

The background features a dark, diagonal band with a bright light source, creating a lens flare effect. Several translucent, overlapping geometric shapes in shades of gold, grey, and dark blue are scattered across the composition. A large, white, trapezoidal object, resembling a light fixture or a piece of modern architecture, is positioned in the lower half of the image.

Whitecroft  
lighting

# Cascade LED

Economy and efficiency

# Reducing the cost of ownership

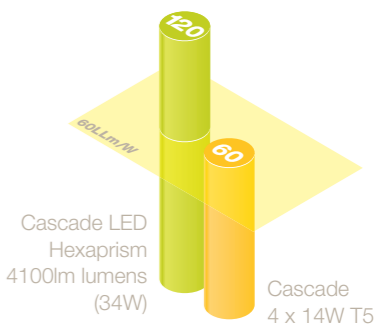
Cascade LED represents a step change in LED technology; combining class leading performance with affordability. Cascade LED offers rapid payback in any commercial application.

Cascade LED uses advanced optics that enable compliance with all lighting regulations, whilst its curved wings add visual interest to the ceiling plane.



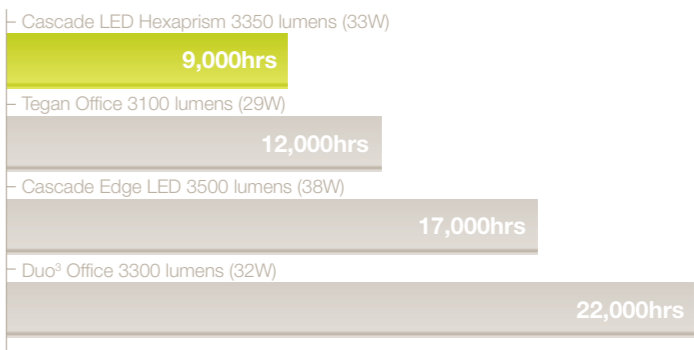
## Lowering energy consumption

Cascade LED combines the latest generation LED technology with highly efficient optics to deliver outstanding levels of illuminance, whilst reducing energy consumption. The compact design allows LEDs to be run at a lower power, ensuring increased efficiency and lifespan. This results in outputs of up to 120LLm/W.



## Reducing the installed cost

Lighting an office with LED luminaires was once a show of 'green-ness' from those with large budgets. With shorter burning hours than most applications, the payback against expensive LED luminaires meant that low energy solutions came at a price. It would be years before any financial benefit could be seen from reducing energy consumption. Today, Cascade LED marks the tipping point, offering payback in less than 10,000 hours, and bringing solid savings within a year of installation.

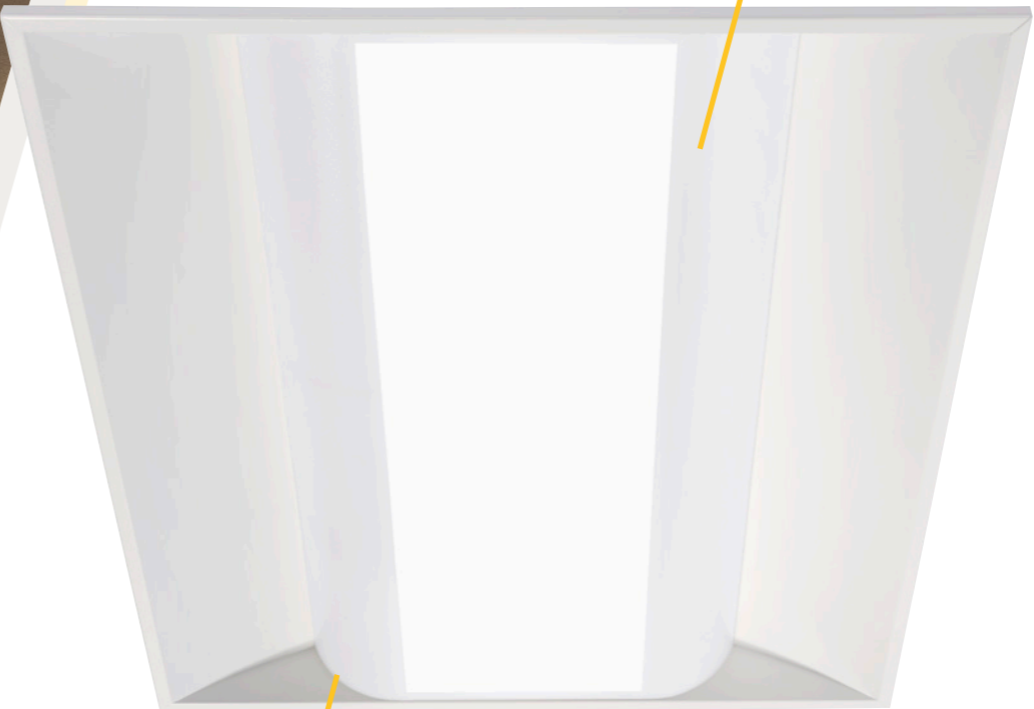


Based on typical cost difference between Cascade 4 x 14W T5



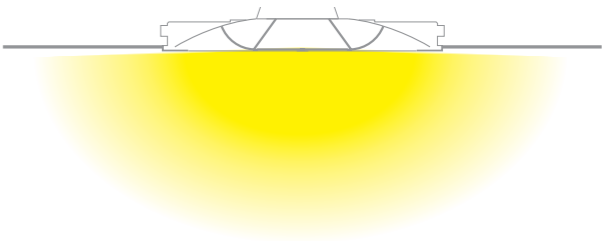
# Cascade LED Hexaprism for education

Dual TSI optics ensure bright, even illumination of all teaching surfaces, whilst integrated controls minimise energy consumption. Cascade LED Hexaprism allows the lighting designer to meet all of the requirements of both LG5 and the Priority Schools Building Programme.



### Dual TSI Optics

Cascade LED employs dual Teaching Surface Illuminance (TSI) optics to give, bright, even distribution of light on vertical as well as horizontal teaching surfaces, whilst the Hexaprism optic controls glare. The integration of this technology allows classrooms to be lit with a single style of luminaire, removing the need for supplementary lighting of white boards or wall areas.



### Integrated Controls

Integrated lighting controls bring reduced energy consumption to the classroom. Daylight harvesting can be used to reduce energy by up to 50% in most modern education environments where large windows are prevalent, and absence detection ensures lighting is switched off when rooms are unoccupied.

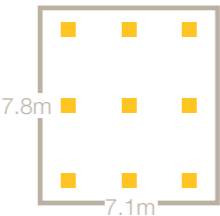
### IP44 as Standard

Cascade LED luminaires are rated to IP44, allowing them to be used in science rooms and those classrooms that implement strict cleaning regimes. This also brings benefits to all areas, as the reduction in ingress of dust ensures longer maintenance cycles, significantly reduce the ongoing cost of maintaining luminaires.

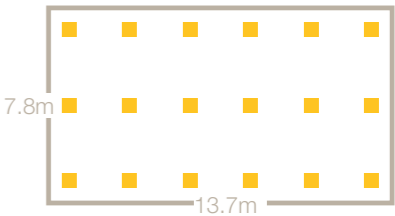
### Optimised Light Outputs

Cascade LED Hexaprism is available with a choice of lumen packages, which have been optimised to deliver either 300 or 500 lux in standard classroom layouts. This allows the lighting designer simple product specification whilst maintaining a consistent visual theme throughout a school.

Typical 56m<sup>2</sup> classroom



Typical 106m<sup>2</sup> classroom



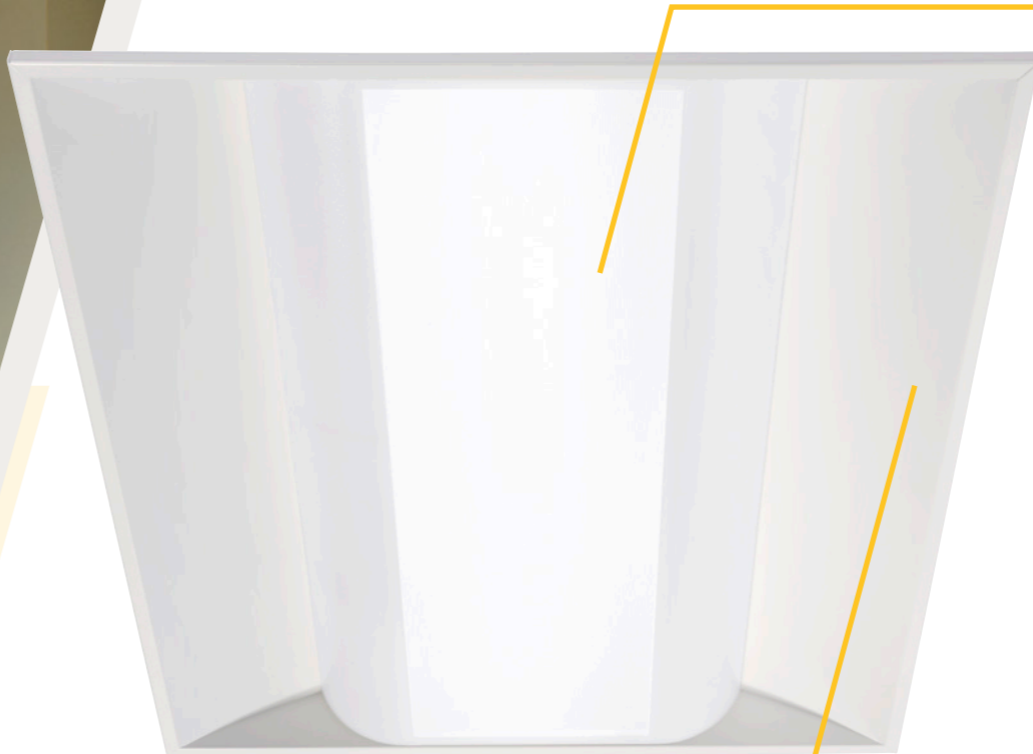
Typical classroom applications - LED vs fluorescent

| 300 lux BB90, 56m <sup>2</sup>  | Target Lux | Actual Lux | Target Cylindrical | Actual Cylindrical | Spacings  | w/m <sup>2</sup> | w/m <sup>2</sup> / 100 lux |
|---------------------------------|------------|------------|--------------------|--------------------|-----------|------------------|----------------------------|
| Cascade LED Hexaprism, 2700lm   | 300        | 318        | n/a                | 125                | 2.4 x 3.0 | 4.23             | 1.33                       |
| Cascade Louvre, 2x24W T5        | 300        | 304        | n/a                | 117                | 2.4 x 3.0 | 8.45             | 2.78                       |
| 300 lux PSBP, 56m <sup>2</sup>  | Target Lux | Actual Lux | Target Cylindrical | Actual Cylindrical | Spacings  | w/m <sup>2</sup> | w/m <sup>2</sup> / 100 lux |
| Cascade LED Hexaprism, 3350lm   | 300        | 393        | 150                | 155                | 2.4 x 3.0 | 5.36             | 1.36                       |
| Cascade Louvre, 1x55W TC-L      | 300        | 409        | 150                | 156                | 2.4 x 3.0 | 8.94             | 2.18                       |
| 500 lux PSBP, 106m <sup>2</sup> | Target Lux | Actual Lux | Target Cylindrical | Actual Cylindrical | Spacings  | w/m <sup>2</sup> | w/m <sup>2</sup> / 100 lux |
| Cascade LED Hexaprism, 4100lm   | 500        | 521        | 150                | 185                | 2.4 x 3.0 | 6.40             | 1.23                       |
| Cascade Louvre, 2x40W TC-L      | 500        | 506        | 150                | 185                | 3.0 x 3.0 | 12.07            | 2.38                       |



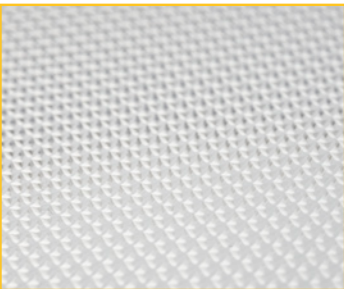
# Cascade LED Hexaprism for offices

Cascade LED Hexaprism brings comfort and performance to any office environment. Advanced optics control glare from all angles, whilst the latest LED technology delivers extremely low energy.



### Advanced Optical Control

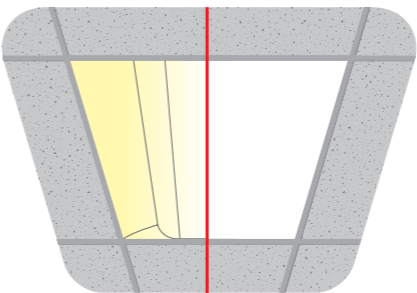
Cascade LED Hexaprism uses the same advanced optic that is used in our high-end LED solutions, eliminating glare from all angles of view. This results in an extremely comfortable, high performance luminaire. This, combined with the use of controlled contrast technology, ensures that lighting schemes can achieve the targeted UGR19 within all major regulations, as well as meeting the 3000Cd/m2 luminance limit in EN12464-1:2011.



Hexaprism optic

### Controlling Contrast

The primary objective in creating a comfortable lighting scheme is to avoid sudden changes in brightness. By illuminating the area surrounding the light source, the differential between object and background is reduced, resulting in a more comfortable field of view. Cascade LED has a graduated intermediate brightness zone that creates a contrasting field between the optic and ceiling plane, reducing perceived glare and adding interest.



Cascade LED brings visual interest to the ceiling plane with a 5:1 contrast ratio between centre and side optics

Most modular LED lighting has no contrast within the optic, giving an uninteresting visual effect

### Reducing Maintenance

As well as employing 50,000 hour rated LED light engines, all versions of Cascade LED are protected to IP44, ensuring the exclusion of foreign bodies that can result in accelerated cleaning regimes. This can significantly reduce the ongoing through life cost of any installation, as well as minimise disruption in the workplace.

Typical open plan office - LED vs fluorescent

| Open plan office              | Target Lux | Spacings  | w/m <sup>2</sup> | w/m <sup>2</sup> / 100 lux |
|-------------------------------|------------|-----------|------------------|----------------------------|
| Cascade LED Hexaprism, 3350lm | 300        | 3.0 x 3.0 | 3.61             | 1.11                       |
|                               | 500        | 2.4 x 2.4 | 5.65             | 1.12                       |
| Cascade Louvre 4 x 14W T5     | 300        | 3.0 x 3.0 | 6.89             | 1.99                       |
|                               | 500        | 2.4 x 2.4 | 10.76            | 2.03                       |

### Area or Localised Control

All versions of Cascade LED are available with a choice of integral lighting control detectors. COM5 Eco is a pre-commissioned Microwave detector, whilst the COM4 detector allows connection to a full DALI based lighting control system. Cascade LED is also available with Organic Response®, a wireless integral detector that communicates with neighbouring luminaires, automatically controlling light across the entire workspace. All control solutions will further increase the energy efficiency of a lighting scheme.



Integral Organic Response® detector



Wall switch



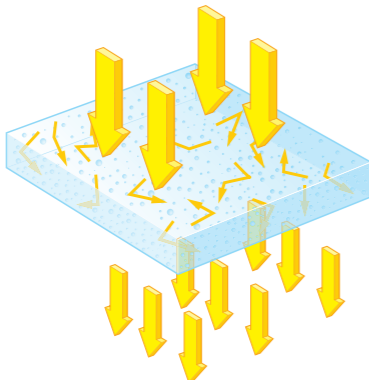
Smartphone dongle

# Cascade LED Opal for general area

Innovative opal micro-polymer optics combined with a choice of light outputs ensure that Cascade LED Opal is suitable for any area lighting application.

## Optical Technology

Cascade LED Opal uses the same intermediate brightness zone design as the Hexaprism luminaire, but instead, utilises a micro polymer diffuser that ensures excellent light transmission. Designed for areas where glare control is less critical, this luminaire allows greater light output for increased spacings, whilst retaining the design features of the Cascade LED range.



Opal micro polymer optic

## Safety Guaranteed

Cascade LED Opal uses fire-rated TP(a) diffuser materials, ensuring compliance with Part B of building regulations for escape routes. Emergency versions of Cascade LED are also available, simplifying the requirement for emergency lighting in any commercial application.

## Choice of Light Outputs

Cascade LED Opal can be specified with a light engine that delivers either 2200, 4200 or 5300 lumens. This allows the designer to utilise the same luminaire throughout a building, delivering a range of luminance levels with a consistent visual theme. The lower output luminaire can be used in transit or social areas where lower levels of illumination are required, whilst the high output luminaire can maximise spacings in areas where VDTs are not prevalent.

Typical area applications - LED vs fluorescent

| Break-out area             | Target Lux | Spacings  | w/m <sup>2</sup> | w/m <sup>2</sup> / 100 lux |
|----------------------------|------------|-----------|------------------|----------------------------|
| Cascade LED Opal, 4200lm   | 300        | 3.6 x 3.0 | 3.65             | 1.11                       |
|                            | 500        | 3.0 x 2.4 | 5.47             | 1.13                       |
| Spear Diffuser, 4 x 24W T5 | 300        | 3.6 x 3.0 | 9.72             | 2.74                       |
|                            | 500        | 3.0 x 2.4 | 14.58            | 2.80                       |

| Corridor                   | Target Lux | Spacings | w/m <sup>2</sup> | w/m <sup>2</sup> / 100 lux |
|----------------------------|------------|----------|------------------|----------------------------|
| Cascade LED Opal, 2200lm   | 100        | 3.0      | 4.08             | 2.76                       |
| Spear Diffuser, 3 x 14W T5 | 100        | 3.0      | 8.70             | 5.18                       |

## Integrated Air Handling

The integrated air handling feature available in all versions of Cascade LED allows each luminaire to be used as an air return path as part of a HVAC system. Each air handling luminaire can return up to 35 litres of air per second.



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