

MARCH 1990

Standards are the key to single market

The role of standards in the implementation of the single European market was the theme taken by Dr Ivan Dunstan, of BSI, and currently President of the Comité Européen de Normalisation (CEN) in his address to CIBSE's annual dinner.

The spotlight, he maintained, was firmly on standards. We had to persuade 18 European countries — EC and EFTA members — to agree the harmonised technical standards necessary to complete the single European market by the end of 1992.

At present we had less than 1500 such European standards, and we should need at least 3-4000 by then. So, time was of the essence. As a measure of the scale involved, over 3000 work items were in hand.

Tough rules aimed at speeding up the work. Thus, standards were approved by weighted voting without the right of veto. And, once approved, all 18 countries had to implement the European standard and withdraw any conflicting national norm.

So, it was almost impossible for any one country to maintain a unilateral stance against a particular standard. A far better approach was to be positive and seize the initiative, especially where the standard affected commercial or professional interests. Hence the BSI policy of taking the lead in committees wherever possible.

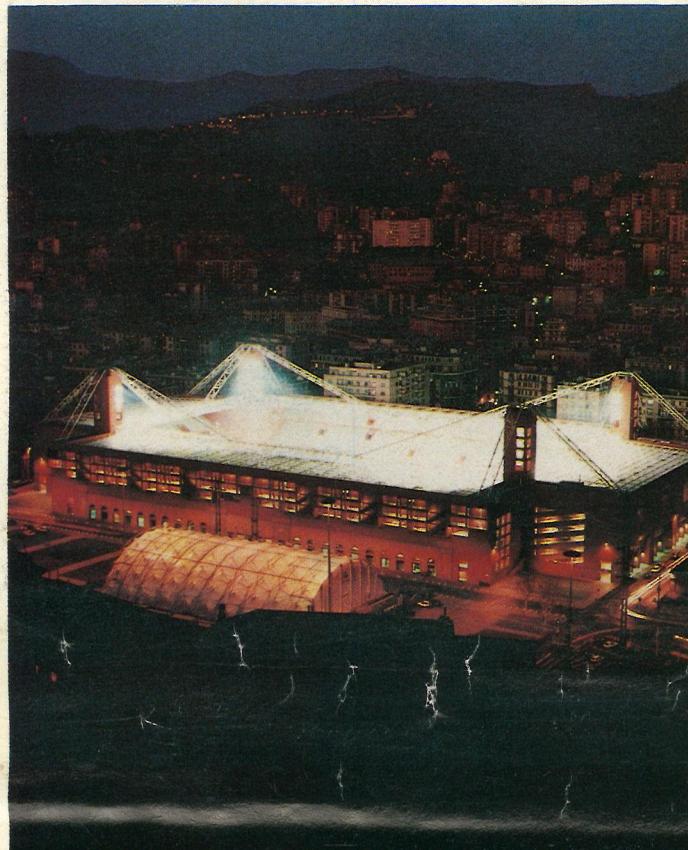
In reply, CIBSE President, Colin Izzard, raised the issue of the role of finance in gaining a dominant position in Europe. The UK banking system looked for short term gains rather than supporting companies wishing to invest for the future and he feared this could lead to continental firms gaining dominant positions.

French and Dutch firms were already active here in Britain. Northwest Holst and Kyle Stewart, for instance, were already owned by continental firms; and Alfred McAlpine, Ruch and Tompkins and Tern among others now counted French or German contractors among their shareholders. Could this be the model for the building services industry over the next few years, he wondered. It was food for thought.

INSIDE THIS ISSUE

News	1,2,3,23,24
New products	4,5,6
Fitzgerald Lightring supplement	7,8
Interview: Rod Wright, Philips Lighting	9
Display lighting: Shops — an introduction	10,11
Shop window design	14,15
Museums	18
Where to buy directory	19,20,21
Classified advertising	22,23
Catalogue directory	23

World class lighting



Football stadium in Genoa, Italy relit for the 1990 World Cup.

European health and safety changes

The Health and Safety Executive has produced a short guide to three new European Community directives which cover the workplace, the use of work equipment and the use of personal protective equipment. The directives will come into force at the end of 1992.

The Health and Safety Commission is considering what proposals should be drawn up to implement these directives. Two HSC working groups, with CBI and TUC representatives, have monitored their progress and helped shape government response.

The adopted directives are broadly consistent with current legislation and policy in Great Britain. Some changes to British law will be necessary, but mainly to amplify existing law rather than set totally new requirements.

The HSC expects to publish consultative documents proposing the necessary changes around the end of 1990.

The Workplace Directive applies to most fixed workplaces, but not to construction sites or mines. It requires employers to carry out regular cleaning maintenance, to rectify defects posing hazards and to keep emergency exits and escape routes clear. In addition, employers will have to comply with minimum requirements set out in annexes to the directive.

Annexe I applies to workplaces

which will be used for the first time after 31 December 1992 and also provides for modifications to existing workplaces. Its range includes structural stability, electrical installations, means of escape, fire precautions, ventilation, temperature, lighting, space, means of access and first aid.

Annexe II applies to existing workplaces, giving them an extra three years — to 31 December 1995 — to comply with this annexe.

The Use of Work Equipment Directive lays down minimum health and safety requirements for all work equipment. It requires employers to provide safe equipment, to ensure that it is used safely and emphasises training and safe systems of work. Detailed minimum requirements cover areas such as control devices, guarding and stability. Employers are given an extra four years — to 31 December 1996 — to make existing work equipment meet these detailed requirements. The directive complements the directive on machinery safety, under Article 100A of the EEC Treaty.

The Use of Personal Protective Equipment Directive requires the provision of use of personal protective equipment, such as safety boots or eye protection, where risks cannot be avoided by other means. It complements a separate

The Ferraris Stadium in Genoa is the first of seven to be lit by Philips Lighting in time for the 1990 Soccer World Cup.

The stadium has been completely remodelled to provide accommodation in covered stands for over 37 000 spectators, in addition to housing meeting rooms, gymnasiums and press offices.

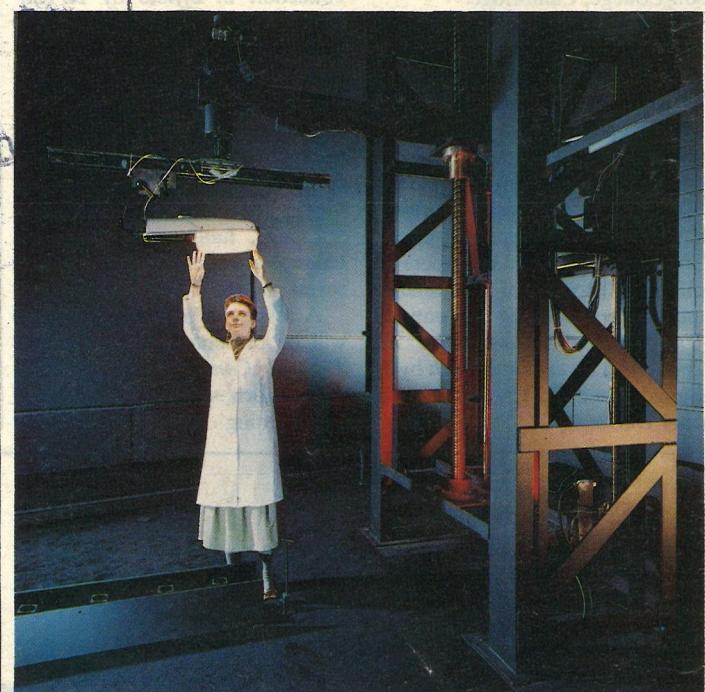
The roof structure of the building is suspended from four towers, which also provide public circulation spaces and house tower lighting installations.

The lighting installation comprises 316 Arenavision floodlights, providing a vertical illuminance of 1700 lux towards the main stand side. The floodlights are located in the towers, on the edge of the stadium and, under the roof along the longitudinal sides in service slots combining sound and lighting equipment.

In addition to Genoa, Arenavision installations are planned for football pitches in Bologna, Naples, Turin, Udine, and in the Olympic Stadium in Rome where the final will be staged. A seventh stadium — Cagliari — will be equipped with an alternative floodlighting scheme.

product directive under Article 100A, on personal protective equipment.

Copies of the short guide to the new EC safety and health directives, are available free from the Health and Safety Executive's public enquiry points in London (01-221 0870), Bootle (051-951 4381) and Sheffield (0742 755792).



Advanced photometer for Thorn Lighting

Thorn Lighting has commissioned a new intensity distribution photometer at its lighting laboratories at Enfield, North London. The new photometer, believed to be the most advanced in Europe, cost £150 000.

The photometer comprises a 10m high chamber housing 75 fixed position photocells which instantaneously record the vertical light distribution from a luminaire mounted on the computer-controlled gantry. Measurements

are taken as the luminaire is moved through a series of pre-set horizontal angles, in accordance with relevant British and International standards.

Testing time is reduced from two hours to ten minutes, which has enormous benefits in the research and development of new and advanced reflector systems for light fittings.

The photometer was designed by scientists at the company's Enfield laboratory.

In brief...

● Philips' HalogenA lamp, reviewed in the February issue of *LEN*, will now be available from March 1990.

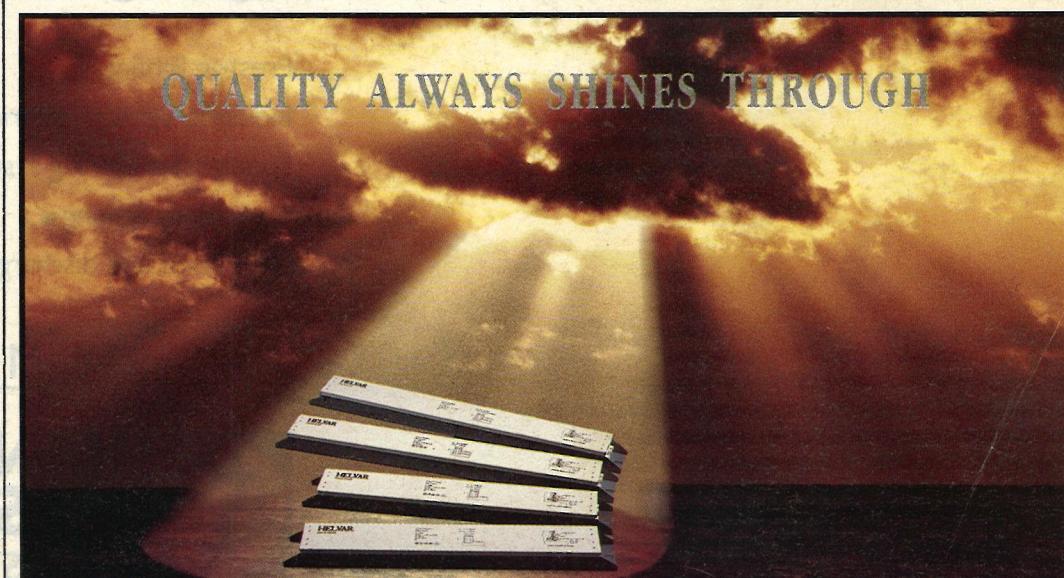
● Tindle has opened a trade showroom to display its predominantly traditional lighting at 168 Wandsworth Bridge Road, London SW6 2UQ (telephone 01-384 1485).

● Staff Lighting Ltd has moved to purpose designed UK head-

quarters, comprising offices, showroom and warehouse, at Hampshire International Business Park, Crockford Lane, Chineham, Basingstoke, Hants (telephone 0256 707007).

● Lightgraphix Ltd has appointed Cathcart Smith Agencies Ltd, Belfast, as a distributor of its complete product range.

● KSH Plastics has changed its name to IRG Plastics as a result of the takeover by the Irish group IRG plc.



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Reader Service No. 1

Page 1

NEWS

Cambridge offers a varied diet

A tightly packed, varied programme has been arranged for the National Lighting Conference to be held from 8-11 April at Robinson College, Cambridge.

It starts on the Sunday with an international technical session on the role of luminance distribution in occupant response to lighting, with Belinda Collins, USA, as the speaker.

On the Monday, Jonathan Speirs, Lighting Design Partnership, will give the opening paper. This will be followed by papers on different aspects of illuminance uniformity, including one entitled *Uniformity of illuminance: the need for a diverse approach* by H Bougad and D J Carter of Liverpool University.

A group of six papers on lighting and the human response follows. Among these is *Subjective and objective illumination data collection in offices* by R Kinkeldey, Kinkeldey-Leuchten, D Loe, Bartlett School of Architecture, and A Stockmar, LCI Software, West Germany.

Tuesday starts with four papers on lighting controls, ranging from street lighting to theatrical techniques for architectural lighting.

Lamps, luminaires and maintenance are considered in the next seven papers.

A review of new developments will be presented under the title *Lighting Communiqué*. Iain Maclean, Thorn, will review outstanding lighting installations; Brian

Morgan, Luxonic, will discuss lamps, while Barbara Trigg, *Lighting Equipment News*, will speak on luminaires.

Wednesday's topics include trends in lighting for sport and pedestrian precincts; display lighting, and daylight.

A poster exhibition will give information on other aspects of lighting not covered by the programme of lectures.

For full details and a registration form contact Karen Phillips, at CIBSE, 222 Balham High Road, London SW12 9BS.

Lighting design for museums

The Museum of London is the venue for a lighting design conference on 14 May aimed at conservators, curators, architects and designers. The purpose of the event is to

provide delegates with a better understanding of the principles of lighting design in museums, galleries and historic buildings.

Issues to be examined include the adequate illumination of historic collections while considering conservation needs; application of display lighting techniques to museums, and the design and production of replica fittings for historic buildings.

Speakers will be drawn from specialists in lighting design from both the UK and overseas. Subjects include lighting for display, National Trust lighting projects, and Imperial War Museum, a case study.

Conference chairman is Robert Owen of Applied Lighting Technology, fibre optic lighting specialists who are sponsoring the event.

For further details telephone Sonia Sewell on 0462 700582 or write to Ivel Enterprises, 2 Langford Mill, Mill Lane, Langford, Biggleswade, Beds SG18 9QB.

DIARY

MARCH

6

Electricity and radioactivity. The Charles Marques memorial lecture to be given by The Lord Marshall of Goring. An evening event in London arranged by the Institution of Lighting Engineers. Details from 0788 76492.

Current and future developments of building services software.

A talk at the Trinity Maritime Centre, Newcastle upon Tyne, organised by the North East Region of the Chartered Institution of Building Services Engineers. Details from hon secretary David Buglass 091-258 7003.

Presentation techniques for professional engineers.

An afternoon event in Glasgow organised by the Scottish Region of CIBSE. Details from hon secretary R S Webb 031-449 5111 extn 4619.

8

Exhibition of lighting equipment and services at Doncaster racecourse arranged by the ILE Northern Region. Details from ILE 0788 76492.

14

Security. A one-day seminar in London organised by CIBSE Lighting Division and Electrical Services Group. Details from CIBSE 01-675 5211.

19-22

Insight on-site. Seminar on security arranged by Philips. To be held at IFSEC, Olympia, London. Details from Sharon Pilkington, Philips Communications & Security 0223 245191.

19-23

IFSEC '90 exhibition at Olympia, London. Details from Lynne Mercer 01-868 4466.

19-23

Lighting technology course, part one. Held by the ILE at the Lucas Institute, Birmingham. Details from ILE 0788 76492.

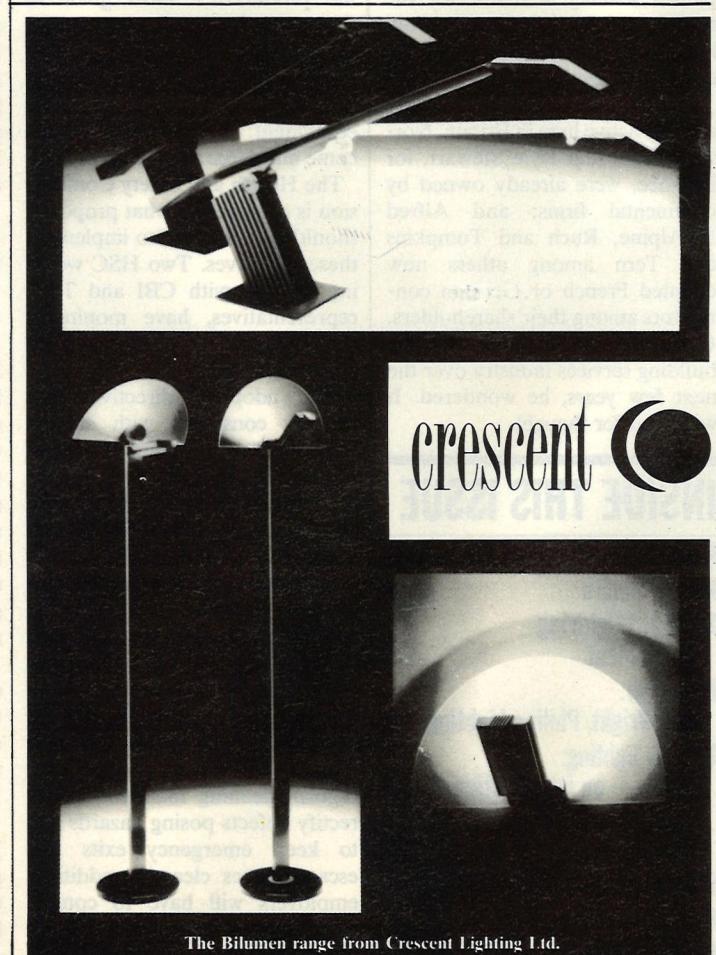
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Visit to Philips Lighting, Hamilton, preceded by lecture. Evening event organised by Scottish Region of CIBSE. Details from hon secretary R S Webb 031-449 5111 extn 4619.

APRIL

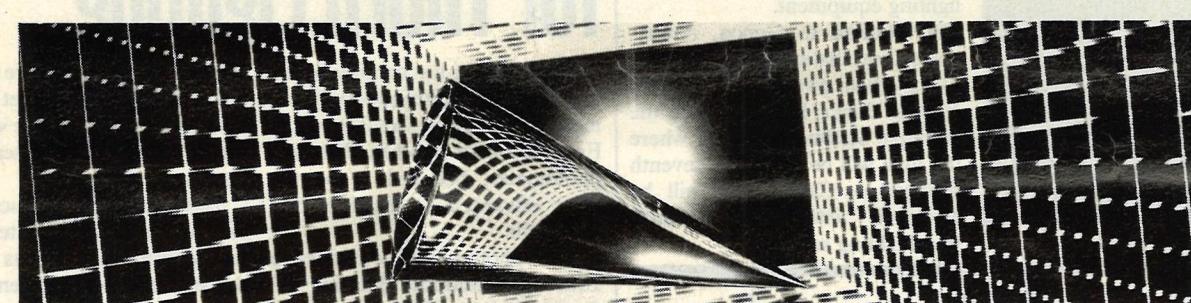
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National Lighting Conference at Robinson College, Cambridge. Details from CIBSE 01-675 5211.



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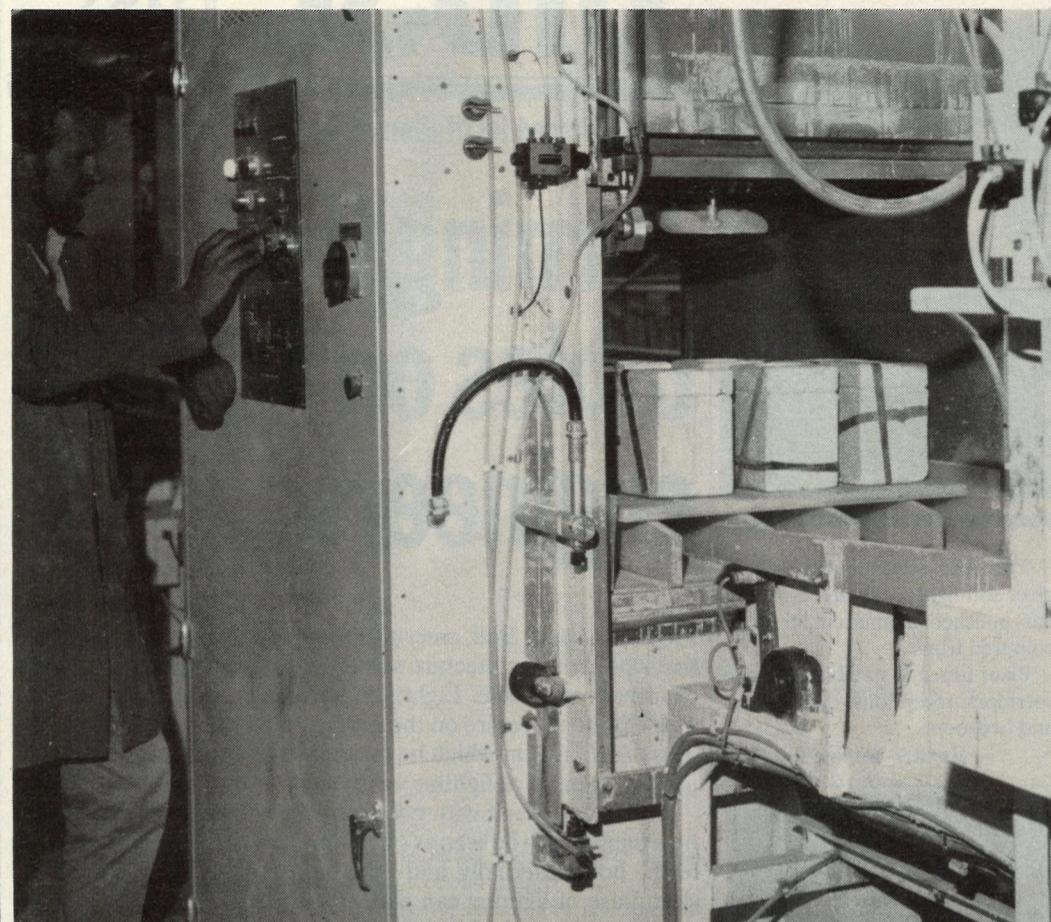
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Reader Service No. 2

Page 2

Reader Service No. 3

Lighting Equipment News, March 1990



The microwave casting machine at Nuthall Lighting.

It's all done by waves

Nuthall Lighting of Ripley, Derbyshire, has won a PEP Award for efficient use of electrical energy in the East Midlands Electricity area. The company installed a microwave casting machine to produce its lamp bases, and this has improved profitability, and given greater consistency and quality of finished products.

The company, part of the Electrolighting division of Electro-components, manufactures a million decorative ceramic table lamps a year, for major high-street retailers.

Table lamp bases are made from earthenware slip, cast into a plaster mould which draws water from the slip to leave solid clay. The longer the slip remains in the mould, the thicker the clay wall becomes. When the correct thickness is reached, excess slip is poured off and the pot is processed and fired in a kiln.

After a while, the mould

becomes saturated with water and must be dried out before further casting can take place.

In common with other potters, Nuthall previously used gas-fired heaters during casting to delay saturation, and after each casting, to dry the moulds. This method restricted production to four casts per mould per day, and the moulds had to be transferred to an overnight oven to be dried out completely. This was a very labour-intensive operation.

Nuthall went on to investigate the potential of microwave slip and mould drying. The machine would have to double production and pay for itself in three years.

The specification was met by a £50 000 microwave casting machine with an automatic slip filling head, 10.5kW 2.45GHz microwave heater-dryer, conveyor system and drain trough. The machine drives water out of the

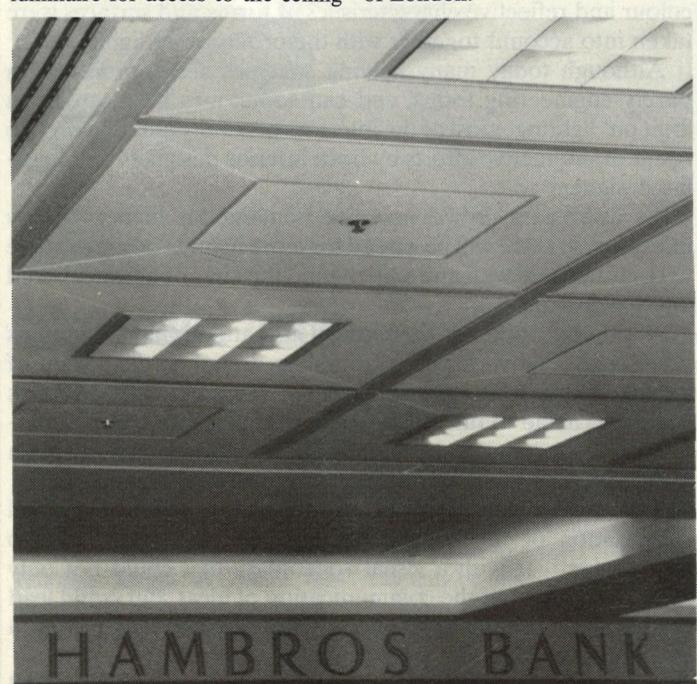
moulds during casting so they never become saturated, allowing continuous casting and eliminating separate mould drying. As a result, the time taken to produce the solid cast from slip has been cut dramatically.

Since installation, the machine has allowed 1800 castings to be made per day from 180 moulds — compared with 1056 castings from 264 moulds before — and the estimated payback period has been halved. The process is more repeatable since it is no longer affected by humidity and temperature, and moulds do not suffer contamination from combustion gases associated with gas-fired heaters.

The awards are made to companies who have reduced costs, increased productivity and product quality or improved the working environment by adopting an electrical process.

Banking on low brightness

Luminaires, recessed into specially prepared metal ceiling tiles that hinge down complete with the luminaire for access to the ceiling void, permit easy maintenance and lighting flexibility at the new Ham-bros Bank offices near the Tower of London.



The RADA Paralux VDT luminaires have mainly been installed on two key floors designed for easy conversion from general offices to dealing rooms with supporting secretarial and administrative areas.

To cater for the different lighting levels of 350 lux and 500 lux required in the dealing rooms and support areas, the computer-plotted lighting plan includes both three and four lamp luminaires — all with 18W compact fluorescent lamp sources and satin-finish louvres.

Paralux is a standard, 600mm square, luminaire available with deep wedge, LG3 reflector/louvres in either highly-polished or satin finish non-iridescent aluminium to avoid glare in VDT screens.

The luminaires are also partially air-handling to deal with the greater air extract needed to remove heat from computerised dealing rooms.

The shell and core design for the 16000m², eight-storey building was by Richard Selfert and Partners, the interior architects were the Fitzroy Robinson Partnership.

M & E contracting — market profile

A comprehensive survey of the mechanical and electrical industry in the UK has just been compiled by BSRIA.

This report is designed to bring under one cover detailed information on various aspects of the construction industry and relate it to the past, present and future state of M & E contracting in the UK. It is of interest to main contractors, consulting engineers, clients, developers, quantity surveyors and anyone else involved in setting up M & E contract work, as well as to contractors themselves.

The report includes detailed profiles on 31 national M & E contractors, including head office addresses, branch locations, holding company data, principal activities, recent contracts and 5 years' financial data. The four largest M & E contractors in the UK are Crown House, Haden Young, How Engineering Services and Matthew Hall.

Much re-organisation has taken place in the industry recently. In particular, many M & E contractors have been purchased by main contractors — for instance Haden by BICC who own Balfour Beatty, and Crown House by Tarmac. But two of the top ten companies — N G Bailey and William Steward remain in private ownership.

The cost of the 115 page report is £250 (including VAT) to non members of BSRIA and £180 to members.

Further information from Geraldine Samuelsson-Brown, Market Intelligence Centre, BSRIA, Old Bracknell Lane West, Bracknell, Berks. RG12 4AH. Tel: 0344 426511.

Electrical contractors go it alone

The electrical contracting industry took a further step to become independent from the Construction Industry Training Board on 23 January 1990 when it officially opened a new training centre for unemployed and employed adults.

The centre, the Leiston Training Centre in Leiston, Suffolk, has been set up by JIB Training Ltd, a joint training operation formed between the Electrical Contractors' Association and the Electrical, Electronic, Telecommunications and Plumbing Union. Leiston is the second training centre to be set up — the first was in London's docklands in 1989.

Opening the centre, Eric Hammond, general secretary of the EETPU, stressed the importance of having both sides of the industry — the ECA and the EETPU — equally represented in the new training partnership. "I am sure that those TUC unions that now find themselves with, for example, only two full board seats out of the 20 or so created within the newly constituted Engineering Industry Training Board, must indeed feel very envious of us", he said. "But that's no new experience for them anyway."

The Leiston centre is already training its first unemployed adults. They will be employed on the Sizewell B Nuclear Power Project, following a commitment by Balfour Kilpatrick International and N G Bailey Ltd to employ them after training.

COMMENT

Just tighten our belts

The effect of the current economic situation, and more especially the present exceptionally high level of interest rates is beginning to have an effect on our industry.

Already the consumer is seen to have less money in his pockets and shops are vying with one another to divest him of the little he has. Thus, January sales become spring clearances which lead on to the pre-summer sale bargains.

In her feature on pages 16-17, Janet Turner points out the implications for the lighting industry of such a change. Gone are the days when shops were refitted every two or three years. In, is a new preoccupation with quality and flexibility — and a search for classic and, hence, timeless design.

In other words, the lighting installation now needs to be right because it just has to last longer. This new realism will, of course, benefit the reputable manufacturer and installer to the cost of the cowboys in the field.

A new emphasis on the responsibility of the individual self-employed 'craftsman' led to the conviction recently of Stephen Holloway, an 'electrician' on the charge of manslaughter.

Holloway had shown gross incompetence in his electrical work which on three separate occasions had been shown to be defective — and the court's verdict indicates that individuals are to be held liable for their mistakes and legally responsible for the standards of their work.

If a call for higher standards were the only side effect of the current economic crisis — then it could do nothing but good in the industry. But how many square metres of once 'prime' office space are standing empty and unfinished, waiting for finance to become cheap enough again to induce developers to complete them for release onto the market?

And lighting work — as a building services trade — is placed right at the end of the building chain, who can say how many potentially major lighting contracts remain unlet.

So, do we just tighten our belts and wait for the financial spring to come, or do we get out into the market place and preach the value — and savings — produced by good lighting and make the most of our market.

LIGHTING EQUIPMENT NEWS

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NEW PRODUCTS

Amenity lighting

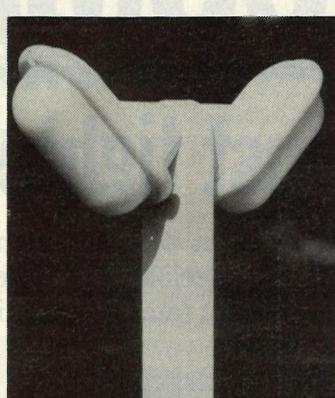
Palazzo Minor and Palazzo Major are lozenge shaped, outdoor lights from Lumiance in either matt black or white.

They are particularly suitable as amenity lighting for hospitals, hotels, restaurants, leisure centres, church halls, precincts and car parks.

Palazzo Minor has three lamp options: single or twin 9W, or single 13W, PL type compact fluorescent.

Palazzo Major is a scaled-up version of Palazzo Minor but using a choice of single 11W, twin 9W or single 18W compact lamps.

The 13W and 18W lamps are supplied with Fastlux electronic starters. Photocell switching can be incorporated in each luminaire.



Palazzo Minor and Major Deco wall lights have an 'eyelid' for improved downward light distribution.

Mounting columns are made from aluminium and feature simple connections and a fuse. Optional extras include a time switch and a post mounted photocell. In addition the post can incorporate a mains socket to provide a power source away from a building.

Reader Service No. 166

Downlight for electronic lamp

Wila Lighting has introduced a universal recessed downlight for incorporating in suspended ceilings. It is specifically designed to accommodate Wotan's Dulux EL compact fluorescent lamp with integral electronic ballast.

The luminaire has an adjustable, sliding, galvanised sub-frame enabling either the 11W or 15W lamp to be selected. An optional black anti-glare baffle can be fitted.

Reader Service No. 167



Energy saving wall light

Plani Linea is an addition to Luminaire's Plani range of slim wall fittings, designed around the IIW PL type compact fluorescent lamp.

The opal polycarbonate diffuser gives soft light in all directions and has polished aluminium or brass coloured trims.

Plani Linea is suitable for hotel corridors, receptions, dining areas and bedrooms.

Reader Service No. 168

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The Chartered Institution of Building Services Engineers

Turning the tables on lighting engineers

Professor James Bell, emeritus professor and former director of the School of Architecture at the University of Manchester, was chairman of CIBSE Lighting Division in 1985. He gave the 1989 Philips' Lecture on the subject of *Architectural lighting - a key to design*, in which he raised an important point concerning the training of lighting engineers.

The lecture dealt with two main themes. The first considered how lighting can be seen as one of the generators of architectural form, both internally and externally, and the second how the skilful use of lighting can play a major role in establishing the quality and mood of an interior space.

It is fascinating to trace the way in which the demands for lighting, functional as well as atmospheric, have influenced the form and detail of buildings, both internally and externally. In general it is true to say that until the late nineteenth century the major factor was the control and use of daylight. In the more sophisticated examples the building can be regarded as a light fitting - the size, shape and position of windows determining the distribution of light and thus contributing much to the visual quality of the interior.

For example, in the Gothic period many churches and cathedrals were aglow with the colour of stained glass set in elegant tracery in contrast to the dramatic highlights and light and shade patterns in Baroque churches, achieved by the building itself screening the windows from normal points of view.

More recently we have seen the swing from buildings with completely glass walls to those of solid mass with hardly a window in sight. In each case these buildings would not have been habitable without the advent of electricity, which provided power for their environmental controls and the artificial lighting.

In the early days of artificial lighting by flame (torch, candle, oil or gas) and by electricity, the design emphasis was on the fitting itself, the torchère, the candlestick, the lamp or chandelier, rather than on the lit effect. As electric lighting techniques developed, and as the cost of energy reduced, so light itself came to be used not only for practical purposes but also to enhance the interior environment.

'Interiors generally admired are the result of interactive effort'

There has been a developing awareness of quality in lighting; light to reveal and accentuate, light to create mood and atmosphere. As the range of lamp types increased and distribution characteristics of lamps and luminaires became more controllable, so lighting was often an important design factor; in other words the interior form and its detailing were influenced by the housing and screening of light sources. Modelling, texture, colour and reflective characteristics of forms and surfaces were taken into account together with the provision of light.

Although today many lighting schemes are approached in purely engineering terms, and can sometimes be regarded as 'bolt on' lighting, most of the interiors generally admired are the result of interactive efforts by both interior designers and lighting designers.

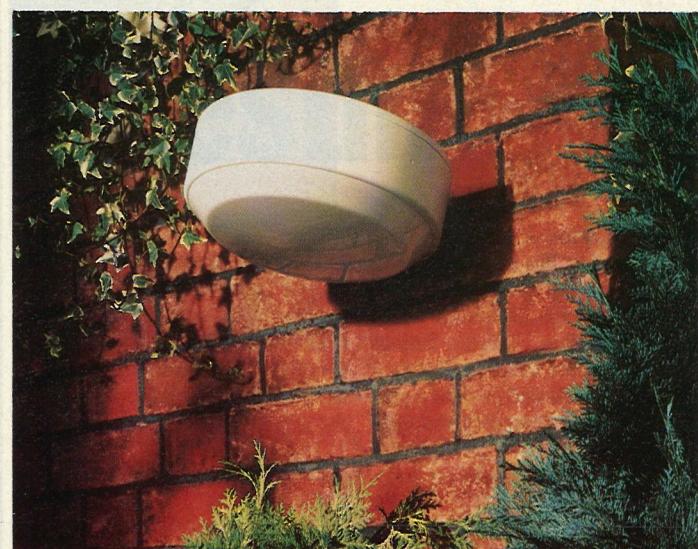
As awareness grows, and the demand for higher quality increases, so there will be a need for more lighting designers able to communicate with and understand the aims of architects and interior designers.

At present it appears that little, if any, attention is paid to this visual and creative aspect of building design in the syllabi of lighting engineering courses. It is not suggested that attempts should be made to turn the lighting engineer into a mini-architect, no more than it is the intention of the environmental design courses in schools of architecture to create mini-engineers.

What is important is for the various professions to have a real appreciation of the context within which they work and to become familiar with a visual vocabulary that could not only ease the problem of the communication of ideas, but could lead to the full realisation of the potential that could come from a common purpose.

James Bell

NEW PRODUCTS



Al fresco lighting

Lumiance has a lighting range called Fresco that offers a choice of fixing and lamp type.

The drum shaped luminaires have polycarbonate diffusers that can only be removed using a hexagonal key supplied.

Either twin 9W or single 18W PL type compact fluorescent lamps are used. The 18W version is complete with electronic starter for instant flicker-free start even at

very low temperatures.

The fittings can be either column mounted, installed under canopies, mounted flat to a wall, or at an angle to a wall using a 15° angle bracket to improve light distribution. They have ingress protection rating IP44.

Fresco is suitable for domestic premises and either outdoor or indoor commercial applications.

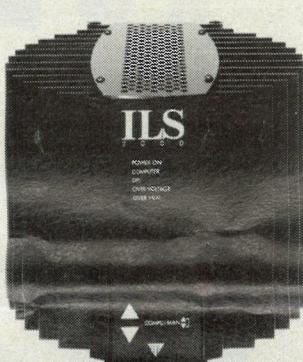
Reader Service No. 151

Lighting control system

Elemsystems Ltd has a 2600W lighting control system to co-ordinate the light intensity of GLS, tungsten halogen or fluorescent lamps, or a combination of these. The system has been developed specifically to increase flexibility of lighting installations, for example, to highlight shop window displays, create a dramatic effect at exhibitions, or illuminate interiors generally.

The unit can be controlled either manually or electronically by connection to a computer.

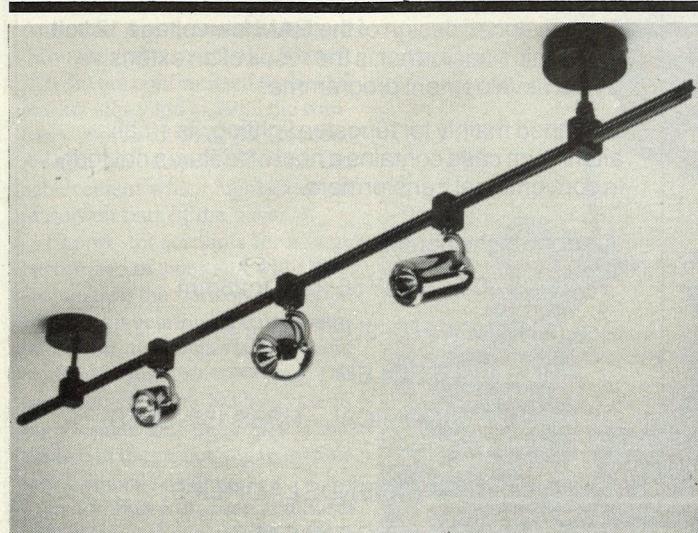
The full potential of the system is exploited by connecting a minimum of three units to a computer. This can be programmed easily to give a choice of light levels and intervals between changes. Every transition can be made smoothly over any period of time and is seen



as a gradual change in the environment rather than a sudden change of illuminance.

The ILS2000 system incorporates a circuit which prevents overloading. There is also a short-circuit breaker which causes temporary shut down in the event of a short circuit and when removed the unit automatically restarts without the need to replace any hardware.

Reader Service No. 152



Suspended track system

A low voltage suspended track system has been introduced by Tamlite Lighting. The system is based on a simple format consisting of two suspension rods and a 1200mm length of 20mm diameter track with three spotlights.

1m of the track.

Power from the transformer is fed through the track suspension rods, which are available in 150mm and 525mm lengths in either black or white to match the track.

The circular-profile track can be linked in a straight run or joined at a 90° angle using specially designed connectors. The track can only be linked mechanically.

Seven styles of luminaire are available finished in a choice of white, polished brass or chrome black. Reader Service No. 153

Angular lighting for outdoors

The strong, angular shape of Symbol, an exterior light from Staff Lighting Ltd, offers architects an alternative to more usual rounded forms.

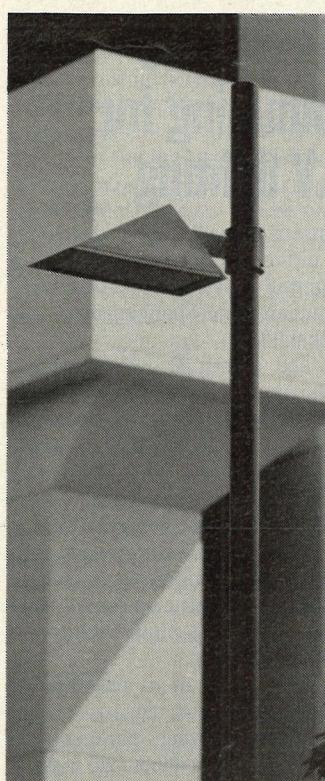
The luminaire housing is cast aluminium with a hinged frame holding a clear safety glass.

Either mercury, high pressure sodium, compact fluorescent or metal halide lamps are used.

A wall mounted version is also available in two sizes. All are supplied in RAL9002 white as standard, though a range of other colours can be ordered.

There are column mounted configurations of single, double, triple and four-way units. The two- and three-way units are adaptable and allow a variety of angled positions for the luminaires. Mounting heights up to 7m are possible on hot dipped galvanised columns.

Reader Service No. 154



Access box to street lighting ducting

An underground box, moulded in stress-free medium density polythene, gives access to underground ducting systems for street lighting and traffic control.

Made by Poet Plastics Ltd, it is of open-ended construction and should be mounted on a soakaway. Its tough construction means that it can be bedded with compacted materials, however a concrete backfill surround is recommended for locations with increased wheel loading.

The box comes complete with a 3mm steel checkerplate lid and frame. Reader Service No. 155

Dimmer modules for grid systems

Richmond Lighting Ltd has two ranges of 250W to 1000W grid dimmers suitable for use with Crabtree and MK grid systems.

Fitting into standard 41mm depth grid boxes, it is possible to place the modules in any position on the grid.

Other notable attributes are minimum pre-set brightness levels, 1000W grid modules that permit the fitting of a switch alongside, and low voltage variants.

Reader Service No. 156

Energy management

JEL Building Management Systems Ltd has launched a range of low cost intelligent outstations which can be used for energy and estates management systems and integrated into its Jelstar or Jelnet management systems.

The new JEL MZ4000 series is stated to provide full programmable control for small buildings or plant rooms or on unitary applications at comparable prices to a conventional controller.

Reader Service No. 157

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

LIF LINE

This government is catastrophe-given...

From Lord Justice Taylor's report on the Hillsborough disaster in which 95 football fans were crushed to death last April, we are urged to remember that 'the lesson here is that Hillsborough should not be regarded as a freak occurrence, incapable of happening elsewhere.' His message was aimed at those responsible for the safety of facilities at sports grounds, stressing that 'complacency is the enemy of safety'.

The Taylor report, containing 76 recommendations to promote safer and better conditions at sports grounds, highlights the need for preventive action to be taken to avoid the same tragic errors being repeated. Such preventive measures should be taken by all responsible bodies, wherever the safety of the public is at risk. Yet, time and again, we see unnecessary tragedy occur due to an irresponsible lack of precautionary measures.

Why, when this message is heeded by government, does a 40 mile stretch of the M25, which in the last six years has seen the death of 48 people with 530 seriously hurt and 980 hurt, not warrant immediate concern and action from the Department of Transport?

One could assume that, with the annual growth rate of motorway traffic at 13% and 95% of all freight moved by road, the importance of making our motorway system as efficient and safe as possible would be of tantamount priority to the Department of Transport. Yet tragic events suggest otherwise.

The latest victims — five people who were killed in January when 36 cars, five lorries and a coach collided after driving into a wall of fog — have become additional statistics to the official figures which show that drivers on this south west section of the M25, which carries more than 120 000 cars and lorries a day, are more liable to accidents than on any other stretch of motorway. Such data is further reinforced by the fact that half the 900 crashes each year on the M25 — now Europe's busiest motorway — occur in this particular section.

Such figures, one would expect, would urge the government to take greater steps to reduce the safety risk in this area and counter the potential dangers with fog detectors and better lighting. Yet vacillation hinders introduction of the required safety standards which should long ago have become mandatory.

Indeed, six years ago the Department of Transport commissioned a fog report from the Meteorological Office that identified 30 black spots. Such studies revealed the M24 to be one of the greatest potential risk areas and following the 1984 crash which killed 9 people, three £20 000 Marconi infra-red fog detectors were installed in the southern section. This pilot scheme proved successful, yet the scheme was never extended.

An alternative fog device, chosen by the Department of Transport, was to have been installed this winter at 66 sites around the M25 to warn motorists, but its launch was deferred due to technical problems and is still to be confirmed.

During the inquest of the January pile-up, the Department of Transport disclosed that a report 18 months ago had identified the particular spot as 'fog-prone' and said that the fog detectors should have been in operation by the beginning of that winter. Although driver error is often the cause of accidents in fog, the British Roads Federation recognised the importance of prior warning and regretted that the system had not been introduced earlier.

In view of these events — and a police report sent to Whitehall outlining 55 recommendations for safety improvements on the M25, including further lighting which can cut night accidents by an additional 33% — it can only be hoped that pressure on the Department of Transport to review the situation will result in the taking of immediate effective measures to prevent still further regret that such tragedies can and should have been prevented.

NEW PRODUCTS



HalogenA security light

A security light introduced by Philips Lighting is supplied complete with the company's new HalogenA tungsten halogen lamp. This wall mounted light, in a modern design, is intended for the domestic market.

The owner can select, by means of a concealed switch, either passive infra-red (PIR) linked to a timer, or photocell operation, to deter intruders.

Reader Service No. 160

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

Electronic dimming for LV lighting

Intram Barwell Ltd has developed a dimmer control for low voltage lighting which is stated to set new standards of performance and reliability.

The Contolle 50's advanced design employs new principles of electronic circuitry to overcome the traditional problems of instability and blown fuses when controlling transformer loads.

The company estimates that in any one year 75% of its customers using conventional low voltage lighting controls experience problems such as unreliability or incompatibility.

As a result of its research the company says it can now offer a totally compatible package that substantially reduces the risk of operational problems.

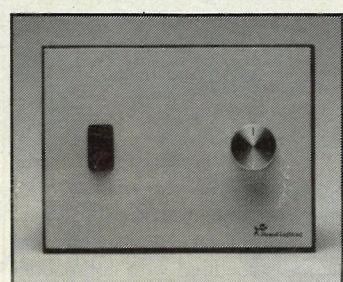
The Contolle 50 combines consistently reliable and safe performance with the best in design technology. Its hard-fired circuitry eliminates instability and conforms to the newly harmonised European EMC Standards BS800,

VDE 0875 and EN 55014.

Special attention has been paid to the smoothness and accuracy of the dimmer control; it is a two-way switch with a tight action to give a high quality feel. The control, large for easy use, is also recessed into the main body and supported by a special collar to prevent breakage through excessive sideways pressure.

The unit fits both European wall boxes and British plaster depth boxes. The circuit protection fuse is easily accessible and can be reached from underneath without removing the unit from the wall.

Reader Service No. 161



Dimmer switch for low voltage lighting

A wall mounted dimmer switch purpose designed to control low voltage tungsten halogen lighting systems has been launched by Strand Lighting.

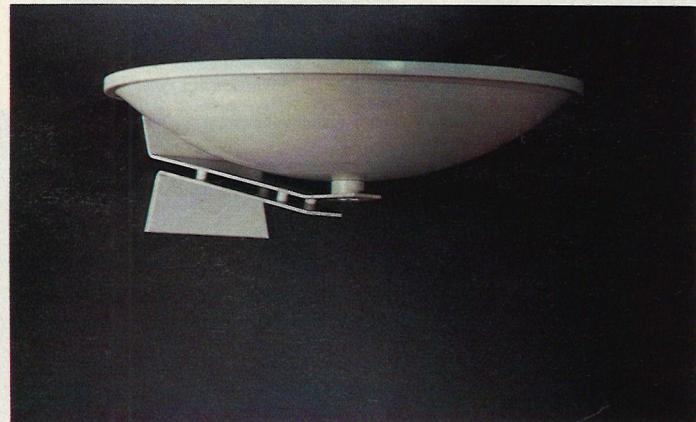
Finesse is claimed to be the first dimmer designed to control transformer-fed loads up to 1kVA. It does not require de-rating to combat in-rush currents.

A soft start capability brings lamps on gently. A built-in detection circuit monitors output wave-

form and in the event of dangerous asymmetry a bypass prevents damage to the transformer.

The dimmer is wired-up as simply as a conventional wall box switch, making it suitable for either refurbishment or new-build projects. The fascia is held in position magnetically.

Reader Service No. 162



Uplight range offers options

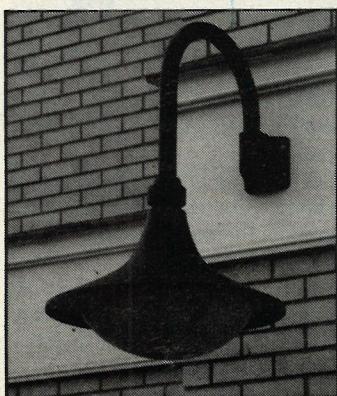
Apollo range of uplights from Ora Lighting accepts either metal halide, tungsten halogen or 38W 2D compact fluorescent lamps. Metal halide versions can be supplied with a 150W auxiliary tung-

sten halogen lamp to provide instant light during run-up time.

There are floor standing and wall mounted models. Ceiling, screen and table models can be made to order.

Options include the incorporation of decoder automatic switching units and emergency lighting facilities.

Reader Service No. 163



Swan neck lantern

A swan neck style, wall mounted lantern from LDMS is made from cast aluminium with stainless steel screws. It has a polycarbonate diffuser and is fitted with a 70W high pressure sodium lamp.

The Classic lantern is also available as a column mounted unit in single, twin or triple light versions.

Reader Service No. 164

High frequency flameproof luminaires

Communication & Control Engineering Co Ltd has a range of twin tube flameproof fluorescent luminaires with high frequency electronic switching. Calstar fittings are designed for zone 1 and zone 2 hazardous industrial environments including underground and offshore locations.

The Calstar 198 twin range uses 30kHz switching for improved efficiency. The company claims a 15% light output improvement when compared to conventional 50Hz ballast fittings. Reductions of 50% in ballast power consumption are stated to be commonplace.

Smooth, quick start and cool running are other benefits.

All models are IP66 rated and



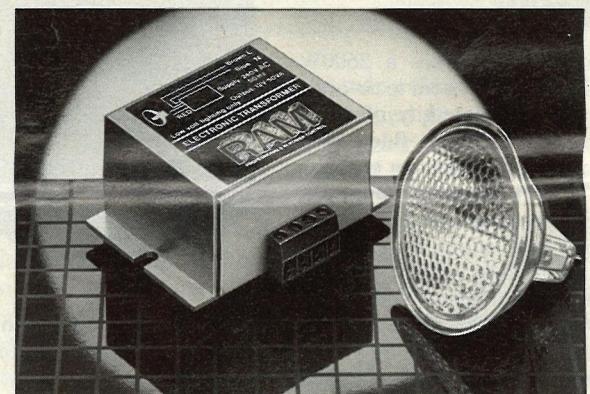
BASEEFA certified to BS5501 Parts 1 and 5 EEx d IIB T6 for use in zone 1 and zone 2 where flammable gasses in groups IIa and IIb are present. Additionally they are British Coal flameproof certified for group 1 gasses.

There are models for 600, 1200 and 1500mm lamps and for 220/240V, 50/60Hz. IP67 rated versions are also available if required.

The luminaire body is injection diecast in BS1004A zinc alloy and incorporates fully encapsulated control gear to ensure low operating temperature and resistance to moisture penetration. All luminaires have integral reflectors.

Reader Service No. 165

MINI SIZE



MAX EFFICIENCY

The advanced design of the RAM low voltage 12 volt electronic transformer is the result of an extensive 3 year development programme.

Designed mainly for tungsten lighting, its small aluminium case contains a host of features not found in conventional transformers.

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- IMPROVED SCREENING
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Reader Service No. 6

Lighting Equipment News, March 1990

LIGHT YEARS
LIGHT YEARS AHEAD
in luminaire design

4 HUTTON GROVE, LONDON, N12 8DS

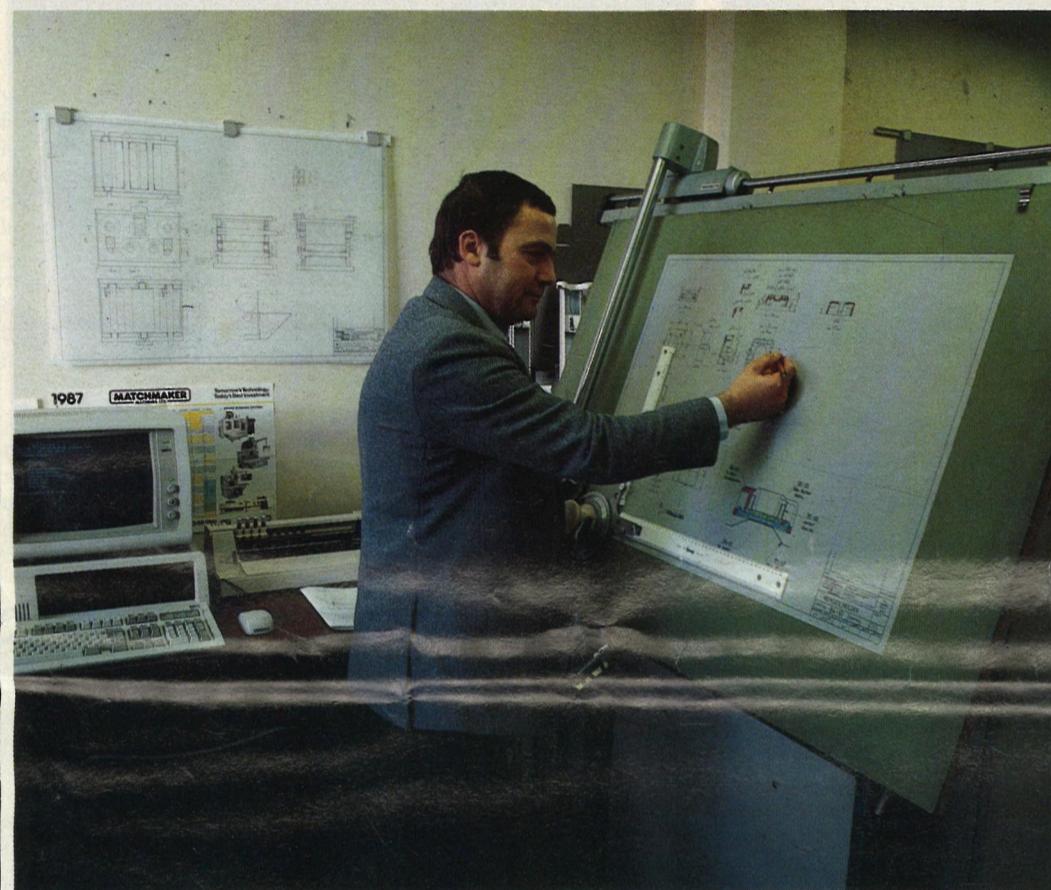
TELEPHONE: 01-446 6021

Reader Service No. 5

Page 6

Investing in a bright future

A Cornish company, which was launched less than 20 years ago to manufacture a single lighting product, has grown to become the largest independent lighting manufacturer in the United Kingdom with a comprehensive product range.



CAD-CAM allows development of new products.

Fitzgerald Lightring Limited commenced business in Bodmin in 1972, with ten employees and 11,000 square foot of factory space. Although it started out manufacturing the Lightring it wasn't long before the product range, and the size of the business, began to grow. And that has been the pattern throughout the company's history.

It did not confine itself to the UK market alone and in 1983 the company was awarded the Queen's Award for Export. It was an achievement which highlighted an important part of the business.

Export still accounts for a large percentage of sales and with 1992 looming on the horizon Fitzgerald Lightring is gearing itself up to capitalise on the opportunities and challenges that this will bring. The management team has been learning German and there has been a change in the packaging to include multi-lingual wording.

In addition European standards are being sought for the products in another move to increase sales. And the company does not rule out the learning of other languages, if necessary.

Tenfold

The company has several factory units on its site in Bodmin, each concentrating on different parts of the product range. Factory area has grown tenfold, now exceeding 110,000 square foot, while there are fifty times more staff than at the start.

Fitzgerald always believed it was an essential part of its business to be

self-sufficient, so it has developed an extensive tool room facility and injection moulding area on site. This ensures correct maintenance of all tools and allows development and alterations as necessary. Almost all moulded components

are manufactured in-house.

There has been substantial investment in recent years in computer and hi-tech manufacturing equipment. A CAD-CAM facility allows Fitzgerald to develop new products easily and effectively and

gives it the ability to manufacture both standard and specialised fittings to customer requirements.

Design programmes can be transferred from the CAD-CAM facility to the high-tech manufacturing equipment. So large or small quantities of 'specials' can be produced for the customer, very quickly.

At the start of 1989 a new Commercial Lighting Division was set up. The 21,000 square foot department includes areas for spray painting, metal working and assembly. It is equipped with the latest technology. The Division produces a wide variety of luminaires, taking advantage of modern light sources and control gear, aimed primarily for the commercial and industrial lighting markets, concentrating on recessed and surface modules.

Success

Quality has always been an essential part of Fitzgerald Lightring's success and to this end the company has achieved BS 5750 Part 2 Accreditation.

Services is another important factor and the company has invested a considerable amount of money in transport and warehousing. Depots in Edinburgh, Basildon and St Helens are being extended and equipped with the latest racking systems.

Has been substantial investment in hi-tech manufacturing equipment

Further extensions are being made at Bodmin to ensure that comprehensive stocks of all items are held, providing the best possible service to customers.

Goods are transported from Bodmin to the depots by road and rail. The extensions at the Cornish base includes railway track where the goods are taken from the warehouse and loaded directly onto rail wagons for transportation to depots around the country.

An extensive road vehicle fleet is maintained, allowing regular deliveries from each of the company depots to surrounding areas.

New computer systems are being installed at each depot to help Sales Office staff respond quickly to customer enquiries and give up-to-date progress on orders.



Fitzgerald has developed an extensive toolroom.

Extensive product range

Since the company launched the Lightring, back in 1972 many new products have been added. Fitzgerald Lightring's range is continually under review.

New products are added and existing ones are upgraded to meet current standards and changing market requirements.

The present range is an extremely comprehensive one.

The **Standard Lightpack** can take 26mm and 38mm lamps and is supplied in three types — single, twin (LPV) and twin (LPH).

The single version is available from 20w 600mm up to 125w 2400mm, with the 600mm to 1500mm range including optional power factor correction.

The twin ranges are available in the same sizes. The LPV version is ideally suited for reflectors and the LPH, having a very slim appearance, is ideal for use with diffusers.

A **Slimline Lightpack** range is also produced from 450mm to 1500mm. Designed for the 26mm lamp, it is narrow and allows the luminaire to be used for such things as concealed pelmet lighting. An electronic start, giving almost instantaneous start and longer lamp life, is fitted as standard.

A **Miniature Lightpack** range is available with prismatic controller, rocker or pull switch — ideal for kitchen or bedroom. Attractive and slim in appearance, it is available in 300mm and 500mm lengths.

A comprehensive range of attachments are available for all Lightpack fittings. A new item is the **Hi-Light**, a reflector manufactured from anodised aluminium for use with single and twin fittings and ideal for high racking.



Emergency lighting

Emergency Lighting

Emergency Lighting forms an essential part of the Fitzgerald Lightring business. There is a comprehensive range of self-contained units in sustained, non-maintained and maintained 3 hour versions. A number of luminaires are manufactured to ICEL approval while others are currently undergoing tests.

A new addition to this range is a **Supa-Lite**. This is a twin spotlight fitted with 2 20w high intensity halogen lamps which are ideal for warehouses, large stores and so on.

There is a full range of floodlighting suitable for tungsten halogen, high pressure sodium, metal halide and mercury vapour lamps. An open faced 300/500w version complete with gland and brackets, and 500w, 1000w and 1500w enclosed versions, to IP54, is included in the range.

The high pressure sodium versions are available from 70w to 400w, mercury vapour in 250w and metal halide from 250w to 1000w.

A tungsten halogen stand, suitable for either the open faced or enclosed models, can be supplied and is suitable for both commercial and domestic use.

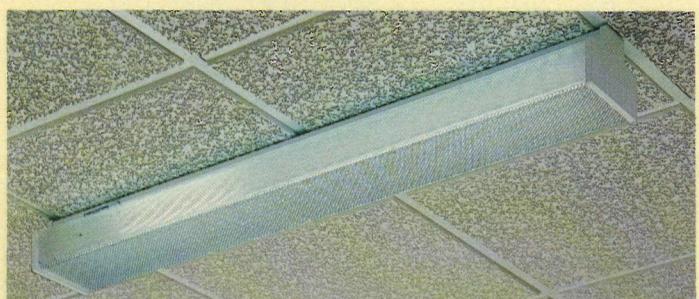
A low voltage 50w 12v spotlight to an IP55 classification is available and a number of luminaires are fitted with passive infra-red units for security lighting. These include a tungsten halogen, GLS bulkhead and outside lantern.

Trimod

Trimod is a range of very versatile recessed luminaires suitable for aluminium louvres, panel diffusers and dished diffusers. The luminaires are ideal for the majority of exposed T-bar ceilings. Trimod is also suitable for some Formulex ceilings if used with a special bracket.

Fremod

This is a high quality recessed luminaire fitted with aluminium louvres. It is available in two types, FRMC and FRMT. FRMC is suitable for concealed T-bar ceilings



Lightpack



Lightpack



Weatherpack

and FRMT for the majority of exposed T-bar ceilings.

Mobs

Mobs is a range of luminaires in modular form from 20w to 65w, available with either white or black base and with opal or prismatic diffusers.

Canopy Pack

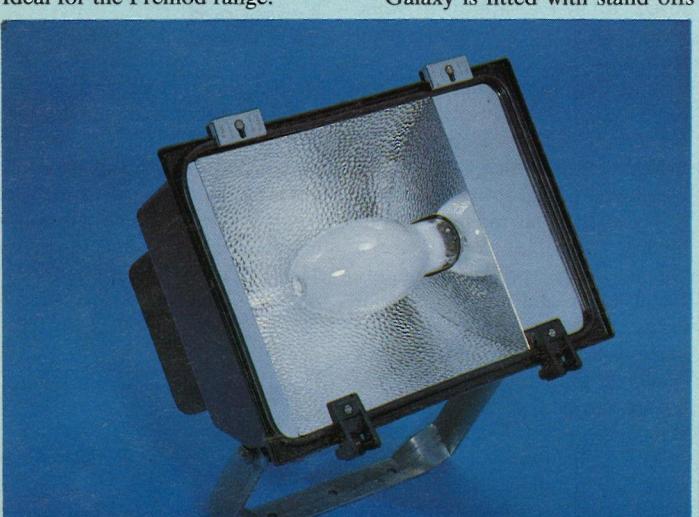
A range of luminaires suitable for exposed T-bar ceilings which can be supplied with either flat panel diffusers or aluminium louvres. These attachments simply sit on the exposed T.

Attachments

Various attachments are available for the recessed lighting ranges, including panel diffusers, dished diffusers and aluminium louvres.

There are three different types of aluminium louvre: **Challenger** is an anodised reflector giving a space to height ratio greater than 1:1.75. This louvre is fitted as standard in the Fremod range. **Mercury** is an inexpensive louvre which simply sits on an exposed T-bar ceiling and is suitable for the Canopy pack. **Trident** is a louvre available in a specular and semi-specular finish. Ideal for the Fremod range.

Galaxy is fitted with stand-offs



Floodlight

Ballast trays

A wide range of ballast trays is available in standard sizes or can be made to most customer's specific requirements. This type of lighting is ideally suitable for display and concealed lighting.

Weatherpack

Weatherpack is a range of single and twin corrosion-proof IP65 rated dustproof luminaires, available from 600mm to 1800mm. For the UK market they come complete with lamp and electronic start. The latter gives almost instantaneous start, longer lamp life and enables the luminaire to operate down to a temperature of -35°C. A range of vandal resistant polycarbonate prismatic diffusers is available and there are special clips for use in food areas.

Compact Fluorescent

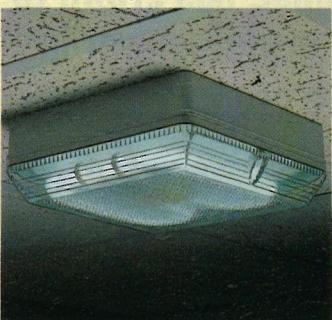
A large number of luminaires have been introduced to this range in recent months. These include TP65 rated polycarbonate luminaires which are ideal for porches, toilets, amenity lighting areas, schools and corridors and are

available in 16w, 28w and 38w versions. Now 21w and 10w 2D versions are being considered.

This range can also be fitted with glasses to give a very attractive appearance for hotels and living accommodation.

Lightring

The Lightring is the product which launched the company and from which it takes its name. Although sales are relatively small now, it is still an important part of the business. The range offers six different



Jupiter Lightring



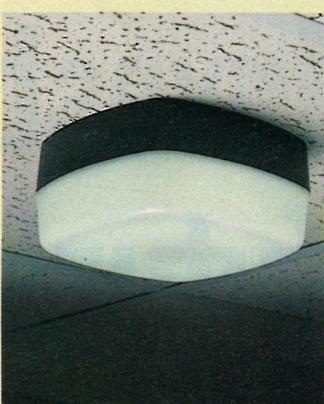
Elegance Lightring

glasses and is available in 40w and 60w versions.

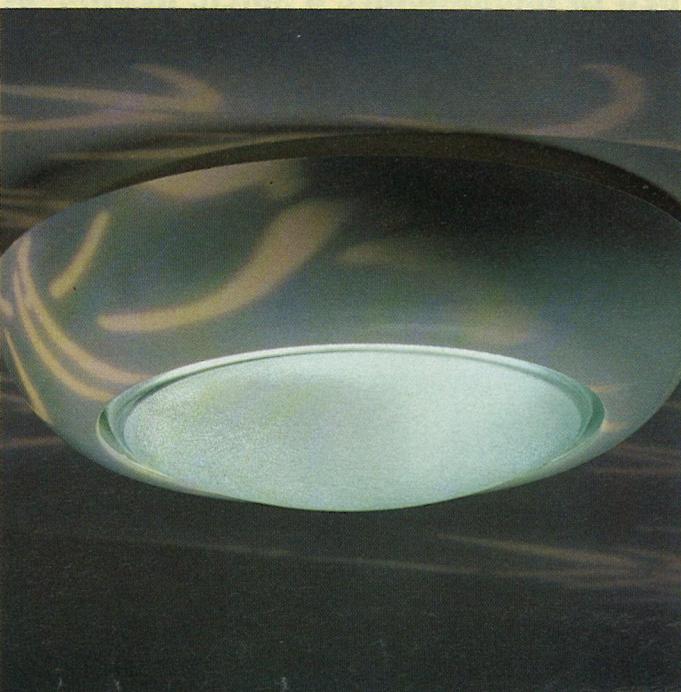
Bulkheads

This range of IP classified luminaires, for both GLS and PL lamps, is manufactured out of polycarbonate making it tough and resilient for both internal and external use. There is also a luminaire with an aluminium base and polycarbonate diffuser, suitable for 8w, PL11 or 18W SQX lamps.

Photo-electric cells can be installed on any of these luminaires ensuring even more effective use.



Phoenix Lightring



Cameleon Lightring

to enable F marking and is produced to Kitemark standards. Electronic start is fitted as standard.

Premier

Another new addition to the range, Premier is available in 2-lamp versions from 600mm to 1500mm lengths. It has angled sides and end caps, is fitted with a prismatic controller and is F marked. It is an extremely attractive luminaire which offers an interesting alternative to standard fluorescent luminaires.

High Bay

A range of High Bay luminaires available in Mercury Vapour, Metal Halide and High Pressure Sodium variations.

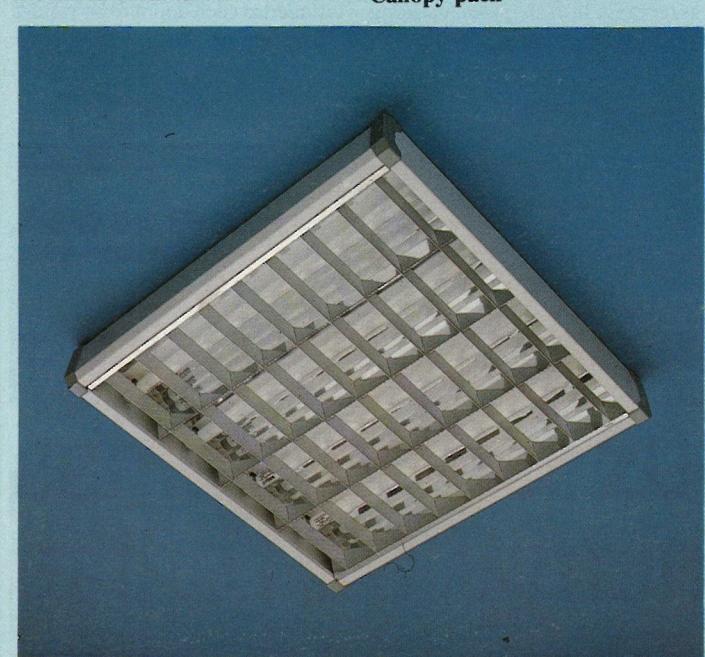
Adapt Light

This is a simple unit to convert GLS luminaires and lighting installations to PL versions. It is very inexpensive and is available for 5, 7, 9, 11 and 13w PL lamps.



Recessed module

Canopy pack



Galaxy surface module



Low Bay



High Bay

Low Bay

A range of box sections are available



High Bay

One hundred years on

Next year Philips Lighting, the world's largest lighting company, will reach its century — a time for reflecting on the past and looking to the future. *LEN* asked **Rod Wright**, director of the UK company's professional lighting division, for his views about the future of the lighting market and the role Philips will play in that future.

Let's start by looking at trends and issues in the market place — that is the end user and his needs. The obvious growth area in the past 5-10 years has been in the field of retail lighting, although sports lighting has also experienced considerable expansion. Innovation has occurred not only in the field of lamp technology — where we have seen an enormous growth in the use of low voltage tungsten halogen — but also in the whole approach to lighting design. And this raises an interesting point.

Ten to fifteen years ago lighting generally was regarded as a technology or a science. Today that is not wholly true — lighting is now also regarded as an art. I think this trend will develop and lighting will continue to be seen as a fusion of engineering and the artistic. Thus, lighting will be used for effect — and we will be seeing this in a number of other areas as well as just retail lighting.

Another dramatic change is the move from lighting a static environment to lighting in the dynamic sense. Stage lighting is already seen as adjustable and moveable in the kind of effect it produces. This approach stresses the importance of controls rather than just lamp technology. Moreover, it presupposes the sale of a complete system rather than just its component parts; and this total lighting approach is very much in line with our philosophy as a company.

Lighting systems will increasingly be produced on a total design basis. So, a lamp will be designed with both a particular ballast and a suitable reflector in mind. The Arenavision sports lighting system is a perfect example of this approach. It may be very much at the specialist end of the scale, but you will also see this trend extend to embrace consumer lighting by the time we get to the end of the 1990s; and it will go hand in hand with the widespread establishment of electronic control systems in domestic as well as commercial environments.

Energy saving

In the 1990s I also expect to see another phase in energy conservation. The 1970s saw energy saving simplistically in terms of supply and demand. But this time round the problem will be posed in environmental terms; that is going to take us much further, and I think it may well have a dramatic effect on different types of lighting. In general, however, the UK still lags behind European thinking in this respect.

Lighting is a conservative and traditional industry — if you compare it with a field like consumer electronics — and it does take time to adapt. Although a fairly inelastic market, it has been a steady growth area for the past few



Rod Wright in his Croydon office.

years and I see this continuing.

But there will inevitably be changes in the shape of the market. For instance, in the past four or five years the retail display market has exploded, largely on the back of a consumer boom, and this sector may not continue to expand at this pace. On the other hand we are now building quite a stock of commercial offices that need fitting out and the lighting of public areas is beginning to show a reaction to the issues of public safety and security.

Lighting solutions

But, more than anything, the concept of lighting solutions will be the area of greatest all round growth.

How fast can Philips Lighting react to this change in the market? Frankly, I think we already have. I think our movement in the past few years has been, and in the future will continue to be, towards lighting solutions — not only in terms of hardware but also the software solutions to satisfy lighting needs.

Our product range is excellent and we have pioneered the development and application of electronics to lighting, including compact fluorescent sources and high frequency control gear.

Looking forward to 1992, the company is very strong in Europe and has no fear of losing its lead there. Overall, Philips Lighting is the largest lighting company in existence and it also comes either top or second in all European countries. I do not think this basis will change.

Admittedly standards differ, but this will be overcome in time. For instance, the 220-240V issue will eventually be solved.

Luminaire manufacturers, on the other hand, face a much tougher challenge. Some companies, at least, will look to other European countries to expand. This already happens extensively in mainland Europe, and 1992 will probably only mean it will happen more often as far as the UK is concerned.

By and large, luminaires are closely linked to concepts of interior design and these are nationally or at least regionally determined, so the market is fairly local. In these terms we can talk broadly of three areas: northern

Europe, including Germany and Scandinavia; France and mid-Europe; and the Mediterranean countries. Within these broad zones products should at least be mutually acceptable.

Finally, the effect of the recent



Philips Lighting's new multi-channel control system in use.

upheavals in Eastern Europe can only be hazarded at present. But the effect on the lighting market could prove interesting in future years.

So, the picture is one of change throughout — as with politics, so with technology. Philips has survived a great deal of technological change over the past century and

sights are now fixed firmly on the next century. But I suspect that during the next ten years in the run up to the turn of the millennium the changes will also be dramatic.

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The light way to sell more

Well planned shop lighting can attract customers and boost profits. **Barry Grossmith** of Wotan Lamps outlines the elements of an effective lighting scheme.

Most retailers recognise the importance of lighting when it comes to seeking ways to improve sales. However, these days, there are so many new light sources and such a variety of luminaires to house them that the choice can bewilder.

An understanding of the basics will, therefore, be a useful asset when it comes to the briefing and appraisal of professional advisers and their lighting proposals. A retailer is then on the way to attracting more customers, creating a more dynamic selling environment, reducing the heat load, cutting overheads, and increasing sales.

Background lighting can often be improved, and energy costs reduced, simply by exchanging the old 'thick' fluorescent tubes for the new 'thin' Maxilux lamps with their increased luminous efficacy, which give more light for less power. Electronic ballasts can bring about further economies.

The lighting of vertical surfaces — walls and shelves, for instance — without pockets of shadow is easily achieved with directional down-lights, or wallwashers with asymmetrical reflectors.

A problem which used to face retailers refurbishing, but no longer exists, is that of blending a new lighting system into existing shop architecture or decor. The new breed of tungsten halogen lamps, HQI lamps and compact fluorescent lamps has very small dimensions which means that they can be contained in modern, unobtrusive luminaires.

Glare is something to guard against. Avoid it by always ensuring that spotlights are directed at displays, never at the customers. And remember that light reflected off shiny surfaces can be just as dazzling.

Retailers are, quite rightly, acutely aware of the importance of colours in displays. They want them to look natural. This is not as difficult as it sounds. The secret is to ensure that any lamps conform to colour rendering Group 1.

Excess heat

With food, fabrics and other displays that can suffer from excess heat, use lamps with high luminous efficacies and correspondingly low wattage such as Power Star HQI lamps or compact fluorescent lamps. Low voltage tungsten halogen lamps with dichroic reflectors are also ideal for this purpose since the heat projected in the light beam is reduced by 65%.

Rooms with dark walls, floors or ceiling absorb light and consequently are costly to light in terms of energy. White ceilings and light walls can make a considerable saving in the electricity bill. Low ceilings need care when it comes to lighting. Glare can be avoided by using a large number of low wattage lamps rather than a few more powerful ones.

When it comes to shop windows, remember the important part that daylight can play. Awn-

ings help to screen direct sunlight or bright daylight. High illuminance is needed — around 1500 to 2000 lux — which is about three or four times as much as within the shop itself.

Metal halide lamps are one of the best options for shop window lighting because they give a powerful, directed light with low power consumption. They can be supplemented with narrow-beam, low-voltage tungsten halogen lamps to focus attention on specific displays.

The importance of the shop window and, therefore, of its lighting, cannot be overstated. No matter how glamorous or beautifully furnished a shop interior may be, if the shop window does not attract attention then many potential customers will just walk past.

Electricity costs can be reduced by choosing lamps which give as much light as possible from each watt. A question often raised by retailers is: 'How can one ensure that colours on display do not fade?' It is true that the higher the illuminance and the longer the exposure of displays, the more quickly light-sensitive goods will fade. This bleaching effect, however, can be reduced by installing luminaires with UV (ultra-violet) filters.

'The importance of the shop window... and of its lighting cannot be overstated.'

Now let us look at lighting in terms of the specific needs of some different types of retailer.

Florists need to avoid direct heat which harms plants. The use of Decostar 12V/50W low-voltage tungsten halogen spotlights with dichroic reflectors is recommended to spotlight small plants and important displays. The dichroic reflectors reduce the heat reaching the plants by two thirds.

Displays will be frequently changed, so for background lighting choose metal halide lamps, colour NDL, mounted in tilt-and-swivel fittings with wide-angle reflectors ideally set in a suspended ceiling. The ballasts and ignitors needed to operate the metal halide lamp can then be installed next to the luminaires above the suspended ceiling. The light emitted by HQI (metal halide) is similar to daylight and has the ideal spectral composition for good plant growth.

Butchers also need to avoid direct heat, coupled with the need to bring out the natural colours of fresh meat and meat products. The improved colour appearance 76 de luxe Natura is a solution, with the high proportion of red in its spectrum. The illuminance on fresh meat should not exceed 750 to 1000 lux otherwise premature discolouration may occur. In the shop window, use track-mounted spotlights using HQI-TS 70W/WDL lamps. The lamps give a luminous efficacy which is about five times greater than incandes-



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Left, lighting is a key element in the interior design of this shoe shop. Low voltage spotlighting on attractive suspended light track focuses attention on the displays. Uplighters are carefully placed for dramatic effect, and large downlighters supply ambient lighting.

Above, lighting is important in this refurbished opticians. Displays are accentuated with low voltage spots and downlighters. Strip ambient lighting and further accent lighting are provided by the tubular system.

ance should be the aim with spotlights using HQI-TS 70W/WDL lamps and low-voltage tungsten halogen spotlights. For directional shop window lighting, lamps like the HQI-TS 70W/WDL are ideal since they provide a good light/shadow effect on the illuminated objects. They are also very economical with a luminous efficacy of 67 lumens per watt and an average life of 6000 hours.

The large sales areas in such shops call for economical background lighting and modern fluorescent fittings provide an excellent solution using, for example, Maxilux colour 31. The fitting of a fully electronic ballast will further reduce electricity costs. Free-hanging, low-voltage lighting systems can be used to guide customers around displays.

White ceilings and light walls can make a considerable saving in the electricity bill.'

Jewellers need to bring sparkle to their displays of jewellery and watches but to avoid glare. Small objects are best illuminated by low-voltage tungsten halogen spotlights, and large areas (such as wall clock displays) by spotlights fitted with metal halide lamps.

For the sales area, a good solution is a U-shaped tubular fluorescent lighting system suspended from the ceiling. Located above the sales counter on track can be spotlights fitted with 20W Halospot lamps with integral aluminium reflectors, directed vertically downwards. Special lighting systems should also be installed into the covers of the glass cabinets to illuminate the displays.

Clothes shops have a particular problem with mirrors. The secret here is to mount a number of tungsten halogen spotlights on the ceiling, dimmed to one third their output. The spotlights must be directed at the customer. Use the

same lighting in the changing cubicles.

In general, the shop lighting needs to be economical with excellent colour-rendering properties, and compact fluorescent lamps in rectangular three-lamp specular-louvre luminaires are recommended. Any shelving along the walls is probably best lit by tilt-and-swivel recessed luminaires for Power Star HQI-TS 70W/NDL lamps. For displays, use low-voltage tungsten halogen 12V/50W spotlights in recessed fittings with tilt-and-swivel dichroic or aluminium reflector lamps.

For the windows, try a three-phase track integrated into a suspended ceiling, close to the window but with enough leeway to allow the spots to be tilted in any direction without hitting the window. Metal halide 70W/NDL lamps have excellent colour rendering properties to bring out the true colours of the materials, are extremely economical, but need to be fitted with UV filters to avoid bleaching out any colours which are not entirely stable.

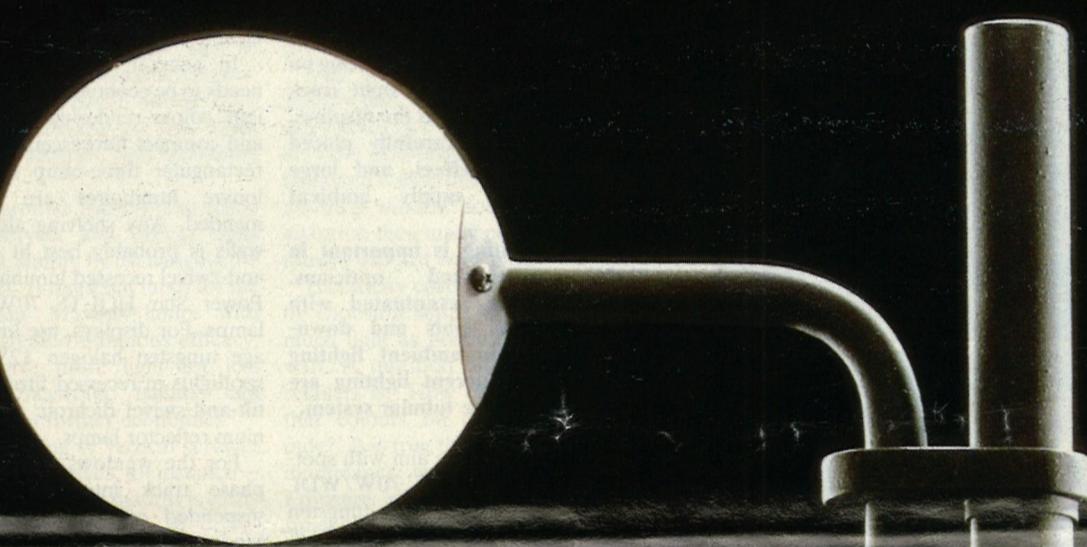
Computer and other hi-tech shops need to present themselves in an innovative light for a mostly young clientele. For the window display, use HQI-TS 150W/NDL metal halide lamps in luminaires on a three-phase track. These have a colour temperature which is the equivalent of daylight.

This can be supplemented with tungsten halogen low-voltage spotlights to highlight individual products. The lamps would preferably be 12V/50W dichroic lamps with a beam angle of 12 degrees. The overall result is a shop window which has a decidedly stage-like appearance particularly suitable for hi-tech products.

Inside, background lighting for the shop is best provided by specular-louvre luminaires installed in a suspended ceiling, with glare-free reflectors for illuminating computer screens. The long version of the compact fluorescent lamp is used as a light source with three in each luminaire. Where an area is devoted to VDU work stations, the best lighting is provided by floor-standing uplighters using HQI-TS 150W/NDL metal halide lamps.

Every type of retail shop, as this article has indicated, has its own lighting problems and requirements. Indeed, every type of shop differs because of its shape and size. A well-planned lighting scheme, however, will make them all the more attractive, more economical to run, more pleasant to spend time in, and infinitely more likely to show an increase in sales.

Since 1968 people have been taking to the streets to try and change the system.



The first demo took place exactly 20 years ago, in the old part of Pavia, northern Italy. It was during the XIV Triennale di Milano festival that public opinion was made aware of the need for a new public lighting system. That made the most of important inner-urban areas.

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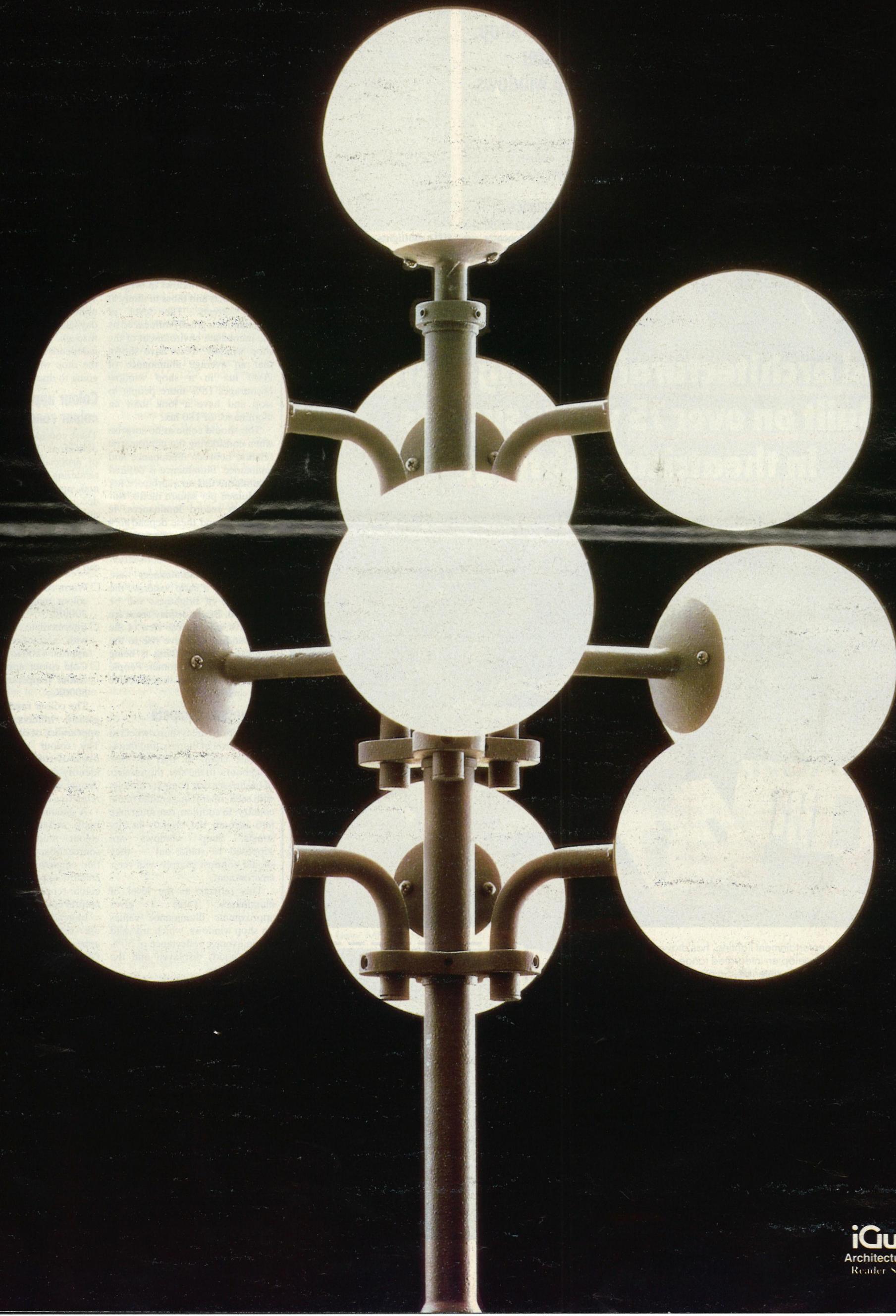
Public is a new way of managing urban design thanks to poles that allow the mounting of single, or bunches of lamps.

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quired. The materials, production technology and dimensions of Public make it all-weather resistant and vandal-proof.

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iGuzzini
Architectural Lighting
Reader Service No. 9

Shop window as sales magnet

These are hard times for the retail trade, and only an exciting window display will draw customers into the shop. In part 1 of a two-part feature J Kanz, of Hoffmeister Lighting gives general guidelines on lighting shop windows for economy and effect.

In West Germany, some 3 million shop windows vie for the customers' attention. At any time of the day they are supposed to represent, inform, and entice people to buy things. So, it is no wonder that lighting plays such a decisive role in the sales

strategies of the retail trade. Simple shop window displays can turn into visual magnets through the right kind of illumination. Successful shop window display is guaranteed by such features as level of illumination, flexibility and appropriate accent lighting. In this

feature I shall look at the factors that should be taken into account when planning shop window lighting.

Level of illuminance

The level of illumination, ie the basic illuminance, depends on



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many factors. Conditions differ between shop windows in brightly lit city streets and those in dimly lit village streets. The level of illuminance is greatly influenced by the immediate environment of the shop window. Tests have shown that an average illuminance of 2000 lux in a shop window encourages 18% more people to stop and have a look than an illuminance of 180 lux.

This should come as no surprise when considering the photometric relation between illuminance and luminance. Illuminance is defined as luminous flux on a surface: 1 lux = 1 lumen per square metre. But our eyes record luminances, ie brightness, and these depend to a large extent on the reflectance of the surface and the luminous flux reaching it.

Whenever illuminances are increased in a shop window, the impression of brightness will be enhanced. Bright display areas are attractive, give a clear view of the merchandise, and give rise to the impression that nothing is being hidden from the customer. People will buy those things they perceive most clearly.

Businesses compete

Competition forces shop owners to install a level of illumination that is at least equal to that of their neighbours. In the city, the number of businesses that compete directly with each other is larger than in the country. In addition, one must take into account the brightly lit city streets. Shop windows are supposed to stand out — they should contrast sharply with their environment.

This reflects in the level of illuminance. Table 1 gives approximate illuminance values for shop windows, which are valid for an average reflectance of 50% of the goods displayed and the room surfaces.

For displays with an average reflectance larger than 50%, illuminances can be relatively lower. For reflectances below 50% they can be higher.

The lighting level in a shop

window is also influenced by reflections in the window panes. These are due in particular to an unfavourable angle of incidence of daylight. They can be reduced through high illuminances, independently of the position of the shop windows, so we are not going to discuss them below.

Colour appearance and colour rendering

These considerations require a few definitions. The colour appearance of artificial light and its colour rendering, caused by its spectral makeup, as well as the colour of the decoration, determine the colour atmosphere and the colour appearance of the goods displayed.

The colour appearance of the lamp is a characteristic feature. We can distinguish three groups:

- Warm colour appearance with a colour temperature of approx. 3000K;
- Intermediate colour appearance with a colour temperature of approx. 4500K;
- Cold colour appearance with a colour temperature of approx. 6000K.

The colour rendering of a lamp greatly influences the colour appearance of illuminated objects. The colour of an illuminated object is called body colour. We identify the quality of colour rendering with the help of the colour rendering index Ra.

A genuine contrast of different body colours depends on the colour rendering of the light source. Mixed light, ie an illumination employing lamps of different colour appearances but good colour renderings can enhance the natural colour contrast.

In general, objects for everyday use should be illuminated to appear just as they will in use. Objects that will be illuminated at home by warm incandescent lamp light, such as furniture, would appear cold and discoloured in cold light. Technical objects, such as reflex cameras, however, are best displayed in intermediate or cold light.

Table 1.

Location of shop window	Big city	Town	Small town or village
Back street	200-500	100-500	100-300
Busy street	500-1000	200-750	200-500
Main shopping area	1000-2000	500-1000	500-750

Illuminances in shop windows (in lux) as a function of the size of the town and the street category.



HID luminaires used in a shop window.



Track mounted HID spotlights and floodlights give the flexibility required for shop window lighting.

Techniques of illumination

Depending on the type of shop window, one can distinguish between centralised and decentralised lighting. These two approaches differ in the effects they create.

Centralised lighting

Depending on the size of the installation, illumination can be effected from one single point. This kind of illumination can be characterised as follows:

- Concentrated lighting performance in one single point.
- As a rule, it relies on colour contrasts only.
- As a rule, the contrast in brightness (if direction of vision and direction of light coincide the shadows will be behind the objects from the point of view of the observer).

Decentralised lighting

The concentrated luminous flux is dissolved into many isolated points of relatively low luminous flux. Here too, the direction of light is decisive for the quality of lighting, as it must not be set against the direction of vision.

In general, shop window illumination is said to be good if luminance contrasts of 3:1 to 10:1 are obtained. There is, however, no definition of the locations for which these values should be obtained.

I propose to define the luminance contrast on a reference plane perpendicular to the luminaires. The size of the plane and its distance from the luminaires are determined by the dimensions of the shop window.

Assuming that the reference plane is monochrome and has a diffuse radiation, there is a proportional relation between illuminance and luminance. Thus, the luminance contrast can be determined even at the planning stage.

It is not possible even today to calculate colour contrasts at a reasonable cost.

Lamps

Today, metal halide lamps are used for background illumination, and low voltage tungsten halogen lamps for accent lighting.

Metal halide lamps are characterized by colour appearances that are warm white, neutral white or daylight white. Their colour rendering is generally good or excellent. For their operation, ignitors and ballasts are needed. The luminous efficiency of a 35W lamp is 50 lm/W (including power loss in ballast). It increases to 75 lm/W for a 250W double ended lamp.

The light distribution of the luminaires necessary for a uniform background brightness is achieved through wide-angled rotating and grooved mirrors.

Today there is a huge number of different low voltage tungsten halogen lamps. For the service voltages of 6V, 12V, and 24V the lamp manufacturers offer a large choice of products.

In most cases, tungsten halogen lamps with 12V/20W or 12V/50W without a reflector of their own — ie for use in reflector-equipped luminaires — will be sufficient. Whenever particularly high lighting levels are required, these can be obtained by 12V/100W lamps.

When they are used in spotlights with replaceable reflectors, better photometric values can be obtained than with metal reflector lamps. In addition, the lighting manufacturer's reflectors have the advantage that they can, in principle, be reused after each lamp replacement. The more expensive reflector lamps, however, have to be exchanged for a complete new set of lamp plus reflector each time there is a lamp breakdown.

For the illumination of goods that spoil easily or are sensitive to heat, cool beam reflector lamps should be used. They reduce the heat emitted in the direction of the displays by 34%. The remaining 66% will have to be coped with by the luminaire. This is why such lamps can only be employed in luminaires designed for that purpose. Here too, the 12V/20W and 12V/50W lamps with different radiation angles are sufficient for most applications. If higher illuminances are required, there is a large scope of 12V/75W lamps to choose from.

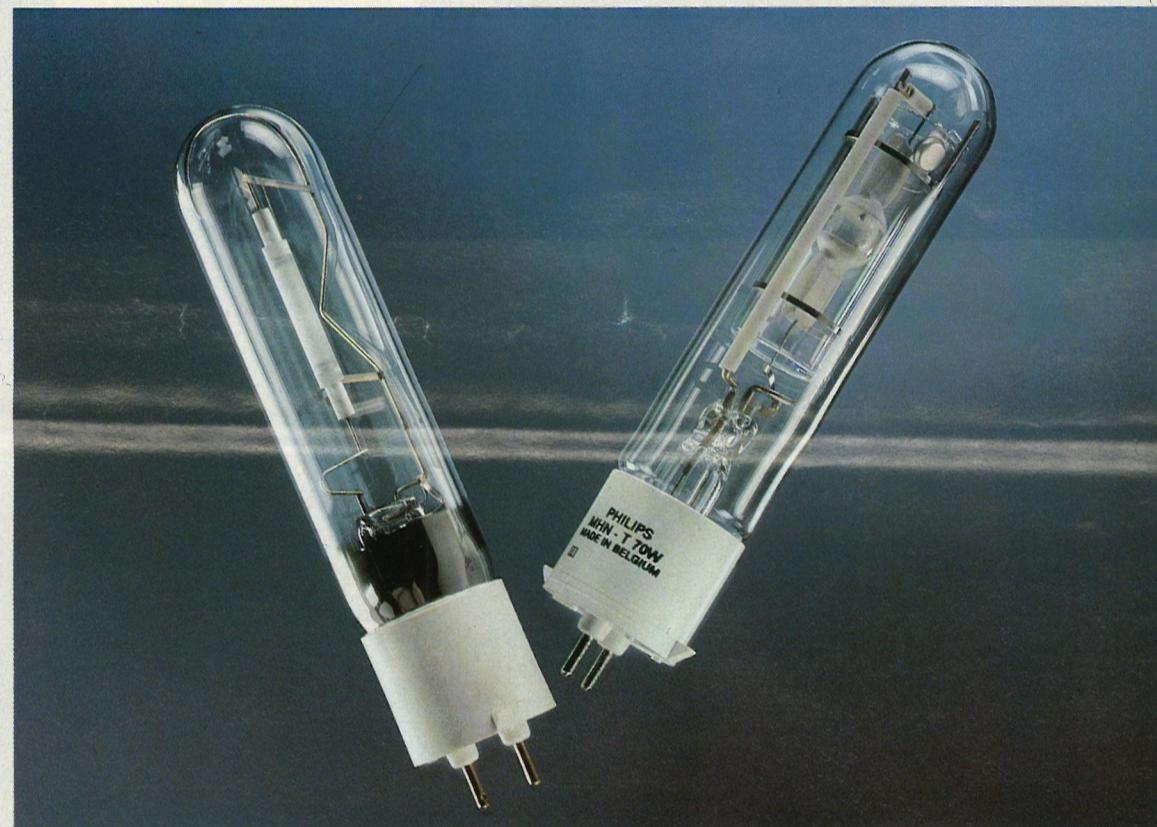
Glare

The prevention of glare requires a lot of attention on the part of the lighting manufacturer, the lighting engineer, and the consumer.

People should never look directly into the luminaire or lamp. This is no problem with a large number of shop windows, as the direction of light is parallel to the direction of vision.

It is not true, however, in the case of shop windows that turn a corner or that are open towards the sales room. In either case there is a risk of direct glare. Here, it is absolutely necessary to prevent flare by means of screens or honeycomb louvres.

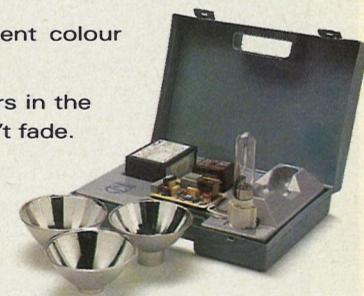
Reflections on diamonds and crystal glasses are welcome. Reflected glare that prevents people from looking at the merchandise should, however, be avoided.



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PHILIPS

Reader Service No. 11

Page 15

Adding polish to sparkle

Display lighting will become less of a fashion fad, argues Janet Turner, of Concord Lighting. New long-life installations will stress quality, design and suitability.

The increase in the quantity of lighting fittings installed in shops over the last decade has been phenomenal.

In some instances the lighting fixtures visually dominate the interior space and yet fail to provide sufficient light on the merchandise.

Recent predictions in the retail sector on expected trading results have brought about a change in attitude to design — and the design

philosophy of refurbishing the shop interior every 18 months is no longer a viable one.

The outcome of this approach will militate towards a longer life interior — quality materials that will inevitably be more costly. The whimsical and more aggressive will make way for the classical interior.

Good lighting will continue to be of paramount importance, and the opportunity for high quality products that are also good

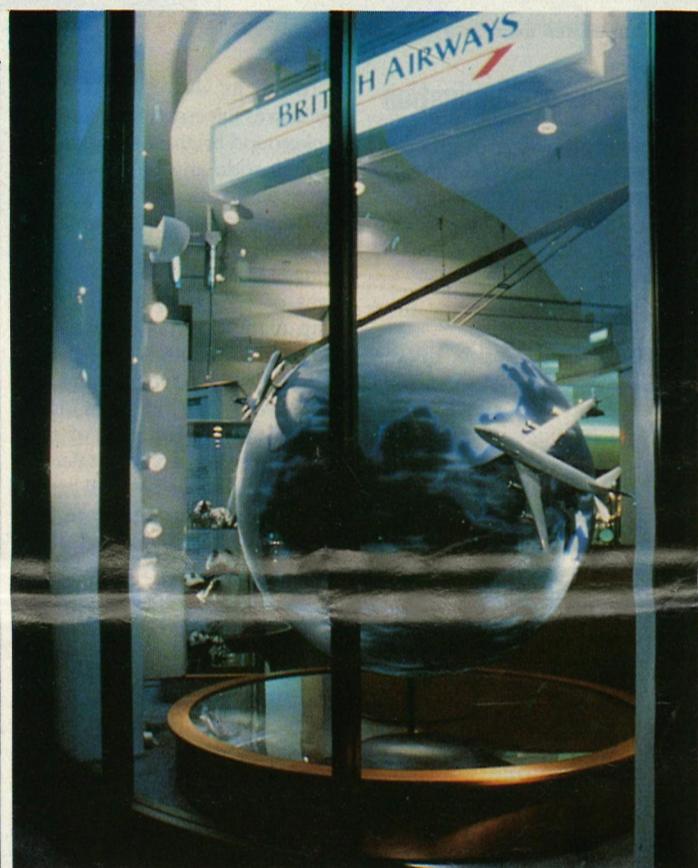
performers will continue.

These lighting products will be required not only to meet European safety standards, but also to be well engineered in high quality materials, and designed for maximum output, with both minimum glare and energy consumption, within set design parameters.

Energy consumption related to environmental quality will be a consideration and the combination of fluorescent or HID, low energy



Recessed downlighters with Lynx compact fluorescent lamps provide ambient illuminance together with 50W low voltage capsule lamps recessed into Myriad downlighters in this low ceilinged, reflective interior.



A sparkling revolving world lit with low voltage integral Torch 75 spotlights. The reflector focuses from 10° to 20°, with an alternative 5° fixed model for the high ceiling in the main shopping area.



Two Lytespan tracks supply tungsten halogen 5°, 10° and 25° beams in Torch 50 and 75 spots switched separately. This creates a strong contrast between highlight and shadow, differentiating wood, porcelain and aluminium.

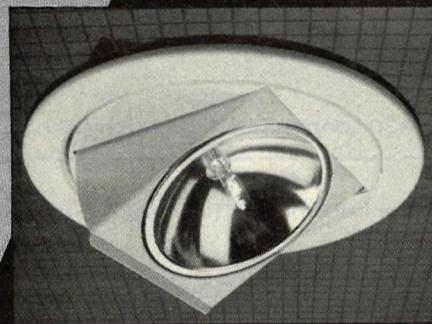
TRUNKY TECHNICAL COMPETENCE

● Trunky RET2 unites the functions of wall washer, downlight and spotlight in one unit. From its standard downlight mode it can be pulled forward in a downward arc, or swivelled, as the application demands.

The fitting has a choice of computer-designed permanent reflectors, offering beam angles of 10°, 20° and 40°. It uses a 100W capsule lamp, which produces 5700 lux at 3m for only a fraction of the cost of an HQ1 lamp. Available in a durable powder coated satin black or white finish as standard.

The fitting is complemented by Trunky RET1, which uses either 50W or 75W dichroic lamps. It gives beam angles of 10°, 21°, 38° and 60° with 50W lamps, and 12°, 24° and 38° with 75W lamps. Like RET2, it can be rotated through 359° and angled from the horizontal to 90°.

Both fittings keep maintenance costs to minimum, since lamps can be easily changed from below.



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When sufficient brightness is achieved during daylight hours half of this intensity will be adequate during darkness. Energy effective HID or fluorescent sources separately switched can provide a high ambient light level for daytime with the low voltage accent circuit constantly switched on.

... Refurbishing the shop interior every 18 months is no longer ... viable?

The lighting installations for museums and art galleries should be designed principally to meet the requirements of conservation, display and specialised study.

Many art collections are housed in buildings designed long before modern lighting techniques were possible.

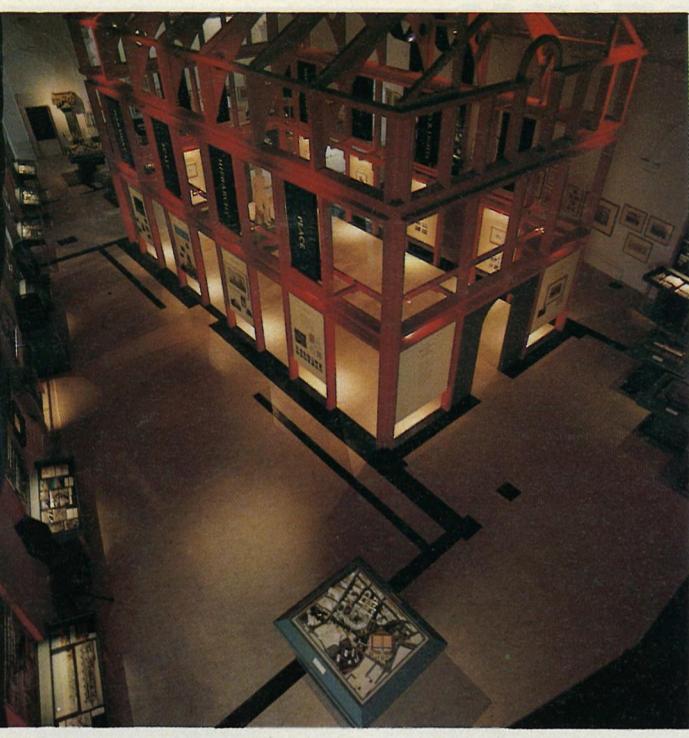
The museum visitor is seldom allowed to touch the exhibits, therefore, the visual impact of both objects and the space in which they are viewed must attempt to com-

penate for this tactile deprivation.

The latter building is often of

architectural merit and will need a

integrated lighting solution.



Fixing lighting fittings to a custom-built, free standing structure resolves the perennial problem of how and where to fix and supply energy to the luminaire. From the Prince of Wales "Vision of Britain" Exhibition at the V & A. Lighting designed by Equation Lighting.

fitness for purpose concept will be a recipe which is also sympathetic to 'green' issues.

Quality or quantity?

Could we not occasionally abandon the lighting concepts of the bright ceiling, that dominates and distracts from the merchandise, or the alternative bland and boring gloom of the evenly lit space, as in many of the larger multiple stores, where the intention is the regular re-location of displays and racking? An alternative solution may be found in the combination of a fixed lighting system providing

ambient levels and incorporating a built-in facility that accepts accent lighting units.

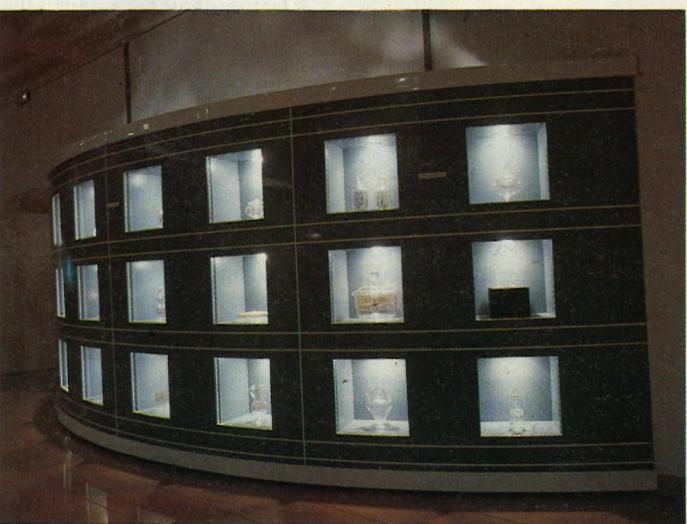
Luminaires that deliver light onto the merchandise mean good reflector design with minimum glare.

Shop windows

Whatever the equipment chosen to achieve this specific lighting solution, two switching alternatives are needed — one for daylight, one for no daylight — the object being to achieve a higher level of light within the window than on the pavement.



In this glass museum 70W metal halide uplighters recreate a 'daylight' wash that contrasts with the skeletal spotlight structure highlighting the exhibits.



Glass pieces are housed in alcoves individually top lit with 50W 12V Myriad 40° beam downlighters.



Metal halide uplighters with tungsten halogen spotlights on recessed Lytespan track in an ambient and accent combination.

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On display in museums

A brief look at two installations, one of which uses White SON spotlights.

Museums and art galleries throughout Britain have been taking advantage of high-tech lighting equipment in recent years to display their collections to best advantage. This article looks

at two major cultural buildings — one in Glasgow and one in London.

In December 1988 Glasgow City Council gave the go ahead for a £3.3 million rebuild and refurbishment programme for the McLellan

Galleries, which date back to 1856.

The nine gallery halls have been brought up to international standards of air conditioning, environmental control, lighting, security and exhibition handling and

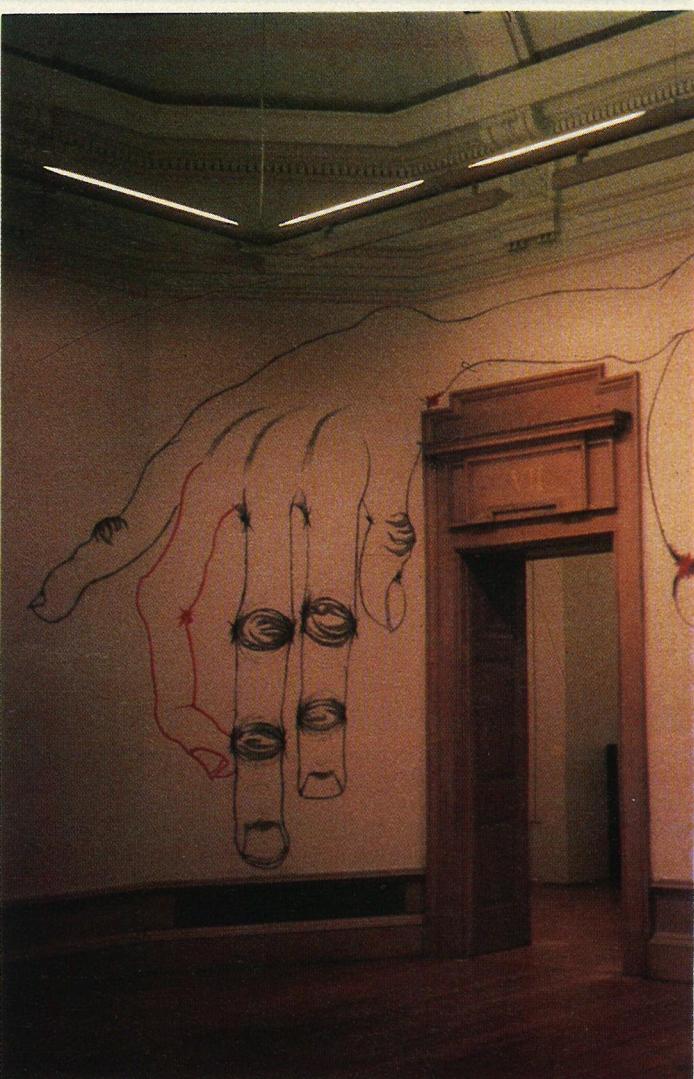
mounting. This includes redecoration of the galleries, sculpture hall, grand staircase and entrance; redesign of rooflight glazing to incorporate ultra-violet filters and provide a daylight louvre system, operated by light sensors; air conditioning, and a high standard of lighting.

One important aspect of the air conditioning design was the formation of a new roof umbrella over all gallery areas.

The refurbishment is aimed at enhancing Glasgow's cultural life which already offers more museums and galleries than any other British city outside London.

In 1990 Glasgow is European City of Culture and the McLellan Galleries, with just under 305m of hanging space, are playing an important part in staging major international exhibitions. The current exhibition is "The British Art Show 1990".

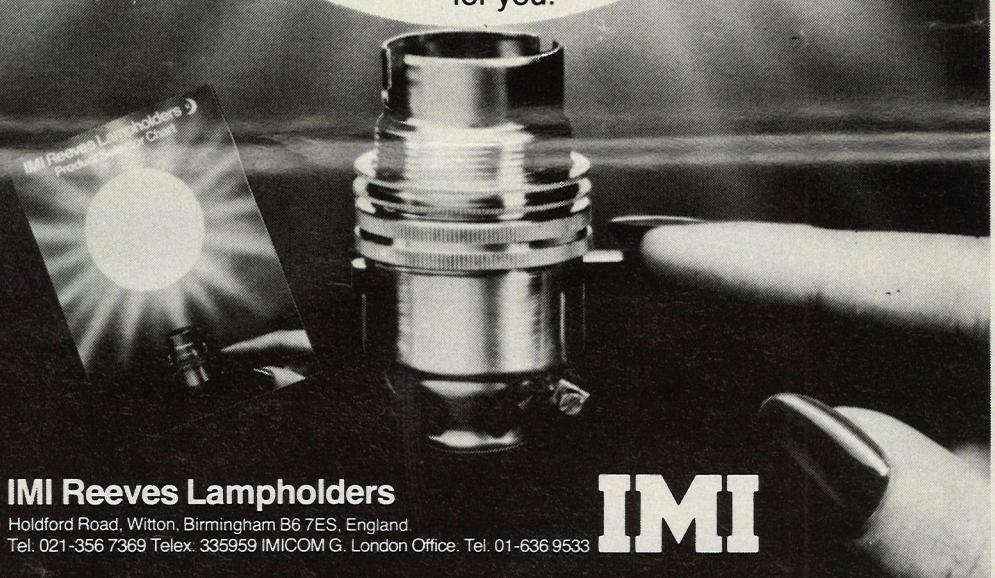
The lighting scheme is based on suspended rectangles of Varipoll tubular track by Erco Lighting Ltd. This 100mm diameter system contains three-circuit lighting track and has a facility for uplight-



Suspended lighting at the McLellan Galleries.



New lighting in Gallery 11 at the British Museum.



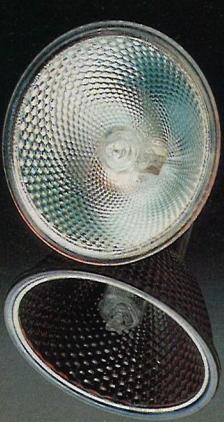
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ing and washlighting to produce 50-200 lux on hanging walls.

Intrinsic to this system is the incorporation of emergency lighting in the uplighting. In addition to the washlighting there is sufficient space for the track system to accept tungsten halogen accent lighting wherever required.

Washlighting and tungsten halogen lighting is dimmable, whereas the uplighting is separately switched.

Control system

An important part of the lighting scheme is Erco's EOS control system. Primary control is from the security room, with dimmers housed in the roof 100m away and a facility within each gallery to adjust the light scene to suit the exhibition. The system can be easily reprogrammed according to the type of exhibition.

Architects were the Department of Architecture and Related Services, Glasgow City Council (director of architecture Christopher Purslow; project architect John Grierson).

Gallery 11 at the British Museum also has a modern lighting installation. Previously it was lit by 34 fluorescent batten fittings,

1500mm long, using twin 65/80W lamps. The luminaires were mounted end to end in a square.

This gave an illuminance of 210 lux with a total installed load of 6.26kW.

The installation has been replaced by special luminaires from Philips with through wiring, each incorporating two 50W Colour 83 lamps with high frequency gear. The lamps, which can be dimmed, give good colour rendering and a pleasant warm light.

A feature of the luminaires is that they have several lampholder positions which can be changed after installation to alter the light distribution — symmetrical or asymmetrical — according to the position of the displays.

This gives an illuminance of 350 lux with an installed load of 3.7kW, a reduction of nearly 50%.

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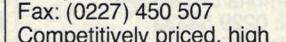
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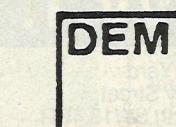


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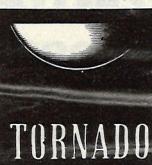


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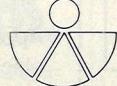
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The successful applicant is expected to be up to 30 years old. ONC in Electrical Engineering, or "A" level Physics or Maths is a minimum requirement. The post entails preparation of lighting schemes, using sophisticated computer-aided design techniques, photometry and luminaire testing in mains and emergency luminaires, and involvement in the Company's Quality Assurance programme.

FOR EITHER POSITION, PLEASE APPLY WITH FULL C.V. TO THE PERSONNEL MANAGER, RADA LIGHTING LIMITED, HOLLIES WAY, HIGH STREET, POTTERS BAR, HERTS EN6 5BH. TELEPHONE: (0707) 43401.

LIGHTING SPECIALIST

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The position will be as assistant/deputy to YRM Engineers' in-house lighting consultant Eric Maddock, whose consultancy service is available not only to colleagues within YRM but also to other practices.

The successful candidate should have a formal qualification, together with specialist knowledge of illuminating engineering, and an understanding of its relationship to space planning. The applicant should be able to work sympathetically with architects and interior designers as well as with engineers.

The position will be based in our London headquarters just north of the City. Salary is negotiable and there is a clear progression potential.

Please write with cv to:

Eric Maddock, Associate, YRM Engineers,
24 Britton Street,
London EC1M 5NQ

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DAL leaders in Custom and Architectural lighting are expanding their standard product range and are seeking Sales Engineers for London and the Home Counties.

Candidates should have experience in calling on major specifiers and the positions offer a good basic salary, plus commission, a car and Company Pension Scheme.

Please reply in writing with your C.V. to:

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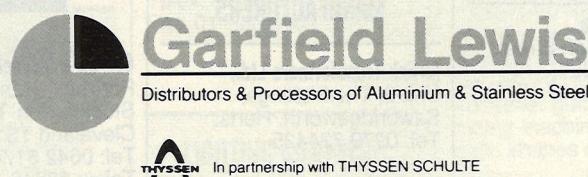
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Expanding North-East based manufacturer and distributor require an experienced Sales Representative, preferably based in Scotland.

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The successful applicant will be required to have an in-depth knowledge of road traffic and street lighting equipment and be capable of dealing with the local authority, public utilities and contracting market.

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Internal career progression has led to two opportunities becoming available for an experienced lighting man or woman to join the O.E.M. Sales Team, to be responsible for managing an established territory with an extensive portfolio of existing clients. The vacancies are located in the Midlands and the South of England. There is also a requirement to develop new accounts with original equipment manufacturers for both new lighting lamps and specialist lamps used for their ultra violet or infra-red properties. The Philips Lighting research and development programme ensures that exciting new lamps become available on a regular basis, thus widening sales opportunities in the O.E.M. lighting market place.

If you have proven selling and negotiating skills in the Industry, with the initiative and motivation to work independently in order to produce imaginative and creative solutions to technical problems, you could be our ideal candidate. Please send your c.v. which should include details of qualifications, experience and salary to Mrs. P. A. Hayden, Personnel Manager, or ring her on 01-689 2166 Ext. 2045 and she will send you an application form. The address is Philips Lighting Ltd., City House, 420-430 London Road, Croydon CR9 3QR. We look forward to hearing from you.

Philips Lighting



PHILIPS

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FITZGERALD LIGHTING LIMITED is the largest independent lighting manufacturer in the United Kingdom, supplying their products through electrical wholesalers.

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Please write with full Curriculum Vitae to:

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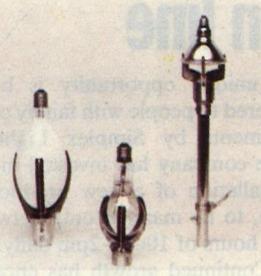
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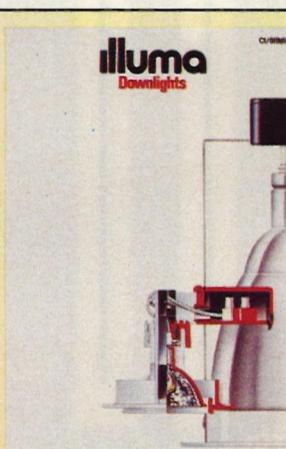
Light Source Self-Governing Electronic Low Voltage Transformers for 20-60VA and 60-105VA loads incorporate benefits to the end user. Two important advantages being: auto resetting short circuit protection and auto dimming overload protection circuits. Suitable for embodiment or remote mounting: circle 91



Channel Safety Systems Limited: The LASER PACK Low Voltage Conversion Kit presents the opportunity to convert selected luminaires in a low-voltage tungsten halogen installation to emergency operation, whilst retaining their primary role as an integral part of the overall designed lighting scheme: circle 92



From Crescent Lighting, the Casa 13W PLC Downlight has a recess depth of 90mm, power factor correction and can be used with a wide variety of trim options. Standard unit £27 trade: circle 93



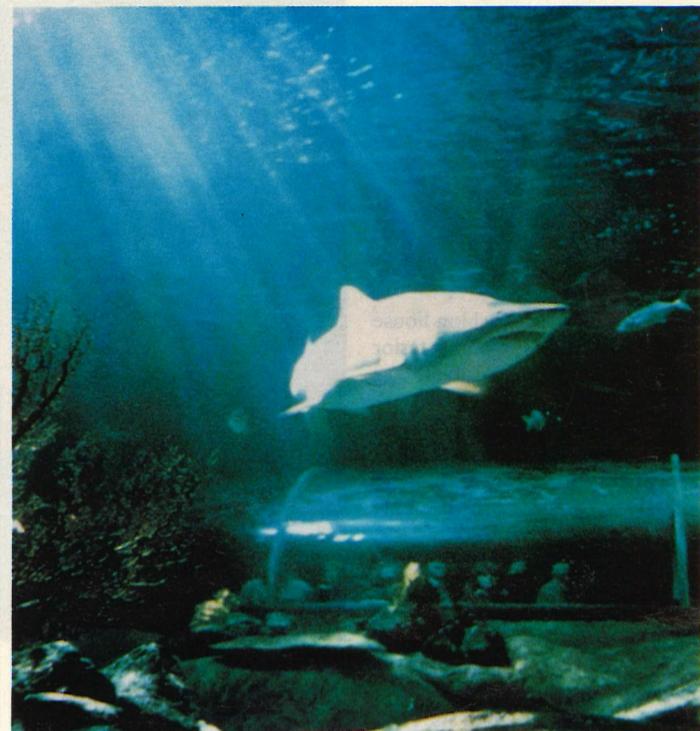
Illuma have produced a Downlight Catalogue featuring many new designs incorporating the latest lamp technology, enabling a wider choice of lighting effects to be achieved with general service, reflector, energy saving and low voltage lamps: circle 94



Sungro-Lite Natural Light lamps. Diffused, cool, glare-free light, colour balanced, free from harmful U/V for clearer vision, improved working environments. Sunodym Flora-lamps for situations requiring visually warm, diffused light. beneficial for flowering and variegated plants: circle 95

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NEWS



In at the deep end!

Thorn ALI Lighting has re-lit the Sydney Aquarium, the famous tourist attraction in Darling Harbour, Australia.

Two 30m x 12m x 4m deep tanks — one each for sharks and big fish — had previously been lit by 36 metal halide high bay fittings suspended in rows above the water. This gave an even illumination, but the scheme was designed to look like the sea bed at 10m so lighting levels were low. While this was technically correct, visitors viewing from the underwater walkways expected to see the type of magical environment portrayed by Jacques Cousteau films. In addition, maintenance of the system was difficult and — in the shark tank — hazardous!

The stunning new scheme consists of a total of sixteen 1kW metal halide floodlights with a variety of clear and prismatic lens attachments. In the shark tank, eight floods are mounted at one end of the tank above a platform where access for maintenance is simple. These are projected so as to maximise light penetration into the water and the visitor is given the impression of a great volume of water of infinite length with shafts of light penetrating to the 'sea bed'.

In the big fish tank three floods are mounted above a pier and pro-

jected through the wooden slats producing a pattern of thin lines of light. Further drama is created as water movement refracts the light off the submerged curved viewing tube, splitting the beam into the full spectrum. Five further floodlights are positioned at the opposite end of this tank and are, thus, easily accessible.

The floodlights — with their marine grade die cast aluminium bodies — were chosen for their ability to withstand the harsh salty environment in the aquarium and have been well proven in exterior coastal floodlighting installations for many years.

The 1kW CID light source was chosen for its pure white light, 5200K, which gives an appearance close to daylight. Originally developed for studio and theatre lighting, the lamp produces the type of light which underwater cameras would use during filming.

The new installation has transformed a full, evenly-lit environment into an exciting encounter with marine life — and has already won a commendation from the New South Wales Illuminating Engineers Association. In addition to being more spectacular it is also more energy efficient, permitting the installed loading to be reduced from 10kW to 9kW.

Lighting Industry Golf Society

The annual dinner of LIGS was held at the RAF Club, London, on 6 February. At the dinner Hugh Powell, managing director of C & H Powell (Meopham) the 1989 captain, announced that the Captain's Trophy for last year had been won by John Butler, managing director of Staff Lighting.

LIGS captain for 1990 is Tom Cartledge, chairman of T Cart-

ledge & Co. Society meetings arranged for the year: 17 April at Coombe Hill, 17 May at Wilder-ness Golf Club, 20 June at Burhill (guest meeting) and 18 October at St George's Hill. The date of the Christmas meeting will be announced later.

Hon secretary, Tony Smith, managing director of Kirkgem, voiced the views of the Society when he said new members would be welcome and should apply to Barry Ship of AEG Capacitors (UK), telephone 0344 882365. Annual membership fee remains at £10.

Computer seminar

A seminar on the use of computers for building services organised by CIBSE and BRE was so over-subscribed that it is now being repeated.

It will take place on the afternoon of Tuesday 15 May at the Building Services Engineering Centre in Balham. Chairman for the session will be Dr V H Crisp, Head of

Environmental Systems Division at Building Research Establishment. Speakers presentations will include David Bloomfield, of BRE; Tony Baxter of Hevacomp, and Martin Shaw of the Building Regulations Division at the Department of the Environment.

The cost is £40.00 + VAT (£6.00) for CIBSE members and £50.00 + VAT (£7.50) for others. Further details from the CIBSE Member Services Department on 01-675 5211.

Setting the fashion world alight

To a major London fashion house the latest and best in interior design is important to create the right impression.

With this in mind Fenn, Wright and Manson, based in Great Titchfield Street, W1, called in interior specialists Design Core to create their new showroom studio.

The brief called for a stylish, modern design which was distinctive yet showed to maximum effect the garments on display.

Lighting design had a key role to play, and lighting designer Lighting Workshop, specified its Tube



Track 30 system fitted with Profile low voltage spotlights.

Adjacent offices were also

included in the lighting contract. Here, Mosquito and Tri-Lite fittings create a businesslike environment.

Child carers on line

A unique opportunity is being offered to people with family commitments by Simplex Lighting. The company has invested in the installation of a new production line, to be manned only between the hours of 10am-2pm daily.

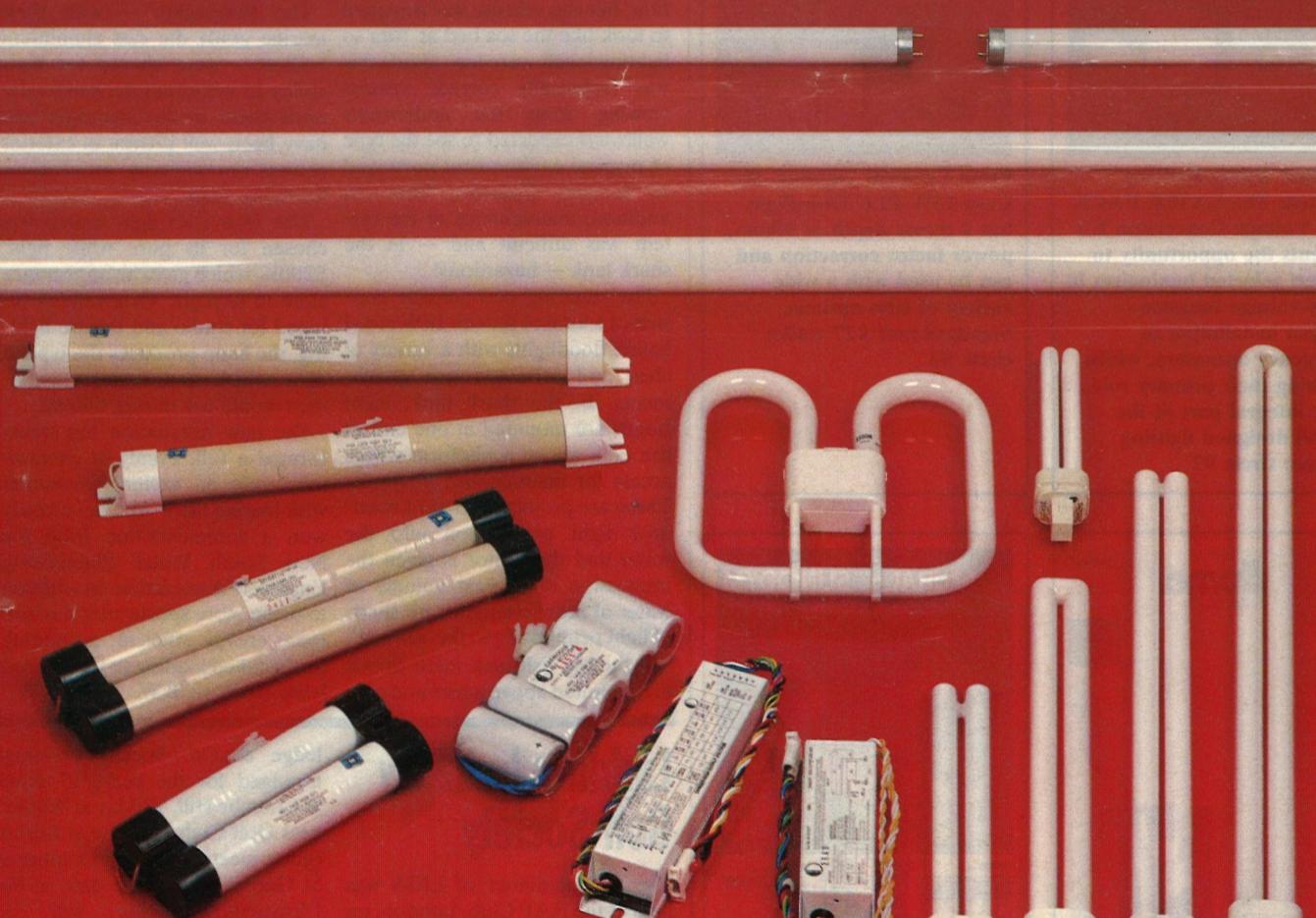
Continued growth has encouraged the company to take a fresh approach to recruitment.

Simplex relies heavily upon the reliability of its workforce, much of it local; but one important sector of the community which is easily neglected due to restrictions of family commitments is housewives and mums. "We view them as a valuable resource for employment and have introduced a special production line in an effort to attract a greater response from



Betty Boothroyd, Deputy Speaker of the House of Commons, meets workers on the new production line. of this increased production facility.

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FM/09128

Market research for you

Manchester Business School is now providing British organisations with the opportunity of obtaining heavily subsidised international market research.

Companies can obtain the services of a project team from the school's final year MBA degree programme to investigate potential overseas markets. Companies provide the necessary background and briefing but pay only out-of-pocket expenses, travel charges and a small overhead fee — most of which British firms can now recover from the British Overseas Trade Board and other govern-

ment-backed export schemes.

Projects provide about 1500 hours of investigation plus MBS faculty supervision and full access to the resources of the school's business library. Substantial opportunities have been pinpointed through previous projects.

Work is normally undertaken between March and May and discussions between companies and MBS can start immediately.

Companies are becoming increasingly aware of the impact of 1992 both in terms of its potential and its threat. A number of projects last year had the issue of 1992 as a focus and ranged from a detailed survey of regulations and their impact in one specific sector to a more general assessment of another company's potential for growth after 1992.

Further details are available from Dr Paul Michell, Manchester Business School, Booth Street West, Manchester M15 6PB. Telephone 061-275 6333.

Picture the savings

The National Museum of Photography, Film and Television has installed a comprehensive Satchwell BAS 2000 building management system for the price of a stand-alone, single out station system. And the savings made at each stage of the phased improvements in environmental control have each paid for the next phase. Thus, an initial £9000 investment has built up to give a £40 000 system — with more to come!

Before the energy saving measures began, the annual energy bill was some £143 000 — and it was due to rise by 12% next year. However since the system was introduced, consumption in May and June showed a 60% saving in gas compared with the year before. Electricity usage, previously £100 000 pa, has gone down by 20%, even though a huge new high technology area, the 2000m² Kodak museum which uses a great deal of electricity, has been added. One action which has contri-

buted to this is good housekeeping, encouraging staff to turn off lights in unused areas and closing doors and windows. Much more important, however, is the automatic control of the main lights. Previously, in preparation for gallery opening staff would need to walk through the galleries turning on lights — in this large building some would be on a full hour earlier than necessary. Even at the end of the day the same wastage occurred. Now all the lights are turned on together — with a great saving in staff time too.

The fourth out station, just being installed, will control the main boiler plant and the Imax cinema, which contains the largest screen in the country — roughly five storeys high. Plans for the future include the provision of an additional energy management monitor in the foyer of the museum to show visitors how the building is environmentally controlled, even down to temperatures in individual areas. 'We are linked to the Science Museum', said Tim Whitehouse, the building services manager, 'So even though our exhibits are generally thought of as artistic it seems appropriate to show how we use technology to provide better conditions'.

IN YOUR NEXT ISSUE

Transformers feature in the April issue, where a review of technical advances traces the growth of electronics in lighting. Electronic transformers originally had a bad press but now incorporate features

that conventional equipment cannot match.

This 'state of the art' number then goes on to preview an exciting leap forward in computer visualisation.