

LIGHTING EQUIPMENT NEWS

JANUARY 1993

Constructive guidance

The Chartered Institute of Building Services Engineers (CIBSE) has asked for more constructive guidance for the Energy Efficiency Office (EEO) and more positive action from the Department of Environment (DoE) as a major building owner. The recommendations are included in a submission to the National Audit Office (NAO) which is conducting a study on buildings and the environment.

The NAO approached CIBSE to ask for comments on factors which encourage/discourage environmentally friendly design; the quality of information produced by DoE, BRE and EEO; the extent to which Building regulations and British Standards address environmental risks; the influence of the Building Research Establishment Environmental Assessment Method (BREEAM) and the consultation methods of the DoE, EEO and BRE.

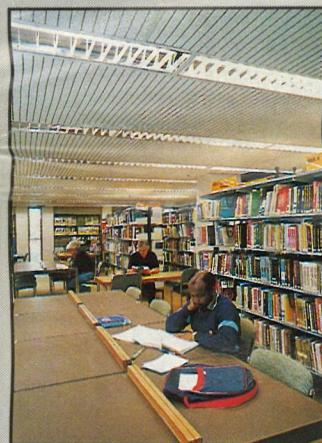
Senior members of CIBSE

noted that there is too much emphasis on capital expenditure rather than operation and maintenance costs and that this problem is exacerbated by current contractual procedures which put pressure on project pricing. It was suggested that a possible solution would be to make those who are awarded the contract for a building take responsibility for the cost of operating and maintaining it for a post contract period of, for example, 5-10 years.

CIBSE also believes that BRE is obliged to spend too much time on work associated with European standards, to the detriment of urgent innovative research.

Other points made in the response include a suggestion that the BREEAM point system be made more sensitive, to penalise 'overdesign' and recognise indoor air quality and efficient lighting.

CIBSE has also criticised the NAO's research as "hasty", with the time allowed for consultation being too short and not allowing for comprehensive consideration of the points raised.



In re-lighting its library block, the newly incorporated University of Northumbria at Newcastle has achieved a reduction in loading from 224kW to 120kW and an increase in the level of illumination from 530 lux to 600 lux.

Local manufacturer Bernilight refurbished over 1,000 luminaires to use high frequency electronic control gear. New internal reflectors and low brightness louvres were also fitted.

The company provided a total package of supply and install and the project was completed in four weeks.

Safeway slashes half-a-million off lighting bills

Safeway Stores is planning to cut its in-store lighting bills by £500,000 a year within two years. The company plans to invest £1.4 million in an energy saving system from Econolight to save over 20% on lighting bills.

Detailed tests carried out in a London Safeway store last year resulted in a 27% saving in lighting costs. The tests were alternated on a daily basis to monitor customers' awareness, either consciously or unconsciously, of the unit's operation.

Customers and staff did not

notice whether or not the system was in use and the tests showed that sales were also unaffected.

The Econolight system is a simple device which is normally installed in the switchroom, between the incoming mains supply and the lighting distribution board.

High speed sensing calculates the percentage difference in the voltage required every half cycle to effectively reduce voltage requirements and energy costs with no apparent reduction in lighting levels or equipment performance.

State of the art electronic control is used to ensure smooth voltage stepping and zero interference, so that computers and high technology equipment function normally.

In the case of either low input voltage or unit malfunction, the unit goes into automatic by-pass and thus preserves the integrity of the supply at all times.

Safeway plans to install units in 70 stores by March, followed by a similar number in the next financial year. Safeway is one of the companies which has given its official backing to the Government-sponsored Corporate Commitment to Energy Efficiency campaign.

on core business. The lighting division turnover was the same as the equivalent period last year, although profits were 8% lower. This is attributed to increased trading losses in Hitech Lighting and the cost of settling a four year old legal claim in that company.

Hitech has also suffered from the low level of demand for display and effect lighting, although the second quarter performance is said to have been a substantial improvement on the first. Steps have been taken to integrate the business with Silvertown Lighting to reduce losses in the second half of the year.

Focussing on core business

Whitecroft plc has issued an interim statement for the first half of the current financial year. The group has incurred a loss before taxation for the half-year ended 30th September 1992 of £0.73 million, (including a number of one-off costs in this period) compared to a profit of £2.23 million in the same period last year. During this time the company has undergone a number of changes, involving a greater focus



Hoover restored

When it came to restoring the 1930s Hoover building, to create a supermarket and office accommodation, Tesco was committed not only to restore the art deco style of the building but also to highlight it. So as dusk falls, hundreds of spotlights and neon bathe the original walls and the newly built supermarket behind it in a mix of mint green, white and orange.

The lighting was installed by Electrical Industrial Contractors (EIC) under the watchful eye of English Heritage. Floodlights and spotlights had to be adjustable to a millimetre or less to pick up the

intricate architectural details of the facade. These included the Hoover logo, elements of which are repeated in the corbels at the front and rear of the complex, which is now the Tesco supermarket.

Original fittings

Wherever possible, original light fittings, many of which were finished in brass and subsequently painted Hoover green, were restored and re-used. Where this was not possible, identical replacements were made in brass and then painted to match.

The entrance to the supermarket, approached from the rear, is branded with 500 metres of orange neon, while backlighting is used in the windows and behind a large version of the Hoover fan. All of this, along with illuminated flagpoles, 1930s style car park light columns and architectural features, serves to produce an electrical load in excess of 1600 kVA. The load is minimised, however, through the extensive use of over 2000 high frequency, low loss discharge luminaires and high efficiency lamps.

gerous situation.

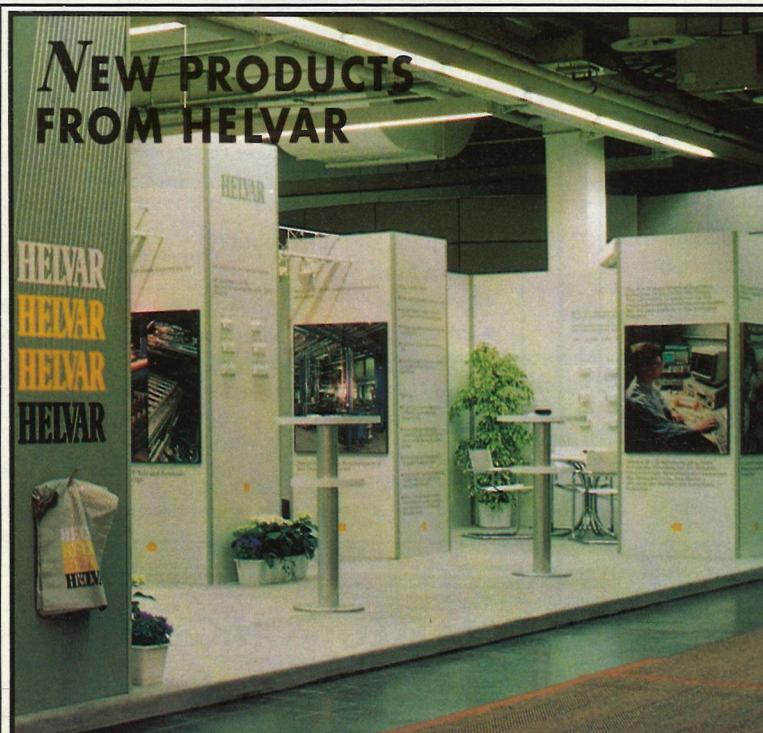
This danger can only arise in unearthing lamp holders which do not meet current national safety standards. When removing a light bulb from a lamp holder, the light fitting must first be disconnected from the electrical supply.

The company has undertaken to replace all light bulbs which could be affected.

Lamp safety

Osram has recalled three batches of its DULUX EL 15W, 20W and 23W triple turn bayonet gap light bulbs and is issuing a warning to purchasers.

It is possible that a very small percentage of these light bulbs could cause a lamp holder to become live – a potentially dan-



Fair game no more

For many years now the lighting industry has been fair game for exhibition organisers who have sought either to supplement their electrotechnical or design orientated exhibitions or simply to fill empty space. That's the unequivocal stance of Andrew Osmond, President of the Lighting Industry Federation.

"This proliferation of shows serves nobody's purpose but the exhibition organiser, but now with The European Lightshow '93 – organised and promoted by the Lighting Association and the Lighting Industry Federation – we have the opportunity to put the matter right," he says.

Andrew Osmond points out that with over 140 exhibitors booked to date, The European Lightshow '93 now dwarfs all other lighting exhibitions and begins to take on the stature of the continental fairs. The European Lightshow '93 has also been officially recognised by CELMA (the Committee of European Luminaire Manufacturers Associations) as the UK lighting event.

"Much of the future is going to be about refurbishing existing buildings rather than building new ones – making them intelligent, making them suitable for their occupants and making them energy efficient," said Mr Osmond. "In other words we are talking about the new technology which will be on view at The European Lightshow '93 and about equipping specifiers, architects, designers and consulting engineers with the product knowledge they need to help them in their work," he added.

Peter Hunt, President of the Lighting Association says: "The European Lightshow '93 is a remarkable achievement because it does prove once and for all exactly what can be achieved when our industry stages one show, under one roof, that is totally dedicated to lighting."

British Manufactured Dimmer Family

MIMO Controller

LCS Additions

ELH Transformers

BC High Frequency Electronic Controllable Ballast

AT THE EUROPEAN LIGHT SHOW '93

STAND No. D29

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QUALITY ALWAYS SHINES THROUGH

Reader Service No. 1

NEWS

World experts head for Edinburgh

Technical papers from around the world will be presented at the seventh European Lighting Congress, which in 1993 is to be held in Britain. Heriot-Watt University, Edinburgh, will be the venue from 4-7 April.

The programme will include

contributions from 30 countries on the latest research and lighting applications, as well as findings from the international daylight measurement programme.

Among the 80 papers are subjects such as architecture and lighting, the Channel Tunnel, museums and galleries, theatres, progress on European standardisation, and human and psychological aspects of lighting. There will be simultaneous translation into English, French and German.

In addition, special interest seminars will be held on topics such as fibre optics, and there

will be over 80 technical posters.

A civic reception for delegates will be hosted by the Lord Provost of Edinburgh, Norman Irons, who is also a member of CIBSE.

Between 300 and 400 people are expected to attend the congress which is held every four years.

Booking forms and further details can be obtained from CIBSE (tel 081-675 5211).

Lightex moves south in '93

Bournemouth will be the venue for Lightex '93, the conference and major exhibition organised by the Institution of Lighting Engineers.

The dates are 14-16 September and exhibition space can be reserved by contacting the ILE on 0788 576492.

Topical talks at Lightshow

Three seminars to be held alongside European Lightshow will deal with topical lighting issues.

The half-day seminar on 15 February will have sessions on the revised *Interior lighting code*, which will be published shortly, and on the display screens directive (lighting for VDUs).

On 16 February, a conference on office lighting will be held in the morning and repeated in the afternoon. Topics covered will be: Health and Safety Regulations with special reference to VDUs,

energy efficiency, the LESS scheme, new emergency lighting regulations, and the importance of lighting maintenance.

A third event, on the morning of 17 February, will concentrate on emergency lighting. Speakers will deal with new EC directives, impending European standards, illumination levels, way-finding techniques, and ICEL's role in Europe.

To reserve places contact the Lighting Industry Federation, on 081-675 5432.

Seven speakers with working experience in countries such as Russia, Czechoslovakia and Hungary will discuss aspects such as legal and institutional barriers, finance, and strategies for business development.

The programme for this event, to be held in London, can be obtained from Mid Career College, 0223 880016.

DIARY

JANUARY

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Six lighting projects: the human perception. Evening meeting in London arranged by CIBSE Lighting Division. Details from 081-675 5211.

20

Sick building syndrome. Evening meeting in Manchester held by CIBSE North West region. Details from Roy Williams, 061-439 6599.

21

Amenity lighting and risk assessment. One-day conference at Prestwich organised by the Northern region of the Institution of Lighting Engineers. Details from P Edwards, 061-705 5824.

16th Edition for street lighting. Evening meeting in Durham held by the North Eastern region of ILE. Details from D Plummer, 0670 361081.

21-22

Interior lighting design. Two-day course in London arranged by the Institute of Environmental Engineering, South Bank University, 071-928 8968.

FEBRUARY

2

Reflections. Lighting Division chairman's address. Evening meeting in Newcastle upon Tyne arranged by CIBSE NE region. Details from Alan Embleton, 091-232 8520.

Lighting systems. Afternoon seminar in Edinburgh held by CIBSE Scottish region. Details from David Corden, 041-332 3326.

8-12

Lighting technology course, part 1. To be held in Birmingham by the Institution of Lighting Engineers. Details from 0788 576492.

9

Reflections. Lighting Division chairman's address. Evening meeting in Manchester organised by CIBSE NW region. Details from Roy Williams, 061-439 6599.

11

QL commercial induction lamp, and office lighting. One-day conference at Cleckheaton arranged by ILE Northern region. Details from P Edwards, 061-705 5824.

11-12

Energy efficient lighting. Two-day course in London arranged by the Institute of Environmental Engineering, South Bank University, 071-928 8968.

14-17

European Lightshow. Earls Court, London. Details from The Lighting Association, 0880 640658.

16

Visual effects of light modulation from fluorescent tubes. Trotter Paterson Memorial lecture. Evening meeting in London held by CIBSE. Details from 081-675 5211.

17

Lighting and crime. Evening meeting in Nottingham arranged by CIBSE East Midlands region. Details from J G Bettison, 0629 580000.

The problem with controls. Evening meeting in Croydon organised by CIBSE London and SE region. Details from Colin Ashford, 0923 664288.

18

Lighting management and control in offices and industry. One-day course in London arranged by Mid Career College. Details from 0223 880016.

CIBSE

The Chartered Institution of Building Services Engineers

What level of illuminance?

If I asked the question "What lighting level should I specify for an office space?", the most likely answer would be "500 lux". If I were to ask "What level should I specify for a general industrial assembly area?" the answers would be less sure but most would be "300 lux". Both these answers could well be correct, but what the answer should have been in both cases is "it depends".

It depends on the age of those carrying out the task; it depends on the duration or intensity of the task; it depends on the seriousness of errors, and it depends on the size and contrast of the task.

The standard lighting levels recommended in the CIBSE Code for interior lighting are those that are typical for the given task. It assumes that the materials being used, the people doing the work, the duration of the work and the consequences of any mistake are typical for that type of work. If the circumstances vary from that normally expected, then the designer must alter the design level used.

If the office space mentioned above was a student union office where mainly young people carry out short duration tasks, then the level can come down. If the office is one where senior, ie older, engineers are carrying out detailed checks on diagrams and associated construction schedules for a nuclear reactor, say, then the levels should be higher.

If the general industrial assembly area mentioned above was where young scouts drop by for short periods to help varnish wooden toys for sale to schools, then again the levels could drop. If on the other hand it was a workshop in a sheltered housing development, then the level should be higher.

Areas of mixed use can appear to cause the most problems, ie where young and old both use the area or where tasks of varying duration or intensity are carried out. Here the designer needs to weigh up the needs of the most onerous user/task combination against the installation and running costs. Often the provision of double switching or local task lighting can get round such conflicts.

Follow the flow to ease the task.

There is no absolute way of judging the degree of shift in the specified lighting level necessary for any one of these factors. It is up to the designer, in consultation with the client/user, to determine the most appropriate level to specify. Within the Code for interior lighting there is a flow diagram that aims to ease this task somewhat. It shows the scale of change necessary for each parameter that varies from the typical.

This flow diagram has been overhauled and improved for the next edition of the Code and will be given greater emphasis. The new CIBSE Code is due out in the spring, so start practising now!

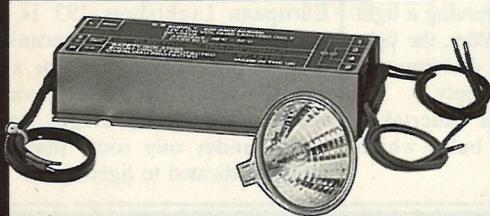
In the meantime, please remember that if you had specified 500 lux for the student union office cited above, then you could have caused unnecessary expense to your client. If you had specified 500 lux for the nuclear inspection office, you may well have under-specified, leading to reduced task performance, which may not have been such a good idea in that particular industry!

Paul Ruffles,
Chairman, CIBSE Lighting Division
Technical Committee

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In grand style

The Empress suite is a new extension to Brighton's famous Grand Hotel. The suite itself can be divided into four separate

function spaces and a conservatory which forms its focal point.

The ceiling is formed from 24 coffers which are 3m square.

These are designed to house a mixture of directional Q250W PAR 38 downlighters (two spots and two floods) and a central

150W HQI downlighter. Luminaires are housed in a back-box mounted behind a decorative grille. Lamps were selected for their long life - 6000 hours in both cases - and all dimmable sources are underrun by at least 5%, which effectively doubles lamp life.

The central 150W double focus downlight provides ambient lighting for exhibitions and the PAR 38 floods provide a warm alternative; the PAR 38 spots supply dramatic lighting for banquets.

Within each coffer, a cornice houses two lines of 20mm cold cathode lamps - one in warm white, the other in midnight blue - and these are used individually or in combination to create effect lighting.

Accent lighting is provided by three lamp low voltage lighting bars directed to each individual banqueting table; low voltage lighting also illuminates the pilasters around the perimeter of the space. Both are balanced by the light from Q250W PAR 30 wall washers.

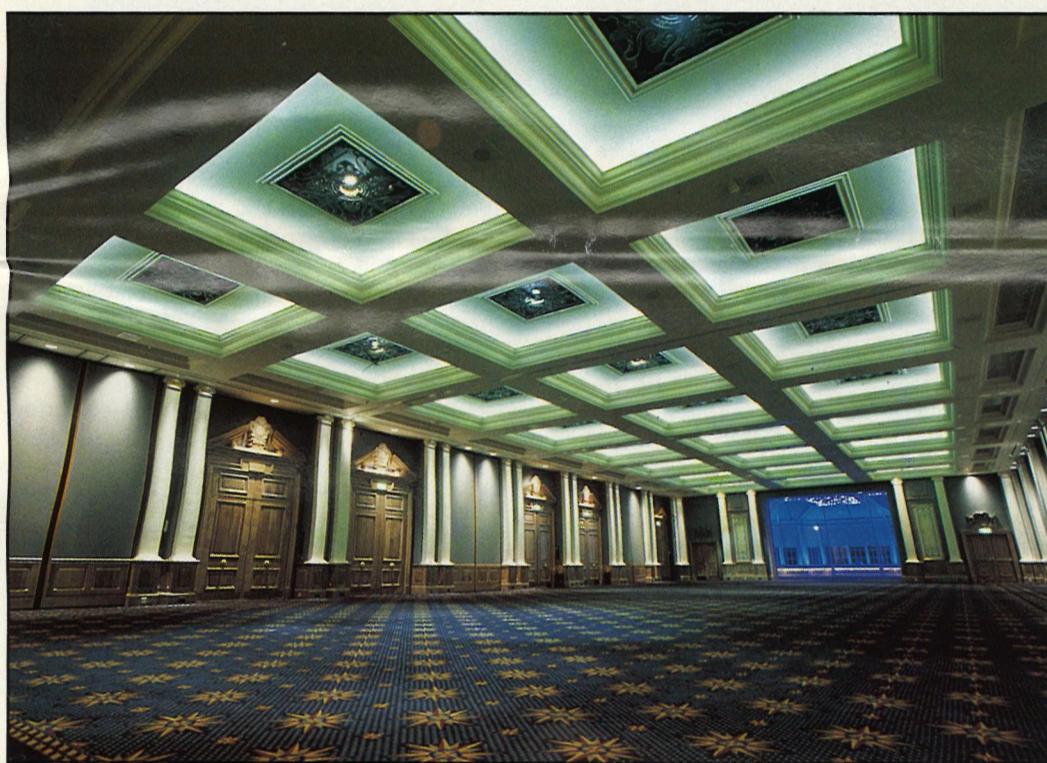
Starlit galaxy

Conservatory lighting is dictated by the changing nature of the daylight in the course of the day. Natural daylight is supplemented by high level recessed Q500 PAR 56 adjustable downlights. With darkness, the conservatory ceiling becomes a galaxy of fibre optic starlights, inspired by the Orion nebula. Two remote mounted 150W HQI projectors provide the basic light source.

A warm wash to the floor is provided by 11.8V, 7.5W festoon lamps following the line of the window sill. The sill also conceals fittings which give an upwards blue wash to the metal structural frame and glazing of the conservatory, using 11W blue Sylvania compact fluorescents.

Additional effect lighting is provided by leaf gobo projectors mounted at high level and two decorative antique bronze torches on either side of the partitions with the function suite. These fittings house two asymmetric 500W tungsten halogen uplights.

The Sceneset system from Electrosonic underruns dimmable lamps and also accommodates twelve scene settings for each of the eleven room combinations provided by the suite. Lighting design was by Maurice Brill.



Intelligent runway lighting

UK-based Simon Aviation has been awarded a \$900 000 contract to supply a specialist runway lighting system to Lester B Pearson International Airport, Toronto.

Incorporating special taxiway and apron guidance facilities, the 'Ring of red' modular lighting system meets new international requirements laid down by ICAO, and enables low-visibility ground movements - reducing the risk of runway incursion.

The system, which employs a combination of piezo ceramic sensors, remote field circuit switches and processing units, is already in operation at Luton Airport. The result is an 'intelligent runway' which is able to monitor where an aircraft is and automatically configure all stop and go indications to prevent any possible conflict in movements or lighting.

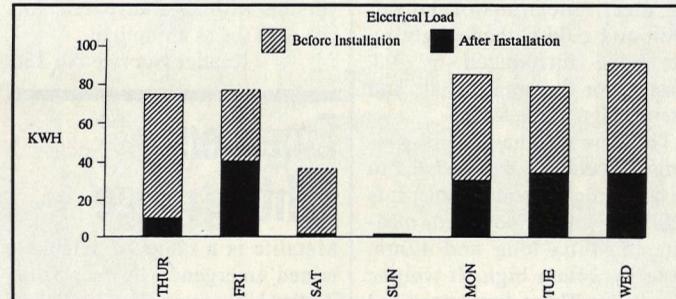
A number of energy-saving and back-indication features ensure that only those lights actu-

Ancient and modern

An experimental lighting control scheme at London's Natural History Museum has reduced lighting bills by two thirds.

The Palaeontology Building of the Natural History Museum has storage areas on its five floors which are intermittently occupied, but lights tend to be left switched on continuously.

In an effort to reduce energy wastage, the estates department decided to undertake a trial lighting control installation. Each of the fluorescent fittings on the ground floor was equipped with a DEM type LC3070 time delay pull cord switch. This has an



inbuilt time delay to ensure that the lights are not left switched on for long period of time when no one is present.

To establish the effectiveness of the controls, the lighting energy usage was monitored in the seven days prior to installation. The graph illustrates a 66% decrease in the electrical load after installation.

When the results were pro-

jected to cover the building's five floors, it was predicted that an annual cash saving of £10 140 in lighting energy costs was possible and that pay-back of the capital cost would be achieved in less than three years. On the strength of these findings, the Natural History Museum is now proceeding to equip the other floors with the controls.

Better light for Mona Lisa

Fibre optic lighting is helping to conserve the Mona Lisa. The painting has been moved to a new gallery in the Louvre and is

now displayed using lighting by Eurotec Optical Fibres.

Fibre optic heads are positioned around the picture frame to provide an even light without ultra-violet or infra-red radiation. To ensure good colour rendering, colour correction filters are incorporated into the light box.

COMMENT

Re-shuffle at LEN

The term "energy efficiency" has become something of a buzz word in the last few years. And there can be no doubt that there is a greater awareness of it amongst specifiers and building operators, especially the contribution made to energy consumption by building services.

In recognition of this, and as part of a wider re-organisation, Maclean Hunter has created an Energy Publications Group. The Group consists of *Lighting Equipment News*, *Heating and Air Conditioning* and *Energy Management* (the official journal of the Energy Efficiency Office).

As a result of this re-shuffle, *LEN* will be produced by a new editorial team, made up of myself and Anna Newnham, with contributions from a range of specialist writers. The sales and publishing team includes most of the same old faces (positively ancient in the case of John Bull) and there will also be some new faces and voices to get acquainted with.

Your new editorial team has a background of writing for the building services industry and we'll be getting ourselves out and about to meet the people and products that make up the lighting industry. One thing you can be assured of is that the aim of *LEN* will stay the same. That is, to provide you with the information to get the most from your job, whether you're a specifier, installer, manufacturer, distributor or user of lighting equipment.

Quality of life

Of course, it's not just energy efficiency that people are becoming more aware of - there is a strong indication that we are all looking for a better quality of working environment. As of this month, new VDU workstations will have to meet the requirements of the Display Screen Equipment Directive. This is not before time - the implications of incorrect lighting for VDU users are alarming.

Existing workstations have four years to be adapted to meet the Directive, but there's a good chance that many do not meet existing health and safety regulations. Most larger companies have the resources to keep up with this changing legislation and have probably addressed the problem already. But there are many smaller companies that rely on computerisation to keep their overheads down, yet are still stretched to the limit in this economic climate. These companies may not have a spare body to get up on this kind of thing and, therefore, may not even be aware of the dangers.

Anything the lighting industry can do to make this information more accessible and raise awareness can only be for the good. After all, updating workstations must mean more work as well as a safer working environment.

Paul Haddlesey

LIGHTING EQUIPMENT NEWS

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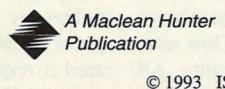
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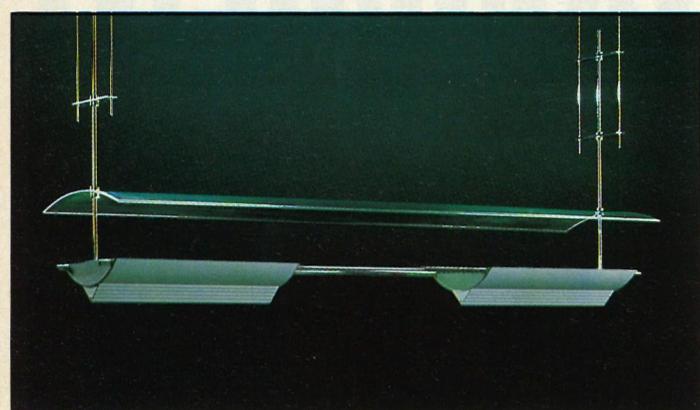
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NEW PRODUCTS



Space age design

Cosmolight from Thorn is designed for prestigious workplaces. The striking design features two lamp compartments beneath a sheet of curved, toughened glass. The luminaire is suspended by a highly polished chrome frame.

Each compartment contains a high performance reflector and two 36W 2L compact fluorescent lamps which operate off high frequency electronic control gear.

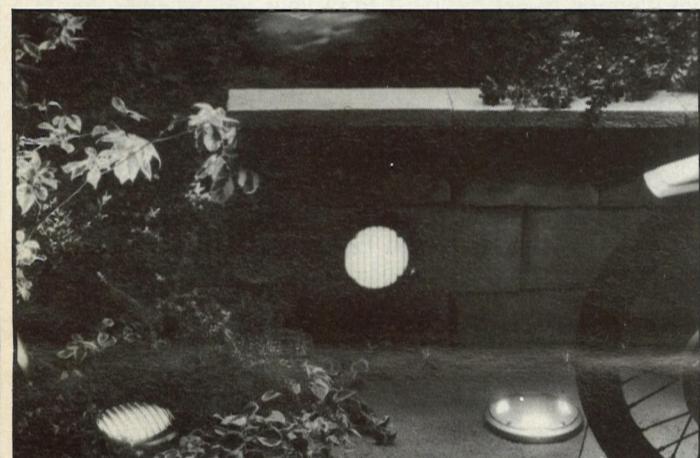
Cosmolight, which is 1600mm long, combines the benefits of uplighting and controlled down-

lighting, as about 20% of the light output is reflected downwards from the glass optic, giving a comfortable visual environment with additional interest created by a halo of light around the rim of the glass.

The suspension frame is adjustable so that the luminaire can be positioned at a choice of two heights, although it is recommended that it is installed 1750mm above a work station.

Wall mounted and floor standing versions are also available.

Reader Service No 151



Exterior uplights are recessed

Crescent Lighting is launching the Prado range of exterior uplights for drives, carparks and gardens. The fittings are ingress protection rated IP65.

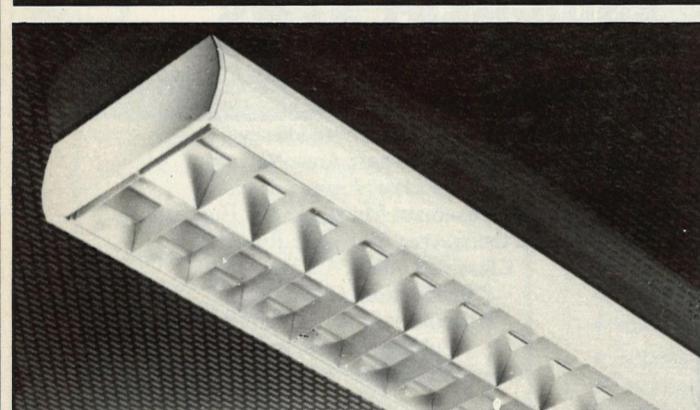
Prado Radial, designed for ground recessing in driveways, carparks and walkways is stated to withstand weights up to 2500kg. It can also be recessed into walls. A 10W PL compact fluorescent lamp is used, with an acid-etched glass cover protected

by a metal grille.

Prado Terra is an uplight for trees and shrubs. There is a choice of three light sources: 75W PAR30 with a 30° beam angle, 80W mercury with a 120° beam angle, or a 12V 100W tungsten halogen lamp with adjustable reflector to give either 30°, 35° or 40° beam. The transparent glass lens is protected by a decorative grille which also reduces glare.

A smaller version of the Terra for wall recessing uses a 10W compact fluorescent lamp and has an acid-etched glass cover.

Reader Service No 152



Inexpensive but stylish lighting

Crompton has expanded its Chevin range of surface mounted fluorescent luminaires with the addition of 1800mm single and twin-lamp versions.

This range is designed to provide a solution for contractors and end-users who need low cost but stylish, low glare lighting. All models are made from a one-

piece rolled and formed body with a stove enamelled finish and plastic end caps.

Standard versions are supplied with lamps, switchstart controls and either low-glare louvres or prismatic controllers. Where louvres are used, optional reflector and control gear covers are available.

Emergency lighting facilities, electronic start and high frequency controls can be incorporated if required.

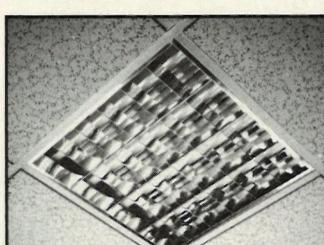
Reader Service No 153

Versatile luminaires

Designer II is a fluorescent luminaire from Simplex Lighting. There are recessed, surface mounted and rod suspended versions. Two, three and four-lamp models are available

Louvres include types for VDU areas and white flat blade louvres for retail environments.

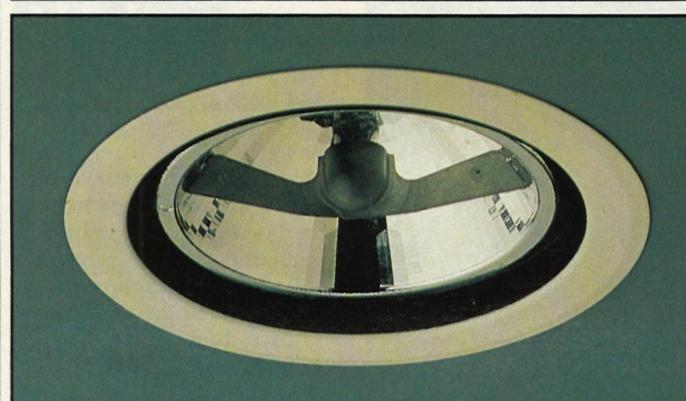
Standard options include high frequency and low loss gear, and



versions for compact fluorescent lamps.

Emergency lighting, separate switching and air handling facilities can also be provided.

Reader Service No 154



Downlight with powerful lamp

The Emblem range of downlights from Hitech is being enhanced by the introduction of a recessed version designed to use the range of powerful 111mm diameter 12V tungsten halogen reflector lamps.

This makes the downlight

particularly suitable for creating dramatic effects or highlighting displays, especially where there is a high level of ambient light, or a high ceiling requires the use of a more powerful lamp. A special reflector cap minimises glare.

There is a choice of four finishes for the luminaire and it is easily installed in ceilings from 0.7mm to 25mm thick.

Reader Service No 155

Downlight is also a spotlight

Powerlite has introduced a 12V 100W downlight for use in either display or general lighting schemes. It complements the company's Microlux range.

As well as acting as a fixed downlight, the luminaire has a swing hinge that allows the dichroic lamp assembly to be positioned below the housing and used as a spotlight. Both white and gold coloured finishes are available.

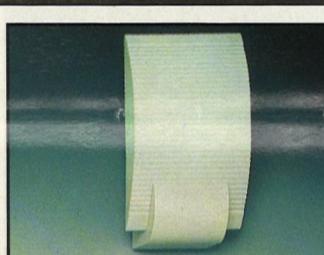
Reader Service No 156

Transformer for sign lighting

An electronic transformer for neon and cold cathode lighting has been introduced by VT Plastics for the point-of-sale and interior sign markets.

The new unit has a cool running temperature and is stated to be both efficient and reliable. It is 220/240V mains powered, measures 224mm long and 47mm wide by 34mm high. It weighs only 0.6kg. These dimensions and light weight minimise stress on the lighting unit framework.

In addition, this one unit fits a range of power requirements and applications. It will operate neon tubes from 9mm diameter by 5.5m up to 20mm diameter by



Wall lights are compact

Lumiance has launched Polo and Polo Linea compact fluorescent wall lights. They have opal diffusers and use twin 9W PL type compact fluorescent lamps.

The low projection of the fittings from the wall makes them suitable for use in corridors and small enclosed areas such as lifts and narrow lobbies. The Linear version with its transparent top can also act as an uplight.

Reader Service No 158

Emergency lighting range

Metalite is a range of self-contained emergency lighting from Zettler UK.

There are versions using 4W, 6W or 8W fluorescent lamps with a light output between 75 and 100 lumens.

The fittings all operate in the non-maintained mode and there is also an 8W maintained version.

Reader Service No 159



11.3m and argon tubes in the same diameters from 9.7m to 18.3m. Wave patterns have been eliminated.

Reader Service No 157

Infra-red lamps for industry

Amber Lamps is introducing a range of infra-red heat lamps for industry.

All standard voltages, wattages and lengths are available. Lamps can also be supplied with reflective coatings.

Reader Service No 160

LIF LINE

The new ruling for diffusers

In June 1992 Approved Document 'B' Fire Safety came into effect amending the requirements of the 1991 Building Regulations. The changes to the existing Regulations affect the lighting industry in two areas; internal fire spread (linings), and the fire resistance of fire protecting and fire resisting ceilings.

The proposed changes to the regulations were commented upon by LIF in the early consultative period, but the changes appear to have been introduced in spite of our comments and now have enormous ramifications for manufacturers and users alike.

The LIF is not prepared to let the issue rest. Following a recent meeting with the Department of Environment, a fully documented case has been prepared by LIF in an attempt to properly address the problems which this new ruling has presented, and this was submitted at the end of November 1992.

In the meantime, however, there has been no relief provided on the new requirements contained in Approved Document B.

The requirement for internal fire spread (linings) says that "to inhibit the spread of fire within a building, the internal linings shall resist the spread of flame over their surface and have, if ignited, a rate of heat release which is reasonable in the circumstances." In this paragraph, 'internal linings' means the materials lining any partition, wall, ceiling or other internal structure.

The requirement covers most internal linings of buildings and the degree of the limitations dependent on the location of the lining. The regulations do not cover and avoid consideration of, strangely enough, the two biggest killers of fires – the generation of smoke and fumes!

Wall and ceiling linings are required to conform to the classification listed in Table 10 in the Approved Document B. These classifications are based on tests prescribed in parts 6 and 7 of BS 476 "Fire tests of building materials and structures" and would appear to preclude the use of thermoplastic materials in diffusers. Unless satisfactory tests have been carried out to establish that a diffuser will provide adequate fire protection it should not be used in fire protecting or fire resisting ceilings.

However, thermoplastic materials that cannot meet the performance criteria in BS 476 can still be used in lighting diffusers under certain conditions and these are set in clause 6.13.

These provisions apply only to lighting diffusers which form part of a ceiling and are not concerned with diffusers of light fittings which are attached to the soffit of, or suspended beneath, a ceiling. Clause 6.13 says that thermoplastic lighting diffusers may be used in areas other than protected stairways, provided the space above the suspended ceiling meets the classification requirements of Table 10. In addition, if the thermoplastic diffuser material meets the TP(a) (rigid) classification there are no restrictions in their use. Thermoplastic diffusers meeting classification TP(b) may be used subject to certain restrictions set out in the Approved Document.

The TP classifications are defined in Appendix A of Document B as TP(a) rigid, TP(a) flexible and TP(b). The vast majority of conventional luminaire diffusers fall into the TP(b) category. Even though these luminaires can be used where the space above the suspended ceiling meets the requirements of Table 10, the limitations imposed by the 3 m minimum spacing between groups of panels means that the new Health and Safety at Work Regulations (with regard to minimum levels of illumination and uniformity) will be very difficult and sometimes impossible to achieve.

A number of studies have been undertaken concerning these problems. In a recent sample, six schemes with varying target illumination levels and operating within the restrictions of the new regulations, were observed. In no case, even within a 4.8 m² area could a uniformity of 55% be bettered, the average was 43%. The best overall uniformity value achieved was 14%, which is a far cry from the CIBSE recommendation of 80%. In other cases, where uniformity levels have been met, adequate lighting levels were not achieved.

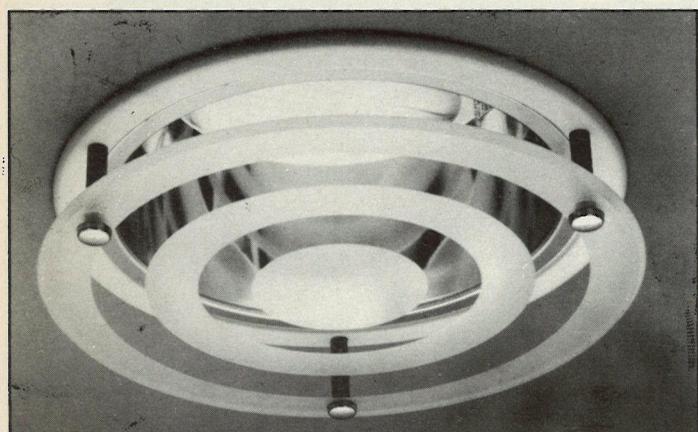
A change to TP(a) rigid materials, polycarbonate or PVC, has other performance implications. The light transmission of acrylic [TP(b)] is 92%, compared with 88-90% for polycarbonate. PVC is lower still. The refractive indices are different – 1.49 for acrylic and 1.59 for polycarbonate. This affects the design of precision optics which have become so important in efficient modern luminaire design. Polycarbonate tends to yellow under UV light and, although acrylics are available with a flame retardant (not, however, as an extrusion grade), the cost of cast sheet diffusers is not a realistic proposition for industry or users.

Let's hope that the Department of Environment sees the light soon, and resolves these issues for the benefit of the lighting industry and the designers.

What have
a Vicar,
a Dinosaur,
and a Croissant
got in common?...



NEW PRODUCTS



Downlight has a halo

Edison Halo has introduced a low energy downlight range with a decorative glass trim. The sparkling 8mm glass, suspended from the underside of the fittings, is easily removed for relamping.

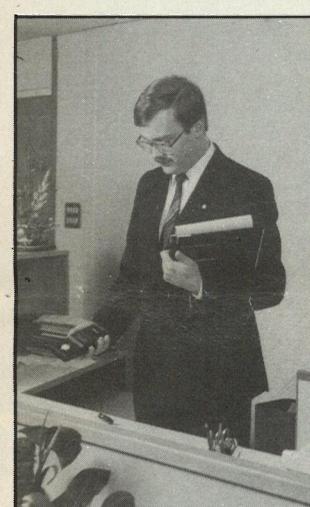
PL compact fluorescent light sources are used. The fittings accommodate either two 13W, or

one or two 18W, or two 26W lamps. The control gear housing is ventilated to allow cool running.

Applications include corridors, lift lobbies and general circulation zones in public buildings with relatively low ceilings.

Reader Service No 161

MINOLTA



Minolta light meters are world renowned for their accuracy and ease of use. All have digital displays and many have a data-out facility for connection to a logger or computer.

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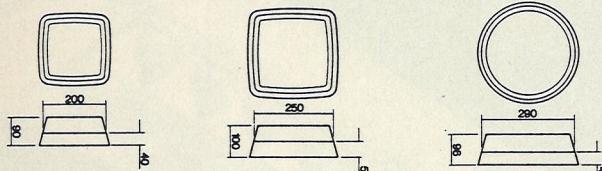
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Reader Service No 4

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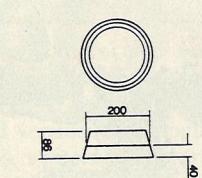
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Milton Keynes, MK17 9EG

Telephone: 0525-874114 Fax: 0525-874202



Italian luminaires add impact

Kalla range of two floor lights and two wall lights uses linear tungsten halogen lamps up to 300W. Designed in Italy, they are available in the UK through Lumino.

A tall slender floor light has a reflector that rotates around the vertically positioned lamp, and a built-in dimmer switch. The supporting tubular stem is either black or satin finished aluminium with two additional slim metal arms to provide stability.

These luminaires are intended for prestigious interiors such as hotels, banks and reception areas.

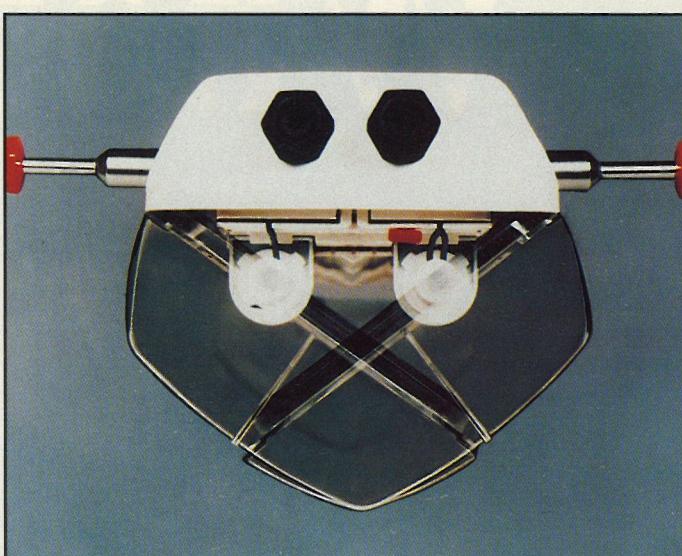
Reader Service No 163

Tamperfree plug

Pencon's plug for table lamps has a mechanical latching and staking to ensure a permanent fixing of the plug body.

It offers lighting manufacturers a tamperfree plug to meet the increasing demand for plugs to be fitted prior to sale.

Reader Service No 164



Luminaires for zone 1 areas

ABB Control has launched a range of luminaires for use in zone 1 hazardous areas. They conform to category EEx edm IIC T4. The 92 Series is rated for operating voltages of 220-250Vac $\pm 10\%$, 47-63Hz, and 220Vdc $\pm 20\%$, in temperatures ranging from -25°C to $+50^{\circ}\text{C}$.

Basic versions of the fitting use one or two 20W, 40W or 65W fluorescent tubes; emergency

lighting versions of the 20W and 40W models will also be available. All incorporate high frequency electronic ballasts.

A major advance of the 92 Series is the reduction in weight, an important feature for off-shore platforms.

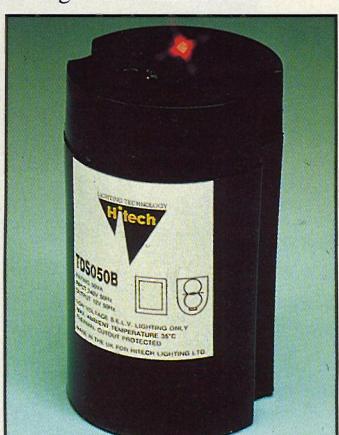
Features include sealing to ingress protection rating IP66 provided by a new closing method, high light output, low energy consumption and long operating life. A number of mechanical design features ease installation and maintenance.

Reader Service No 165

Slim transformer for downlights

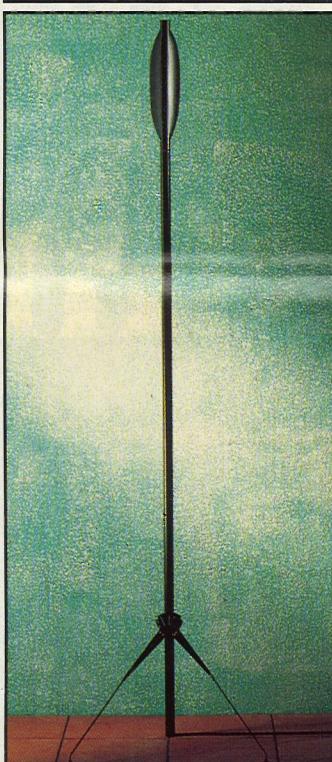
Unitran is a low voltage lighting transformer from Hitech Lighting that has been designed to fit through the size of ceiling aperture required for most downlights. Its overall diameter is 63mm.

The conventionally wound unit incorporates an auto-resetting thermal cut-out together with a primary fuse which is accessible through the terminal cover.



Three ratings are available, 20VA, 35VA and 50VA. A fixing strap facilitates installation.

Reader Service No 166



Cost effective lighting control

Reactalux is Crompton's first lighting management system. It can be used with both new and existing lighting schemes in almost any office, industrial or public area.

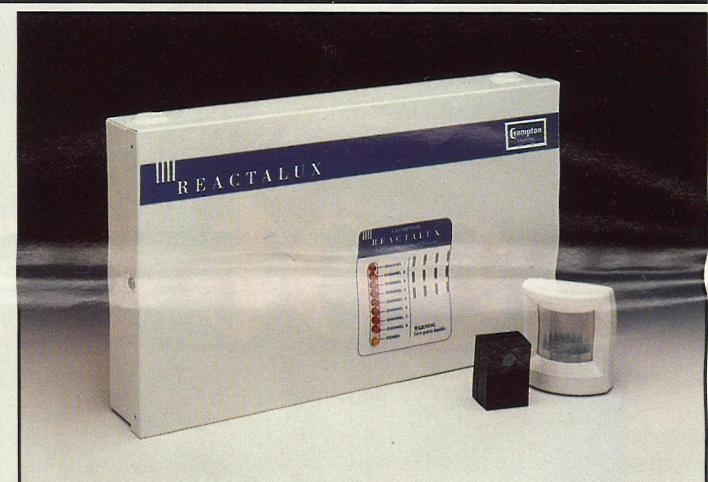
The flexible nature of the system makes it particularly suited to buildings where the final office design is unavailable at the time of installation.

Consisting of a central control unit, passive infra-red sensors and remote opto-sensors, the system responds to daylight level and occupancy of the workplace. It can also connect to devices such as pressure pads and door contacts.

Requiring no complex infras-

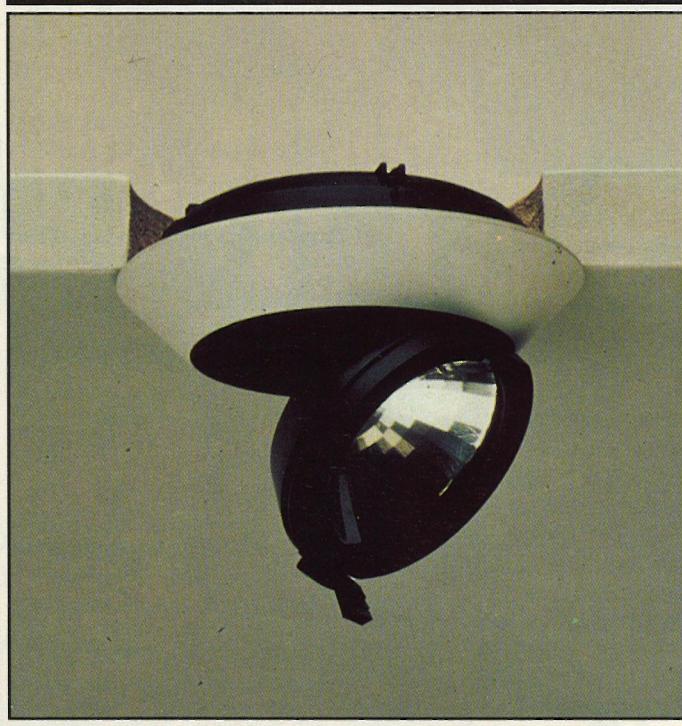
tructure or computer interface and costing only a few hundred pounds, Reactalux optimises energy savings in a cost effective manner.

The system operates from a



standard 240V supply and requires no user intervention once installed, allowing the central control unit to be located in a remote area such as a ceiling void.

Reader Service No 167



Downlight is versatile

Starlight 1 is a low voltage, recessed adjustable downlight from Staff that can be tilted out of the housing by up to 85° and rotated through 360° .

Designed for use with 10W or 20W tungsten halogen lamps,

applications include display cabinets. It may be installed in ceilings with depths of only 0.63mm using concealed screws, as well as in ceilings 10mm deep and over using a spring mounting.

For a more striking impression, the fitting can be complemented with a variety of surface mounted cones, rings, mirror rings and a surface mounted tubular housing.

Reader Service No 168

Emergency handlamp

An emergency industrial handlamp from Clarke Products enables work to proceed while the source of the problem is traced.

It gives three hours' light after a 10-14hr recharge. Models are available for three different voltages. A 20W tungsten halogen lamp is used.

The spotlight head, which incorporates a carrying handle, is mounted on a battery box. A keyhole slot is provided for wall mounting.

Reader Service No 168

Chips for ballasts

Ambar Components has a micro linear power factor chip for electronic ballasts for fluorescent lighting.

Contained in the chip are controllers for 'boost' type power factor correction as well as for dimming.

Reader Service No 170

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

..Lighting by F.W. Thorpe PLC.



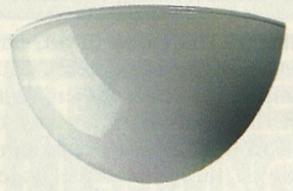
The vicar in question is resident at St. Mary's Church, Bickleigh, Devon;

where his sermons are now illuminated by the superb

COMPACT

low energy uplighting scheme, installed to enhance the interior of his

beautiful period church by Anthony J Smith of Gloucester.



A range of compact downlighters, uplighters and low energy luminaires.



The Thomas & Euclid range of tailor-made low voltage lighting systems.



Our Dinosaur meanwhile, is merely a model (a very detailed one

though, sold by The Natural World Store in Cheltenham, Glos.)

The brief? To design an adjustable system using dichroic lamps,

to be directed precisely at the displays - thereby bringing them to life...

(it's amazing what a tailor-made system from

AXIS can do!)



And the croissant? Well, we admit this one's a little tenuous, but during

Channel Tunnel excavations; the world's largest man-made undersea cavern has

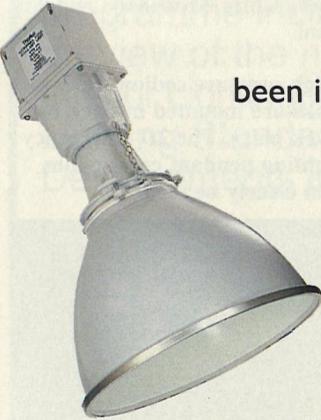
been illuminated by

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Floodlights and

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most arduous conditions. All unbeknown to those Frenchmen



who'll be breakfasting on croissants during rail crossings in 1994. C'est bon!



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Earls Court, the major London Exhibition Centre, famous for staging such events as the Boat Show, the Royal Tournament and the Ideal Home Exhibition, has recently completed a major programme of lighting refurbishment. *LEN* reports on the savings achieved.

Savings on one

The original Earls Court 1 complex, with over 41 000 sq m of exhibition floor area, was opened in 1937. This has now been increased to 60 000 sq m with the addition of the recently constructed Earls Court 2. Earls Court 1 is basically two vast exhibition floors with a central hall. Office accommodation and other facilities are located in the wings of the building.

A lighting refurbishment programme began in 1985 as part of a phased energy saving pro-

gramme. The brief to the lighting designer, Iain Maclean of Thorn, was to:

- provide a better environment for visitors both in terms of illuminance and in creating a warm, comfortable atmosphere;
- be energy efficient;
- improve maintenance and access;
- provide a switching system for controlling the exhibition area lighting.

Throughout the complex, the original tungsten and fluorescent

installations, which date back to 1937 and 1951 respectively, have been replaced by combinations of low, medium and high bay high pressure sodium fittings from Thorn, which have been used to meet the lighting needs of the various exhibition halls. Deluxe high pressure sodium was selected as a light source after extensive trials, as it combines good colour rendering and high efficiency with energy conservation and a reduction in maintenance costs. The old VIR wiring,

which was creating increasing maintenance problems, was replaced at the same time as the new lighting was introduced.

The first phase in the introduction of high pressure sodium lighting took place in 1985 and totalled 244 x 250W and 210 x 150W lamps in Radpaks. This fitting provides a radial batwing light distribution particularly suitable for symmetrical spacing in large, open areas.

Main hall upgrade

Phase 1 was followed some years later with the upgrading of the main hall, from 1500W GLS over to 112 x 400W high bay HPS fittings. Fittings are suspended in clusters and the mounting height can be altered to suit the need; access for maintenance is relatively straightforward. Within the main hall, batteries of 1500W tungsten halogen floodlights are provided to boost the lighting for those events which require large quantities of instant light. The central twelve clusters or pendants are each fitted with ten floodlights.

The vast areas surrounding the



The available exhibition space at Earls Court Exhibition Centre was increased by almost 17 000 sq metres when Earls Court was opened in 1991. Lighting was to the standard expected of a modern exhibition hall. Thorn Hipak high bay fittings are chain mounted from the new hall's curved roof which measures 25m from floor to apex. The lighting designers chose a medium distribution reflector matched with 400W SON deluxe lamps which produce an average illuminance of 600 lux.

The reflector is designed to provide batwing distribution with good glare control and uniformity of horizontal illuminance. It produces a high level of vertical illuminance and allows for increased spacing of the luminaires, thus making it ideal for exhibition halls. Ventilation slots in the neck of the fittings produce a self-cleaning effect where the air scours the reflective surface, so maintenance costs are also reduced. Emergency lighting is provided by Haline floodlights using 200W tungsten halogen lamps, exit boxes and other bulkheads.

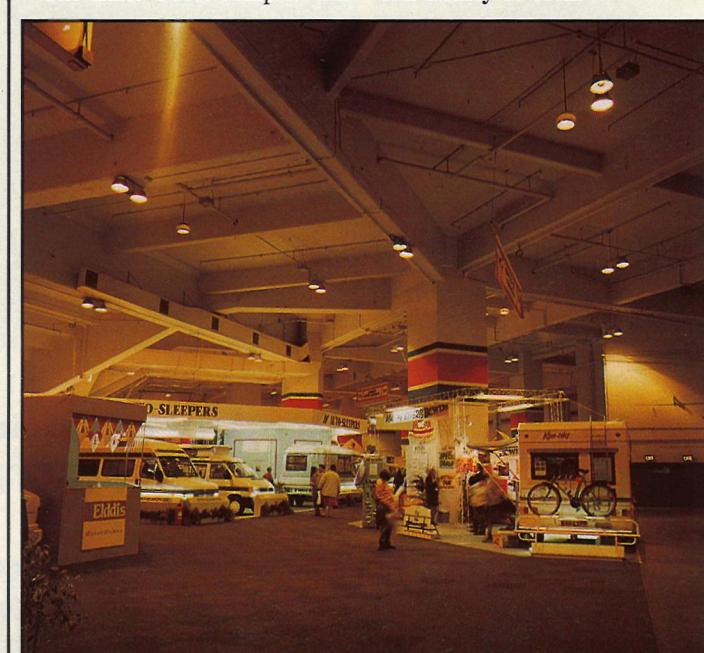
main hall have progressively changed over from 300W and 500W GLS fittings to HPS. In detail, 560 x 250W Radpaks, 28 x 150W Radpaks, and 82 x 150W low bay fittings have been used. Adjustments to lamp wattage allowed for the variation in the ceiling heights and the sizes of particular space. Fittings are normally mounted back to back in pairs and are suspended by chains. Single fittings are installed where physical constraints including structural low ceiling heights and closer than normal spacings so demand. Those remaining GLS pendants, retained for emergency lighting, have been converted to take compact fluorescents.

In total the new lighting scheme represents an electrical load of approximately 833kW – so electricity consumption has been cut by a staggering two thirds.

The sheer scale of the ongoing programme to increase illuminance and save on energy and maintenance costs is the major feature of this scheme. And energy saving considerations have swept aside gloomy tungsten and fluorescent lighting allowing high pressure sodium and compact fluorescent luminaires to come in, doubling illumination and at the same time cutting running costs by two thirds.

The use of low energy sources maximises the light output and the programmable lighting control system produces further savings. That the change has been so marked and has been accomplished so smoothly is a tribute to Earls Court's chief electrical engineer, Chris Morrison, and his team.

High pressure sodium Radpaks are mounted in back to back pairs. The 2D emergency lighting pendant conversions can clearly be seen.



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Reader Service No. 6

Light Show '93

Exhibitors

Abacus Municipal	B3
Abstracta Construction	E32
Acorn Lighting Products	F7
Aimbridge International	G12
Anglepoise	C2
Ano-Coil	C31
H & L Appleby	F39
Arden Manufacturing	C6
Aristocraft	E33
Arrow Plastics	H18
Autumn Lighting	G33
Axis Lighting	B29
B C Metalcrafts	F23
BCP Lighting - Kingfisher	B17
BLV Licht und	D31
Vakuumtechnik	H32
BSI	C25
Bayada Bros & Co	A2
Bito (London)	



EARLS COURT 2
L O N D O N
FEBRUARY 14 - 17

Opening Hours 09.30 to 18.00 Daily
Late Night Monday 15th 09.30 to 20.00

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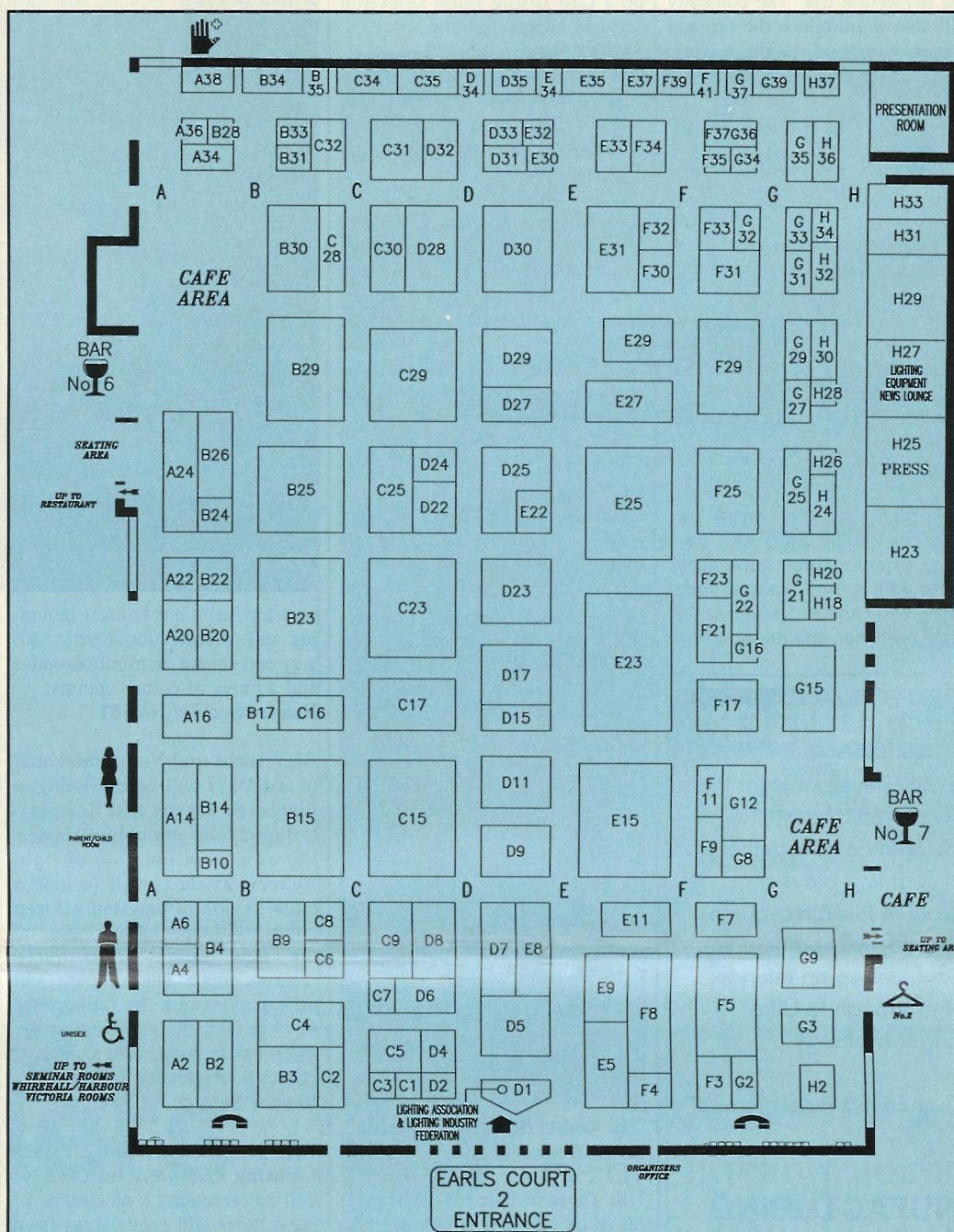
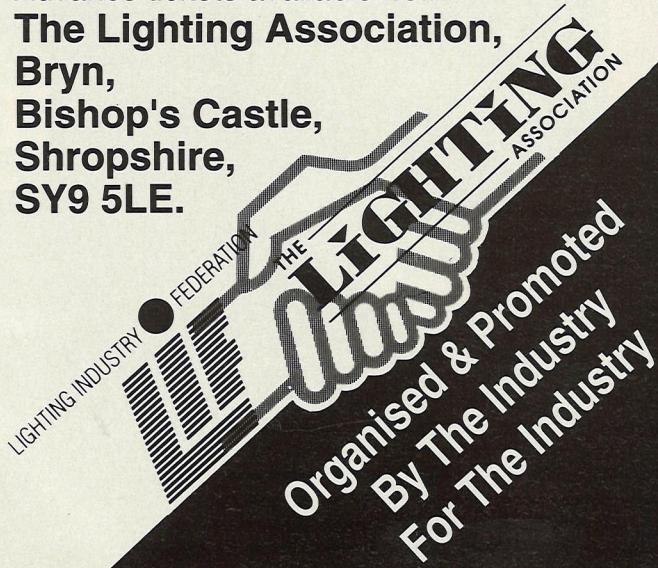
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Classicana
Collingwood VLM
Compact Lighting
County Shades
Cryselco
där Lighting
David Hunt Lighting
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Fowler Pottery
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W Moorcroft
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C7
F37/G36
D29
F30
C17
D24
C32
F32
C3
H30
D28
D23
D7
C1
C28
F25
B26
G37
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G32
H20
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F3
C34
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G16
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G34
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B23
A4
C9
D35
G39

Neptune Shades
Noma Lites
Noral
Orbik Electronics
Osram
P L M C
P M Lighting
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Seitz & Co
Serva Lighting
Servelite UK
Siemens Lighting
The Silk Gate Collection
Silver Lynx Products/Crest
Industries
Simon & Simon
S Smith Electrical Fittings
Smithbrook Lighting
Speights
Squire Lighting
Starlite
Straits Trading Co
Strand Lighting
Thorlux Lighting
Thorn Lighting
Timage & Co
Transtar
Twinpower
Victor
Vitreia
D M Walker/Walker Picton
West One
Wieland Electric

D32
A16
A14
C5
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F11
E37
B2
G29
B30
B14
H2
B29
B25
B25
D33
D4
G27
D4
E5
F5
H37
E11

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ON
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THE EUROPEAN
LIGHT
SHOW
EARLS COURT 2
L O N D O N
FEBRUARY 14 - 17

Abacus Municipal Ltd (stand B3) will be exhibiting examples from its complementary ranges of luminaires, street lighting columns, street furniture and bus passenger shelters.
Reader Service No 175

Anglepoise (stand C2) will be showing its full range of task and ambient fittings, using GLS, tungsten halogen, miniature fluorescent and high intensity discharge light sources. These will include models for domestic, commercial and inspection use. The company will also re-introduce the original spring balanced 1930s classic Anglepoise, in celebration of its 60th anniversary.
Reader Service No 176

Ano-Coil (stand C31) will be displaying several new high performance specular products, with a new semi-specular product which has been produced to help lighting designers meet the requirements of the LG3 code. Visitors to the stand will also find information on the company's facilities, including the support laboratories at Ano-Coil's new plant in Milton Keynes.
Reader Service No 177

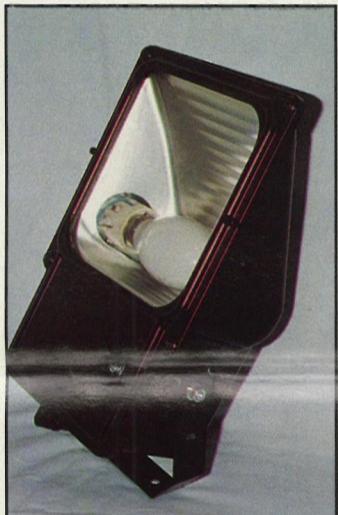
Launched at the show by **Appleby** (stand F39) will be a range of emergency luminaires. There will be two types, a circular 16W 2D and a rectangular 9W PL - both non-maintained with

vandal-resistant polycarbonate diffusers. The company will also be showing its new range of security products. These include PIR detectors with and without floodlight, and luminaires with photocell detectors which automatically switch on at dusk and off at dawn.
Reader Service No 178

New ranges in glass will be shown by **Arden Manufacturing** (stand C6), including a colour co-ordinated range. There will also be a clip fitting glass selection and low energy lighting.
Reader Service No 179

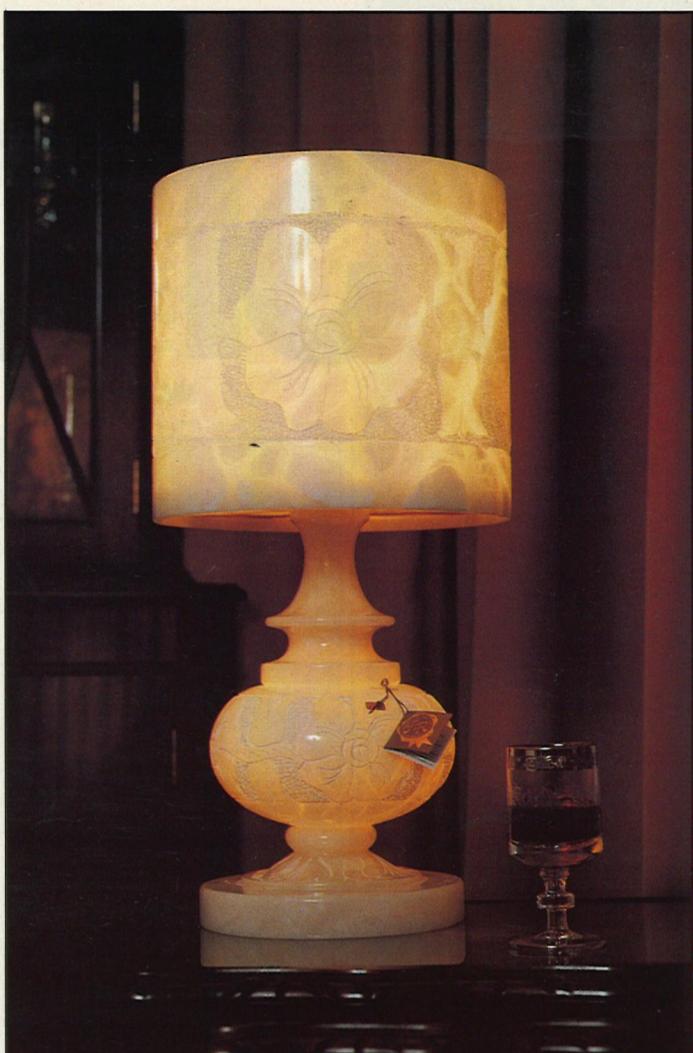
Visitors to **Arrow Plastics** (stand H18) will be able to see a new range of lighting controllers and attachments, designed to suit most luminaire manufacturers' requirements. The range includes polycarbonate lowbay covers, acrylic and styrene extruded twin and single diffusers in clear prismatic, opal and twin colour forms, lay-in dish diffusers and a polycarbonate lens suitable for use with surface and recessed discharge luminaires.
Reader Service No 180

BCP Lighting and **Kingfisher Lighting** (stand B17) are showing ranges of amenity and roadway lighting and floodlighting, including several products new to the



The Comet floodlight, suitable for HID sources 50W/150W.

UK. These include the Traditional range of cast-iron Victorian-style decorative columns and a range of painted and bronze lanterns for sources 60W GLS to 250W HID. New from the USA is the LSI range of amenity and area lanterns (50W/1000W lamps) for



post-top, arm and bracket mounting and offering floodlight, roadway and square distribution optics and a range of colour options.
Reader Service No 181

BLV Licht und Vakuumtechnik (stand D31) will be exhibiting at Lightshow for the first time, featuring colour and colour rendering as a main function of light sources. Products will include a cross-section of tungsten halogen lamps, with special emphasis on the new range of coloured dichroic lamps. The company will also demonstrate the importance of choosing the right colour of metal halide lamp, with a show of Hilit double-ended lamps.
Reader Service No 182

This year **The British Crystal Lighting Company** (stand B34) will be presenting a new range of lamp bases and candelabras from Tyrone Crystal. The company will also be introducing several new designs and informing visitors of its in-house design service for bespoke chandeliers.
Reader Service No 183

British Electric Lamps Ltd (stand D15) will be showing an extended range of lamps, including the long life incandescent commercial types. The company has also introduced two new moulded ceiling models, taking incandescent and energy saving lamps, to its range of amenity products. Also new are swivel reflector spotlights, task lights and a high IP rated showerlight.
Reader Service No 184

Glass uplights will be a new line on the stand of **C A Lighting** (stand E8).
Reader Service No 185

Candilejas (stand G35) specialises in Spanish alabaster and will introduce new ranges of table lamps.
Reader Service No 186

Chloride Bardic (stand D11) will

Decorative lamps from **Candilejas** Decorative Lighting.
Reader Service No 187

be putting safety first at the show, featuring systems for the automatic testing and monitoring of emergency lighting and fire safety systems. This facility can put luminaires and emergency lighting systems into a simulated mains failure, pre-defined to coincide with periods of least risk.
Reader Service No 188

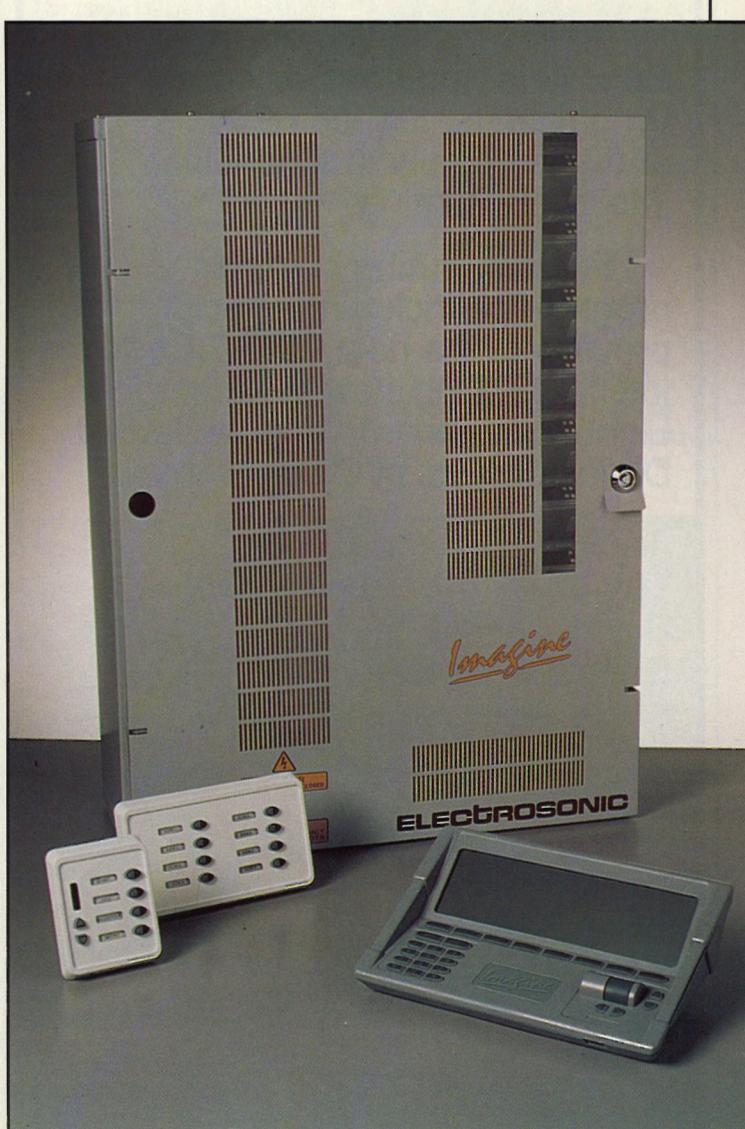
Collingwood (stand B20) will be exhibiting a range of components which include lampholders, switches, cord sets, brass swivels and brass castings. Also on show will be a range of lighting glass, including machine- and mouth-blown in both opal and coloured glass.
Reader Service No 189

Alongside its modern lighting, **Deknudt** (stand H23) will exhibit chandeliers that bridge the gap between traditional and modern styles, for example with simple nickel frames and candle lamps.
Reader Service No 190

Designplan (stand C30) will be showing a range of products for areas where engineering quality and aesthetic considerations go together. These will include products able to withstand severe physical attack, as well as architectural uplighters, amenity bollards, commercial battens and Category II low brightness louvred fittings for VDU areas.
Reader Service No 191

From **Down Street Electrics** (stand F33) there will be a range of 240V downlights, eyeball spotlights and new track fittings. A complete range of low voltage and metal halide luminaires will also be seen.
Reader Service No 192

IMAGINE is a range of architectural lighting controls from **Electrosonic** (stand D27), designed for use in any commercial or entertainment application where there is a need for continuous control of lighting. The system consists of a flexible range of products, from a simple four



Imagine, Electrosonic's architectural lighting control system.

LIGHTING FACTFILE NUMBER 1

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Reader Service No 8

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THE EUROPEAN
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FEBRUARY 14 - 17

channel system to a systems with a total of 1024 channels on 1024 different lighting scenes.

Reader Service No 192

Elstead Lighting (stand C35) will show diecast aluminium exterior lighting, including its 1993 lanterns with passive infrared switching controls.

Reader Service No 193

Existalite (stand F31) will be showing the ART decorative luminaires, recently added to the HyLITE range of combined mains and maintained emergency lighting luminaires. Also on show will be the Guide-LITE range of

Existalite's Flex-LITE dedicated light box.

low mounted escape route lighting systems, including the new LED version aimed at hazardous areas. Visitors to the stand will also be able to see the Flex-LITE dedicated light box which offers functional lighting via optical fibres and decorative display fittings.

Reader Service No 194

Low voltage tungsten halogen lighting will be shown by **First-light** (stand D17) A recessed, 240V downlight for use over baths and in shower cubicles will

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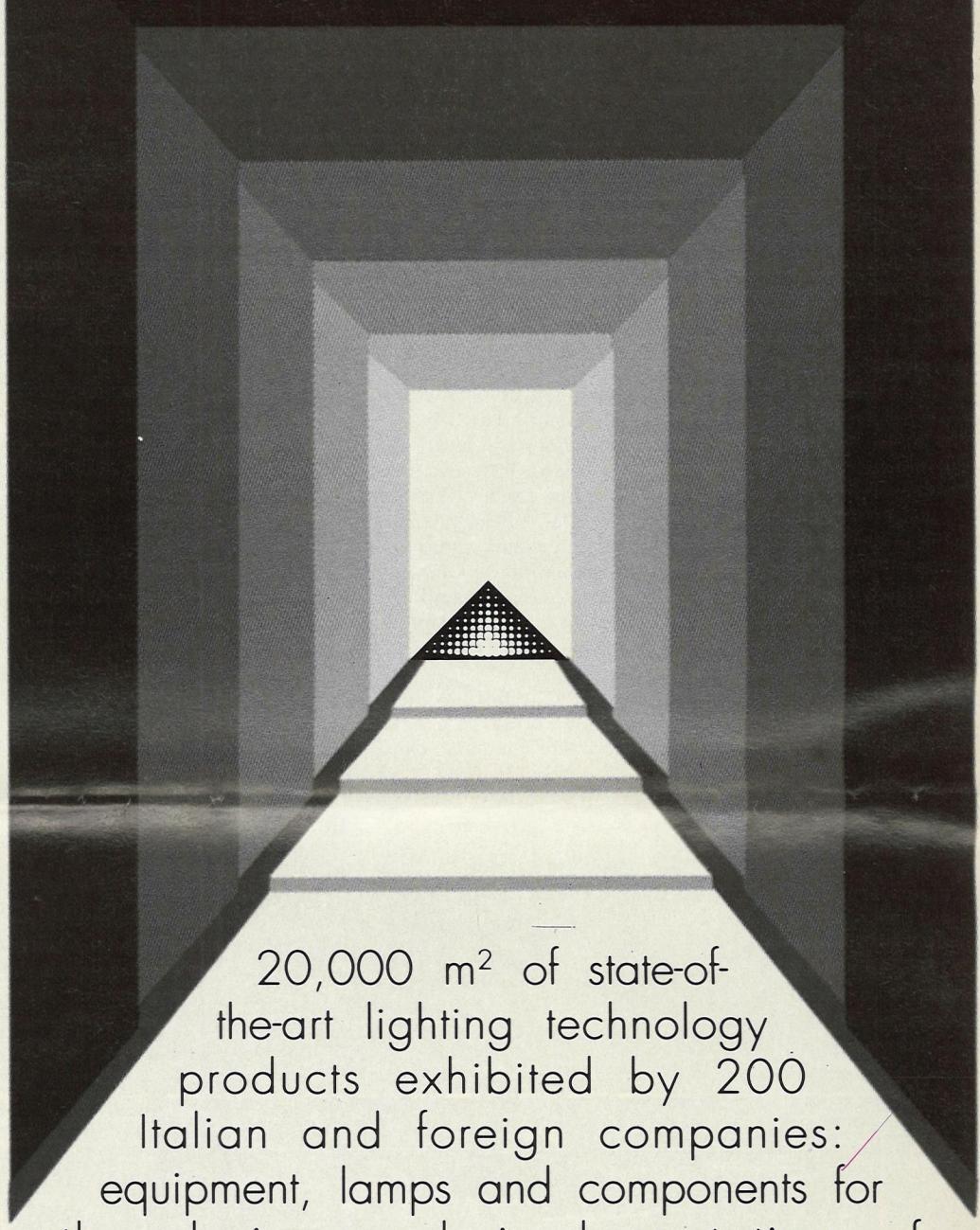
Reader Service No. 10

Lighting Equipment News, January 1993

I PADIGLIONI DELLA LUCE

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by newteam



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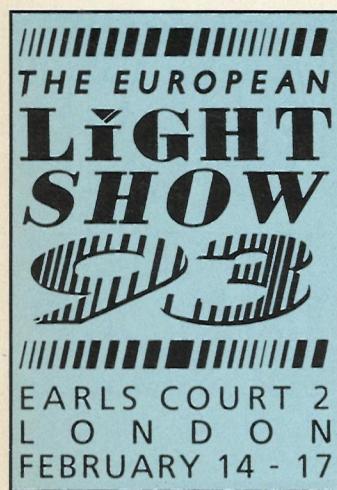
Please send me detailed information about I PADIGLIONI DELLA LUCE 93

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Reader Service No. 11

Page 11



also be launched. It is sealed to IP66 standard, uses a 100W R80 lamp and has an overall measurement of 127mm.

Reader Service No 195

Fitzgerald Lighting (stand C29) has expanded its range and will be showing louvres suitable for 'VDT' use, with a range of luminaires. The company has added the Gridpack and Premier to its range of surface and recessed luminaires and these will be on show, along with a new high bay reflector and explosion proof luminaires.

Reader Service No 196

Florida Furnishings (stand B35) is planning a display of its American styled table lamps with coloured glass bases.

Reader Service No 197

Franklite (stand F8) will exhibit new glass shades, alongside spotlights and Le Dauphin's 1993 collection of table lamps.

Reader Service No 198

GE Lighting (stand E25) will be promoting the message that Thorn lamps are now GE lamps, and all products previously branded Thorn will now be distributed in GE packaging. Products on show will include compact fluorescents and Halogen IR, a new coating development created from thin film technology and said to increase lamp efficacy. Halogen IR coating captures otherwise wasted infra-red energy and recycles it to produce more visible light. According to GE, a 100W tungsten halogen lamp with a coating of Halogen IR produces the same light output as a 150W equivalent.

Mazda will unveil its Softglow range, featuring new colours, shapes, packaging and wattages.



Firstlight's SL240 100W shower light gets a thorough waterproof test at Nuneaton Fire Station.

New additions to the Mazda Low Energy range will also be on display, including the new lightweight Low Energy lightbulb and two versions of the slim and lightweight 4L Low Energy lightbulbs – all with separate re-usable adaptors.

On show for the first time will be Mazda's Lighting Centre, designed to hold the company's range of lamps.

Reader Service No 199

Golden Peacock (stand D35) will be presenting its new Pushbar brass lampholder, said to be revolutionary in design. The company will also be showing its specialisation in brass turned parts, castings, swivels of various sizes

and light fitting parts.

Reader Service No 200

Helvar (stand D29) will be showing examples from its range of products, including standard wire-wound ballasts for fluorescent lamps, low loss ballasts, HID ballasts and high frequency electronic ballasts. Also on show will be three piece, single piece, non-dimmable, dimmable and controllable dimmers, along with control devices for FL and high frequency electronic ballasts.

Reader Service No 201

Smart Electric Line (SEL) is a new lighting control system from

Herholdt Spa (stand F30), described as a quantum leap in control technology. The system has the facility to install and control a variety of light sources on the same circuit, with infinite switching capacity using a simple momentary contact switch. Consisting of modular components, SEL is said to be equally applicable to both new or existing lighting schemes, without the need for control wiring, control gear or high skill levels for commissioning or operation.

Reader Service No 202

Holophane (stand C17) will be using the show to launch its new Grosvenor and Mayfair luminaires, said to drastically reduce light pollution. Designed for column or wall mounting, both fittings use prismatic technology to eliminate upward light without sacrificing performance. Also on show will be the Arcadia, designed for use with compact light sources such as compact metal halide, white colour sodium lamps, tungsten halogen and compact fluorescent.

Reader Service No 203

On display from **Hybec** (stand C32) will be a range of commercial lamps – linear halogen, dichroic mirror, metal halide, sodium and T5 fluorescent lamps. The show also coincides with the launch of Hybec's Specialist Lamp division and a small selection of items available will be displayed.

Reader Service No 204

Illuma Lighting (stand D28) will be introducing four new products ranges at the show. The Lightseal IP65 downlights for bathrooms and showers can be used with 2 x 7 W or 2 x 9 W lamps and are available with a variety of attachments. The Highspot HQI spotlight is designed for prestigious applications where high levels of illumination are required. HQI Spotlight uses a high efficiency

super pure aluminium reflector and is available for both track and surface mounting.

Low Voltage Project Downlights include a number of features, including a snap shut wiring connector box, pre-wired lampholder and 10 Amp terminal block, detachable zinc plated yoke and high temperature ceramic lampholder. The Halogen Deluxe PAR range of spotlights includes open back, wireform and strap versions. These units are said to offer superior beam control and greater efficacy than conventional incandescent lamp sources.

Reader Service No 205

IMI Reeves (stand H30) now offers its lampholders pre-wired to meet specific requirements. It will be showing a range of products, including brass lampholders, candleholders and brass plated steel holders.

Reader Service No 206

JSB Electrical (stand F25) has a new range of mains lighting for commercial applications and now offers an integrated design service for both mains and emergency lighting at no charge.

Reader Service No 207

Konstsmide (stand E9) will display its outside lighting in the



JSB Electrical will show a wide selection of luminaires.



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Reader Service No. 13

Lighting Equipment News, January 1993



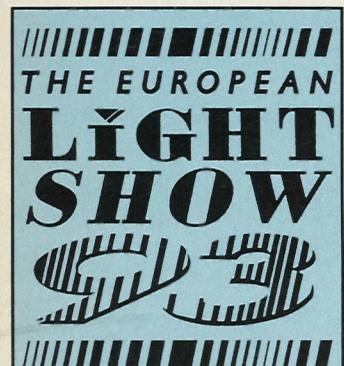
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**Philips Lighting at the European Light Show,
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EARLS COURT 2
L O N D O N
FEBRUARY 14 - 17

form of wall lights, column and path lights. All have a 25-year anti-corrosion guarantee.
Reader Service No 208

S Lilley & Son (stand B33) will be showing examples from its ranges of brass lampholders and lighting accessories. Visitors to the stand will also be able to pick up a copy of the company's new catalogue.
Reader Service No 209

Appearing for the first time in Britain will be MTS Tison Sauquet (stand G32) showing low voltage tungsten halogen uplights, wall and floor lights in polished steel or lacquered gunmetal.
Reader Service No 210

Visitors to Mackwell Electronics (stand H20) will be able to see new module ranges for emergency lighting as well as versions for low voltage tungsten halogen light sources. Also on show will be inverters for 12V, 24V, 50V, 110V and 240V ac/dc supplies.
Reader Service No 211

Maclamp (stand D34) will be



Mattalex's disk/R luminaire which gives 360° viewing.

showing its extensive ranges of spotlights for contract and domestic applications.

Reader Service No 212

Mattalex (stand G16) will exhibit

the castaldi range of exterior and interior luminaires, featuring three new models. The egeo N2 is a floodlight offering a multiple choice of light source with specifically matched optics. The eco is

a wall mounted luminaire in high impact polycarbonate with a 75/25% reversible light output ratio and is suitable for low and medium height exterior applications. The disk is a ground mounted recessed and surface walk and driveway luminaire with varied light sources and attachments capable of withstanding both human and vehicular weight.
Reader Service No 213

Maylectro (stand E31), the emergency lighting division of Gent Ltd, will be exhibiting the new Teletest controllers, self contained luminaires with PL lamps and Twinspot luminaires for lighting large open areas. The company's luminaire range is divided into the competitively priced Challenger range and the high specification Prestige range, both supplied with Teletest as standard.
Reader Service No 214

Menvier (stand C4) has developed the Energy Bonus range of emergency luminaires using high frequency electronic ballast tech-

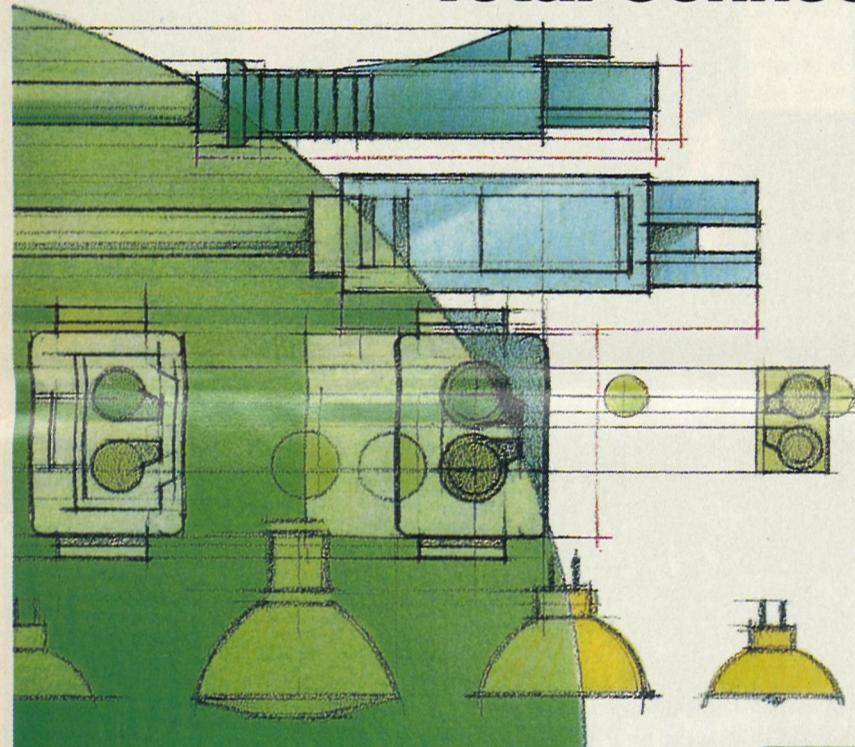
as 12 families of indoor lighting. The display will include commercial luminaires.
Reader Service No 215

Visitors to Moorcroft (stand E22) will be able to see a full range of handmade table lamps. In addition to established ranges, there will be several new lamps on show.
Reader Service No 216

Four new products will be launched by Noral (stand A14) in its range of contemporary fittings designed for use with compact fluorescent lamps. These include the Mall, aimed mainly at parks and pedestrian precincts and the Domino wall mounted fitting. Also new is the Oslo luminaire, said to be perfect for local authority use as it can be supplied with crests or unique colour specifications. The company will also be exhibiting luminaires from its range of period lanterns.
Reader Service No 217

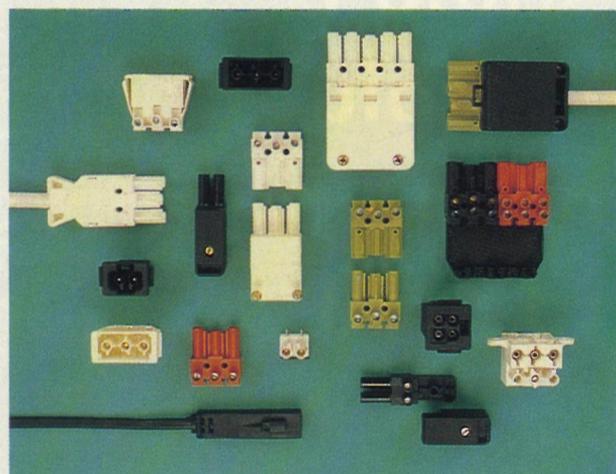
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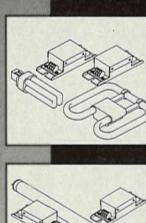
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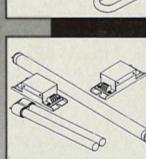
Reader Service No. 15

ADVANCED LIGHTING INDUSTRIES HIGH FREQUENCY CONTROL GEAR

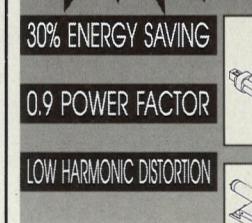
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BM02	15 - 16	✓				✓
BM03	18		✓			
BM04	18 - 21	✓		✓	✓	
BM05	24 - 30	✓	✓	✓	✓	
BM06	36 - 38	✓		✓	✓	

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Reader Service No. 16

Lighting Equipment News, January 1993



to the future in lamp design. New compact fluorescent lamps will include the Dulux T and T/E, using triple turn technology for separate ballast control. The Dulux EL, in 15W, 20W and 23W BC and ES caps, and the new smaller 7W and 11W lamps will also be featured.

On the halogen side the Halostar 12V, 20W and 50W capsule lamps with reduced UV will be in display, together with a range of electronic control gear and the new range of consumer luminaires.

Reader Service No 220

Glass pendants will be among the display by **PLMC** (stand F17). Other items will be ceramic bases with silk shades and terracotta

bases.

Reader Service No 221

PM Lighting (stand A6) will have additions to its modern acrylic fittings by **Rapid**.

Reader Service No 222

J & M Parker (stand B31) will include glass panelled lights among its display, as well as rise-and-fall fittings and brass ranges.

Reader Service No 223

Philips (stand B15) will be demonstrating its ability to supply both fittings and lamps. On display will be a range of domestic lamps, including the new Brilliant White, Commercial and Industrial lamps, such as the QL lamp and specialist lamps such as oven and



Panelled shades with glass fringes from **PM Lighting**.



Searchlight's gold plated lighting range.

MNG 7535 9.92 W2

Philips will show its Ergovision office lighting range.

car lamps. Also on show will be fittings aimed at the retail, office, industrial and sports and leisure markets. The company will also be promoting the services and support it offers to customers.

Reader Service No 224

Reggiani (stand G9) will be launching its new Super Technne range of compact fluorescent and metal halide recessed luminaires. The range features die-cast aluminium flanges and high performance plastic reflectors, including low brightness, comfort and wall-washer versions. The company will also show the new IP67 range of recessed waterproof downlighters, the IP40 range of metal halide projectors and a junior version of the Sunlight projectors, called Sunnylight.

Reader Service No 225

Among the wide selection by **Searchlight** (stand C15) will be ranges of gold plated lighting with crystal trimmed glass shades.

Reader Service No 226

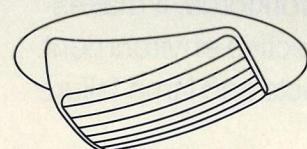
THE EUROPEAN
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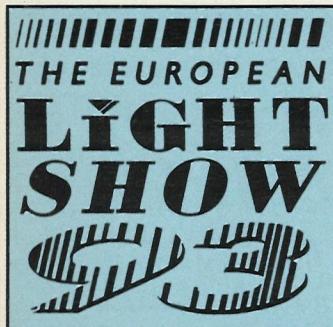
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TRILUX



EARLS COURT 2
L O N D O N
FEBRUARY 14 - 17

First time exhibitor **Serva Lighting** (stand D5) concentrates on alabaster and brass lighting. Its stand will also display award winning silver and oxidised bronze lights.

Reader Service No 227

Servlite (stand C16) will have glass pendant shades and English glass panel fittings, alabaster table lamps and a range of colour co-

ordinated ceramic spotlights.
Reader Service No 228

Siemens (stand G15) will be launching some new products at the show, as well as covering some of the major issues within the lighting industry - such as the new regulations for the lighting of VDU workstations, and energy efficiency.

Reader Service No 229



Serva Lighting's award winning silver and oxidised bronze lights.



Some of the products on offer from Strand Lighting.

Included in the range of products on display from **Strand Lighting** (stand H2) will be EC90 Digital Dimmers and the Premiere architectural control system. Premiere is a series of standard control stations linked to a central processor. The system can be customised to provide appropriate lighting control for any building application and is designed to be operated by non-technical staff.

Reader Service No 230

New products from **Thorlux Lighting** (stand B29) will include the Wimbledon, a fixed head floodlight with integral control gear, said to be ideal for tennis court lighting. Also new is the surface Alterlux, a surface mounted fluorescent luminaire with reflector louvres and a new prismatic bulkhead.

Sister company Compact Lighting will be providing product and technical information on its low energy uplighters, downlighters and display luminaires. Also part of the F W Thorpe group, Axis Lighting will be displaying its Shelf Light system, which has some new additions, such as a

solid conductive strip and clamp-on power connectors.

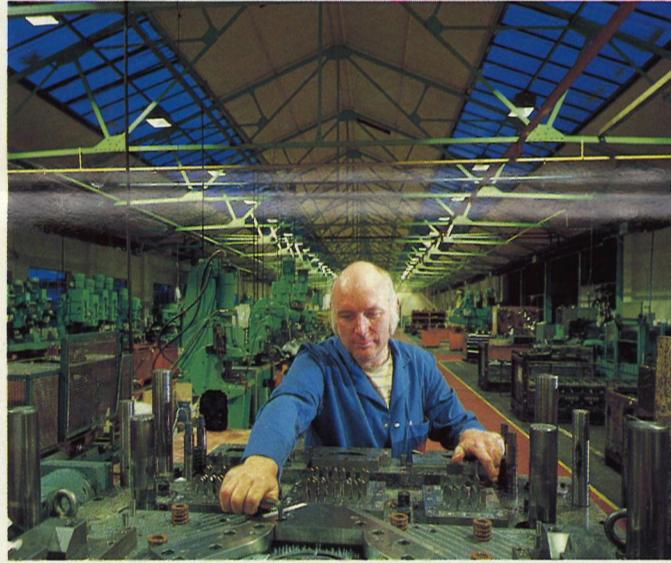
Reader Service No 231

All of the recent additions to **Thorn Lighting's** (stand B25) portfolio will be on show this year. These include the Cosmolight for upmarket interiors and the Arrowslim Connect for continuous fluorescent lighting.

Placing an emphasis on display lighting, the company will reveal Adagio, a new range of spotlights which feature a common optical size but offer a choice of three different light sources. The new spotlights can be track or ceiling mounted and have inte-

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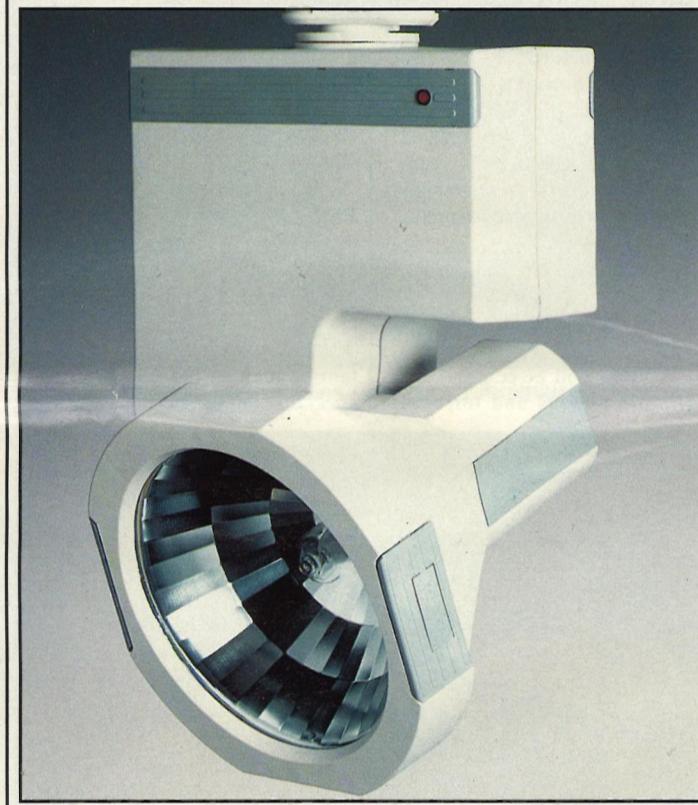
In today's demanding industrial environments, lighting must be both sufficient and appropriate for the task it illuminates. Not only does this result in a more productive workforce, it makes for a safer and more cost-effective environment. (Shadows, stroboscopic effects and lamp failure can all spell disaster.)

Energy management is also an important issue. The savings in running costs provided by improved lighting can pay for the installation many times over during its lifespan. This is one of the best investments a business can make - lower costs and higher productivity.

Siemens has a wide range of luminaires designed with these issues in mind. For example, there are four different versions of the

HARRIER luminaire, which can accommodate any ceiling height up to 20 metres, in symmetric or asymmetric configurations. Or **SPEEDPACK** - a highly efficient and versatile fluorescent range. Its **QUICKFIT** installation system cuts the cost of both installation and maintenance. And, like many other Siemens lighting products, it is available with energy-saving electronic control gear.

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Reader Service No. 19

Lighting Equipment News, January 1993

Innovation · Technology · Quality : Siemens

Reader Service No. 18



gral control gear for operating low voltage tungsten halogen capsules, low voltage metal halide (70W and 150W Arc-stream) and white light SON. Reader Service No 231

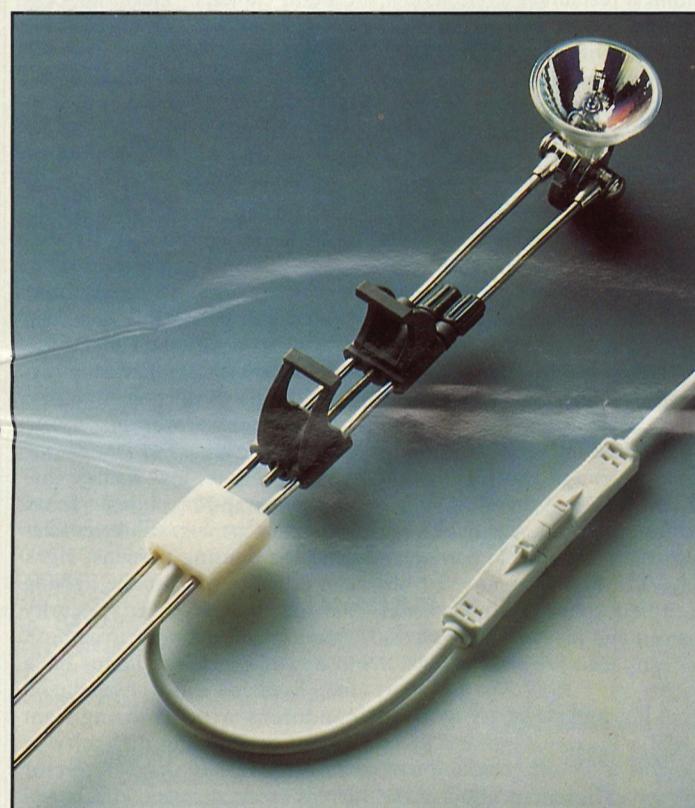
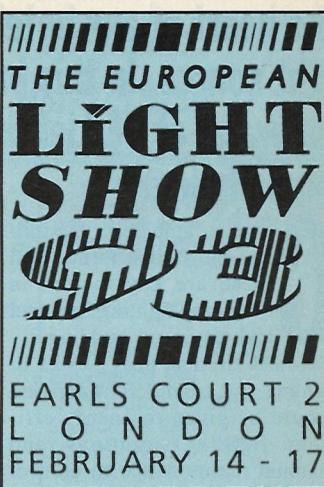
Timage (stand D33), a new exhibitor from the marine trade, will be displaying its full range of lights made from solid brass castings for outdoor or indoor use. Reader Service No 232

Track systems available from Thorlux Lighting.

D M Walker (Lighting) and **Walker Picton (Manufacturing)** (stand F5) will be showing solid brass fittings and spotlights and a range of fitting glass and pendant glass. Also on show will be cast brass fittings and table lamps and stained glass Tiffany shades. Reader Service No 233

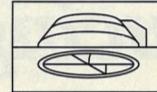
Wieland Electric (stand E11) has designed a low voltage, 50V plug connector system, the ST17/ST18, available for use with cables up to 6.0 mm². Also new from Wieland is the GST 18 appliance coupler for connecting appliances to the mains. With the protective earth contact closing first when a connection is made and last when it is disconnected, the live contact parts are protected against direct touch at all times. Reader Service No 234

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



Low voltage plug connector system from Wieland Electric.

ERCO



Due to recent developments in the design of fluorescent lamps, most have shrunk in size but not in performance.

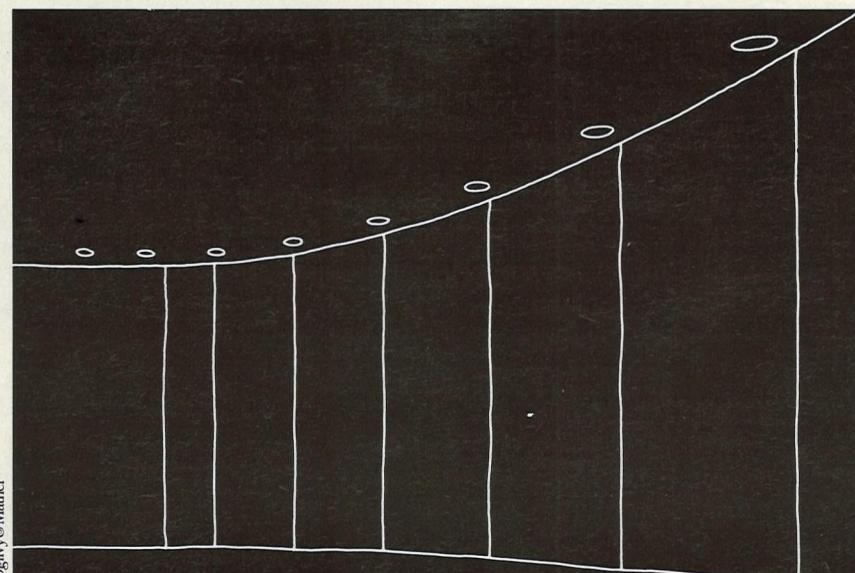
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Reader Service No. 20

The heart of any hotel or restaurant lighting installation is the light source. In this brief introduction to suitable lamps Brian Hayward, of GE Lighting, looks at considerations governing lamp choice.

Comfort, ambience, flexibility and convenience; all these are key factors in designing lighting for hotel and restaurant buildings.

Hotels are also heavy users of lighting and careful consideration should be given to energy efficient lighting solutions and planned maintenance to control costs.

A wide variety of areas, common parts and function rooms, each requiring a particular lighting solution is the typical lighting brief for a hotel. Such a diversity of areas calls for differing techniques, however, the final result must be aimed at creating an atmosphere which welcomes the visitor and makes him feel comfortable and 'at home'. And it is just not about the 'front house'. The need to achieve the correct lighting solution is just as important behind the scenes in order to

Sources of inspiration

ensure staff can function in their jobs efficiently and safely.

Light sources for public areas

A hotel's entrance area is, for most people, their first contact with the establishment and should therefore reflect the image and philosophy of the concern as a whole.

The entrance foyer should be

brightly lit for those entering from daylight but should offer the option to reduce the brightness at night time. Undoubtedly, the most popular choice for illuminating large, high traffic areas is the fluorescent tube. The latest high-efficiency fluorescents give more light than standard colour lamps and this improved output makes them particularly suited to new installations since fewer luminaires are required, thus reducing overall installation costs.

Lighting in hotel lounges, which often form an extension to the hotel foyer, should endeavour to reflect the style adopted in the welcoming entrance area with the night time option of creating softer, atmospheric ambient lighting for more intimate seating groups. Indirect lighting depends on reflection from a ceiling to bounce back up to 90% of the light being emitted. For cove lighting and uplights which cast pleasing indirect lighting effects, the light source should either be concealed or have internal reflector coatings so it is not visible from normal viewing angles.

Paintings, other objets d'art and architectural features give character to public areas of hotels and these need highlighting for maximum effect. Use PAR halogen for a defined beam to highlight the smallest detail or low voltage halogen lamps which come in a variety of fixed beam spreads, to create a crisp, clear accent light, picking out the feature to be illuminated.

Covered glass

Halogen display lamps come in covered versions to ensure that both bulb and reflector are protected from dust and dirt during installation and operation. The glass effectively eliminates UV-C radiation and greatly reduces UV-B radiation making lamps suitable for lighting wall mounts and fabrics. The covered glass version of the lamp use the same reflectors as the open versions - and therefore have the same dimensions, allowing users to interchange lamps easily at will.

A major benefit of halogen lamps is that they provide higher lumen maintenance, a crisp white light and are more energy efficient than conventional incandescent lamps. Decorative range of low voltage halogen lamps which use various shapes and shades of glass are available. These offer designers attractive and innovative options for interior displays and general lighting.

Low voltage halogen lamps, a light source much used in retail environments, have the same advantages as mains voltage halogen lamps. Additionally, their compact filament allows a more precise alignment within the reflector, resulting in far less 'spill' light than with mains-voltage halogens. This improves their optical performance so that they can replace mains voltage lamps of twice their wattage. They also



have a long lamp life and their small size had led to a host of compact fittings which are easily recessed or concealed in shallow ceiling cavities.

For major areas containing larger decorative features or murals, the lighting technique of wall washing will evenly illuminate all the works displayed. The most widely used lamps to create this effect are halogen and PAR 38 lamps.

Textured surface, stonework detail for instance, can be brought to life through using several reflector lamps, placed fairly close together, perhaps built into the ceiling as part of the architectural effect, yet close to the wall to be highlighted. The effect can be stunning as the light brushes the wall and picks out the textural interest of the surface. Compact fluorescents can also effectively and efficiently wall wash and display texture.

From breakfast to dinner

Dining areas in hotels need to transform from a bright businesslike atmosphere for breakfast to a more subtle relaxed atmosphere in the evening. A similar problem faces the restaurant with lunchtime and evening diners. However large the restaurant, the decoration and lighting usually attempts to reduce the physical scale to that of a human group sitting at one table. In order to overcome the problem of different lighting requirements at different times of day the lighting design may incorporate more than one system. By using easy to understand control gear the operator could switch systems dependent upon the time of day.

One way of achieving this is to

Low voltage halogen lamps are directed on the dining table and angled to highlight works of art.

use low voltage accent lighting, discreet downlighting or even individual table lamps. Low voltage halogen lamps provide the user with a small, efficient white light source with optical control and excellent colour rendering. They are an ideal light source within a restaurant environment, adding a sparkle both to the decor and focusing attention on the glassware and silver.

Dichroic lamps are popular for downlighting applications due to their small size, precise beam control, high efficacy, excellent white light and cool beam characteristics. Their reflectors are made up of a multitude of facets rather than a smooth bowl, giving more accurate beam patterns and an attractive sparkling appearance to the light source. The dichroic coatings reflect forward the visible spectrum while allowing two-thirds of the infra-red radiation to escape through the rear of the lamp - making it the ideal choice to illuminate heat sensitive goods or foods such as a cold buffet display. The heat is removed from occupied space giving greater comfort and reducing the air-conditioning load.

Long life and reduced running costs

Energy efficient products, the compact fluorescents are an ideal choice when considering lighting solutions for corridors, stairs and lifts. Provisions for emergency lighting also need to be made in accordance with fire regulations.

With their low electrical consumption, low maintenance and warm colour, compact fluorescent lamps offer enormous potential not only within circulation areas but also for bedrooms, bathrooms and toilets. There are many lamps of low ratings suitable for hotel/restaurant applications.

Low voltage halogen lamps highlighting the focal point at the tables and combined with a subtle wall washing effect give a crisp ambience in keeping with the contemporary decor of this restaurant.

Careful choice of electronic control gear makes dimming possible and improves efficacy.

The colour of these lamps can be close to tungsten halogen or domestic GLS lamps and can therefore be mixed successfully with other lamps. The phosphor used for all compact fluorescents is of the triphosphor of Polylux type. Where linear fluorescent lamps are used in cornices or behind wall panels it is important to always specify the correct type to match with compact fluorescent lamps. Bathroom lighting, for instance, should match the bedroom lighting.

For exteriors, low wattage discharge lamps in high pressure sodium or mercury can be considered for lighting gardens, signs and driveways. Often the lighting outside also serves as a security measure and operates from dusk to dawn. Discharge lamps have long lives and will withstand cold conditions without losing light output or showing difficulty in starting. Low voltage reflector lamps create dramatic effects and are often used in swimming pools. They not only produce more light per watt, but also more light on the object per watt, giving a sharper contrast with the background.

Although almost any light source can be used in the hotel environment, low voltage tungsten halogen compact fluorescents with some triphosphor linear versions and discharge lamps will meet 90% of lighting requirements.

Poor lighting - the pitfalls

There can be no clearer advertisement of poor hotel management than a lighting installation in a poor state.

Unfortunately lighting schemes do suffer from poor maintenance. Lamps are either simply not replaced, or the wrong type is fitted, producing a kaleidoscope of odd colours and incompatible beam patterns, which destroys the very visual effect created in the first instance.

So, as soon as a lighting scheme has been finished and implemented, a concise maintenance schedule should be drawn up. This will identify the variety of lamps to be used, where they can be sourced, when they should be replaced and how frequently the fittings should be cleaned and inspected for electrical safety.

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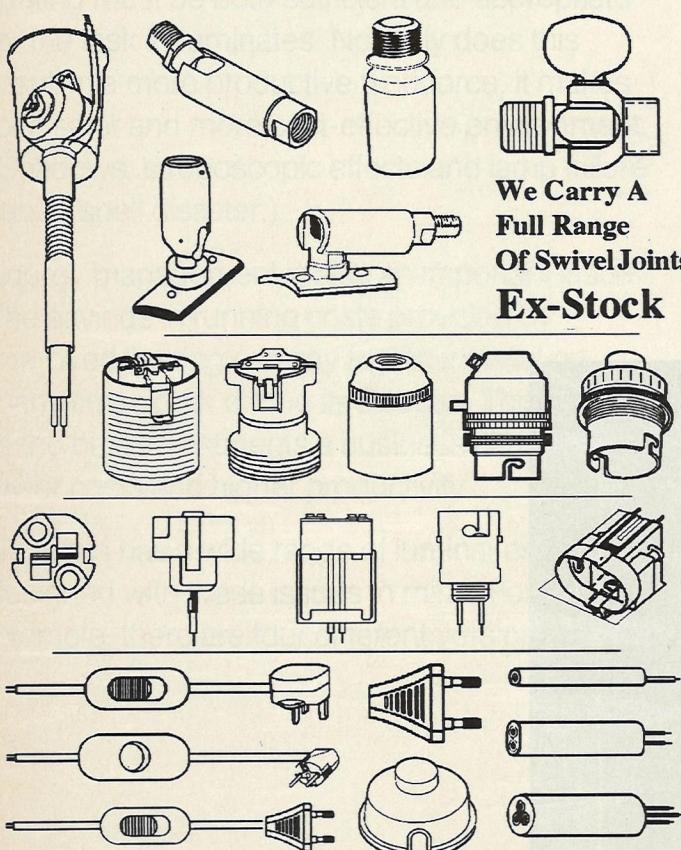
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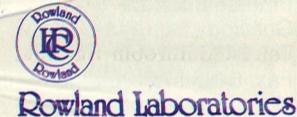
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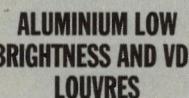
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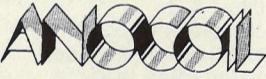


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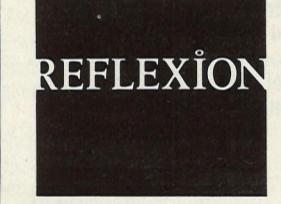
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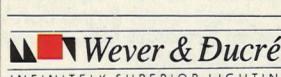


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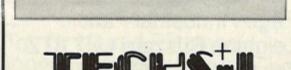
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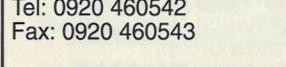
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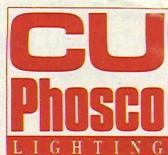


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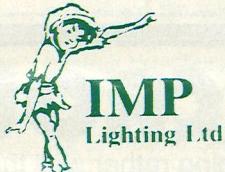
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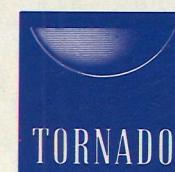
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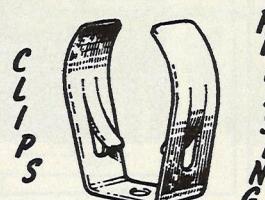
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The lighting at the recently opened Bentall Centre in Kingston is designed to make the atrium and malls as light as possible by day, while avoiding a 'black hole' effect in the atrium at night

Stars in a night sky

A glass clad barrel vault, high enough to accommodate the nave of Westminster Abbey, is the major feature of Kingston's recently opened Bentall Centre. By night the roof glows with tiny points of light from some 2000 fibre optic heads, giving the impression of stars in a night sky.

Bentalls originally set up a competition to redevelop its site and this was won by a combination of Norwich Union as developers and BDP as designers. The project was carried out in two phases: first, the new department store for Bentalls was built, followed by the shopping centre. Trading at Bentalls continued throughout the redevelopment period, but sales operations concentrated in the southern two thirds of the site during Phase 1.

The centre comprises a four-storey shopping atrium leading off the six-storey Bentalls department store, and BDP's design for the shopping centre retains the original 1930s Aston Webb facade of the former Bentalls store.

The centre houses 100 retail units of varying sizes, a wine bar, creche, food court and health and fitness club.

Outstanding atrium

Its outstanding feature is the 31 m high centre atrium which forms a 150 m long spine running the length of the centre. The atrium is topped with a glazed barrel vault 15 m in diameter throughout most of its length but reducing to 9 m diameter at the main entrance.

The scheme also creates a 600 space car park, and an office unit alongside the existing car park, giving a total of 1200 car parking spaces on the opposite side of the

dual-carriageway which makes the boundary of the site. Pedestrian access from the two car parks to the main site is by means of a 30 m bridge at second floor level designed as a geodesic tube of steel and glass.

The architectural form had to complement the retained 1930s frontage and the scale of development and materials used had to be sympathetic to it. A carefully balanced mix of stone, brick and bronze is used, and a skirt of bronze glazed canopies surrounds the store above the display windows, creating a traditional feeling.

The lighting brief specified that the atrium and malls should be as light as possible by day, but the 'black hole' effect characteristic of glazed atria by night should be avoided. So, Richard Allen, BDP's job architect and lighting designer Barrie Wilde developed the concept of perforated metal coffer panels within the space frame below the clear glazing. By day, the lacy structure permits dappled sunlight to flood the atrium and the sky is clearly visible. By night, close offset flood-lighting transforms the roof into a substantial visual enclosure.

An additional system of lighting is custom designed pendant luminaires providing indirect lighting and which are integrated into the ceilings along the malls. Emergency lighting is also incorporated into these luminaires. Directional spotlights incorporated into the balustrades produce 'stepping stones' of light along the mall floors. Occasional directional downlights at columns, lift lobby and feature positions direct the eye to these elements.

A theatre projector system is provided at high level comprising 1000W/2000W projectors linked

to a dimmer rack and control system.

Incorporated into the space-frame is a fibre-optic system at each node point to produce a star like feature for the roof, which consists of approximately 2000 individual heads, 60 projectors and some 8-10 000 fibre optic light guides.

A fibre optic head at each of the nodes to the space frame provides a special feature: when the uplighting is dimmed a matrix of 2000 dots of light provides sparkle to the roof. Both the uplighting and the fibre optic systems maintain a soft level of lighting to the main atrium space, allowing other lighting elements, in particular the shop fronts, to create the dominant nighttime atmosphere.

BRE test model

The test facilities of the Building Research Establishment were used to test a large-scale model of the atrium for day and night appearance, to convince the client of the practicality of this innovative proposal.

Specially developed lighting for this scheme, included a combined uplight and downlight in the atrium and galleries which contains emergency lighting.

Lighting was also integrated into the balustrades. In addition, a theatrical projector system for promotional events is linked to the dimming control and special effects panel.



The new Bentall Centre incorporates an impressive atrium, 31m wide and 150m long.

Special design for a special effect



Concord manufactured special light fittings for St Nicholas's.

specially designed spun metal housing. The fitting projects out over the mall on a 2.9 metre control gear has been housed within the wall mounting box.

The balustrade lights are designed to form an integral part of the special balustrade system designed by BDP. Using a 22 W

circular fluorescent power source, the lights define the edges of the atria and other openings in the floors. The upper lantern is a circular fluorescent housing in a special opal acrylic bowl and is linked into the emergency lighting system to provide escape lighting around the atria. The lower fitting is lit by a circular fluorescent behind an etched acrylic disc with a polished stainless steel centre disc.

A decorative visual link between the malls and atria is achieved with the use of fittings mounted on the pilasters between the shop units. The upper acrylic reflector is lit by a 10 W compact fluorescent lamp which transmits light through the material, producing a 'halo' effect. A 35 W low voltage halogen reflector lamp is located behind the upper panel and is designed to throw light downwards, emphasising the form of the fitting and the pilaster.

All of the fittings were manufactured by Concord's Specials Division to the extra high standard of durability demanded by the brief and the need to safeguard all lighting installations in the public areas of the shopping mall.

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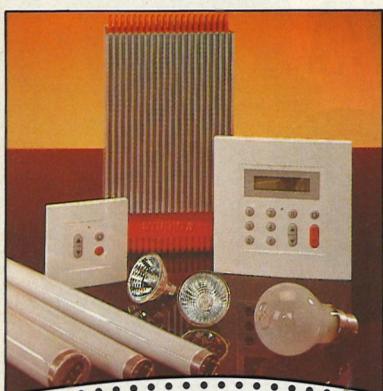
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DELTA

Reader Service No. 24

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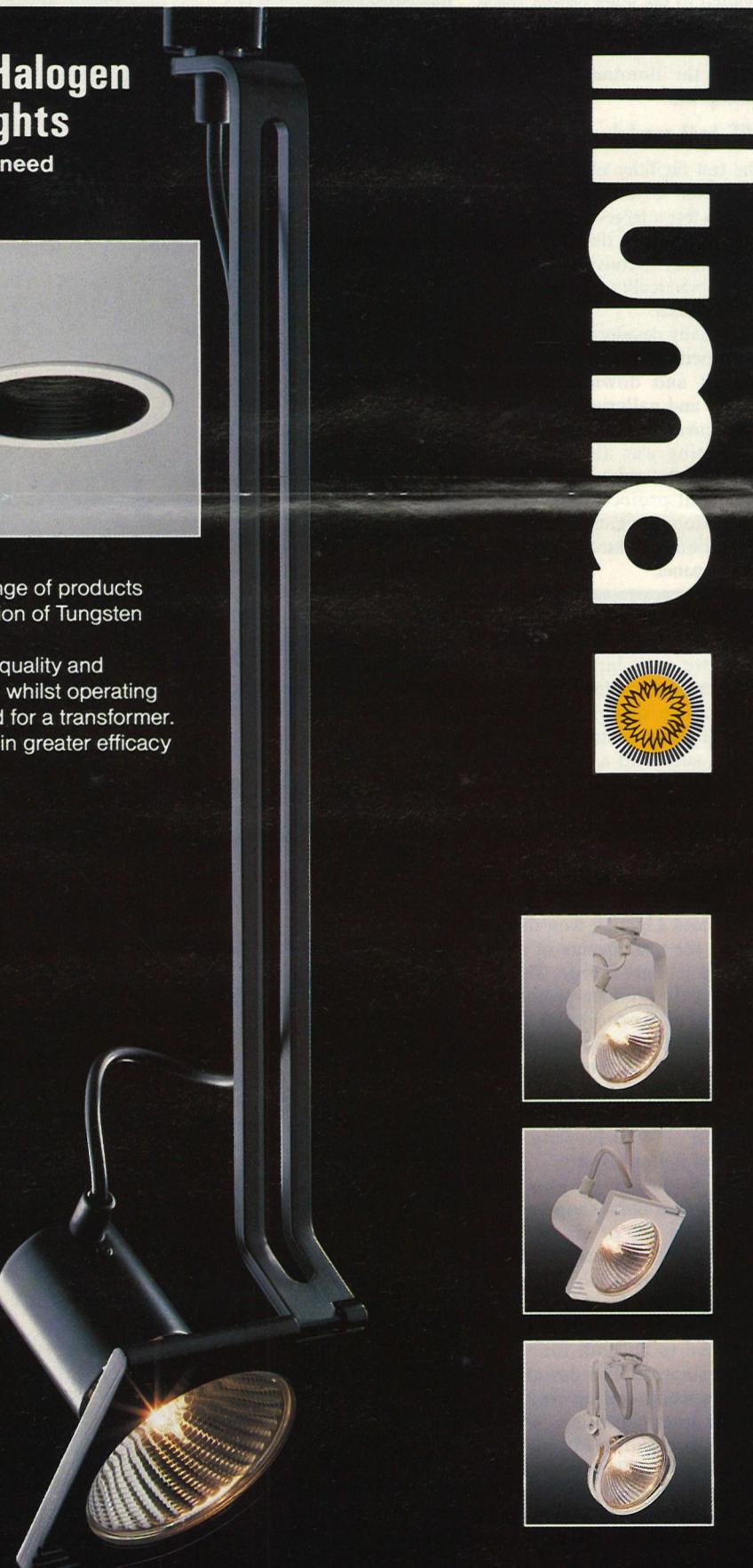
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fire, lighting was a major element in the new interior design scheme.

The brief underlined the need to provide a warm atmosphere and high levels of comfort for up to 1400 passengers. Flexibility was also required to accommodate the wide range of uses one can expect in a floating town.

Over 60% of the 15,000 light fittings on board were specially designed for the ship. Although luminaires were primarily chosen to complement the decor, maintenance was also a major consideration. Principal light sources are halogen, fluorescent tubes and compact fluorescents, but some incandescent lamps are used.

Ambient lighting in public areas uses compact fluorescents, and these are also used through-

out cabins, corridors and boarding areas. Halogen lamps are used for effect lighting.

A sophisticated lighting control system, supplied by Helvar, gives flexibility in areas used for public entertainment. These include the Royal Restaurant which becomes a ballroom by night, and the Champagne Show Room where all lighting but that built into the columns is dimmable. During the show, table lamps are dimmed down to 20% and other lighting, with the exception of emergency lighting, is switched off.

Lighting levels are increased gradually to the required level over a period of 6 seconds to avoid eye strain. The total control system comprises 7 remote control centres, 28 remote control units and some 100 dimmer units.



Return to the valley

On Saturday 5th December Charlton Athletic Football Club returned to The Valley, the first time it had played at its home ground since 1985. Refurbishment of the two stands and other ancillary works were carried out by main contractor Kier Group, in line with the requirements of the Taylor Report.

Building services contractor was Lorne Stewart, which worked with Philips Lighting to design the pitch floodlighting system and installed the four 9 tonne floodlight towers, each equipped

with 38 Philips HNF 206 floodlight projectors. The system is designed to achieve maximum lighting levels of 1200-1300 lux and provides for three levels of lighting to suit a variety of requirements from training to outside broadcast for colour television.

The control gear is installed in purpose built, weatherproof control cubicles at the base of each 28 metre high mast. To reach the floodlights for maintenance purposes each mast has a two-person, power driven maintenance carriage that runs from base to high level platform. From the platform four ladders extend upwards, each fitted with a rail lock safety harness system.

IN YOUR NEXT ISSUE

Some of the most exciting lighting designs and installations in recent years have taken place in the lucrative leisure market. February's **LEN** takes a look at some of the best projects in sports and leisure centres and hotels and restaurants. Also an **LEN** A4 supplement explains "black box" technology - transformers and components for low voltage lighting - and how to make the most of it.