LIGHTING EQUIPMENT NEWS

JANUARY 1990

Thorn interim results

Thorn EMI has just announced its interim figures which detail the performance of the Lighting Division. In the six months to 30 September 1989, Thorn Lighting's profit before taxation was up 13.5% at £11.8m from £10.4m in the same period last year on a turnover of £262.3m (£191.6m).

Commented group chairman and chief executive Colin Southgate: "Lighting has made progress, although profit would have been higher in the first half were it not for the disruptions caused by the restructuring of its UK distribution as well as the integration of the Australian lighting businesses acquired last year".

In brief . . .

● **M and M Lighting Ltd** has appointed White Light of London as the UK service centre for all Rainbow products, including Light Curtain and the Rainbow colour scroller.

● **CCT Theatre Lighting Ltd** and Lighting Methods Inc have formed a joint venture company CCT-LMI based in Rochester, New York. The new company will make and distribute CCT luminaires and accessories in the USA, Central and South America. All CCT luminaires are UL approved.

● **Sirrah,** Italy, has acquired Piuluce. The two companies will continue to trade separately and Offital UK Ltd remains UK agent for Piuluce.

● **The Polaron Engineering Group** has acquired the Special Lamps Division of GEC.

● **A new company, Gallex,** has been formed by the Scottish Development Agency, Pilkingtons, the University of Strathclyde and key individuals to exploit expertise in opto-electronics. Its activities will include the sale of fibre-optic light guides, a consultancy service and development of innovative products.

● **Arlington Management Group Ltd** has acquired a controlling interest in Tekcon Electrical Ltd which makes low voltage lighting transformers. Its subsidiary Vector Lighting produces specialist luminaires for retail, leisure and office developments.

INSIDE THIS ISSUE

St Pauls in splendour

A new floodlighting installation at St Paul's Cathedral seeks to show the Cathedral as it would have appeared by moonlight to its architect, Sir Christopher Wren.

Designing the scheme presented Philips Lighting with a number of problems, both of a practical and an aesthetic nature. For a start, the lighting had to be sited at ground level. St Paul's is located in an area of continuing redevelopment. Previous floodlighting had relied upon adjacent building for the location of luminaires and some of these had disappeared over the years, leaving gaps in the installation, particularly on the important south, or river-facing, elevation. The new design has also enabled the cathedral authorities to remove four unsightly floodlights from the main facade.

St Paul's Cathedral was originally floodlit using tungsten lighting. Some 10 or 12 years ago this was changed to high pressure sodium, but some of the equipment was still over 20 years old.

The new installation uses metal halide lighting to make the magnificent building stand out from the high pressure sodium now used locally for street lighting. This gives a very white light in contrast with the golden hue produced by high pressure sodium.

The upper part of the Cathedral, including the famous dome, is now illuminated by Philips' Arenavision; the first such installation in the UK. Ten floodlights with the new 1800W MHD lamps light up the upper half of the Cathedral and focus attention on the lantern orb and cross on top of the dome, which it was not previously possible to light.

The lower half of the building is more conventionally lit using 31, 2kW HPIT lamps in HNF002 and HNF206 fittings. Seven HNF003 and MNF400 fittings using HPIT lamps provide fill light. The installed load of the complete floodlighting system is 89kW.

Emess takeover bid

Emess plc is making a take-over bid for the Royal Sovereign Group of companies.

Emess currently owns just under 30% of the company's ordinary share capital, having been a major shareholder since December 1986 when it sold its paper wholesaling business for a holding of 60% of the company's share capital. Expansion of Royal Sovereign has since diluted this shareholding to 29.98%.

Royal Sovereign shareholders will be offered 5 new ordinary shares in Emess for every 2 ordinary shares they hold in Royal Sovereign. This represents a premium of 64% over the price of the shares on 30 November. Preference shares will be offered at the rate of 42 Emess preference shares for every 61 Royal Sovereign preference shares.

Complete acceptance of this offer would result in the issue of approximately 12m new Emess ordinary shares; and approximately 3.6m Emess preference shares which, on full conversion, would yield approximately 2.6m further ordinary shares. Shareholders are also offered the option of receiving loan notes in lieu of some or all of the shares.

The Royal Sovereign group manufactures and distributes graphic and stationery projects. It operates principally through Imperial Graphic Products Ltd which manufactures polyester films used in the reprographics and the visual presentation markets, and Royal Sovereign Ltd, a distributor of branded goods to the stationery and graphics markets probably best known for its range of pencils.

The board of Royal Sovereign Ltd (with the exception of Emess chairman Michael Meyer, who in view of his interests has not taken part in these deliberations) will unanimously recommend shareholders to accept this offer.

Following the acquisition of Royal Sovereign it is intended that the current management will continue to have responsibility for management of the group and, in addition, managing director A Aylward will be invited to join the board of Emess.

Lighting in architectural design

For lighting to help to establish the quality and mood of an interior space, it was important to know and understand what an architect was trying to achieve, concluded Professor James Bell, giving the 1989 Philips Lecture at the Bartlett School of Architecture. So, the lighting designer needed to have an understanding of architecture; equally, the architect needed an understanding of lighting.

The lecture dealt with two main themes. The first considered lighting as one of the generators of architectural form throughout the ages.

From there, Professor Bell went on to consider space and volune, and how the skilful use of lighting could create light and shadow to show the form and mass of a building. Equally, by bombarding it with light, form could be completely destroyed.

DIARY

JANUARY

7-11

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

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The management of a low pressure sodium installation. An afternoon meeting at Olympia, London, arranged by the Institution of Lighting Engineers. Details from S Lain 01-568 7751 (home).

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London — from gaslight to floodlight. Evening lecture in Cambridge arranged by the Institution of Elelctrical and Electronics Incorporated Engineers. Details from IEEIE 01-836 3357.

12-17

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

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

Promising new developments for electrical building services. Evening meeting in London held by the Contracting and Building Services Professional Group of the Institution of Electrical and Electronics Incorporated Engineers. Details from IEEIE 01-836 3357.

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

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

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

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

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

FEBRUARY

6

Passive solar implications on heating, lighting and building designs. Evening meeting in Croydon organised by the London and South East region of CIBSE. Details from M Carter 01-348 5171.

Lighting design presentation by the chairman of the CIBSE Lighting Division. Evening meeting in Cardiff arranged by South Wales region of CIBSE. Details from H J Doolan 0222 777707.

CIBSE

The Chartered Institution of Building Services Engineers

Anyone for tennis

The last decade has seen an enormous increase in our awareness of the environment. From global matters such as the Greenhouse Effect to more local concerns such as the state of our streets, the environment is now part of the political agenda.

One facet of this awareness is the belief that pollution is widespread; the destruction of the forests of Europe and North America by acid rain; the chemical soup we call the North Sea; the disposal of toxic waste. All are associated with pollution.

Given this belief and the consequent determination that something should be done about it — and something will be done about it once politicians are convinced there are votes to be won by so doing — how long will it be before light pollution becomes a salient topic?

Light pollution can be defined as light which reaches those parts light should not reach. The archetypal case of light pollution is the newly floodlit tennis court in a residential area. The lighting installation is there to light the tennis courts but the residents will complain that it also lights their lounges and, what is worse, their bedrooms.

No doubt some of these complaints are actually related, not to the lighting, but to the consequential effects of the lighting, ie activity and noise on and around the tennis courts late into the night. However, it is only necessary to look at some sports lighting installations or to look at some of the ill-sited, mis-aimed floodlights that are used for security lighting to believe in the reality of light pollution.

But why should light pollution occur? First, it has to be said that some light pollution is inevitable. Light will always be scattered by the atmosphere and reflected from the surface being lit. What is not inevitable is that installations should be designed without careful consideration of the light distribution outside the lit area; that installations should be constructed without accurate aiming; and that equipment should be provided which cannot easily be aimed and which does not have accurate photometric data.

The reaction of the person who shot out his neighbour's security floodlight because it was degrading his view of the stars is still rare. But every poorly designed, mis-aimed installation that goes in takes us one step nearer to such direct action.

If lighting is to avoid being grouped with other pollutants the lighting industry and profession will have to begin to take light pollution seriously.

Peter Boyce

Power for the games

Erskine Systems Ltd has won the contract to provide back-up power equipment for the World Student Games to be held in Sheffield in 1991.

The games are the largest sporting and cultural event ever to be held in England with 6000 competitors from all over the world expected to participate. New sporting facilities are being built and existing ones renovated throughout the city.

An order has already been received for an emergency power supply for lighting at the Don Valley Stadium, an arena where many of the major events will be held.

The 8kW 110V d.c. unit, valued at £21 000, has a three-hour standby capacity and is being purpose built to the city council's specification.

Lighting course

A course on lighting design and practice starts at Kingston College of Further Education on 17 January. For further details of these evening lectures contact Ray Knott on 01-546 2151 extn 2144.

Thorn's Asia Pacific drive

Thorn Lighting has a new sales operation in Taiwan which is handling the full range of Thorn fittings and light sources for its local market.

Following the acquisition of fittings manufacturer ALI in Australia last year, together with the establishment of sales offices in Hong Kong and Singapore and a factory in Malaysia, this move further underlines Thorn Lighting's intention to boost its Asia Pacific business.

Road standard now available

BS5489 Part 3 : 1989 *Code of Practice for lighting for subsidiary roads and associated pedestrian areas* has now been published.

It is available from BSI Sales, Linford Wood, Milton Keynes MK14 6LE, price £30.60, or to BSI subscribing members £15.30.

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

NEWS

Trilux sets up UK base

West German manufacturer-Trilux-Lenze GmbH has launched a UK subsidiary, Trilux Lighting Ltd, and the company is to be based in new offices at Walton on Thames, Surrey.

Trilux Lighting, established in Europe for nearly eighty years, manufactures high quality fluorescent lighting systems for commerce and industry. The company also markets hospital bed-head systems and, through a UK agent, a range of exterior road and amenity lighting.

Trilux was founded in 1912 to produce gas and electric luminaires. The company, which remains a family business, has a turnover of £100m a year and employs some 1200 people.

During the past fifteen years Trilux has undertaken a major expansion programme in Europe, setting up subsidiary companies in Austria, France, the Netherlands and Spain. Its entry into the British market marks an important stage in the company's growth plan, with 1992 in mind.

Boosting retail sales

Increasing sales of advanced technology lamps to independent retailers and retailing groups, was the subject of a seminar presented by Wotan at Regent's College, London, recently.

That this is an area of considerable interest, was shown by the fact that some 320 wholesalers, contractors and specifiers found time to attend.

The vital part energy saving lamps can play in the lighting design for new shops or retail refurbishment, was stressed in the morning programme which included presentations on metal halide, low voltage tungsten halogen and compact fluorescent lamps, and electronic ballasts. The afternoon session was devoted to lighting design principles. An action pack was presented to delegates containing promotional guidance, draft letters to help with mail shots and lighting design sheets covering 12 shop types.

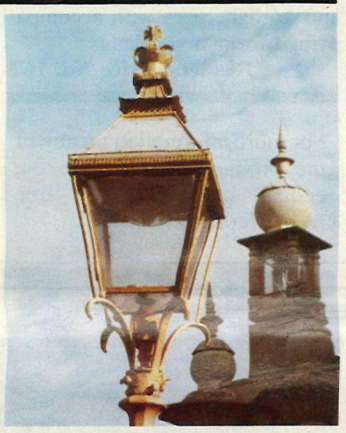
Because of the popularity of this event, Wotan is now planning to stage further seminars dealing with the same topic during 1990.

Making light of history

William IV lanterns from the 1830s, forming one of the earliest outdoor lighting schemes in Britain, have been refurbished as part of the major restoration work at Brighton's Royal Pavilion.

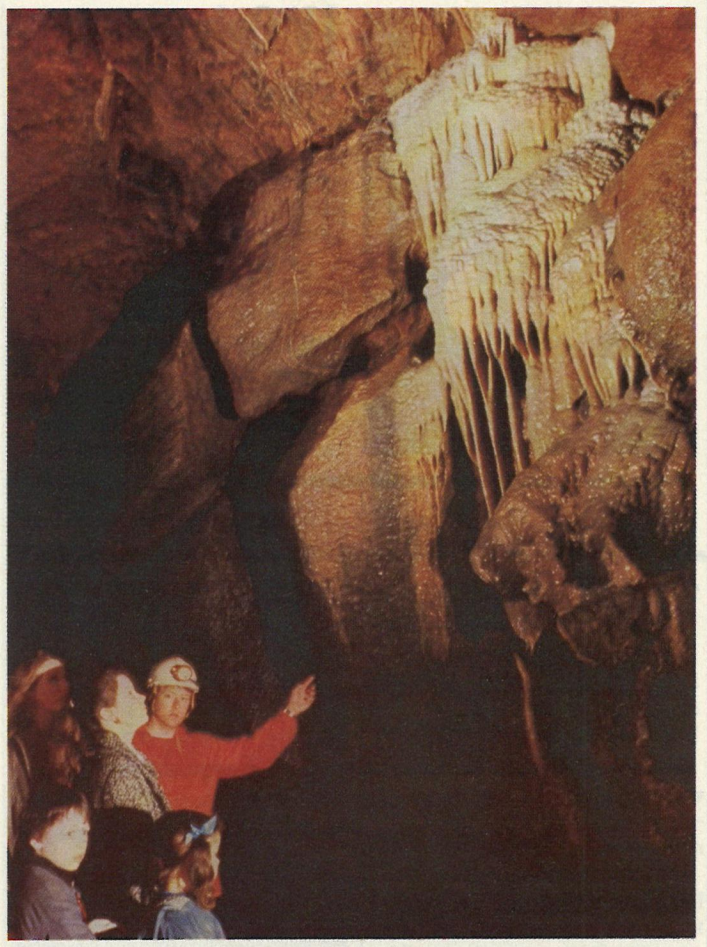
The twenty or so lanterns were originally oil-lit and basket-mounted so that they could be removed for oil to be replenished and to trim the wicks. In the cause of time they were converted to gas and then to electric operation.

The task facing Sugg Lighting's craftsmen was considerable. Over the last 150 years, the lanterns, mounted on lamp posts carrying the insignia of William IV, had been constantly repainted and much of the fine fretwork detail on the lamps had deteriorated or become clogged with old paint.



New sections have been made to match the originals.

Some lanterns are topped with a coronet, several of which were missing and these were replaced. Modern technology has also enabled the fine fretwork detail around the lanterns to be faithfully reproduced, and the original opal top glazing has also been reinstated.



300 million years of cave history come to light

The wonders of one of Europe's famous underground limestone cave networks, the Marble Arch Caves in County Fermanagh, Northern Ireland are now brought to life with lighting displays and special effects.

The cave systems, created over 300 million years ago by the erosion of Dartry limestone, present a spectacular sequence of underground lakes, streams, cascades and lofty chambers connected by winding passages and an underground boat trip, the entire tour lasting 90 minutes.

In an environment where all electrical and lighting equipment is permanently saturated, the operating specification calls for submersible fittings sealed to IP 68. Craig and Derricott provided the electrical control switches for the cave lighting circuits and, to ensure the degree of sealing protection, every switch module was prewired and encapsulated in epoxy resin. Special process techniques, developed to meet marine applications, are used and every unit is subject to stringent quality control.

The installation caters for both permanent and short duration display lighting. For public safety a series of sodium lamps lights the walkways and passages which remain on during visiting hours. In addition, there are a number of strategically placed, high powered display floodlights which are switched on at appropriate stages of a guided tour. For the sake of economy and to reduce the risk of delicate rock encrustations such as stalactites, the floodlit displays are of short duration. The circuits comprise a total of 174 luminaires connected by six miles of cable.

COMMENT

Lighting from the outside in

The stunning new floodlighting scheme for Saint Paul's Cathedral brings to mind the fact that one of the features of the lighting scene over the past couple of years has been a renewed emphasis on exterior lighting — both for security purposes and to improve the amenity of the urban landscape — and we have seen a corresponding expansion in this market sector.

The sterling work done by the British Parliamentary Lighting Group has moved the goal posts in the public domain, creating a new awareness of the value of street lighting among local authorities and giving rise to a new form of consumerism. The man in the street expects to feel safe in it when going about his legitimate business — day or night — and, sensing votes, the politicians are not far behind.

Street lighting is also increasingly being designed as much for the convenience of the pedestrian as to prevent vehicular accidents — always the approach in the past.

Amenity lighting has taken a different route. The importance of tourism to the national economy has created the demand for monuments of national importance to be seen in the best possible light — especially as the trend towards out of season holidays and short breaks mean providing some form of floodlighting to enhance the street scene, so that all does not go dark the minute the long winter nights set in. The spin-off for those who live and work in areas important for tourism is a greatly improved urban environment.

One of the major features of the new generation of floodlights is the degree of control they present. They put light just where it is wanted, minimising the spill light criticised by Peter Boyce in this month's CIBSE column as light pollution.

Both sectors, however, share a common feature — the technology has come of age. As in interior lighting a few years ago, attention is shifting from the new light sources and luminaires to the way in which they are used. Increasingly, it's light not lighting which counts.

LIGHTING EQUIPMENT NEWS

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NEW PRODUCTS

Safety lampholder

Tenby Electrical Accessories has produced a new patented design in lampholders. In this design, the two brass contacts are isolated from the electrical supply automatically when the lamp is removed from the lampholder. This occurs irrespective of the position of the main controlling switch.

This safety feature is achieved by an internal rotary sleeve which is engaged by the pins of a standard BC incandescent lamp. In turn, the rotary sleeve engages with an internal slide which carries the switch contacts. These contacts work between the spring lamp contacts and the two terminals to which the supply cable or pendant drop is attached.

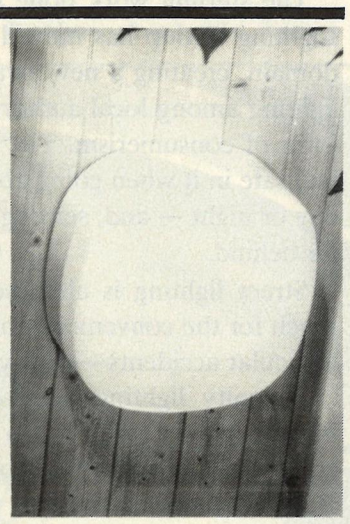
All versions of the safety lampholder (pendent drop, batten holders, straight and angled) have been type tested to the relevant BS specification and are rated at T2, states Tenby. By using sophisticated thermoplastic materials, the lampholders can work continuously at 210°C.

The bar switch version for table lamps incorporates an interlocking operating bar. This means the switch cannot be flicked to the "on" position when the lamp is removed and the lamp cannot be removed until the switch is moved to the "off" position.

The lampholders have been designed to assemble on a snap-together principle and the cover can be removed for wiring using a small screwdriver.

Reader Service No. 162

2D emergency lighting range



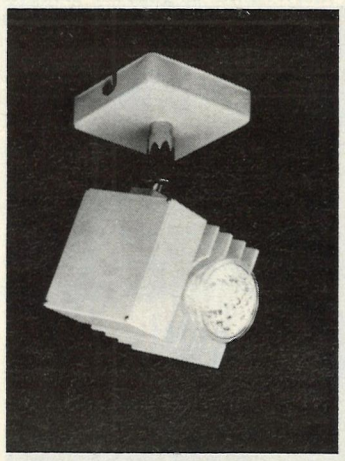
Discus emergency luminaire by Chloride Bardic uses a 28W 2D compact fluorescent lamp. The range offers sustained, AC/DC slave and mains luminaires.

The polycarbonate housing and diffuser are impact resistant and ingress protection rated IP42.

A combined gear tray and reflector is released from the base by turnbuckles for ease of access during installation and is attached to the base by flexible straps.

Various self-adhesive exit legends can be applied to the diffuser to provide signs suitable for viewing at 36m.

Reader Service No. 163



LV Cube spotlight

Lee Environmental Lighting has introduced Cube, a low voltage spotlight for either track or individual mounting.

Forming part of the Collesque range, it is the smallest fitting in the series with an integral transformer, and measures 70mm x 70mm x 70mm.

Collesque Cube uses 50W tungsten halogen lamps.

Reader Service No. 164

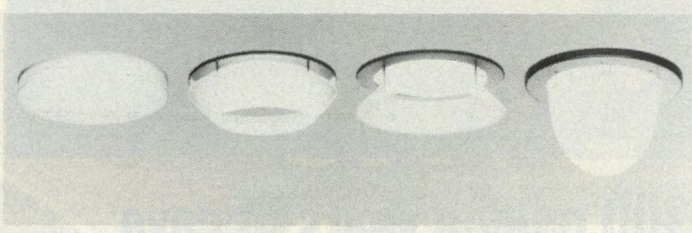
Modern Italian floor light

Lybra is a tungsten halogen floor light made by Lamperti, Italy, and available in the UK through Lumino Ltd.

It uses a 200W tungsten halogen lamp which is dimmer controlled and has an adjustable diffuser and integral safety glass.

There is a choice of black or natural anodised aluminium finish for the supporting stem which is fully adjustable.

Reader Service No. 165



Versatile range of downlights

A range of downlights called Optos has been introduced by Zumtobel. They are available in two sizes, 160 and 200mm diameter, with three different optics and a choice of glass design elements.

The optics consist of Zumtobel's bivergent reflector, a facetted reflector and a specular louvre.

A newly developed material, Arylon, is used for the luminaires. It is stated to retain its shape even at a continuous operating temperature of 135°C.

Reader Service No. 166

Bohemian crystal

Chelsom Ltd has re-created a range of budget priced Bohemian crystal chandeliers as part of its eighteenth century Georgian crystal collection. They are designed for lower ceilings whilst retaining generous proportions.

Dressed with crystal chains, prisms, and icicle drops, the chandeliers are finished with heavy glass spheres and intricately cut glass ceiling plates. Internal metalwork accentuates the glass scroll-shaped arms which support scalloped candle drip-pans and candle lamps.

The range comprises chandeliers in five, eight, eight plus four, 12 and 16-light sizes with accompanying two-light wall lights.

Reader Service No. 167

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

Another 2D compact lamp

Thorn EMI Lamps and Components Ltd has extended its range of 2D compact fluorescent lamps by introducing a 21W version.

This lamp produces 1300 lumens, giving the equivalent light output of a 100W GLS lamp while saving up to 75% of the energy. With an 8000 hour life, maintenance costs are also reduced.

Polylux phosphors are used in the tube for good colour rendering and it is available in two colour temperatures: 3500K and 2700K. This makes it suitable for use in luminaires for commercial and leisure applications.

The 21W 2D lamp has the same dimensions as the 16W version, but requires a 21W ballast, to maximise light output.

Reader Service No. 168

Golden Swan domestic range

Golden Swan is the name of a collection of Art Deco luminaires introduced by Tally Ho Lighting Co Ltd. They are intended for commercial and domestic applications.

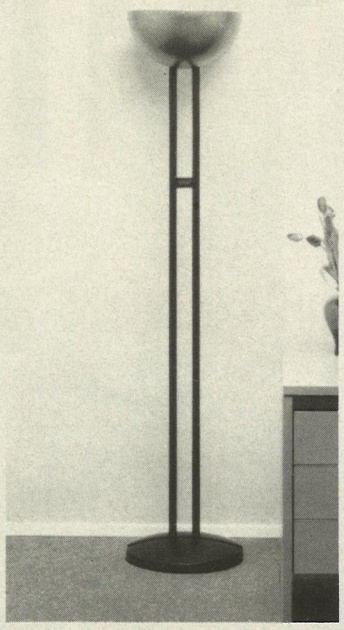
Eight different models are available, all with saucer shaped heads supported on twin rods, including floor standards, table and desk lamps, wall lights and pendants. Some are directionally adjustable.

Finishes include brass, chromium plate, white and black.

Reader Service No. 169

NEW PRODUCTS

Versatile uplights



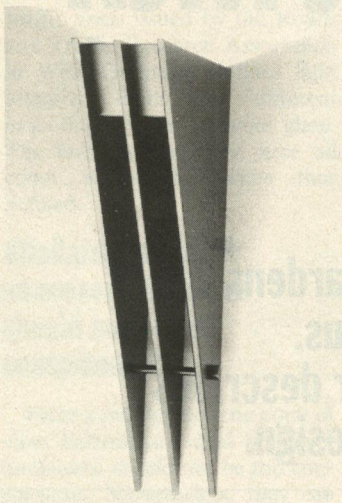
Six models have been added to the Quad range by Anglepoise Lighting Ltd.

The designs are based on the Quad wall light and include floor standing, ceiling mounted and partition mounted versions as well as models for standing on a desk or filing cabinet.

There is a choice of light sources for use with the computer designed reflectors: GLS, linear tungsten halogen, mercury super de luxe, high pressure sodium, White SON, double ended metal halide and Dulux D compact fluorescent.

Reader Service No. 151

Modern metal wall light

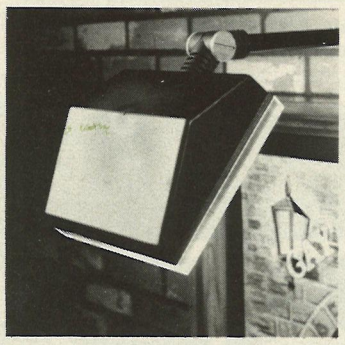


Tako, 200W/300W tungsten halogen wall light is one of a comprehensive collection of lighting fittings made by Luminaires Roland Jamois, Paris, and available in the UK through Opus Lighting Ltd.

Consisting of three triangular aluminium plates at right angles to the wall, Tako is 360mm high and 70mm wide.

It is available in black, white and three oxidised aluminium finishes of natural, gold and champagne.

Reader Service No. 157



Low energy floodlight

Omni-Lite is a totally enclosed outdoor luminaire designed by a new company, Starlowe Lighting and Design Ltd.

It uses two 9W compact fluorescent lamps in a tough housing made of injection moulded 3mm polycarbonate. Omni-Lite can be wall mounted with conduit on a universal swivel joint, or mounted straight to a wall, or recessed into a ceiling canopy.

A photocell and a passive infra-red detector unit can be fitted if required.

It was designed particularly with pub signs in mind, to provide a low energy alternative to 300W tungsten halogen floodlights.

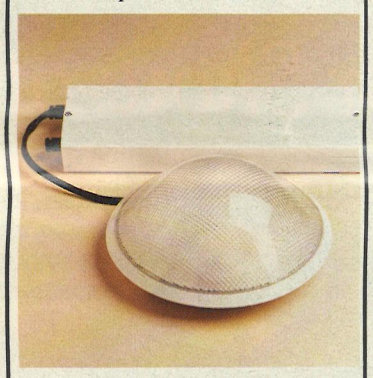
Reader Service No. 152

More Aquarius luminaires

Linolite Ltd has extended its range of Aquarius ceiling mounted luminaires.

Aquarius 38 has been developed to use the 38W 2D compact fluorescent lamp. It is most suitable for locations such as corridors, reception areas, and offices where extra illumination is needed.

Bases are available in white, ultra-violet stabilised polycarbonate with a choice of either prismatic or opal diffuser.



Aquarius Emergency, in the event of a power failure, switches from the mains supply to a battery-invertor pack situated in the ceiling void. In this mode it provides a minimum of three hours' illumination.

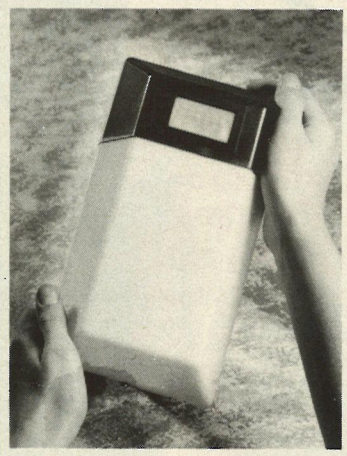
The emergency version is available in two sizes: Maxi (300mm diameter) and Midi (250mm diameter) for use with either the 38W or 28W 2D four-pin, or 16W 2D four-pin compact fluorescent lamp.

Reader Service No. 154

Security lighting for the home

A low-cost exterior security light has been launched by Gardiner Technology Ltd. Nighthawk detects thermal changes up to 8m away with the aid of a passive infra-red sensor.

Once triggered, Nighthawk illuminates a 40W lamp for up to two



minutes, the unit then resets itself. The built-in daylight sensor prevents operation during daylight hours.

An audible walk-test facility assists installation. The unit is ingress protection rated IP44.

Reader Service No. 153

Range of transformers

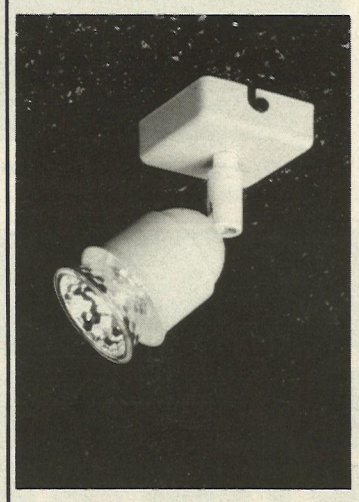
The range of lighting transformers by Gardners Transformers Ltd has been extended to include the LV100, LV200, LV450 and LV600 models. They have between two and 12 outputs each. Overload and short circuit protection are incorporated. Outputs are individually fused, with a thermal fuse for added protection.

Reader Service No. 155

Transformer

An electronic transformer that is dimmable is available from Braitrim Lighting Ltd. It measures only 50 × 70 × 35mm and delivers 11.8V to one 12V 50W lamp. A thermal fuse protects against overheating.

Reader Service No. 156



Spotlight with mounting options

Collesque Micro low voltage spotlight from Lee Environmental Lighting operates with a remote transformer and can be either ceiling or track mounted.

Options available include extension poles and a flexible "swan neck", with full 360° rotation, which provides an alternative to the usual knuckle joint.

Micro uses either a 20W or 50W tungsten halogen lamp and is available in white, black, chromium and gold coloured finish, or BS colours to order.

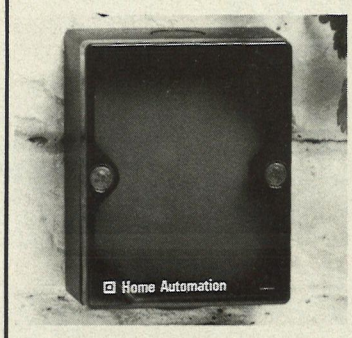
Reader Service No. 158

Security switch for commercial lighting

Home Automation Ltd has re-engineered its exterior security light switch for the electrical contractor market.

With an increased rating of 1500W, the ESS1500W is in a moulded dark brown casing with red polycarbonate front. Ingress protection rating is IP54.

This compact switch operates both tungsten and fluorescent lighting over a range 10-30 lux. It has a built-in photo-electric cell to prevent switching during daylight hours.



Applications include pathways, building sites and stairways.

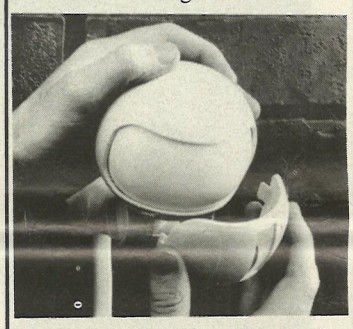
Reader Service No. 159

Security lighting control unit has masking set

A control unit to convert outdoor lighting into a security lighting system is available from Superswitch Electric Appliances Ltd.

It is based on a passive infra-red detector which senses movement of heat sources, such as people, and cars, within its detection zone and switches on lights. Model 6004 control unit is supplied with a masking set which allows the protected area to be defined precisely.

Maximum range is 16m cover-



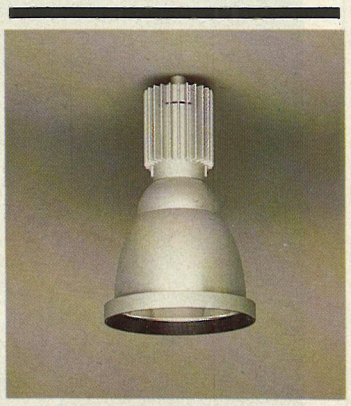
ing an arc of 110°, although the facility to tilt the head of the detector and use the masking set enables a wide range of sensing patterns to be obtained. To eliminate the possibility of intruders crawling under the infra-red beam, the detector head monitors at three different levels.

Initial siting of the unit is simplified by a walk test facility which allows operation to be checked during daylight.

Maximum loading is 1000W of tungsten lighting. Once activated, lamps remain lit for a set length of time, adjustable from 12s to 12 mins, after the last movement is detected.

Retail price is around £70.

Reader Service No. 160



Pendant downlight

A pendant downlight by Erco Lighting Ltd accepts either GLS, tungsten halogen or mercury lamps. It has a darklight reflector to minimise glare.

The cast aluminium housing incorporates a heat sink.

Reader Service No. 161

LIF LINE

The New Year and beyond

World events are forever taking us by storm — the stock market crash, wild inflation rates, changes in the UK political climate, events in Eastern Europe taking cataclysmic proportions, with implications no-one ventures to predict — thus, forecasting a patch for the future seems an impossible task. So, where does that lead the LIF?

Naturally great changes will come about in the Federation which will set the scene for future policies, but one thing is clear — life is going to get tougher and LIF is going to be ready.

In terms of 1992, this has already been discussed at great length. But, in other areas, we are living in an age of accelerating change and there is much more competition about. Companies must, therefore, be more competitive and more ready to take advantage of new opportunities.

The LIF, for its part, must maximise promotion as the key to attaining its main objective of "encouraging the profitable growth of the UK lighting market", and together with that objective is the need to provide every opportunity for members to take advantage of that growth.

The Federation has become far more confident and is now adopting a more positive and forward-looking profile. As a result, there has been a major shift in the allocation of resources and a commitment to significant expenditure on promotion every year.

The publicity gained by the street lighting campaign has been spectacular, as most will agree, and has created much more business for the companies concerned. Gauging future campaigns on that success, the challenge now is to keep up the sales momentum, and hence the LIF publicity machine is more important than ever.

The means of doing this are by heightening the awareness of good lighting among users, influencers and politicans, so that lighting is considered the most important of the building services and receives a greater allocation from capital budgets.

This, translated into action, involves the emphasis on more campaigns to promote the productivity benefits of better lighting in offices, the 'energy saving' benefits of modern lighting technology and the continuation and develoment of the successful street lighting campaign, encouraging local authorities to allocate more of their £7 billion capital to be spent on street and amenity lighting. (In 1986/7 the capital expenditure on street lighting in England and Wales by local authorities was £10m. In 1988 £1.5m was allocated to street lighting under the Urban Aid Programme.)

Ultimately such campaigns will serve to persuade local authorities not only to refurbish the exterior lighting, but their interior lighting as well.

Similarly, action will be taken to encourage the Department of Transport to allocate more of their capital spend to trunk road and motorway lighting and, thus, increase the emphasis on the importance of lighting.

Lobbying is another essential LIF action plan which will be heightened in the coming years:

- ☐ to the Department of the Environment to make more money available under the Urban Aid Programme;
- ☐ to the Department of Energy/EEO/EEC Commission to promote the energy efficiency of lighting in the Government estate;
- ☐ to the EEC Commission to legislate for certified emergency lighting to be made compulsory.

In terms of promotion, the LIF will continue to demonstrate the importance of good lighting through the two annual competitions, EMILAS and the National Lighting Awards, aimed at users and specifiers. Training programmes will continue, ensuring that our sales engineers are better briefed than other building services representatives, and commitment to standards will be paramount to ensure that quality standards in lighting are as high or higher than those in other building services.

In terms of membership, greater communication will keep our trade allies and members aware of what is happening and market intelligence will check on the success of our activities and provide a signpost and yardstick for the members comprising LIF.

The LIF is, therefore, well set on its path into the future, and if the present is a guideline of what is to come, the prospects are certainly looking good.

Planning light with bollards

Bollards are ideally used in parks and gardens where luminaires should not be too conspicuous. *Dr Hans-Joachim Dodillet* of Hoffmeister describes an approach to using them in scheme design.

The word bollard is usually associated with sturdiness and reliability. It is originally a maritime term: bollards are used to fasten towropes and cables in order to keep a boat safely to its moorings in all kinds of weather.

Luminaires for the public sphere tend to get relegated to mounting positions outside people's reach. This is not only done to avoid wanton destruction, but there is also a very real photometric reason.

The level of illuminance E (lux) in a given point is calculated by means of the point-by-point method. The formula is the following:

$$E = \frac{I}{h^2} \cos^3 \varepsilon * \Omega_0$$

I = luminous intensity (cd) of a luminaire in the direction of the point for which the illuminance level, E, is to be calculated.
h = height of light source (m)
ε = angle of incidence of light

This equation shows that the illuminance, E, is directly proportional to the light intensity, I, and the cosine of the angle of incidence, ε, and inversely proportional to the square of the height,h.

Thus, the smaller the cosine of the angle of incidence, the lower the illuminance level; and the lower the mounting height of the light source, the higher the level of illuminance.

As bollards have mounting heights of about 1 m, one can disregard the factor h (height) of the equation in the following.

Let us first have a look at Table 1, which shows a range of values for h = 1.

Assuming that the minimum illuminance on a pedestrian pathway should be 1 lux, and that this value is to expected between two luminaires, the question is that of correct spacing of luminaires — for a mounting height of 1m — or the distance from any one luminaire at which an illuminance level of 0.5 lux is to be expected. In order to arrive at these values we must know the light intensity, I, in the direction of the point in question. Based on the above equation, I can be calculated as follows:

$$I = \frac{E * h^2}{\cos^3 \varepsilon} = \frac{E}{\cos^3 \varepsilon} \quad \text{for } h = 1$$

For an assumed angle of 80°, the equation is:

$$I = \frac{0.5}{0.00524} = 95.5 \text{ cd}$$

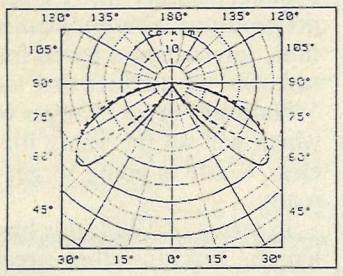
The illustrations show different versions of bollards and their light intensity distributions. The question is, do these four luminaires generate a light intensity of at least:

$$I = 95.5 \times 1.25 = 120 \text{ cd}$$

The light intensity distributions show the values in cd for a luminous flux of only 1000 lumens. For a metal halide lamp of 125W for instance, which has a luminous flux of 6500 lumens, the values thus obtained will have to be multiplied by the factor 6.5.

The summary in Table 2 shows the factors of the lamps installed in the luminaires and the absolute light intensity in an angle of 80°.

Two of the luminaires do not come up to the required level for an angle of 80 degrees. The square-based bollard Quadra loses some of its efficiency due to its massive lamp protection by means of blades of shockproof polycarbonate.



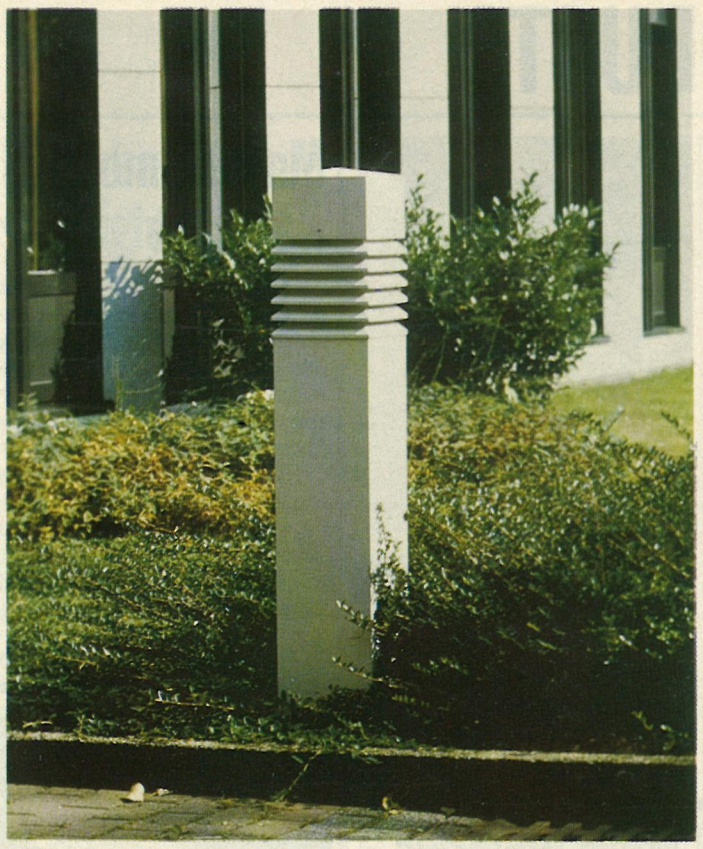
Light intensity distribution and floor isoflux diagram for Quadra equipped with HME 125W.

Angle of incidence (degrees)	Distance between base of luminaire and measuring point (metres)	$\cos^3 \varepsilon$
10	0.18	0.960
20	0.36	0.830
30	0.58	0.650
40	0.84	0.450
50	1.19	0.270
60	1.73	0.130
70	2.75	0.040
80	5.67	0.005

Table 1

Type	Lumens	Factor	Candela
Quadra HME 125 W	6500	6.5	100
Sirena HME 80 W	4000	4.0	240
Umbrella HSE 70 W	5600	5.6	200
Rustica A60 100 W	1380	1.38	85

Table 2



Quadra; a sturdy bollard that loses some of its efficiency due to its heavy lamp protection.

The luminaire Rustica, designed for private gardens, does not reach the required value due to the insufficient luminous flux of the lamp. In order to obtain 1 lux, those two luminaires cannot be spaced at 2 × 5.67m = 11.5m, they must be closer together.

Due to well designed optical systems, the other two models (Sirena and Umbrella) comfortably exceed the minimum value, even though their luminous fluxes are lower than that of Quadra. As a consequence, the distance

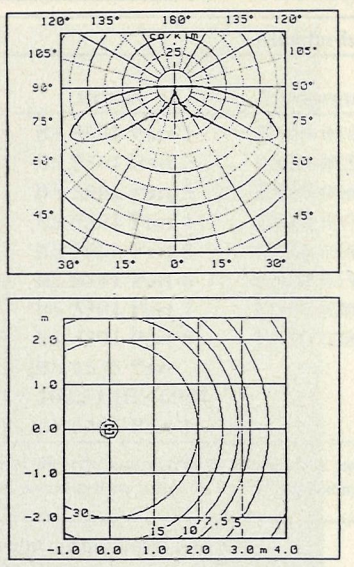
'Bollards . . may be spaced at 12m from each other'

between any two luminaires of this type can be larger.

I have demonstrated this calculation in detail to show the validity of the rule of thumb saying that, in order to obtain a minimum illuminance of 1 lux and assure the recognisability of any obstacles on the pavement, bollards with suitable optical systems may be spaced at 12 m from each other.

Depending on their technical design, bollards will develop a sufficient vertical illuminance that can

Sirena, when equipped with a sodium vapour lamp 70W, generates an illuminance of 0.5 lux at a distance of 10 metres.



Light intensity distribution and floor isolux diagram for bollard Sirena equipped with HME 80W.

be further reinforced by means of intensive lighting of the floor, provided it is brightly coloured and has good reflectances.

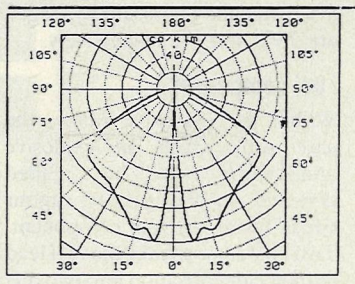
Light sources that emit glare from below eye level are a nuisance and greatly reduce the ability to recognize obstacles on a pavement. One immediately effective measure for limiting glare consists in a well-defined screening of the luminous radiation. The 1987 edition of the publication *Regulations for the illumination of pedestrian traffic areas* issued by the Roads and Traffic Research Association in West Germany, defines light intensity limits for different mounting heights to avoid glare. The bollards presented here all come within the limits thus defined.

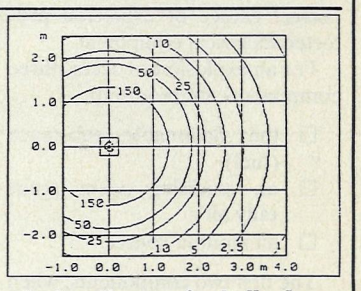
'Bollards are ideal whenever luminaires should not be too conspicuous'

From a purely aesthetic point of view, bollards are ideal whenever luminaires should not be too conspicuous. Nevertheless, they can be quite decorative in gardens and parks with planting to medium height.

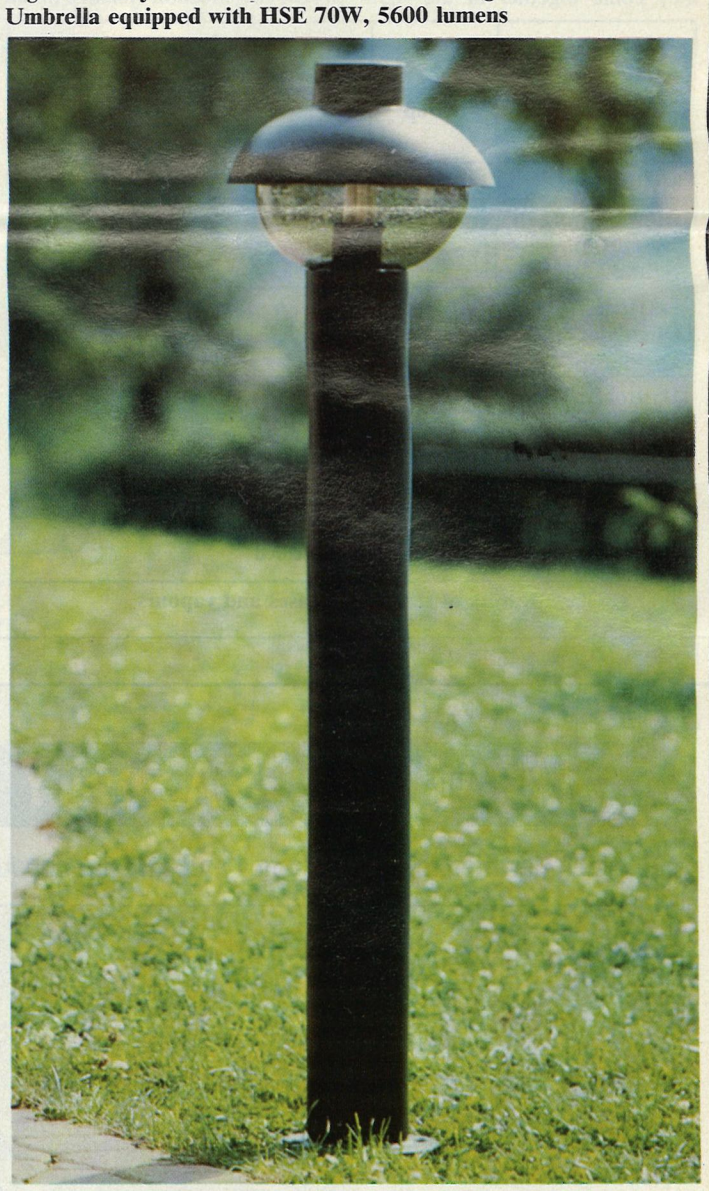
The nightly appearance of bollards lined up in rows, reminds us of pearls on dark velvet. It is particular attractive when the points of light underline the topography of the landscape.

Umbrella, a sturdy bollard suitable for public area lighting.

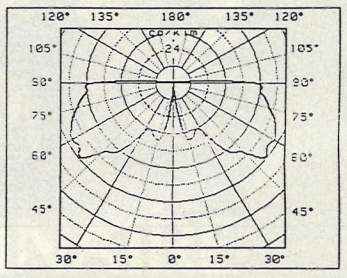


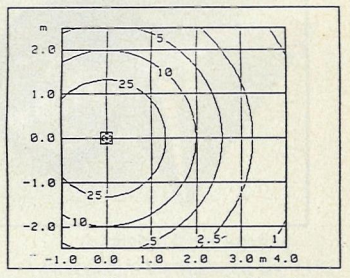


Light intensity distribution and floor isolux diagram for bollard Umbrella equipped with HSE 70W, 5600 lumens



Rustica, a luminaire designed for private gardens, and not intended for heavy duty. Luminaires such as this need a safe mounting location. Their attractive design's fully appreciated when surrounded by low-growing plants.





Light intensity distribution and floor isolux diagram for bollard Rustica equipped with A60 100W, 1380 lumens.

Hazardous areas illuminated

Designing lighting for areas where there is a risk of fire or explosion requires a clear appreciation of the hazard present. In Part I of a two-part feature, *Ian Cleare,* Director of the Electrical Equipment Certification Service, outlines the principles.

Flixborough . . Abbeystead . . Ronan Point . . Piper Alpha, Grim reminders of the dangers which lurk wherever flammable liquids, vapours, gases or dusts are present. If you are involved in the design or operation of a hazardous area installation you can minimise those dangers through an understanding of the hazards and the correct choice of explosion protected electrical equipment.

For an explosion to occur, three components are required:

- ☐ the flammable substance (fuel);
- ☐ an oxidising agent (generally air);
- ☐ an ignition source.

The first two components, when they come together in the right proportions form an explosive atmosphere. Just as in a car engine, the atmosphere is only ignitable over a range of mixtures from the lean to the rich. Outside this range an explosion will not occur at normal temperature and pressure. Different fuels have different ranges. For example methane has an upper explosive limit of 15% in air and a lower explosive limit of 5%, while the figures for hydrogen are 76% and 4% respectively.

Fuel component

Within the explosive range, the ease with which an explosive atmosphere can be ignited depends on the gas or vapour which forms the fuel component. Two characteristics of the fuel lead to their categorisation into two different classification systems. In the first, the ease with which it can be ignited by a spark or flame defines the Group to which it is assigned. For the second, it is classified according to the temperature at which a hot surface will ignite the atmosphere, thus defining the T Class. Table 1 shows the two systems and the classification of some typical fuels.

For dusts, a different system is used, although based on similar principles. The two main properties considered are the energy required to ignite a dust cloud in air and the auto-ignition of a dust layer on a hot surface. A surprising range of materials — for instance coal, wood, grain, custard powder and aluminium — can form explosive mixtures with air when present in dust form.

Turning now to the ignition source, the main culprits are arcs and sparks of various kinds, and hot surfaces. Arcs and sparks may occur deliberately, as in the opening and closing of switch contacts, or unintentionally as in the case of the shorting of two wires or the failure of the insulation on a live part. Other methods by which spark ignition can occur are through electrostatic discharges and through the striking of two metallic objects, particularly a light alloy on rusty iron.

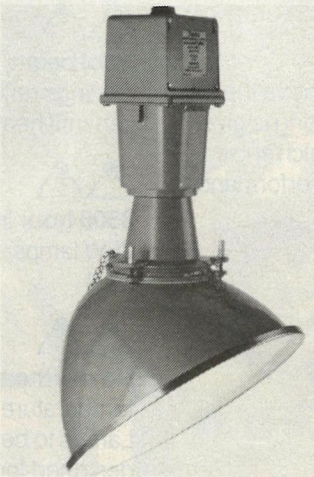
Hot surfaces also can occur both deliberately and accidentally. Typical of the former case is the ballast in a fluorescent lighting fixture, which of necessity must run at an elevated temperature. Examples from the second category are electrical components which become stressed when a fault occurs, and equipment which overheats due to failure of a cooling or ventilating system.

Typical gases and vapours	Group[1]	T class Maximum surface temperatures °C					
		T1	T2	T3	T4	T5	T6
		450	300	200	135	100	85
Methane	I[2]	●					
Propane Butane Acetaldeyde	IIA	●			●		
Ethylene Diethyl ether Cyclopropane	IIB	●	●		●		
Hydrogen	IIC	●					

Notes:
1 Equipment certified for Group TIC may be used with IIB or IIA gases, and IIB equipment may be used with IIA gases.
2 Group I equipment is designed only for mining applications Where methane occurs in other industries Group IIA equipment is specified

Table 1. Classification of flammable gases and vapours

Britoil's Clyde Platform uses Chalmit Zone 1 and Zone 2 luminaires.



The F W Thorpe Thoroseal with integral ballast.

With an appreciation of the ingredients of the hazard — the explosive atmosphere and the ignition source — let us put these ideas to use. In designing an electrical installation where a flammable substance may be present, your first task is to find out:

- ☐ which particular substances are involved;
- ☐ the likelihood of their being released or otherwise forming an explosive atmosphere with air;
- ☐ the areas of installation where the explosive atmosphere may exist.

Fortunately you are not alone because BS 5345[1] gives you some guidance. If you need further advice, contact your local Factory Inspector or one of the specialist consultancy firms.

BS 5345 describes the "zoning" of hazardous areas in the following way:

Zone 0: An explosive atmosphere is present continuously or for long periods of time.
Zone 1: An explosive atmosphere can occur under normal operating conditions.
Zone 2: An explosive atmosphere may occur but only under abnormal conditions and then only for a short time.

Zoning can be carried out in a very methodical way but often the designer will 'play it safe' and over-specify the zones. We will come to the implications of this a little later.

Once you have assessed the risk, BS 5345 will help you to select the appropriate equipment. In your selection you will choose equipment employing one or more concepts of explosion protection.

Basically, the explosion protec-

tion concepts avoid the explosion hazard by:

- ☐ eliminating ignition sources (Ex 'e');
- ☐ controlling ignition sources (Ex 'i', Ex 'N');
- ☐ keeping the explosive atmosphere away from ignition sources (Ex 'p', Ex 'm', Ex 'o');
- ☐ preventing the explosive caused by an ignition source inside the equipment from igniting the surrounding explosive atmosphere (Ex 'd', Ex 'q').

These concepts are covered by British, European and International Standards as shown in Table 2. The table also shows the zones in which the different concepts may be used.

When selecting the equipment you also need to be aware of the flammable substances which may be present, so that you can specify the appropriate Group and T Class. For these items of information you should refer to BS 5345.

Luminaires are normally protected by either the Flameproof Ex 'd', the Increased Safety Ex 'e' or the Non-Incendive Ex 'N' concept. Some components within the luminaire may be protected by another concept such as Encapsulation Ex 'm; or Intrinsic Safety Ex 'i'.

Concept	Ex Letter	Standards			Zone of use		
		British	European	International[1]	0	1	2
General requirements	—	BS 5501 Part 1	EN50 014	IEC 79-0			
Oil immersion	o	BS 5501 Part 2	EN50 015	IEC 79-6			●
Pressurisation	p	BS 5501 Part 3	EN50 016	IEC 79-2		●	●
Powder filling	q	BS 5501 Part 4	EN50 017	IEC 79-5			●
Flameproof	d	BS 5501 Part 5	EN50 018	IEC 79-1		●	
Increased safety	e	BS 5501 Part 6	EN50 019	IEC 79-7		●	●
Intrinsic safety	i	BS 5501 Part 7	EN50 020	IEC 79-11	●[2]	●	●
Encapsulation	m	BS 5501 Part 8	EN50 028	—		●	●
Non-incendive	N	[BS 4535 Part	—	—			●
		102.51 [BS 6941	—	IEC 79-15			●
Dust protected	—	BS 6467 Part 1	—	—	-	-	-

Notes: 1 The IEC standards are not directly equivalent to the British and European Standards.
2 Ex 'ia' equipment only is permitted in Zone 0. Ex 'ib' equipment may be used in Zones 1 or 2.

Table 2. Explosion Protection Concepts, Standards and Use

Internal explosion

Flameproof Ex 'd' luminaires generally fall into three categories — fluorescent tubular fittings, floodlights and signal beacons. They are characterised by their robust construction, necessary to enable them to withstand an internal explosion and to prevent transmission of the explosion to the explosive atmosphere outside.

Typically they are cast in iron or aluminium but for harsher environments, such as are found offshore, stainless steel or phosphor-bronze may be used. Such construction tends to make them heavy, but current developments may permit the wideer use of plastics for flameproof enclosures.

The important design features of a flameproof luminaire are the integrity of the lens, the soundness of the joints and the delay time required before the fitting may be opened. The lens is usually made of glass and is currently cemented by the manufacturer either directly into the housing or into a replaceable frame.

Joints in flameproof enclosures, such as between removable covers and the main housing, are machined to a high standard of flatness and smoothness so as to prevent explosion transmission. Sealing gaskets to provide weather-tightness are not part of the flameproof joint.

Because the housing may contain hot items or charged capacitors, the luminaire should not be opened if an explosive atmosphere may be present until they have cooled down or discharged sufficiently. The delay time before opening is marked on the outside of the housing. Alternatively the marking may require the operator to ensure the absence of an explosive atmosphere, by use of a gas detector, before he opens the housing.

Non-Incendive Ex 'N' luminaires are only permitted in Zone 2 so they are not designed to such exacting standards as the flameproof types. BS 4533 : Part 102.51[2] specifies the requirements which, apart from some limited explosion protection measures, are generally in line with normal industrial practice. The particular measures to make them suitable for Zone 2 use are:

- ☐ 'restricted breathing' to prevent the external explosive atmosphere on the rare occasions when it is present, from contacting hot surfaces inside the housing;
- ☐ non-sparking lamp holders and starter holders;
- ☐ protection against high voltage spikes from electronic ignitors;
- ☐ enhanced mechanical strength.

It is worth noting that low pressure sodium lamps are not allowed in Ex 'N' luminaires.

The main characteristic of Increased Safety Ex 'e' luminaires is the high standard of design and construction which is adopted so as to eliminate ignition sources. This objective is achieved by:

- ☐ de-rating components such as ballasts;
- ☐ using specially protected capacitors;
- ☐ increasing electrical separation (creepage and clearance distances);
- ☐ basing the T Class on the maximum temperature of internal components, including consideration of possible fault conditions;
- ☐ high mechanical strength housings.

Increased safety equipment is also required to have a high degree of protection against ingress of dust and water (IP54)[3]. The sealing measures are important so as to prevent the build up of dust or moisture on insulating surfaces, thus reducing the electrical separation. Therefore, unlike flameproof equipment, sealing gaskets on increased safety equipment are a vital part of the explosion protection.

Just a quick reminder ☐ the explosive atmosphere may be present inside both flameproof and increased safety equipment. Flameproof equipment contains ignition sources but prevents internal explosions getting out. Increased safety equipment eliminates ignition sources.

Light sources which may be used in increased safety luminaires are:

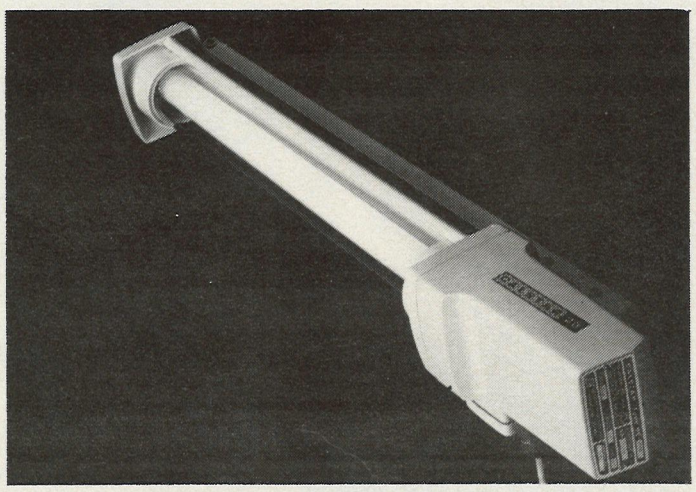
- ☐ single pin fluorescent (TLX);
- ☐ mercury discharge with integral ballast (MBTF);
- ☐ tungsten filament (GLS).

The manufacturer will indicate by the standard marking code the classification of each type of luminaire. The letters Ex or EEx (National or European Standards respectively) will be followed by the explosion protection concept, the Gas Group and the T Class for which the luminaire has been designed.

Referring back to your zoning and the flammable substances with which you are dealing, you can check that the equipment is suitable for your intended use. It is here that the tendency to 'play it safe' by overspecifying can cost you or your client money but, when considering the dangers involved, that extra cost may be justified as a form of insurance premium.

References
1 BS 5345 : Code of practice for the selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres.
2 BS 4533 : Part 102.51 : 1986 Specification for luminaires with type of protection N.
3 BS 5490 : 1977 (= IEC 529) Specification for classification of degrees of protection provided by enclosures.
4 BS 5750 Quality systems.

Wolf Safety Lamp's complete range of torches, hand lamps and compressed operated flood and bay lights.



Calstar lighting fitting Type 98 from Communications and Control Engineering.

Northern lights

Arthur Rowley, managing director of Dron Rowley, looks at the special problems posed by the lighting of offshore structures in the North Sea.

Massive seas and bitter cold make the North Sea one of the most hostile environments on earth in which to work — and salt spray and driving winds subject luminaires to particularly severe testing.

So, lighting offshore has its special problems. On offshore drilling and production platforms, safety must be of paramount importance. Lighting levels must meet the requirements of different parts of the structure as recommended by CIBSE. Reliability of luminaires and ease of access to them must be considered. In addition, luminaires must be able to survive in wet, saline conditions and their design must take account of the possibility that large volumes of flammable gas may permeate the installation during an incident. Lighting services must remain energised during such emergency periods and the luminaires deployed must be suitable for such hazardous area operation.

The experience of Dron Rowley Consultancy in offshore lighting has been utilised in retrofit work but the trend now is for advice to be sought at the initial design stage. A well designed system, properly installed at the outset, saves on expenditure. Refitting of poorly designed installations is not easily carried out and may be time consuming and costly.

Careful analysis of the lighting design problem is the key to effective illumination of an offshore installation. The design of lighting for a whole offshore structure divides up into units concerned with areas such as the helideck, the flare stack, under and around the platform, the utilities, the process and workover sections and the accommodation module. Dron Rowley then consults the relevant CIBSE lighting guides, a range of luminaires is evaluated and a selection is made. SON lamps may be used for lighting outside the accommodation module, whereas Ex'e' fluorescents may be chosen for the crowded platform areas. Attention is given to mounting these luminaries under cable trays and in easily accessible positions. Naturally, in analysing the problem it is important to think about what is being lit and indeed why! Lighting the top of a tank, for example, may be a waste of time, money and energy.

Some solutions may involve the use of the compact fluorescent luminaires. These represent a recent technological advance which can save on kilowatt hours and reduce the maintenance costs involved in lighting the parts that other luminaires can also reach. Higher wattage luminaires may be used for floodlighting and this reduces the number of luminaires required and the maintenance costs.

High frequency control gear

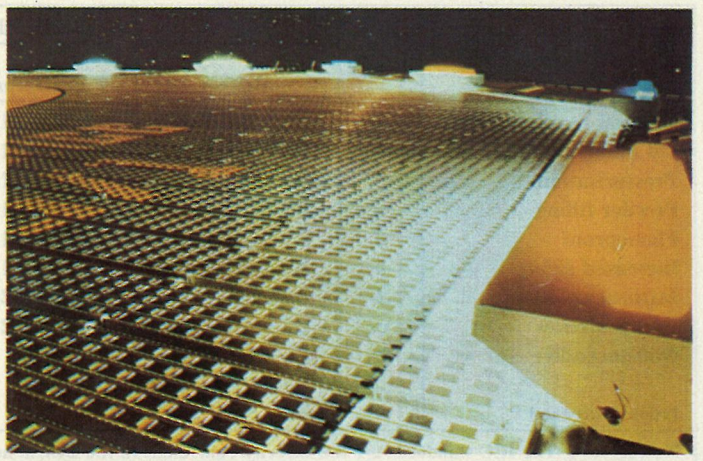
For lighting the accommodation module the use of 70W MBI-T (HQI-T) lamps in spotlights and downlights may be preferred to 150W PAR lamps. Moreover, the use of electronic high frequency control gear in conjunction with fluorescent lamps eliminates high frequency flicker from the luminaire.

The use of lighting of this type gives the added bonus of a saving of about 2.0 Kg in weight per fitting when compared with the commonly used semi-resonant start/quick start control gear. In an average sized platform, with over 1000 fittings, this will provide a load bearing saving of around 2.0 tonnes without sacrificing safety and illumination! The use of high pressure sodium well glasses may also be considered as a more realistic alternative to covering a ceiling with fluorescents.

It is also important in designing lighting for hazardous offshore areas to be able to propose the minimum quantity of luminaires to obtain specified lighting levels. This will maximise on safety and efficiency and minimise on costs. The above lighting methods, though related to offshore platforms, also have implications for onshore installations.

Aesthetic appeal and physiological factors are other important considerations in lighting design — so it may be considered to have artistic as well as scientific aspects. Good lighting is more than merely complying with illumination requirements. Consider the welfare of the worker as well as the wattage! For example, if the lighting in the work areas or accommodation module of a platform causes excessive glare, this may result in headaches and the loss of valuable and costly engineer-days. A handful of lost engineer-days may cost more than getting the system properly designed in the first instance.

Oil platforms are not only compact production and processing petrochemical plants, they are also home to a large number of workers. This rather unique home environment should be a pleasant one and free of obvious and ugly luminaires. Zone 1 emergency lighting, for example, should be integrated with the platform structure so that it is unobtrusive and yet effective and functional when required. Logical solutions to problems onshore may not be appropriate to those arising from the confined living conditions and hazards associated with drilling in the North Sea.



Combined flood and perimeter lighting of a helideck to provide for safe pilot approach and landing.

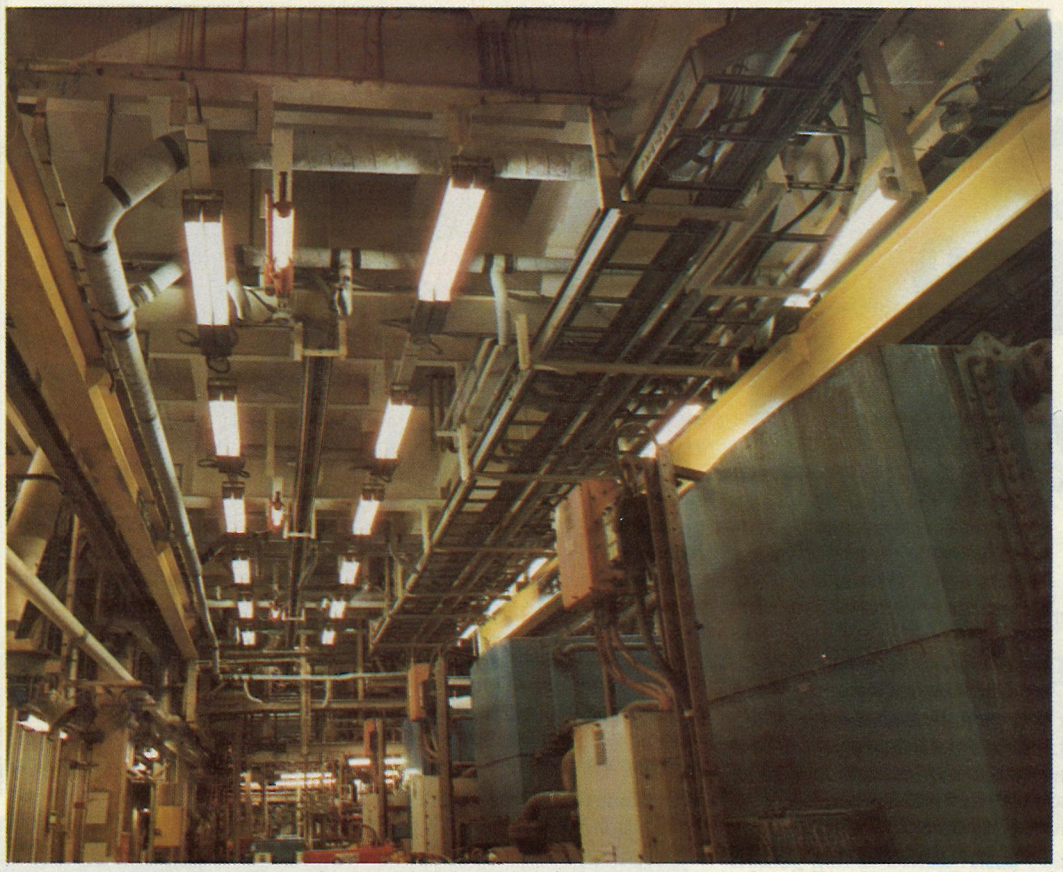
Dron Rowley Consultancy is a specialist lighting company' providing independent advice on commercial and industrial lighting, set up in 1984 by its parent company Dron Dickson.

Areas covered include the lighting of control rooms container years, industrial sites, entertainment buildings, office blocks and other commercial premises. The company has built up particular expertise in the lighting of one of the world's most hazardous areas — the North Sea.

Helideck lighting

A new concept in helideck lighting in the Norwegian sector was quickly spotted by the Dron Rowley Consultancy, and introduced to British North Sea practice. The lighting of helidecks has special requirements. The area must be well delineated and free of glare so that the pilot can clearly see on approach and landing. In addition, the lighting must provide for the unhindered and safe movement of both passengers and goods.

These requirements had been met through the use of GLS lamps



Ceiling mounted Ex(d) fluorescent installation.

in small wellglasses to give a point light source and the use of visors on floodlights. However, the maintenance costs were high since the lifetime of the luminaires was considerably reduced due vibration of the platform.

This new concept in luminaires combined low level floodlighting and perimeter lighting in a single housing unit which incorporated 2 × 36W Ex 'e' luminaires as the light source.

The new luminaire, manufactured by GLAMOX, was first installed, with the approval of the CAA, in the British sector of the North Sea and has proved totally successful. It can also provide emergency lighting through integral battery packs. Thus, in the event of failure of normal and standby power the helideck will remain illuminated.

The lighting of modules with high roof areas has also posed problems in offshore installations. Traditionally, the form of lighting used in these has been roof mounted fluorescents. Although easy to install initially, these are difficult to maintain because of the need to erect extensive scaffolding in a confined space obstructed by production and auxiliary equipment.

Effective lighting using high wattage Ex(d) luminaries — fourteen of these fittings replaced more than 200 fluorescent luminaires.

The solution was to continue to provide diffuse lighting via a more appropriate, and suitably positioned, light source. Long life SON-R lamps were rejected because of the sharpness of their beam and the shadowing this created. But SON-E and SON-T of 250W or 400W rating proved suitable due to their more isotropic light distribution.

Diffuse lighting mounted to avoid glare

These luminaires were mounted at a suitable height to avoid glare. Their use also reduced the number of fittings required by six times, and with them the need for time consuming and costly maintenance.

However, when the use of high output luminaires is proposed in dealing with problems of this type, attention must be given to all the tasks being carried out in the area being illuminated.

Handrail-mounted floodlights were Dron Rowley's solution to the lighting of platform insignia. For the purpose of night-time identification these insignia have to be properly illuminated. Fluorescents had previously been used but these required costly extensive overside scaffolding. Dron Rowley's solution has now become the standard method for this type of lighting.

Control of maintenance costs without any sacrifice in safety is a major objective. The consultancy recommends the use of the latest high frequency control gear. For a given load, high frequency gear used in conjunction with Luma Lamps Super E(x) tubes can produce at least 20% more light. These luminaires use triphosphors which have excellent colour rendering and give an output of 3000 lumens from a 36W tube. Again, this reduces the number of luminaires required for a given lighting level. The higher cost of these lighting innovations can be more than recovered by reduced maintenance and installation costs.

These in short, are just some of the problems raised by designing installations for such a demanding environment, and Dron Rowley has come to relish the challenges the North Sea offers.

A look at industrial lighting practice

Lighting Equipment News considers a variety of industrial installations in Britain, plus one overseas. Each had different lighting objectives to meet.

This feature takes a look at a number of recent, well designed, industrial lighting installations, ranging from power stations to an aircraft hangar, to give an overview of the lighting techniques being used today in industrial premises.

Power

The turbine hall basement of Oldbury Power Station, Bristol, has recently been relit as part of a programme to completely upgrade it.

Lighting such a complex maze of pipes and turbines was achieved using a variety of equipment. A combination of wide distribution floodlights with 70W and 150W tubular high pressure sodium lamps was mounted on existing columns and steelwork at various levels.

These fittings were chiefly chosen for their low maintenance characteristics. They also have the advantage of being adjustable which enables them to be directed onto the pipework, a facility that would not be available with ordinary industrial high bay fittings.

Long pipe runs are lit using Piazza amenity lighting fittings which give a wide light distribution and use 70W tubular high pressure sodium lamps. They are mounted on structual columns.

General lighting is provided by Hibay luminaires incorporating 250W tubular high pressure sodium lamps. These reduce the likelihood of shadows over important pump areas.

Because the lighting is used 24 hours a day, 52 weeks of the year, energy efficiency is an important feature of the scheme. The previous lighting consisted of high wattage GLS lamps, so running costs will be considerably reduced.

Relighting the basement hall, together with the general redecoration, has turned an oppressive, dark and dingy basement with many poorly lit corners into a safer, well-lit environment.

Thorn Lighting Ltd supplied the lighting equipment.

Engineering

Chesterhall Precision Engineering Ltd, in Essex, decided when it moved to new premises that it was appropriate to have new technology lighting for its factory.

The aim was to improve both visual conditions and staff morale.

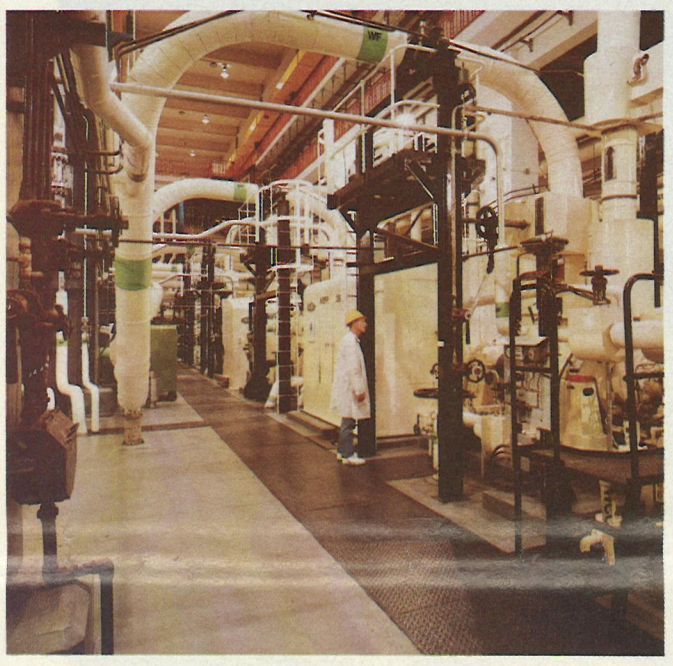
General view of the turbine hall at Oldbury Power Station.

At the same time it was intended to reduce running costs.

Philips' high frequency lighting system was chosen using twin batten fittings with 60W colour 84 lamps. The reflectors are open-ended, slotted metal troughs.

The total area to be lit was 630m^2. Luminaires are suspended in rows from the roof 6m apart, with 11 fittings per row.

Illuminance on benches in the workshop is now 800 lux; total electrical load is 7.3kW.



Basement of the turbine hall at Oldbury Power Station.

Brewing

Today, brewers make full use of computers to control many of the variables in the daily brewing process and rely on control consoles to keep them informed about progress in the pipes, vessels and valves.

Joshua Tetley's new brew hall is of modern design, the massive silver coloured vats and the pipework being an integral element of the overal appearance.

A general illuminance of 500 lux was necessary for good visual conditions at the console and also to give a bright and pleasing

New lighting by Simplex for FFV Aerotech Ltd's hangar at Stanstead Airport. Ninety-four, four-light clusters, consisting of two units each with one high pressure sodium and one metal halide lamp, create an efficient working environment free from dark spots. Local lighting for inspection is no longer required. Behind the hangar, two workshops where small parts of the airframe are serviced, have been lit by 45 low bay 400W units.

appearance for the many visitors to the plant.

The lighting was required to identify different zones of activity within the brew hall and this was achieved by using different light sources.

The newly-designed interior makes maximum use of the stainless steel vats and pipework. Ductwork has been painted in bold colours — the idea being not to hide its existence but to show that it is a vital part of the brewing process.

In order to make full use of this design approach and to provide the necessary illumination level, it was decided to use high pressure mercury lamps in view of their clean white light which would make the vats shine dramatically.

A mercury lamp with an improved phosphor, giving good colour rendering as well as white appearance and energy efficiency, was chosen. Thirty-four special luminaires recessed into the suspended ceiling were designed to incorporate the 400W lamps.

These luminaires have an air handling facility which enables the lamps to operate at optimum performance.

Around the consoles, indirect lighting is provided by 10 free standing, colour co-ordinated uplights which incorporate high pressure sodium deluxe lamps.

Wall mounted uplights, also using high pressure sodium deluxe lamps, and wall mounted luminaires with 2D compact fluorescent lamps light the walkways at mezzanine level which give a view of the entire brew hall.

The lighting from Thorn Lighting Ltd, is centrally controlled by computer using a system by ECS Energy Conservation Systems Ltd.

Rolling mill

British Alcan Foil Ltd wished to update the lighting in its rolling mill where Bacofoil aluminium foil is made. Particular emphasis was placed on making savings in running costs while providing a better standard of illumination.

The company decided on high frequency fluorescent lighting by Philips, using Streamlite packs with light control sensors. The twin 1500mm 50W fittings have trough shaped reflectors. Fifty luminaires are used, mounted at a height of 4m.

This gave a dramatic improvement compared with the previous installation using high pressure sodium and mercury high bay fittings.

An illumination level of 310 lux has been achieved with a uniform appearance and good colour rendering from the colour 84 lamps.

km west of Calcutta, is on a site

Power in India

Rihand Power Station in the state of Uttar Pradesh, some 750km south east of New Delhi and 800 2km long and 1.7km wide. It is a super thermal power project — a 1000MW coal fired station (2 x 500MW).

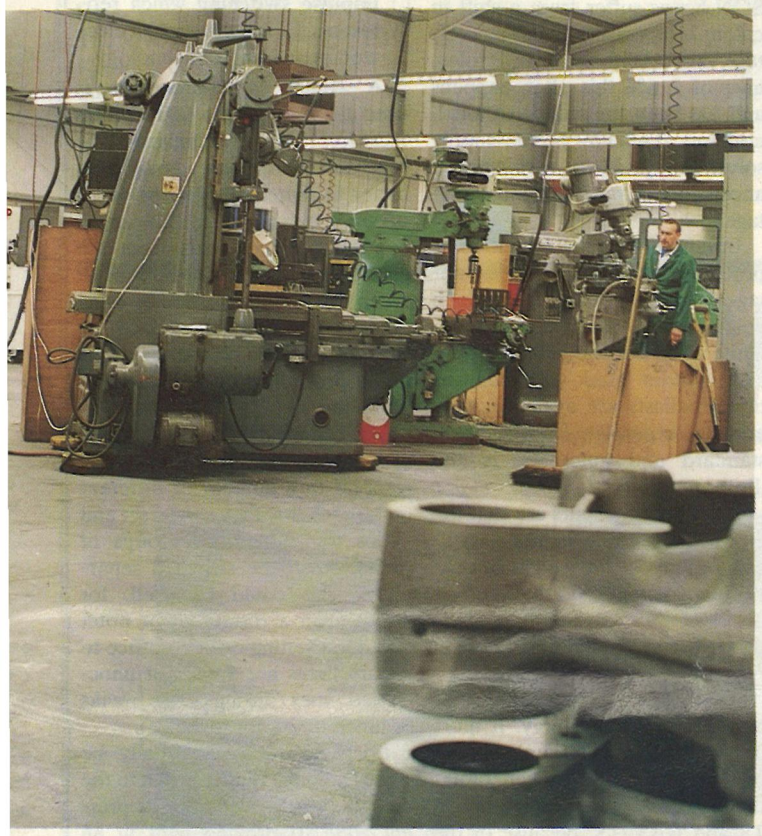
The boiler house alone uses over 2000 70W high pressure sodium, "hostile environment" bulkhead lighting fittings.

High bay luminaires using 1kW high pressure sodium lamps provide general lighting in the turbine hall. Local lighting is from twin 58W "hostile environment" fluorescent luminaires.

Thorn Lighting Ltd provided the lighting equipment, including exterior lighting which consists of low pressure sodium lanterns and high pressure sodium floodlights.

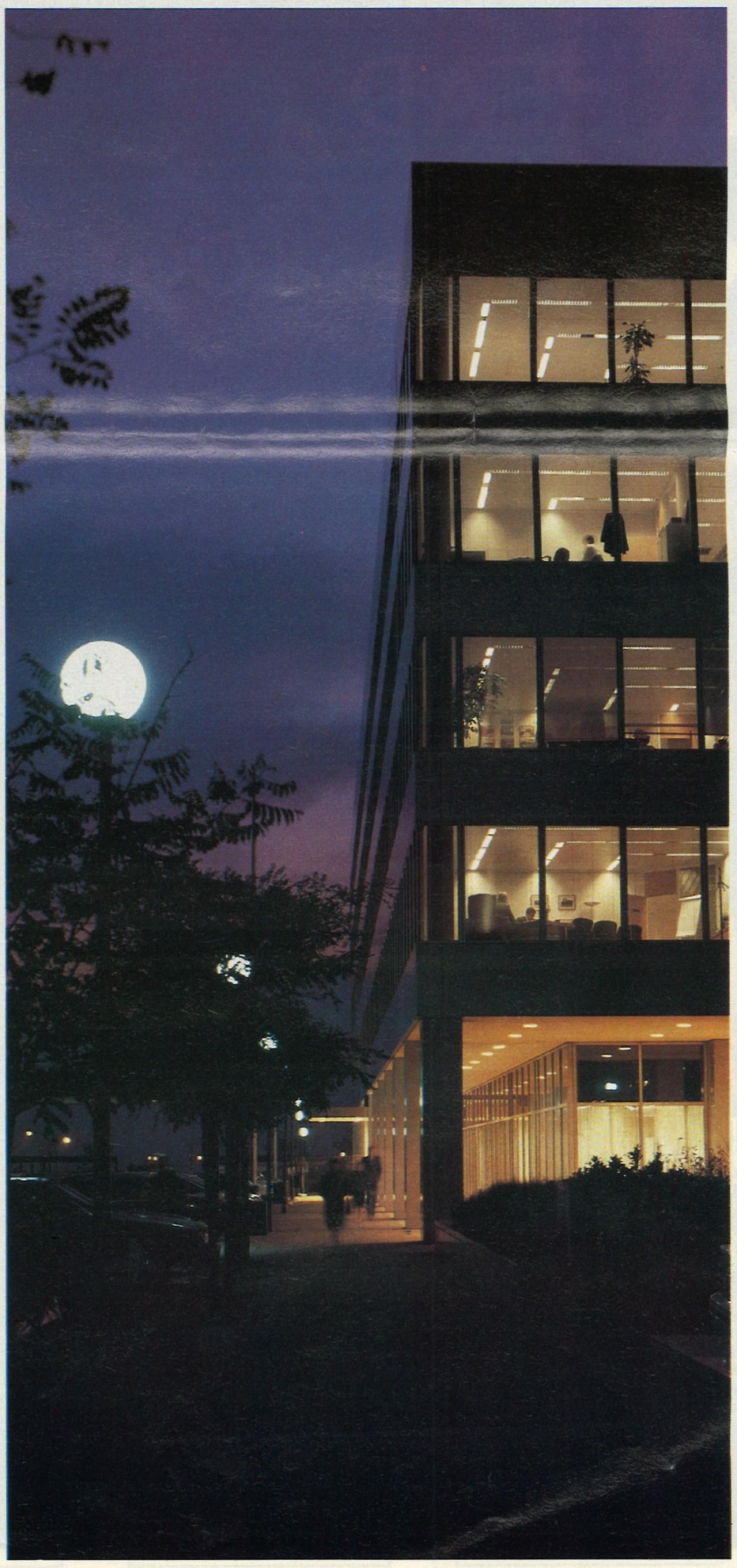
Client for the project was the National Thermal Power Corporation, a government of India enterprise. Managing contractor was NEI Power Projects, Newcastle upon Tyne, with Balfour Beatty as electrical consultants.

Rolling mill at British Alcan Foil Ltd.



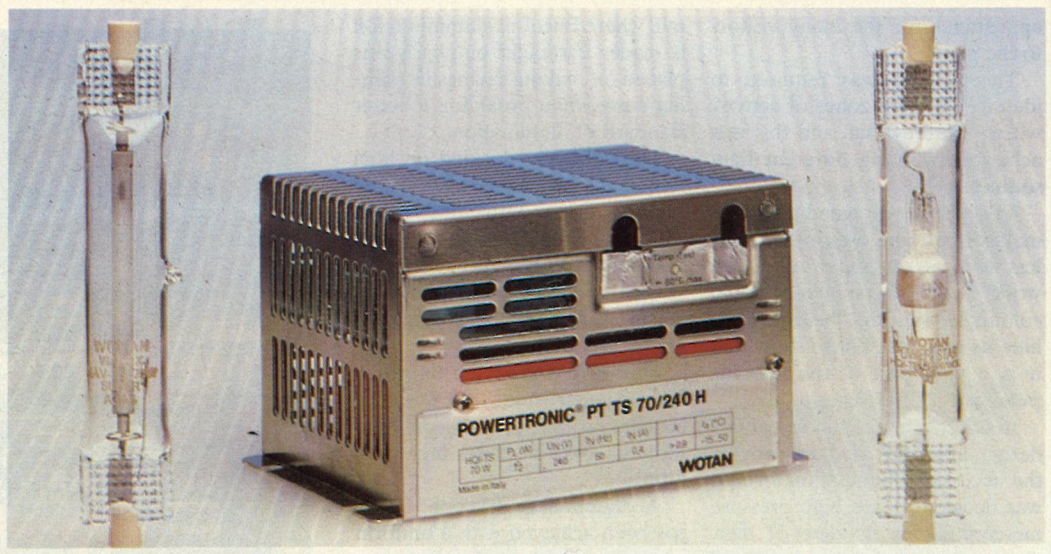
Engineering workshop at Chesterhall Precision Engineering.

Joshua Tetley's new brewhall at Leeds.



Lighting controls

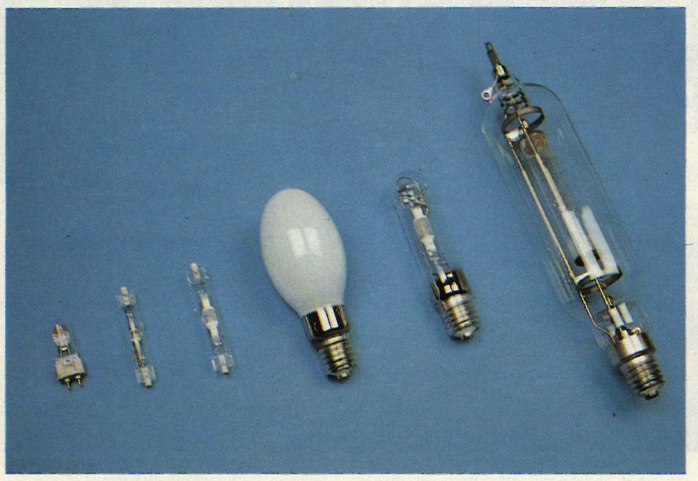
In part two of our feature, *Alf Mellor* of Wotan concludes his discussion of lamp controls and moves on to consider control systems for lighting installations.



Electronic ballasts are now available for discharge lamps.

The relevant discharge lamps (see right) for general indoor lighting, are low to medium wattage metal halide and high pressure sodium lamps. In general, these lamps can only be operated on conventional control gear but electronics are beginning to be introduced.

The principle behind a conventional wire wound choke/ignitor is very similar to that underlying fluorescent lamp control gear, but the starter is usually called an ignitor. The high powers and voltages associated with these lamps result in heavy and bulky control gear packages. Gear for a 70W lamp may weigh 3kg. The starting 'blinking' and end of life 'flashing' — known in discharge lighting as 'cycling' as the duration between lit and unlit is usually long — remain but often with more serious consequences.



Discharge lamps for indoor lighting.

The first electronic ballasts for discharge lamps are beginning to appear (see above), the one illustrated being suitable for double-ended 70W lamps such as HQI-TS and NAV-TS from Wotan. Discharge high frequency ballasts are worthy of serious consideration when the benefits are assessed, as they offer advantages such as regulated lamp voltages. Low wattage (70 — 250W) metal halide and SON lamps suffer from a shift in colour temperature if the lap voltage varies. With the CEGB tolerance of ± 6% this often happens and has been the source of much criticism. The HF power supply solves this problem, within tolerance, since it regulates lamp voltage.

Instant hot lamp reignition is probably one of the best advantages. Discharge lamps need a high voltage pulse (c25vKp) to re-ignite when hot and, although special ignitors used with conventional ballasts are available, they are very expensive. This facility is standard and automatic in the illustrated unit.

Additional benefits are that the electronic ballast is lighter — typically a third of the weight of conventional gear — and that it offers no visible flicker; automtic shutdown; instant ignition; a high power factor; silent operation; no stroboscopic effects and saves between 10-12% energy. It must be stressed that this unit should only be used with new generation double ended lamps, such as HQI-TS and BAV-TS, because of the high instant re-strike voltage.

Luminaire (lighting system) control

This could simply be described as how we switch the lights on or off in our buildings. Here again, there are different options which can be split into four categories:

- ☐ conventional switching;
- ☐ basic lighting switching system;
- ☐ advanced lighting system; and,
- ☐ complete building management system.

As before, all options should be considered.

There are three types of conventional switching: basic switching where all luminaires are controlled from one position, probably using one switch to control contactors; group switching where all luminaires are controlled from one point but separate switches control rows or groups of luminaires, again probably via contactors; and local switching where individual or groups of luminaires are controlled from a switch conveniently located close to them.

The major drawback of all conventional switching systems is that control is operated by the building users. The tendency is for the first entrant in the morning to switch lights on and the last to leave at night to switch off. This is potentially a tremendous waste of energy.

Basic lighting switching systems can be grouped into:

- ☐ **time switching** where a time switch can be used to isolate supplies to control conventional switching, at least ensuring that lights are not left on after-working hours;
- ☐ **photocell switching** where photocells can be employed to stop lighting coming on when sufficient daylight is available (this can be used in cojunction with time switching); and
- ☐ **impulse switching** which represents the introduction of electronics and micro technology.

A central microprocessor is used to send signals to receivers local to groups of luminaires. The receivers incorporate a small contactor to switch the groups on or off on command from the central controller. The signals from the central controller may be transmitted in two basic ways, first by using dedicated wiring or second by sending impulses on the main wiring, a procedure known as mains signalling.

Each system has its own benefits or drawbacks. Receivers can respond to a number of different codes such that they can be set and codes transmitted for groups of luminaires to be switched separately. This could be used, for instance, in a restaurant or hotel for mood setting or in an office to ensure lights are not on at unoccupied times (during coffee breaks or lunch times, for instance).

Local control can usually be given by connecting a switch to the receiver which over-rides its present state to provide light in an emergency situation or if different effects are temporarily needed, although the lights will switch off at the next 'off' signal from the central controller.

Local control can also be used to ensure that certain groups of luminaires will only be switched on when the switch is used — useful in offices with periodic occupancy.

Advanced lighting switching systems can offer individual control in the same way as the basic impulse switching described above, but each luminaire has its own receiver providing far greater flexibility. Or systems can provide impulse/dimming which integrates dimming control gear to the luminaires with photocell links. This is complex but potentially very effective.

Signals can be sent to switch on or off and to get a particulr light output depending either on the availability of daylight or the mood required, or both.

A complete building management system is where any of the above is linked to the building management control computer. This may well influence the lighting control system by calling for more or less light not because of lighting needs, but because of constraints, say, on the air conditioning system, machine loading, or to keep maximum demand down — the possibilities are almost endless.

This article has given a general synopsis of what may be achieved through lighting control. In deciding what approach to take, individual manufacturers should be approached for specific information relating to performance, payback periods and compatibility.

LETTERS

National Lighting Awards

We welcome the comments made by Andre Tammes in the last issue of your journal and wonder whether he and the other independent designers in the UK would be prepared, through their professional bodies, to become fully participating sponsors of the National Lighting Awards and share the financial load.

They would then be in a position to make an input into how the awards are arranged and conducted.

An input on this basis would be very much welcomed by the Lighting Industry Federation who, alone, are currently carrying the full financial burden.

Ernest Magog,
Director,
Lighting Industry Federation.

Electronic transformers

As a manufacturer of electronic low voltage lighting transformers I must seriously object to a comment made on page 13 of November's *Lighting Equipment News.* The article in question is by Dale Kitching of GTE Sylvania and he quotes "Concord's Torch 50 LVTH fitting incorporates the most reliable electronic transformers on the market".

This statement is extremely damaging to manufacturers of electronic transformers and it appears to be a totally unsubstantiated and silly statement to make. The reliability of some imported units of this type was doubtful, but there are several respectable UK manufacturers', of which we are one, who have an excellent reputation for reliability.

R K Mayes, Director,
RAM Electronics (UK) Ltd.
Burley-in-Wharfedale, West Yorks.

1989 commercial winner, BP offices; but should LIF alone sponsor the National Lighting Awards?

Encourage energy saving

Once more, I write to applaud an excellent editorial comment.

Many countries are now appreciating the benefits of applying some sort of 'least cost' encouragement scheme for consumers.

This common sense idea is based upon the premise that one should not build expensive power station capacity unless it is absolutely necessary and that all other methods open to the consumer should be explored, including energy efficiency. Financial incentives are then applied to ensure that the least cost option is used.

Unfortunately, this is not the sort of common sense that appeals to either our government or our electricity industry.

To take your example, at least £1 billion could be saved by not building the next atomic power station and instead supplying a miniature fluorescent lamp free to each household.

Other factors often forgotten when calculating lamp economics are the 1/3 additional savings if the space is air conditioned and the enormous savings that can be made in lamp changing costs in commercial/industrial situations.

Common sense, however, is at somewhat of a premium in official circles. Simple ideas are normally rejected for complex notions of dubious value. Every event becomes a political forum and, in the final analysis, we, the public, must be to blame for allowing this system's continued existence.

If every one of your readers wrote to their MP demanding to know why a complex electricity privatisation bill entirely lacking in real value was of greater importance than saving the planet, our concerns might eventually sink in somewhere.

M. G. Brill,
Chairman,
The National Energy Efficiency Association.

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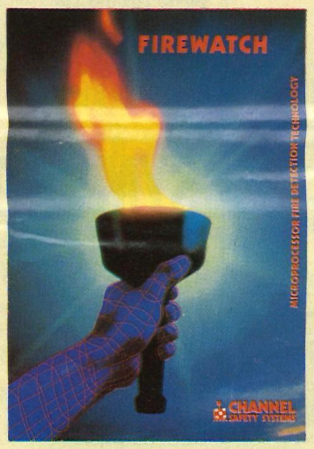
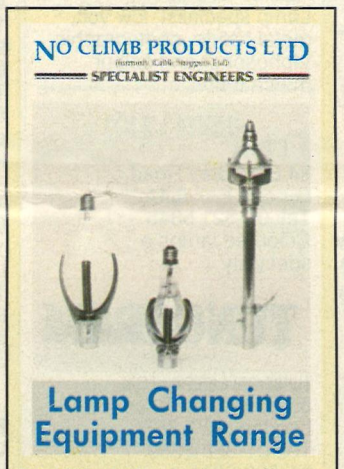
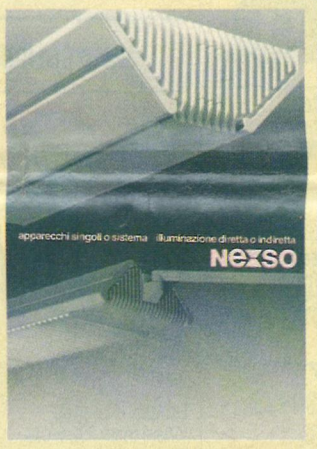


'FIREWATCH' is fully intelligent fire detection system capable of monitoring addressable fire sensors. Precise locational data is clearly displayed on all 'alarm' conditions, and the selected response to each condition pre-programmed to meet the requirements of the site. Channel Safety Systems Ltd: circle 90

Reggiani UK introduce four new catalogues: Down Spot: recessed luminaires adjustable to 60 degrees. Low Voltage: adjustable, fixed, ventilated downlighters, spotlights, track systems. Space Light: ambient/accent uplighters for large areas. Mains Range: downlighters, eyeball and semi-recessed luminaires: circle 91

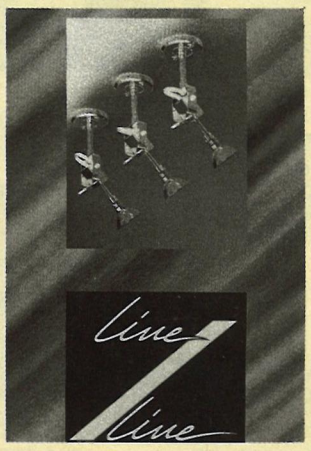


No Climb Products produce a range of lamp changing equipment comprising a series of inter-connecting insulated poles with three-fingered grabs for changing any lamps up to 30 feet high. The apparatus saves time and expense, avoiding the cost and disruption of having to hire/buy and set up scaffolding or platforms: circle 92



New from Crescent Lighting. Nexso is an integrated system of uplights and direct luminaries for retail and office environments. Each module can be wall or ceiling mounted and the system allows the designer great flexibility. Lamp options include 70W or 150W HQITS, 36W or 58WT8 and 36W PLC Lamps: circle 93

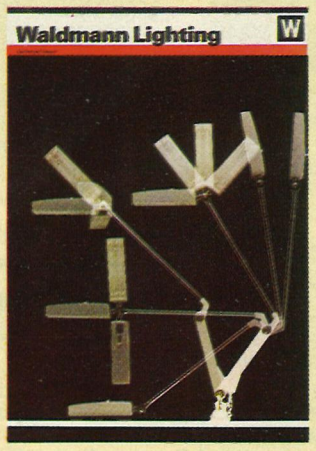
Light Source Self-Governing Electronic Low Voltage Transformers for 20-60VA and 60-105VA loads incorporate benefits to the end user. Two important advantages being: auto resetting short circuit protection and auto dimming overload protection circuits. Suitable for embodiment or remote mounting: circle 94



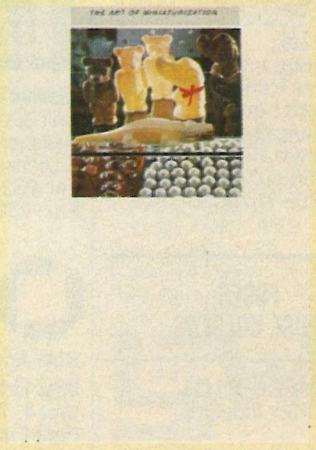
Z-Line is the latest in a unique range of product from LIGHT FX the product excepts superspot, MR16 and MR11 Dichroic lamps. Available in Track, Jack and surface mounted connections. To complement the spotlights we have a recessed downlighter housing the MR11 lamp: circle 95

Paralight is an exciting new concept in lighting providing unparalleled freedom to the Designer. Pairs of parallel rods only 6mm in diameter provide power to miniature low voltage spots which can be positioned at any point along the length. Paralight is ideal for offices, showrooms, shops, restaurants, hotels and the home: circle 96

True-Lite full spectrum fluorescent lighting. These unique fluorescent tubes simulate the full spectrum of natural daylight, provide superb colour rendition and reduce glare, eyestrain and fatigue. Available in a full range of sizes they have an exceptionally long life with an 18 month warranty: circle 97



The new catalogue from Waldmann Lighting is available through UK distributors Midland Machinery Services. It shows a comprehensive range of functional task lighting, workshop machinery lighting and specialist magnifier lamps: circle 98



The past few years have seen exciting technological advances in the field of fibre optic lighting; progressing from the realm of decorative applications to pure illumination technique. Fibre optic fittings are unobtrusive and will not compromise the architectural style of rooms. Heat or ultra-violet is not transmitted: circle 99

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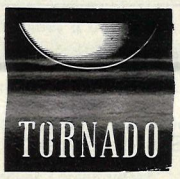

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Lighting Design Services is a specialist organisation backed by the national resources of STC Distributors. Our strength lies in the independent advice we are able to give our customers, in order to provide a creative approach to their lighting requirements. We also supply the most appropriate lighting products for a given project, whether this means utilising many of the franchises held by the company, sourcing items afresh, or customising existing luminaires.

Currently we are embarking on a significant expansion programme which includes both the opening of new branches and the further development of our existing locations. Because of this expansion, we are looking for the following staff to join our teams at Preston and Leeds.

Lighting Manager — Preston
To take full responsibility for our operation at Preston. This is a well established business in an excellent location, with good showroom/demonstration facilities.

You must have experience in the industry, together with the sales skills to further develop our customer base.

Lighting Sales Engineer — Leeds
To develop our sales contacts with specifiers, consultants, contractors and end users in the Yorkshire area.

You should have a background in lighting product sales, and the ability to handle both existing and new customers.

Lighting Designer/Draughtsperson — Leeds
To design lighting schemes, source products and use their experience to provide the best solutions to our customer's lighting problems.

You should have experience in lighting design work and the ability to produce full scheme drawings.

For all of the above opportunities we will be offering a highly competitive benefits package, which will include a quality company car for both the Lighting Manager and Lighting Sales Engineer vacancies.

Interested? Then please write, giving brief details of your background to Chris Palmer (Personnel Manager) at the following address: STC Distributors, PO Box 28, Star House, Potters Bar, Herts, EN6 2NS.

Alternatively, for further details and an application form, telephone Chris on (0707) 51177.

LDS
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Midlands

Part of the multi-national Philips Group, Philips Lighting is one of the leaders in the Industry. Consolidating and improving that status creates an opening for a proven Territory Sales Manager to take a leading role within an established sales team, covering the Midlands.

This role provides the challenge of maintaining a high level of service to an extensive portfolio of existing clients, whilst developing new accounts with equipment manufacturers for new lamps and specialist lamps used for their ultra-violet or infra-red properties.

Proven selling and negotiating skills with the initiative and motivation to work independently, producing imaginative and creative solutions to technical problems, are qualities more important than direct experience in the lighting industry. You will, ideally, be based centrally within the area.

This position carries a very competitive salary plus commission, company car, membership of a contributory pension scheme and five week's annual holiday. We offer excellent and ongoing training to enable employees to progress their careers within the Company. Please write with full details of experience, qualifications and present salary to Mrs. P. A. Hayden, Personnel Manager, Philips Lighting, City House, 420-430 London Road, Croydon CR9 3QR. Telephone 01-689 2166 ext. 2606 for an application form.

Philips Lighting

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Exciting job and work prospects in a Company that works extensively throughout the Asia/Pacific Region.

Salary to be commensurate with experience. Please address your application to Miss Diane Tong, Corbett Design Associates (Pte) Ltd, 360 Orchard Road, # 12-03 International Building, Singapore 0923, Tel: 7343912, Fax: 7378784 and enclose c/v and colour photographs representative of your work. All applications will be treated in the strictest confidence.

Chalmit

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ANDREW CHALMERS & MITCHELL LTD, is a long established manufacturer of hazardous area luminaires, heavy duty floodlights and luminaires for use in hostile environments.

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a Pillar electrical company

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We have recently been appointed the exclusive UK distributor of LIVAL, the top selling lighting range in Scandinavia.

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ELEMSYSTEMS is a new subsidiary of a successful group specialising in selling high quality design components to specifiers.

Currently we have two vacancies for technical sales persons.

1) A technical sales person to take responsibility for a new range of indoor and outdoor lighting products and to take advantage of the excellent response we have had to our advertising programme.

2) A technical sales person with an electrical or electronic background in commercial lighting to develop sales for a new lighting control system.

The successful applicants will have experience with technical products, an appreciation of quality and design, and knowledge of the architect, designer, electrical consultant and a specifier market.

Age range — 30s. Excellent salary, car, etc.

Apply with CV to James Thorely at: Elemsystems Ltd., Progress House, Whittle Parkway, Slough, Berkshire SL1 6DG. Telephone: 0628 667951

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A sales engineer with the ability to negotiate with architects, specifiers and electrical engineers is required. A knowledge of preparing lighting schemes and layouts is important. Excellent potential within a young, rapidly-growing company. Low targets, high commission, good basic.

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K. P. Personnel

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decorative lighting.
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Please reply with full details to:
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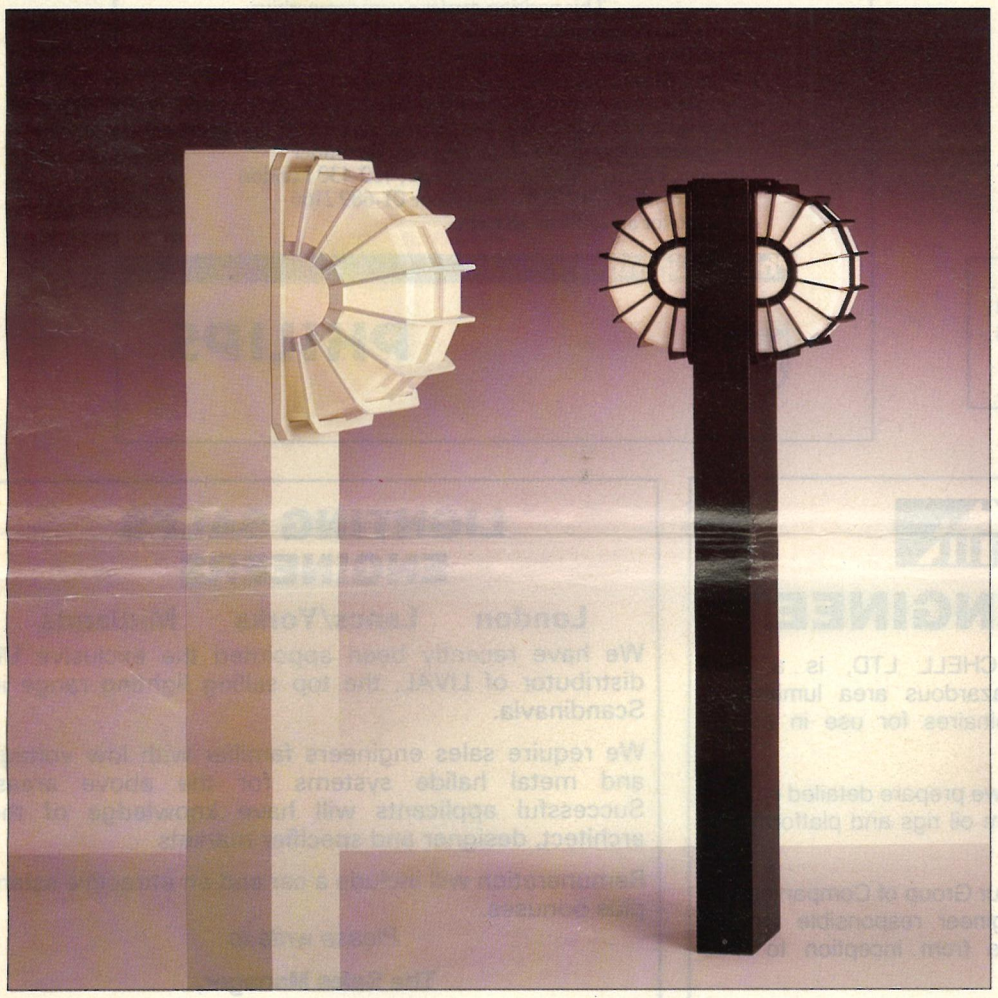
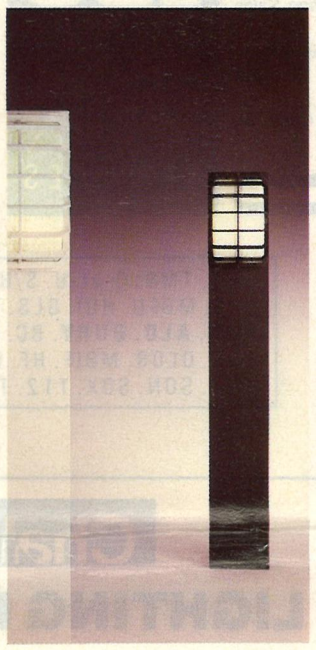
Spotlight on Everton

A friendly match between Liverpool's Everton and former European champions PSV Eindhoven marked the inauguration of a new Philips floodlighting scheme at Everton Football Clubs's Goodison Park ground. The result — a goal-less draw.

The original scheme also by Philips, operated successfully for 18 years. It comprised BV 70 luminaires, complete with 9KW HPIT lamps. The change, made because of the age of the fittings, led Everton to opt for the use of 106, MNF307 sport floodlighting projectors, fitted with 2KW HPIT lamps. This provides a carefully controlled assymetric beam giving high uniformity, with a minimum number of luminaires and minimises glare. The luminaires are mounted on the stand edges, down each touchline, providing a tidy and unobtrusive lighting solution.

The modernisation programme has resulted in lux levels remaining the same, at 1500, but with an energy saving of 33.8pc. Thus, the total electricity load has been cut from 460KW to 304KW.





This new range of exterior fittings for wall or floor mounting are made of die-cast aluminium and high quality plastic.
They are available with GLS, TC-D, or MBFU lamps, and twin lamps for the floor mounting versions. Suitable for exterior areas where IP 43 rating is required, in public or private areas.
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Planned Light with Postmodern Outdoor Luminaires

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HOFFMEISTER

St Mary's in a new light

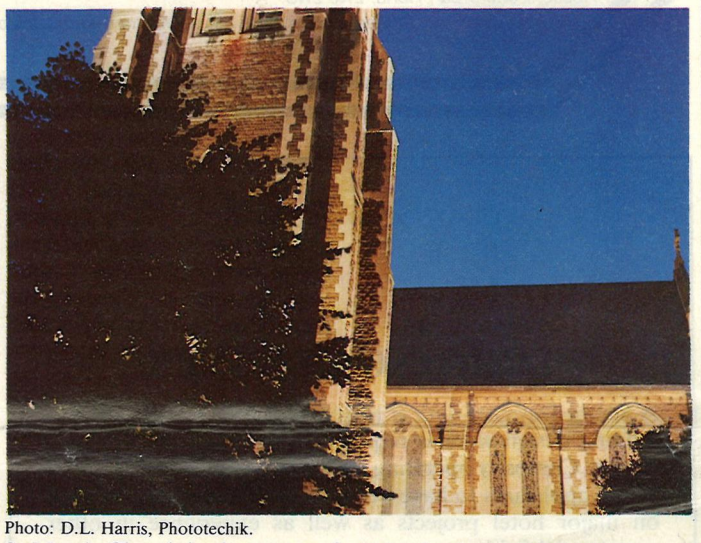

Photo: D.L. Harris, Phototechik.

St Mary's Church in the centre of Swansea has been floodlit by Thorn Lighting Ltd.

The lighting brief called for the scheme to emphasise the architectural detail and specific features of the church, which is a major landmark in the town.

A mixture of light sources and wattages has been used to cope with the varying building/offset distances. Floodlights with lens attachments, which create different distributions, have also been used, angled to reveal form, shape and texture from most viewing angles.

The lighting chiefly consists of a combination of 70W, 150W and 250W tubular high pressure sodium lamps, although the top section of the clock tower is highlighted using pairs of 150W metal halide (Arcstream) lamps. While the colour appearance at 3000K, is still warm, there is a perceptible change in rendition from the high pressure sodium lighting, thus emphasising the clock face and the top portion of the tower without creating a harsh colour difference. Other features at the west and south ends have also been given this treatment.

All points are easily accessible for maintenance, and running costs are low. The floodlighting is controlled by photocell, although this can be overridden.

An additional benefit of the floodlighting is the reported reduction in vandalism in the vicinity of the church which had, hitherto, been a severe problem.

Trade literature in brief

● **Contract maintenance for building engineering services**: a guide to management and documentation, is the final document resulting from a five-year project undertaken by the Building Services Research and Information Association. Price is £30 from BSRIA, Old Bracknell Lane West, Bracknell, Berks RG12 4AH.

● **Armada Lighting and Fire Ltd** has produced a brochure detailing its 2D lighting, emergency lighting and Powapak conversion kits.

● **Photoluminescent markings for escape routes** is a paper from the Building Research Establishment offering guidance on the use of photoluminescent markings as an alternative or supplement to traditional emergency escape lighting.

● **Franklite Ltd** has a 129-page catalogue illustrating its decorative lighting, which covers modern, traditional and outdoor lights.

● **Lightfactor Sales Ltd** has a catalogue (with prices) showing its disco and other leisure lighting.

● **BEAMA** (the Federation of British Electrotechnical and Allied Manufacturers' Associations) has published its annual report for 1988/89.

IN YOUR NEXT ISSUE

The February issue of *Lighting Equipment News* will carry a preview of the newest and most interesting lighting products to be seen by visitors to Electrex '90 — the major British exhibition of commercial and industrial lighting — to be held at Birmingham's NEC.