



RIDGE

**PINN RIVER SCHOOL
KIER CONSTRUCTION**

**MEP ENGINEERING
EXTERNAL LIGHTING STRATEGY**

11/11/2022

VERSION CONTROL

[illegible]

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1. EXECUTIVE SUMMARY

This document outlines the external lighting scheme for the proposed new building at Pinn River School.

The external lighting scheme in this report is the lighting design strategy and may not represent the final detailed design solution. The final lighting design may be subject to change during the next design stage performed by others. The proposed solution will meet or exceed the performance and levels outlined in this report. It is recommended that the lighting strategy outlined in this report is adopted including criteria, luminaire types, switching methods, lamp types etc.

The areas of which shall be included in the external lighting scheme are:

- Building Perimeters
- Walkways
- Roadways
- Car Parks

The proposed lighting scheme will comply with the following current design guidelines:

- CIBSE Lighting Guide 05 – Lighting for Education
- CIBSE Lighting Guide 06 – the exterior Environment
- CIBSE Lighting Guide 14 – Control of Electric Lighting
- The SLL Code for Lighting
- CIBSE Lighting Guide 16 – Lighting for Stairs
- BS 12464-2:2014 – Light and Lighting – Lighting of Workplaces Outdoors
- ILP Guidance Note 08/18 – Bats and artificial lighting in the UK
- Planning guidance (National Planning Policy Framework, 2021)

The impact of light to the surrounding areas will be calculated via lighting design software at the detailed design stage and issued for approval prior to installation.

2. INTRODUCTION

Ridge & Partners LLP has been appointed to produce an External Lighting Statement for planning purposes for the new teaching building at Pinn River School, including the building perimeter, walkways, roadways and car park areas.

2.1. Site Location

The development at Pinn River School will see the demolition of existing buildings and the erection of a new 2 story teaching building. The site is located at Fore St, Pinner, HA5 2JQ.

Site Overview:



Figure 1: Existing School Site by Google Maps

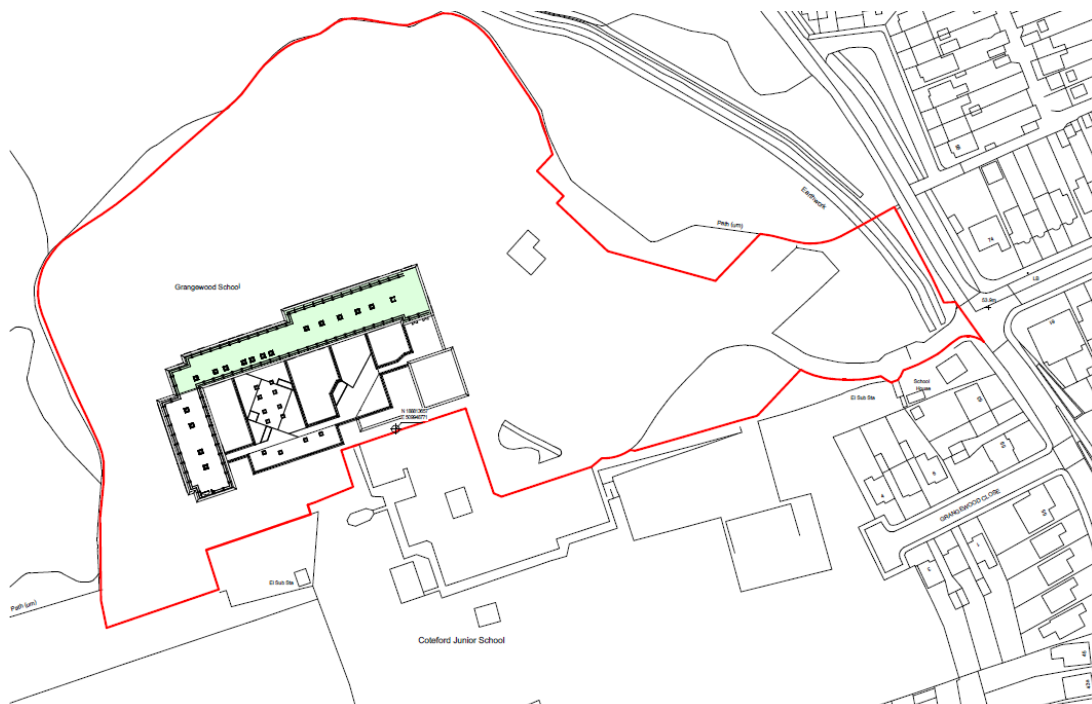


Figure 2: The proposed development

3. DESIGN PROPOSALS

The external lighting design will provide safe access and egress for pedestrians and vehicles in accordance with the DfE Output Specification, CIBSE LG5 guidance and The Guide of Obtrusive light to provide illumination to walkways and building perimeter via wall mounted or column mounted luminaires. External lighting will be controlled via a time clock and photocell arrangement.

The external lighting design will provide safe access for pedestrians and vehicles.

3.1. Design Criteria

The design criteria for the proposed scheme will comply with the following:

- CIBSE Lighting Guide 05 – Lighting for Education
- CIBSE Lighting Guide 06 – the exterior Environment
- CIBSE Lighting Guide 14 – Control of Electric Lighting
- The SLL Code for Lighting
- CIBSE Lighting Guide 16 – Lighting for Stairs
- BS 12464-2:2014 – Light and Lighting – Lighting of Work Places Outdoors
- ILP Guidance Note 08/18 – Bats and artificial lighting in the UK
- Planning guidance (National Planning Policy Framework, 2021)

3.2. Reduction of Obtrusive Light

The external lighting will be designed in accordance with published standards and with reference to the Institution of Lighting Professionals “Guidance Notes for the Reduction of Obtrusive Light (GN01)”.

Obtrusive light is often referred to as ‘light pollution’ and is manifested in the following:

- Sky glow, often caused by poor direction of light
- Glare, the brightness of a light source when viewed against a dark background
- Light Trespass, the spilling of light beyond the property or area being lit
- Over lighting, poor / over design resulting in inefficient use of energy

In addition to the above the lighting shall be design with consideration to the recommendations highlighted within the Bat Survey and ILP Guidance Note 08/18 to limit the impact of external lighting the highlighted bat foraging and commuting area.

Light spill will be controlled to a level appropriate to the surrounding environment. Based on the table below extracted from the Guidance Notes for the Reduction of Obtrusive Light, the building will be in a zone E2.

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically Dark	National Parks and AONB
E2	Rural	Low Brightness	Village Parks and Suburban Areas
E3	Suburban	Medium Brightness	Small Town Centre or Suburban Locations
E4	Urban	High Brightness	Town/City Centers with high levels of night-time activity

Figure 3 - Environmental Zoning for Obtrusive Light

3.3. General Description and Strategy

The external lighting design will provide safe access for pedestrians and vehicles.

The external lighting will be designed in accordance with BS 12464-2 to provide illumination levels as listed below to walkways, roads, carparking areas and cycle stores.

Areas	Horizontal Illuminance			Glare
	Em (lx)	Uo	WP (m)	GR _L
Walkways exclusively for pedestrians	5	0.3	0	50
Traffic Areas for Slow moving traffic	10	0.4	0	50
Security	5	0.3	0	50

Figure 4 – External Lighting Requirements

The external lighting system will incorporate:

- Wall mounted LED luminaires surrounding the building to illuminate the main and side entrance and each external door of the communal areas
- Column mounted and bollard LED luminaires to pedestrian access routes
- Column mounted LED luminaires within the car park area

The external lighting scheme will provide lighting to each external doors of the building and courtyard circulation spaces.

External lighting will be controlled via a time clock and photocell arrangement. Time settings to be configured for compliance with BREEAM credits, off between hours of 23.00 and 07.00.

The time clock will be located adjacent the external lighting board and incorporate a manual override for testing purposes.

Generally, luminaires will be selected to prevent the spread of light in an upward direction. Additionally, the luminaires will be specified and located to limit the spill of light and glare beyond the site boundary.

Lamp type and efficiency will also be evaluated, to ensure an energy efficient solution. Energy efficiency will also be an important consideration in the design with photocells, presence detectors (PIR), timers and manual override controls being integrated into the overall lighting scheme.

4. PROPOSED LUMINAIRE

4.1. Wall mounted luminaires

The perimeter of the building including external doors of the building, such as main entrance, side entrance and emergency exists, will be illuminated utilising wall mounted luminaires. These wall mounted luminaires will be mounted at 3m high with 4000K colour temperature. The luminaires shall be IP65 rated with die-cast aluminium body.

These luminaires will be installed with an integral 3 hour maintained emergency battery backup and a miniature photocell.

The luminaires will have an asymmetric light distribution.



Figure 5 - Kingfisher: Quarto 2.0

4.2. Columns mounted luminaires

The car park area will be illuminated utilising column mounted luminaires. These column luminaires will be mounted on the car park area at a height suitable to achieve the required lux and uniformity levels with a 4000K colour temperature. The luminaires shall be IP65 rated with die-cast aluminium body.

These luminaires will be installed and controlled via a building mounted photocell dusk/dawn sensor and timer.

The luminaires will have a symmetrical cylindrical throw light distribution, down.



Figure 6 - Kingfisher: Viva-City Pro

4.3. Bollard luminaires

Where column and wall mounted luminaires are not practical bollards shall be used. These shall be 4000k LED and shall include light spill shields as necessary to limit intrusive light and protect bat zones.

The luminaires shall be IP65 rated with die-cast aluminium body.

Where necessary, these luminaires will be installed with an integral 3 hour maintained emergency battery backup and a miniature photocell.



Figure 7 - Kingfisher: Klou 180

5. CONCLUSION

The building should have a minor adverse effect to skyglow, there will be a notable increase of lighting to site as currently existing external lighting is not complaint or in place on the existing buildings.

Upward light pollution will be limited in accordance with the standards. Light spillage to adjacent site boundaries will be kept within reasonable limits, defined by the standards, by the careful selection and positioning of lighting column.

The luminaires shall be selected and located to prevent the spread of light in an upward and horizontal direction, to limit the spill of light and glare beyond the site boundary and noted bat zones.

Due to the location of the building, it is not anticipated that lighting will spill into neighbouring properties. The columns will be selected so they do not protrude higher than existing buildings and wall mounted luminaires will be relatively low power and do not have an optic that throws the light towards neighbouring properties.

The existing site foliage will also obscure a significant amount of light.



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