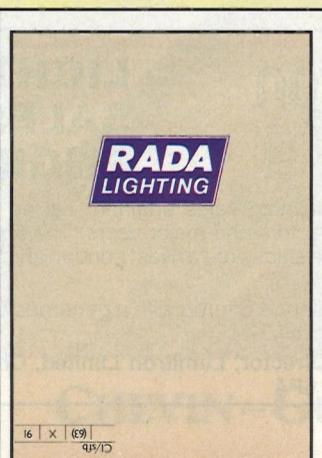
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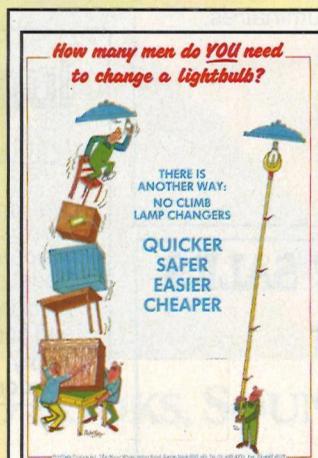
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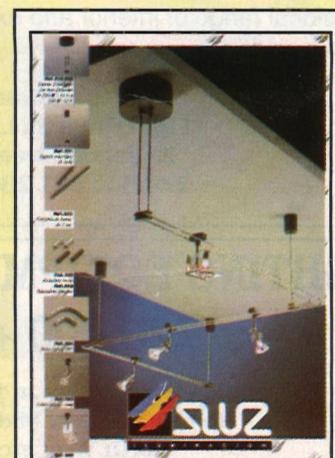
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NEWS



Japanese factory opens

Five months after announcing its intention to commence lamp production in the UK, Japanese company Phoenix has just opened the first phase of its Coalville factory.

The initial factory unit of nearly 3000 sq m houses two lines dedicated to the production of linear tungsten halogen lamps. But the company has already purchased a further 5 acres of land

on which it plans to expand into the manufacture of other lamp types.

The Coalville development, which represents a considerable investment, will eventually employ around 200 people. Phoenix has built up a market lead in the Japanese halogen lamp industry over the past 14 years.

People in brief . . .

● **Alan Boulton** has been appointed deputy director of the Decorative Lighting Association. ● **Neal Hooper** has been promoted national sales manager at Powerlite Electrical Products.

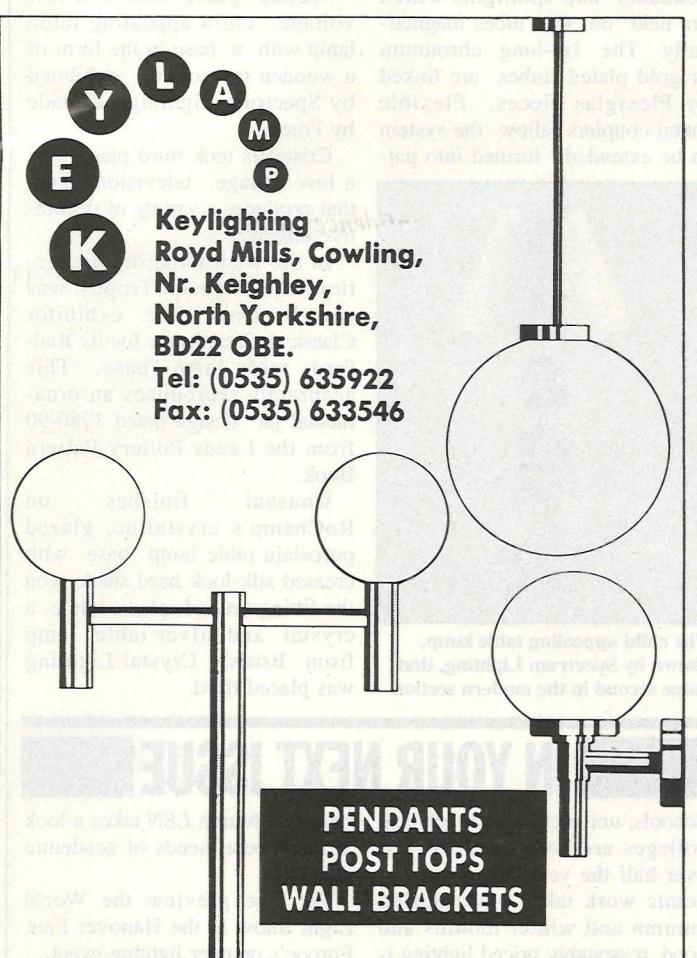
● **Andrew Osmond** is now managing director, Western European sales, brand management and distribution, for GE Thorn Lamps and GE Tungsram. ● **Michael Hill's** promotion to sales director has been announced by Erco.

Classic on display

Material from the archives of Anglepoise Lighting, manufacturers of the original Anglepoise task lamp, is currently on show at London's Design Museum.

Anglepoise lamps from the early thirties and forties together with blueprints and design details

form the major part of a task lighting display in the museum's study collection. The original Anglepoise lamp, developed in 1932 by George Carwardine, is a design classic, still much imitated around the world. The company continues to manufacture the lamp which has been up-dated over the years.



GE — Thorn deal goes ahead

GE's purchase of Thorn Lighting's European light sources business has now been completed. The two companies will now collaborate in the UK on lamp marketing and distribution through a new company GE — Thorn Lamps.

At completion of the transaction Thorn EMI received from GE a cash payment of £28.5M as the first tranche of the total sum of up to £69M. The balance is to be paid in installments, with the final payment due in January 1994.

Death of ballast pioneer

Dr Walter Zumtobel, founder and past chairman of Zumtobel AG, Austria, died in December aged 83. He was particularly known for his pioneering research work on lighting ballasts.

A technical breakthrough made by Dr Zumtobel resulted in what

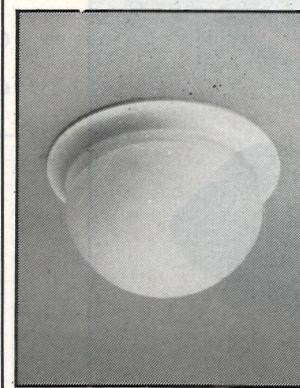
at the time was the smallest ballast on the market. A number of his products won design awards.

One of his sayings in the early years of his career was, "Don't save light, save energy".

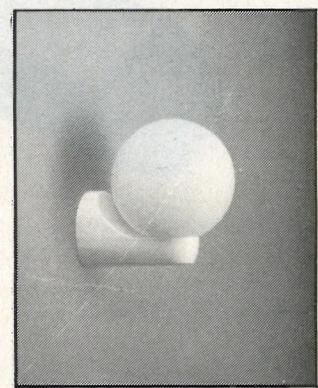
Today, the company produces a range of lighting components and commercial luminaires, including air handling versions. It exports to countries around the world, including the USA, Asia and Africa.

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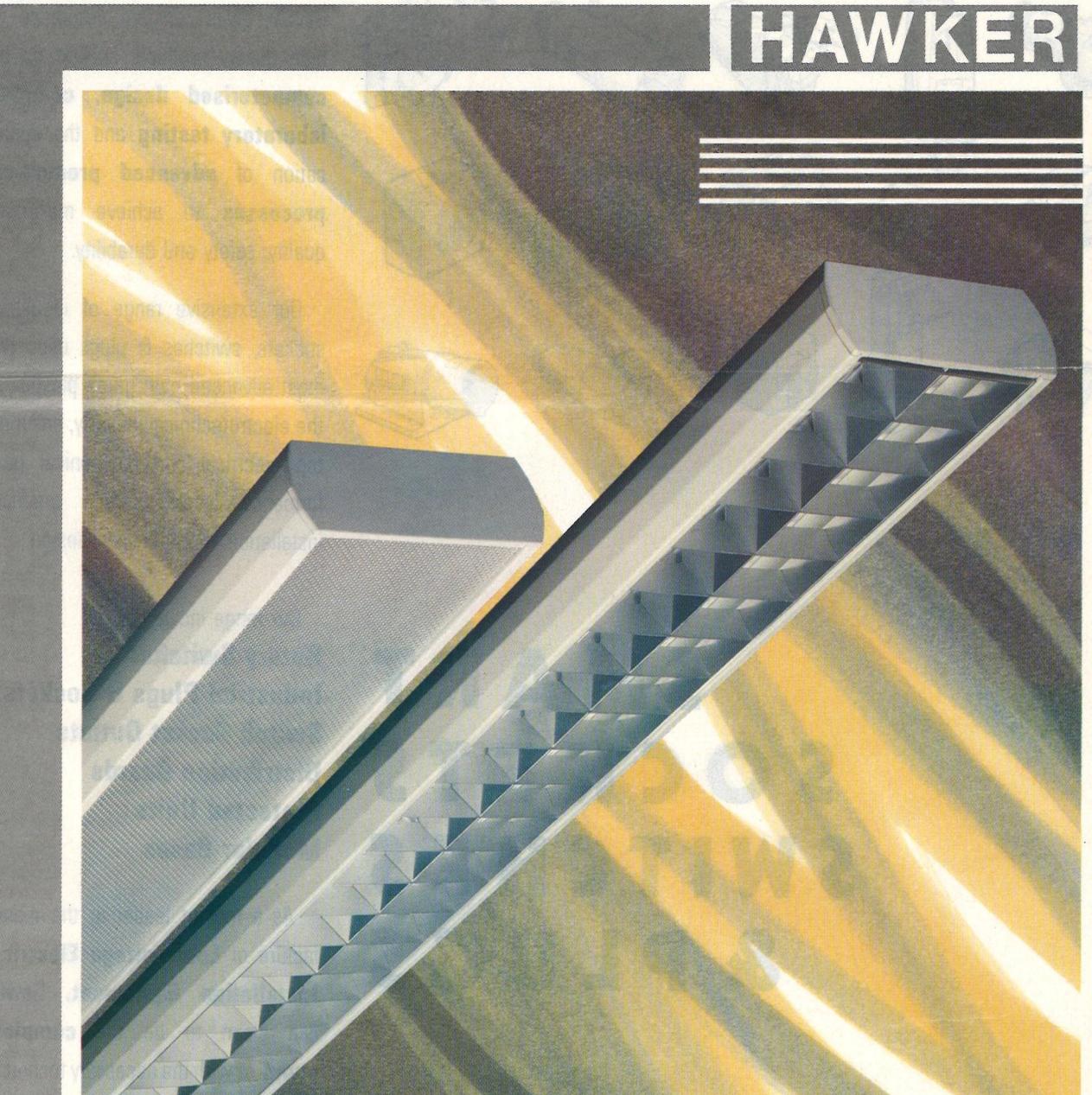


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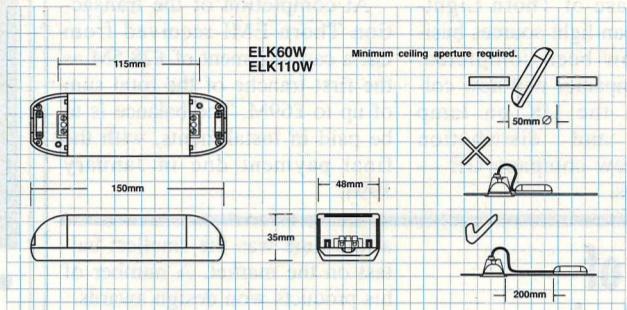
A GREAT COMPANY IN GREAT COMPANY

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Elektra Electronic LV Transformers

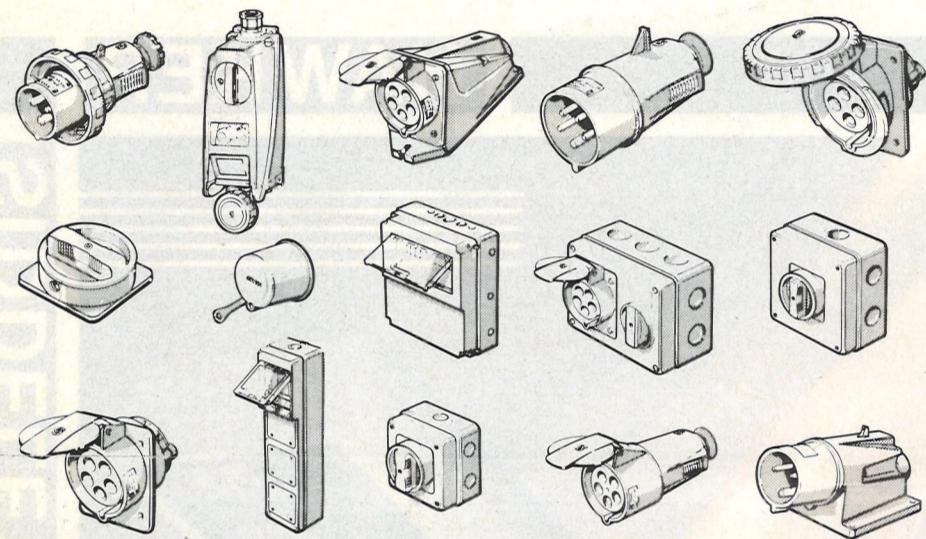
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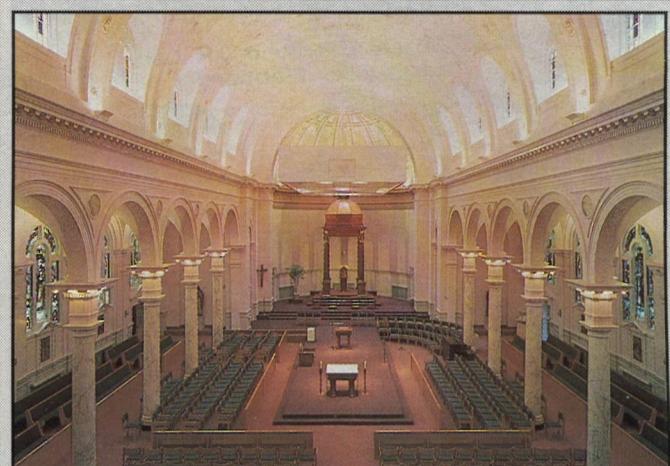
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LIGHTING EQUIPMENT NEWS



Ceiling detail is revealed and the nave of the church enhanced in this lighting scheme for St Patrick's Roman Catholic Church, Brockton, Massachusetts, USA.

Originally constructed in the mid 1920s, the church was in need of repair and restoration after over 60 years of continuous service. It was decided that more cosmetic changes were needed, and a new lighting installation was commissioned to show off the reinstated spaces to best advantage.

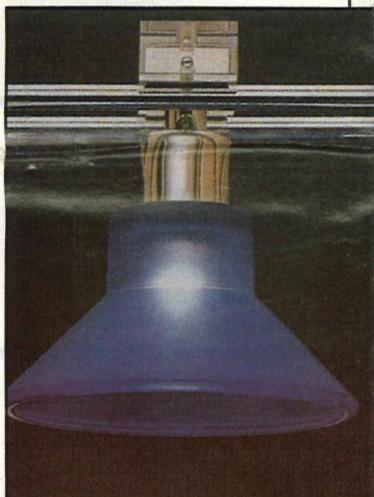
Asymmetric lighting allows the ceiling to be illuminated by a broad wash of even light without the distraction of shadows or "hot spots", or even obstruction from the luminaires themselves. Tungsten halogen sources were selected for their warm light, excellent colour rendering, and easy dimming. All lights are controlled by a central dimming system with preset scenes that can be activated from the altar.

The effect is achieved by using 900W tungsten halogen surface mounted Elliptipar fittings over the vault of the nave and that behind the altar. Smaller reflectors with 250W tungsten halogen lamps uplight the vaults over the aisles. Elliptipar fittings are marketed in the UK by Marlin.

Winning designs at Lightshow

A concerted effort should be made to promote British lighting design and more manufacturers should use designers, said David Morgan, product designer, opening the 27th Lightshow in January. He then presented two trophies for new products shown in the exhibition.

First prize in the modern design section, the Russell Trophy, was awarded for a low voltage, twin-tube track system shown by Bito. Called Longline Magnet and made in Germany, it supports a variety of tiny pendants and spotlights which are held on the tubes magnetically. The 1m-long chromium or gold plated tubes are linked by Plexiglas pieces. Flexible metal couplers allow the system to be extended, formed into pat-



Winner of the Russell Trophy: the Longline low voltage system shown by Bito.

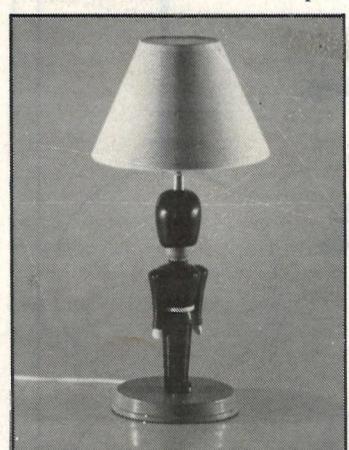
terms, or run from ceiling to wall, or vice versa.

Second place went to a low voltage, child appealing table lamp with a base in the form of a wooden toy soldier, exhibited by Spectrum Lighting and made by Freen.

Cristaleis took third place with a low voltage, television lamp that produces a variety of decorative effects.

In the traditional design section, the Pegasus Trophy was won by first time exhibitor Classical Creamware for its Radford table lamp base. This accurately reproduces an ornamental jar design dated 1780-90 from the Leeds Pottery Pattern Book.

Unusual finishes on RoChamp's crystalline, glazed porcelain table lamp base with creased silk-look hard shade won the fitting second place, while a crystal and silver table lamp from British Crystal Lighting was placed third.



The child appealing table lamp, shown by Spectrum Lighting, that came second in the modern section.

IN YOUR NEXT ISSUE

Schools, universities and technical colleges are only open for just over half the year, but most academic work takes place during autumn and winter months and good, reasonably priced lighting is

essential. March LEN takes a look at the special needs of academic buildings.

We also preview the World Light Show at the Hanover Fair, Europe's premier lighting event.