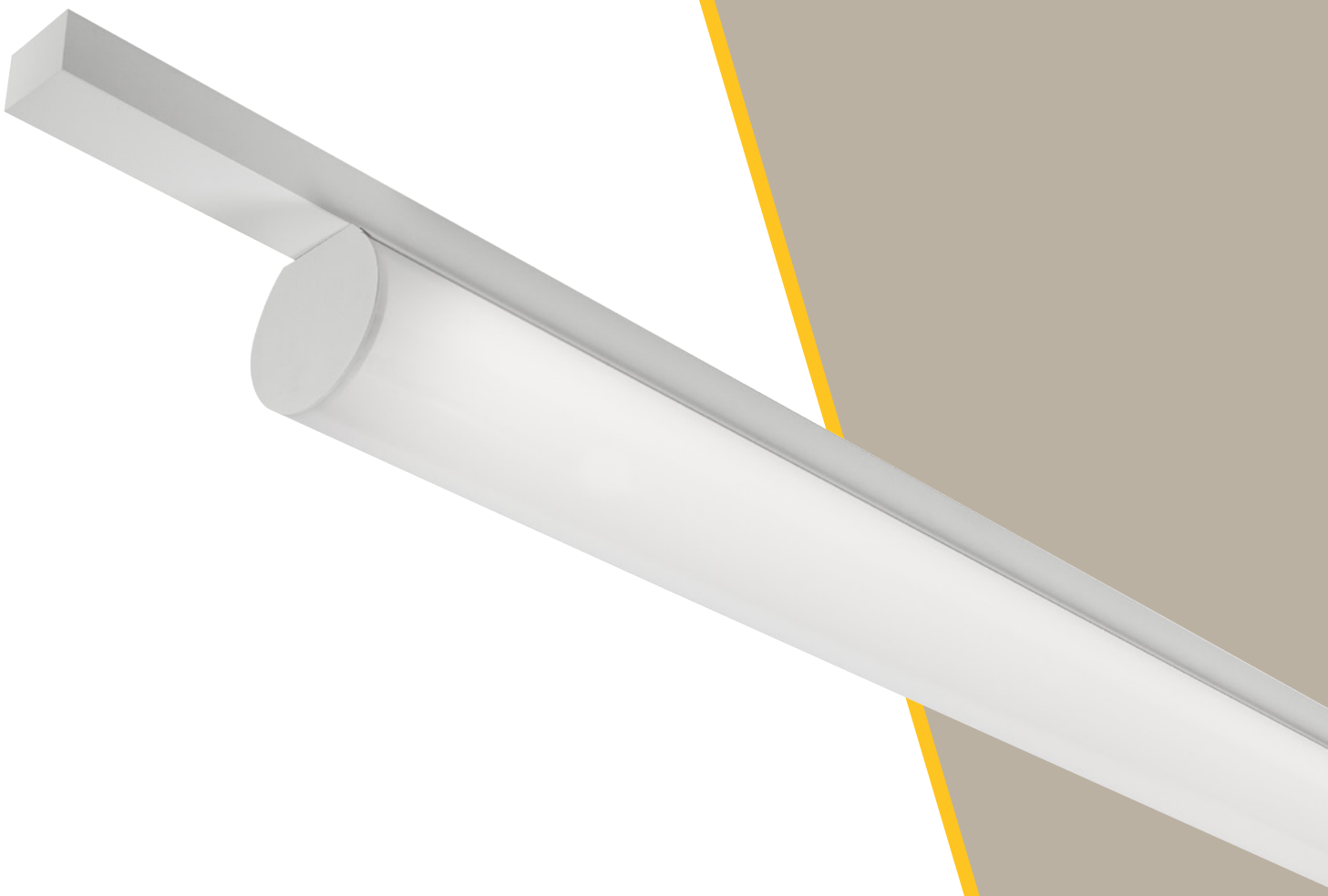
Whitecroft lighting



Inspiration

Inspiring pupils

Inspiration

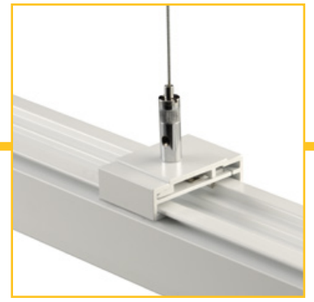
Designed to meet the demands of the latest Priority Schools Building Programme, Inspiration delivers high quality, low energy lighting in a fast and simple to install system.

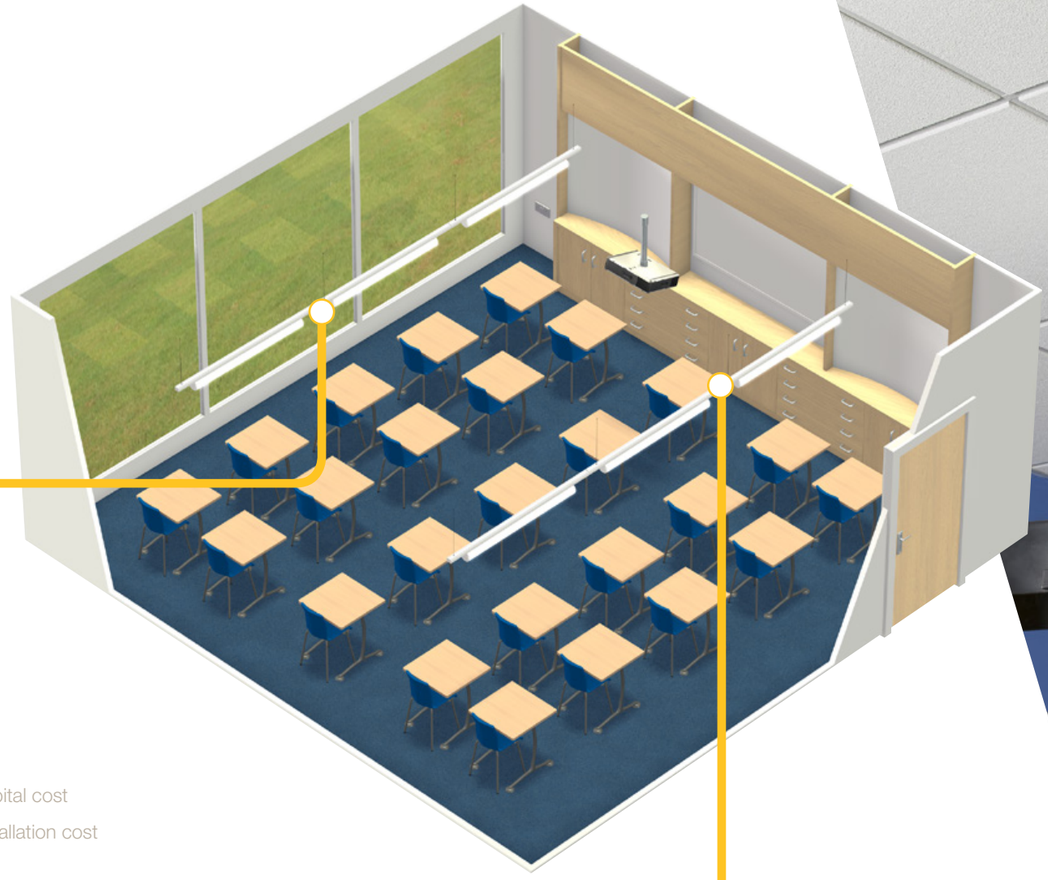
Lowering Installed Cost

The Priority Schools Building Programme challenges all involved to reduce costs wherever possible. Inspiration has been designed to simplify the installation process, with fewer installed points and electrical connections. This means that Inspiration suits both modular, off-site construction techniques as well as compressed on-site programmes. As a modular lighting solution, Inspiration can be suspended from fewer points than stand alone solutions, and requires only one electrical connection per run of luminaires. As the chart below demonstrates, this can save a considerable amount of installation cost and time when compared to a traditional installation.

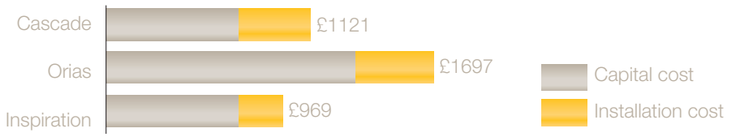
Minimising Installed Points

The trunking design of Inspiration requires only four suspension points per run of 3 luminaires, resulting in a dramatic reduction in both first and second fit installation time when compared to a traditional suspended solution. The linear nature of Inspiration also ensures simple levelling of each row of luminaires.



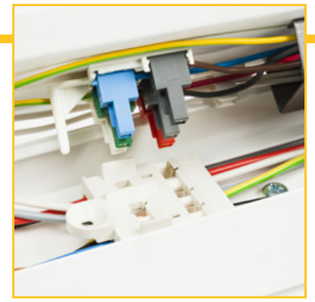


Installation Price Comparisons (60m² classroom)



Simplifying Electrical Connection

Inspiration is a 'plug and play' lighting solution. Once the starter section is wired, each additional section connects via a tool-free 6 pole connector, ensuring simple, trouble-free wiring. This means that only one electrical connection is required per run of luminaires. Once the trunking is connected, the complete luminaires simply plug into pre-determined locations along the trunking body.



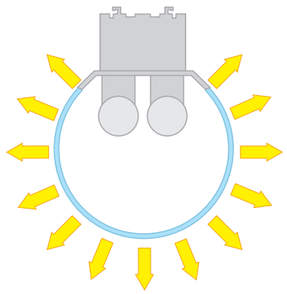
Creating Inspiring Environments

The right choice of lighting in the classroom is critical to the effectiveness of a teaching space. Students require the right learning environment to flourish and studies have shown that good lighting aids the subconscious processes that energise learning. An effective lighting scheme must reduce excessive contrast, deliver a natural environment and be free of distractions.

Whitecroft Lighting have pioneered the development of specialist classroom lighting solutions, and Inspiration builds on this experience, bringing the TSI (Teaching Surface Illuminance) concept first introduced with Cascade TSI, to a new solution which fully meets both the qualitative and cost requirements of today's Priority Schools Building Programme.

1 Ceiling Illumination

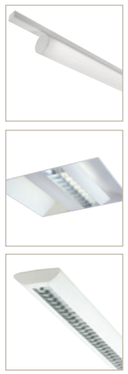
With the drive to introduce more daylight into classrooms comes higher ceilings. The move to this open soffit design style means that lighting must be suspended and have an uplighting capability to prevent dark ceilings. Inspiration's unique cylindrical design means that this is achieved without a separate uplighting optic, which can compromise performance and be difficult to clean and maintain.



Inspiration's innovative optic provides up and down lighting from a single source

2 Teaching Surface Illuminance

It is important to understand the way in which teacher and pupils interact when designing lighting schemes for classrooms. Education is not a two-dimensional activity and even illumination must be given to all teaching surfaces, namely walls, white boards and desk surfaces; Inspiration's wide distribution pattern ensures even illumination of all teaching surfaces, creating the optimum learning environment.

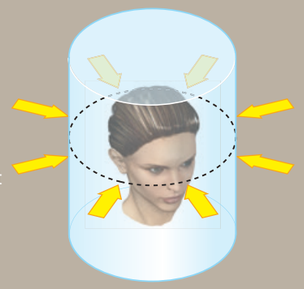


Comparative wall illumination

Luminaire	Wall %
Inspiration	70
Cascade TSI	55
Orias	30

3 Cylindrical Illuminance

The classroom plays a large part in the development of inter-personal skills. Good facial recognition is critical in the relationship between teacher and student, and this is achieved by a high consistency of vertical illuminance measured through 360˚. This is termed cylindrical illuminance. LG5 demands a cylindrical illuminance value of at least 150 Lux. Inspiration employs a specially designed diffuser optic that delivers excellent cylindrical illuminance. This ensures the correct facial lighting conditions from any angle of the room, creating the perfect teaching environment.



Poor cylindrical illuminance leads to difficult facial recognition

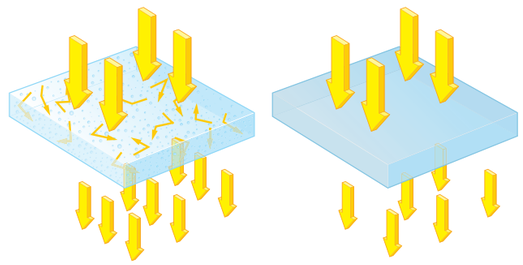
Good cylindrical illuminance facilitates communication

Creating Low Energy Classrooms

To create a sustainable future, and to drive down the cost of lighting our schools, low energy lighting solutions should always be sought. The solution to this need is less obvious in the classroom environment than it is in commercial areas. Firstly, there is a much higher degree of daylight penetration in classrooms, reducing the need for artificial lighting. Secondly, classrooms are only occupied for around 6 hours per day and are unoccupied for 13 weeks each year, resulting in an annual usage of only 1200 hours per annum.

Efficient Optics

Inspiration uses a high performance micro polymer diffuser optic to create extremely high degrees of uniformity without compromising performance. This material combines microscopic pearls of opal thermoplastic elements in a clear base, resulting in excellent light transmission. This microstructure refracts light to such an extent that it appears translucent and delivers an extremely diffuse effect. This differs dramatically from traditional diffuser materials that are completely opal, resulting in extremely poor light transmission.



Inspiration Micro Polymer Optics diffuse light with only a small reduction in light transmission

Traditional opal diffusers significantly reduce light transmission

LED vs. Fluorescent Light Sources

The most obvious way of saving energy is to employ LED lighting solutions. However, due to the shorter occupancy periods of classrooms, this does not make financial sense. An LED light source can only reduce energy bills by around £10 per year per classroom, but may cost hundreds of pounds more to install. Inspiration uses the latest highly efficient long lamp fluorescent technology to deliver the lowest possible energy consumption at an installed cost which is a fraction of its LED counterpart.

Annual energy cost per classroom

Light source	Power	Cost (£/KW/H)	Burning Hours	Annual energy cost
Fluorescent	500W	0.10	1200	£60
LED	400W	0.10	1200	£50

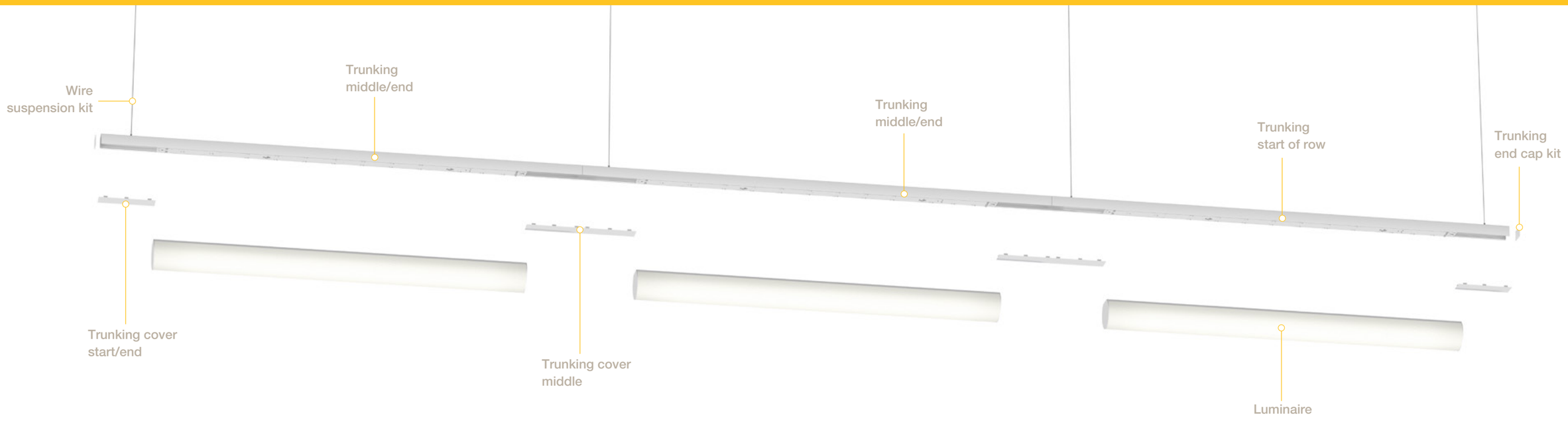
Additional Savings Through Lighting Controls

The best way to save energy is to turn unnecessary lighting off. Inspiration is available with an integral detector mounted within the trunking cover that can detect both daylight and absence, dimming or switching off the lighting according to the conditions. With the high degree of daylight penetration in today's classroom, the use of lighting controls offers the largest opportunity to reduce the resulting energy.

presence detection reduces energy by up to 40%

presence detection and daylight linking can reduce energy by up to 55%

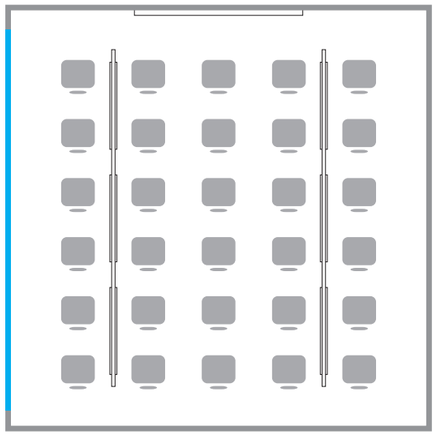
Modular Design Solutions



The Priority Schools Building Programme has provided a modular framework for the design of tomorrow's schools. Inspiration has been designed to take advantage of these design principles, providing a cost-effective and efficient modular solution allowing a variety of different classroom sizes to be lit with minimum installed points. As school design seeks to maximise daylight penetration, Inspiration can be suspended from any ceiling height and when utilised with the sensor cover will provide the correct lighting levels throughout the day.

Inspiration has been designed to meet all the requirements of the Priority Schools Building Programme

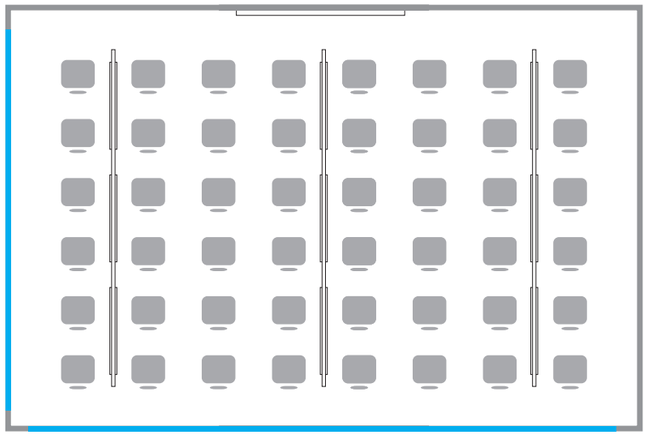
Single Classroom Layout 56m²



single classroom component list

Component	Quantity
Trunking - start of row	2
Trunking - middle/end	4
Luminaire (non EM)	5
Luminaire (EM)	1
Trunking cover - start/end	4
Trunking cover - middle	4
Wire suspension kit	8
Trunking end cap kit	2

Double Classroom Layout 90m²



double classroom component list

Component	Quantity
Trunking - start of row	3
Trunking - middle/end	6
Luminaire (non EM)	7
Luminaire (EM)	2
Trunking cover - start/end	6
Trunking cover - middle	6
Wire suspension kit	12
Trunking end cap kit	3

Lighting, design, controls:
Total Project Solutions

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