DESIGNED ARCHITECTURAL LIGHTING

ATELIER FRAME

INNOVATIVE OFFICE LIGHTING

HIGH PERFORMANCE, VISUAL COMFORT AND STYLE



ATELIER FRAME OFFICE LIGHTING

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DESIGNED ARCHITECTURAL LIGHTING

Designed Architectural Lighting, founded in 1983, has steadily established itself as one of Britain's leading independent companies in the design and manufacture of luminaires. DAL's philosophy is one of constant improvement. Our aim is to design, develop and manufacture products of the highest standard whilst working closely with clients and their needs.

The range of products presented in this catalogue is the result of Designed Architectural Lighting's experience in integrating the requirements of architects, designers and engineers with the best in LED technology and materials. All luminaires are supplied with the latest developments in control gear ensuring the best in energy efficiency. DAL continually tracks and reviews the development of LEDs and offers the best and most reliable products available at the time.

Company procedures ensure that a consistency of product quality and respect for the environment is maintained by constant monitoring. This is recognised by DAL obtaining the ISO 9001 quality mark and ISO 14001 accreditation.

Designed Architectural Lighting products are designed and built in the United Kingdom to conform to the requirements EN 60598-1.

The primary purpose of the Waste Electrical and Electronic Equipment Regulations is to 'Reuse', 'Recycle' and 'Recover', and DAL is fully committed to the WEEE Directive. DAL is an established member of the Lumicom Producer Compliance Scheme, which has been approved by the Environment Agency. Via this scheme, DAL is doing the utmost to keep the costs of recycling to a minimum so that the benefits are passed on to you, the client, and society as a whole. DAL registration number WEE/EA0290TY.



Whilst every effort is made to give up-to-date information, the manufacturer reserves the right to amend any specification herein detailed without prior notice. Descriptions contained within this publication shall not form part of any contract. Orders accepted for DAL products are subject to our standard condition of sale. When products are made specially to customer's requirements, we cannot make subsequent alteration or accept cancellation or return without making a charge.

It is essential that the correct LED/lamp type must be used. Incorrect LEDs/lamps may affect the operation of the luminaire and in some cases seriously overheat the luminaire. All fittings in this brochure are supplied with LEDs. Dimensions are shown in mm.

For full Terms and Conditions please contact us.

The new generation An innovative office lighting solution High performance Visual comfort Style





ATELIER FRAME is an LED recessed luminaire developed for the office environment, offering the best lighting quality and meeting the lighting needs for every type of office workplace.

Visual comfort and luminaire performance are the key qualities of ATELIER FRAME. The unique aspect of the luminaire is the combination of high performance optical materials working together for optimum light output and visual comfort.

The central light-control panel is constructed in a choice of optics offering different light distributions and efficiencies, the choice depending on the on the workplace specification.

Visual comfort, paramount to good lighting, is achieved by framing the central area of the luminaire with a highly tooled optical surround with advanced-technology diffusing properties. This frame provides controlled contrast between the central section, which delivers the major part of the illumination, and the surrounding ceiling. This subtle modulation of light obviates any harsh changes from light to dark across the ceiling.

The optical technology and graded illumination the ATELIER FRAME has the British Patent pending, number 1502210.6



ATELIER FRAME MICROPRISM OR SATIN OPAL

DESIGN FEATURES

Modular LED recessed luminaire for DSE workstations. Designed to be supported from a variety of ceiling systems, typically exposed T ceilings (15mm & 24mm) and designer grid ceilings (15/08 & 15/16 versions) are available on request. Other ceiling systems can be catered for. Thermally designed for the best possible LED operating conditions, ensuring product longevity. Lumen Maintenance figures of 70% (L70) or higher after 50,000 hours of use. CRI Ra > 80 - 3 MacAdam ellipses. Available in 3000K or 4000K colour temperatures. Symmetrical, evenly spaced LEDs. Diffusers: Specialised blend, engineered PMMA* construction (* Polymethyl methacrylate) combined with microprism or satin opal light-control panels. Glare control: UGR from < 19 to < 20. Glare free light distribution < 1500/3000cds/m2. Luminaire luminous flux to 136lm/W. Integral plug and socket connector. Painted steel body construction. Emergency versions are available. All light Engine/Driver protocols are available.

AIR HANDLING

Air Handling luminaires are often specified as part of an office heating, ventilating and air-conditioning (HVAC) system. Air-handling vent holes or slots can be incorporated in the luminaire design to allow air to pass through.

However, HVAC specifications vary, please contact us for more information.



CEILINGS

Suspended ceiling systems vary and the installation method is to suit the ceiling type. Please specify the ceiling manufacture and ceiling model. e.g. SAS Alugrid 15/6 600x600



Typical lay-in exposed tee

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MICROPRISM

The cast microprism central panel diffuser combined with a graduated PMMA* surround is an effective high efficiency, low glare lighting solution UGR < 19

SATIN OPAL

The special diffusing properties of the satin opal central panel diffuser combined with a gradated PMMA* surround offers a clean, even lighting quality - high transmission with even diffusion. UGR < 20

The central light-control panel is constructed in a choice of optics offering slightly different light distributions, the choice depending on the on the workplace specification.



ATELIER FRAME's slim trim detail ensures a neatly detailed aesthetic for a variety of modular ceilings



Painted steel body construction. The one piece luminaire is designed for lift and tilt installation for many different ceiling types.



Simple integral plug and socket connector: No need to open the luminaire or use tools.



Symmetrical, evenly spaced LEDs ensure even luminaire brightness.

ATELIER FRAME MICROPRISM 600 X 600

ATELIER FRAME Low glare, recessed office luminaire with central cast microprism panel and opal frame, and white ceiling trim (RAL 9010). Overall dimension 595 x 595mm. Complete with standard operation driver.

Dimmable drivers are available to specification: I-IOv, DSI, Dali, Leading/trailing edge or addressable. Please contact us for the correct specification. Luminous flux quoted per 380x380mm board. @ tp = 65°C Colour rendering: CRI (Ra) >80 Lumen Maintenance figures of 70% (L70) or higher after 50,000 hours of use.

Product No	Colour Temp (Kelvin)	Typical Output (Lumens)	LED Load W	mA	IP
M0110	3000 K	4,800	39.5	1050	IP20
M0210	4000 K	5,470	39.5	1050	IP20

Glare Control

< 1500/3000 cds/m2

Light Output Ratio

UGR < 19

ULOR 0% **DLOR 76%**







LOR 0.76

Intensity values in cds per 1,000 lumens.

400

Total Lumens can be varied by tunning the driver's forward current (mA),therefore increasing or decreasing the illuminance.



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EN 60598-1 WEE/AE0290TY







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ATELIER FRAME SQUARE

ATELIER FRAME SATIN OPAL 600 X 600

ATELIER FRAME Low glare, recessed office luminaire with central lens panel and opal frame, and white ceiling trim (RAL 9010). Overall dimension 595×595 mm. Complete with standard operation driver.

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Product No	Colour Temp (Kelvin)	Typical Output (Lumens)	LED Load W	mA	IP
M0310	3000 K	4,800	39.5	1050	IP20
M0410	4000 K	5,470	39.5	1050	IP20





Glare Control UGR < 20 < 1500/3000 cds/m2

Light Output Ratio ULOR 0% **DLOR 80%**

Illuminance

405lux

Type M0410 - 4000K - 5,470lms

Uniformity

0.84

decreasing the illuminance.



Spacing: 3m x 3m Maintenance:

Reflectances:

70 / 50 / 20

Ceiling Height:

Working Plane:

0.8

2.8m

0.8m

UGR

20

Total Lumens can be varied by tunning the driver's

forward current (mA),therefore increasing or

Type M0410 - 4000K - 5,470lms



Spacing: 3.6m ctrs Maintenance: 0.8 Reflectances: 70 / 50 / 20 Ceiling Height: 2.8m Working Plane: 0m

Illuminance 243lux

Total Lumens can be varied by tunning the driver's forward current (mA),therefore increasing or decreasing the illuminance.

EN 60598-1 WEE/AE0290TY







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Typical lay-in exposed tee



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Simple integral plug and socket connector. No need to open the luminaire or use tools.



Linear evenly spaced LED's ensure even luminaire brightness.

ATELIER FRAME MICROPRISM 1200 × 300

ATELIER FRAME Low glare, recessed office luminaire with central cast microprism panel and opal frame, and white ceiling trim (RAL 9010). Overall dimension 1195 x 295mm. Complete with standard operation driver.

Dimmable drivers are available to specification: I-IOv, DSI, Dali, Leading/trailing edge or addressable. Please contact us for the correct specification. Luminous flux quoted per 559mm board. @ $tp = 65^{\circ}C$ Colour rendering: CRI (Ra) >80

Lumen Maintenance figures of 70% (L70) or higher after 50,000 hours of use.

Product No	Colour Temp (Kelvin)	Typical Output (Lumens)	LED Load (W)	mA	IP
M1112	3000 K	5760	42	300	IP20
MI2I2	4000 K	5960	42	300	IP20





ATELIER FRAME SATIN OPAL 1200 X 300

ATELIER FRAME LED Low glare, recessed office luminaire with central satin opal panel and opal frame, and white ceiling trim (RAL 9010). Overall dimension 1195 x 295mm. Complete with standard operation driver.

Dimmable drivers are available to specification: I-IOv, DSI, Dali, Leading/trailing edge or addressable. Please contact us for the correct specification. Luminous flux quoted per 559mm board. @ tp = 65° C Colour rendering: CRI (Ra) >80 Lumen Maintenance figures of 70% (L70) or higher after 50,000 hours of use.

Product No	Colour Temp (Kelvin)	Typical Output (Lumens)	LED Load W	mA	IP
MI5I2	3000 K	5760	42	300	IP20
MI6I2	4000 K	5960	42	300	IP20





Alongside the standard range of luminaires DAL has extensive experience in the design and manufacture of custom luminaires. There are many different ceiling manufacturers with many suspended ceiling systems to choose from.

The ATELIER FRAME, low glare, high performance recessed office luminaire can be designed to integrate with most suspended ceiling systems. ATELIER FRAME can also be detailed to suit plaster ceilings. The growing variety of LED board dimensions make unique lengths a possibility. For example, 1500×300 modules.

With over 30 years of experience of designing many custom products the most exacting of projects can be achieved.





LED TECHNOLOGY

When artificial lighting and control systems are used to their fullest potential they can create healthy living and working environments. To this end, LEDs are a light source with which intelligent and dynamic installations can be created. LEDs also offer cost effective and energy efficient lighting for many applications, but like other light sources each type should be chosen on its own merits. For this reason DAL has chosen specific LED products to suit their luminaires. The wide use of LEDs in interior lighting design has been hindered until recently by the poor quality of white light LEDs and their low light output. But now there have been significant advances in LED lighting technology, enabling Designed Architectural Lighting to develop linear lighting products with confidence.

With many years of experience in the design, development and manufacture of all types of luminaires Designed Architectural Lighting is a respected member of the lighting industry, affording them access to LED and control products from many specialist companies. Therefore, DAL is not constrained to a single brand, and uses the most appropriate type of LED for the application.

Unlike many other lamps (compact fluorescent, HID, tungsten halogen) the luminaire, driver and LED components are not interchangeable with other manufacturers' products. This is because, for optimum performance of the LED, good heat management is essential; this ensures the correct operating characteristic of the LED. Conventional lamps emit most of their heat through radiation. LEDs transfer their heat by conduction, and if the heat is not adequately dispersed light output and life will be adversely affected. Various methods can be used to transfer heat and the most simple and reliable way is a

well-designed heat sink (passive cooling).

LEDs can be easily controlled as part of energy management systems. Dali, SwitchDim and other dimming or lighting control systems are feasible with the appropriate driver.

In order to achieve the best linear products Designed Architectural Lighting works with major LED manufacturers. For in depth LED product specification please contact us.

The information is correct at the time of printing and the products shown are specific to the DAL range.

Advantages of LEDs Include:

Long life resulting in low maintenance costs Cool beams of light No ultraviolet Low infrared Mercury free / Lead free Low energy High luminous efficacy Colour stability Instant light High performance Precise optical control Emergency options Dimmable

LED information

LEDs (Light-emitting diodes) generate light using the special electronic properties of crystalline semiconductors and solid state technology. As well as being free of Ultraviolet radiation, LEDs have very low Infrared radiation in the beam. Because the thermal operation is crucial, the LED is supplied as an integral part of the DAL luminaire. LEDs are sometimes known as Light Engines, Pucks or Modules.

LED control gear is known as a Driver.

LED COLOUR TECHNOLOGY

Colour Temperature

Light and Colour is a huge topic, much bigger than can be explained here, but obviously it is a major characteristic of artificial light, with a lamp's colour temperature playing a major part in lighting design - how warm or cool an interior will appear - so, being informed about the colour properties of light sources, such as LEDs is important.

The colour temperature of all light sources, from candle light to daylight, is measured in units of absolute temperature - Kelvin (K), using the scientific laws of the black body radiator. But, because, LED manufacturers produce different colours of white light by adding various phosphors to blue light LEDs, there is an allowable tolerance (+/-) and the colours are specified by correlated colour temperature (CCT).

The CIE 1931 x,y chromaticity space diagram illustrates where the black-body curve defines white light. It also shows the chromaticities of black body light sources of various temperatures and lines of constant Correlated Colour Temperature. The CCT is the colour temperature at a point on a black-body radiator (Planckian locus) which most closely matches the colour of the light emitted from the light source. The most commonly used colour temperatures in interior lighting design range from 2700K through to 4000K, with the lower number being warmest and the higher number being the coolest.



A CIE x,y chromaticity space diagram illustrates where the black body locus defines white light. It also shows black-body light sources of various temperatures and lines of constant correlated colour temperature.

Colour Rendering Index (CRI)

Just as significant as choosing an LED for its color appearance is its colour rendering properties, and CRI is an indicator of its ability to realistically reproduce the colour of an object.

The colour rendering properties of a light source are illustrated by its spectral distribution in the form of a curve. However, more commonly used is the CIE colour rendering index. This classifies how true a colour surface will appear when lit by an artificial light source. The higher the colour rendering index (on a scale of 0 to 100) of the source, the more accurate it is.

The CIE classifies colour rendering in two ways: Colour Rendering Groups 1-4 and the general Colour Rendering Index Ra ≥ 20 to ≥ 90 . These, however, are based on 8 pastel colours and do not take into account all 15 CIE test colours so closer reading of LED manufacturers' literature maybe needed.

Wherever accurate colour matching is required sources in Group 1A, $Ra \ge 90$ should be specified. When slightly less accuracy is needed Group 1B, $Ra \ge 80$ should be sufficient. It should be noted, with LEDs, as with other sources using phosphors, the higher the CRI luminance efficacy will be reduced.

MacAdam Ellipses

MacAdam ellipses are also quoted as method by which a specifier can ensure consistence in colour. MacAdam ellipses describe the colour distances on the xy coordinates in the form of steps around target points. Again, this it to do with manufacturing tolerances and perceptible difference. These are certain target point on the CIE diagram, which lamp and LED manufacturers

endeavour to meet. Whilst industry standard LED binning structures allow for colour points in a 7 step MacAdam ellipse, it is recognised that this is too large a tolerance leading to perceptible colour variation. An LED of 3 step MacAdam is considered very high quality and 2 steps even higher.

As an LED ages it can have colour shift, so if they are manufactured within a small MacAdam Step it is likely to keep to an imperceptible difference.

LED Life and Lumen Maintenance

During its operating life the amount of light from all light sources decreases. Calculated as a percentage of the original light output, the amount of light emitted from the source at a specific time in the future is referred to as its lumen maintenance.

In general, LEDs have better lumen maintenance than any other light source. It is usual to see quoted Lumen Maintenance figures of 70% (L70) or higher after 50,000 hours of use. However, good lumen maintenance and consistent colour are also dependent on the correct thermal operating conditions of the LED, so the correct heat sink and luminaire designs are fundamental.



Typical spectral power distribution of a 3000K phosphor coated LED.

LIGHT PLANNING, REGULATIONS AND THE BUILT ENVIRONMENT

OFFICE LIGHTING DESIGN

SLL LG7 and BCO Guidelines

There are many aspects to consider when designing and specifying office lighting. It is not only the amount of illuminance needed for the occupants to see the task clearly and move round the building safely that is important, but also the visual comfort of the occupants and the lit appearance of the space. Whether a designer is preparing a layout for a speculative project with an unknown end user or for a known client, the lighting design for both are equally important. Decisions on luminaire and lamp type and light distribution have to be made. Whether direct lighting, indirect lighting or a combination of direct and indirect is feasible or desirable. Whether localised lighting or task lighting should be considered. What type of control system is appropriate? Each option will have advantages and disadvantages.

The Society of Light and Lighting (SLL/CIBSE) has various documents that can help with best practice design. Lighting Guide 7 addresses all issues of electrical lighting and day lighting for offices. It contains information on the current illuminance level and glare rating for each task or area, but also advice on the lit appearance. Every area is considered; its use and size, general offices, large and small, board rooms, corridors and rest rooms, reception areas and the post room. The lit environment also has an impact on energy use therefore information is also given on the use of control systems. There is also The British Council for Offices Guide to Lighting: Best Practice in the lighting of offices, both useful and informative for all types of office. It also addresses daylight and energy use, visual comfort and performance. The differences betwen Shell and Core, Category A and Category B artificial lighting are explained.

BS EN12464

It is undisputed that the appropriate amount of light and type of light enables people to perform visual tasks efficiently and accurately. BS EN12464-1 is the most recent version of the standard for indoor work places. It stipulates the requirements for lighting of most indoor work places and associated areas, addressing both quantity and quality of illumination, together with recommendations for good lighting practice. It aims to encourage designing with all light sources, including natural light, recognising the importance of daylight for energy saving. It includes the requirement for ceiling and wall illuminance to increase the brightness of a room.

PART L BUILDING REGULATIONS

Under the Climate Change Act 2008, the UK has committed to legally binding, greenhouse gas emissions reduction targets by 2020 - at least 26% relative to 1990. Therefore, what must be adhered to is the UK Government's Building Regulations on energy efficiency known as Part L (2014), with Part L2 being specific to 'non dwellings'. The latest requirements entail the use of LENI (the Lighting Efficiency Numeric Indicator). This method measures (and can be used to calculate) the efficiency of the whole lighting installation, not just the components; lighting controls have a key role in this.

THE BUILT ENVIRONMENT

As a team, the lighting designer, architect and all others in the design process, together with the developer or owner, may also consider designing their building to meet a BREEAM (Building Research Establishment Environmental Assessment Methodology) rating. The BREEAM criteria covers a range of issues in categories that evaluate all aspects of a building's performance, not just energy use. One category is health and well being of which lighting is one aspect. The overall purpose and impact of BREEAM is its drive to greater awareness in sustainability and innovation in the built environment.

FINANCIAL CREDITS

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ECA (Enhanced Capital Allowance) scheme is a UK Government programme to help manage climate change by providing business with enhanced tax relief for investments in equipment that meet its energy saving standards. This applies not just to luminaires and light sources but to all electrical equipment that meet the strict criteria.

MORE PRODUCTS - www.dal-uk.com



OFFICE LIGHTING ATELIER 600 X 600



OFFICE LIGHTING ATELIER 1200 × 300 / 1500 × 300



MULTI-FUNCTIONAL BORDO 150 LINEAR LIGHTING SYSTEM



LINEAR LIGHTING LIGHTLINE 60 / 88 PENDANT / SURFACE MOUNTED



LINEAR LIGHTING LIGHTLINE 60 / 88 **RECESSED TRIM / TRIMLESS**



EMERGENCY LIGHTING WAYLIGHT AND LEDEX



DOWNLIGHTERS

SMALL APERTURE

DOWNLIGHTERS SHALLOW CONE





DOWNLIGHTERS

MINITRIM / TRIMLESS

GALLERY AND DISPLAY

BALTIC SPOTLIGHTS





DOWNLIGHTERS

DEEP CONE

111 D

DOWNLIGHTERS

SURFACE















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