



EXTERNAL LED LIGHTING ASSESSMENT REPORT

FOR:
Unit 7 Panattoni Park at Burgess Hill

A PROJECT FOR:
PMK Consult

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STATUS:
PL4

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1.0 INTRODUCTION

1. This assessment provides a detailed overview of the proposed external lighting installation and amendments for the distribution facility at Unit 7 Panattoni Park, Burgess Hill, Gothard Green Way, Hassocks BN6 9ZJ.
2. This External Lighting Report forms part of a planning pack with permission for 24/02977FULLN, the new planning application submitted under planning to West Sussex Council.
3. This report should be read in conjunction with the previously submitted report, which has been included as an appendix in this report for ease of reference.
4. The development is described as a single large industrial unit designed to the best institutional grade design, maximising efficiencies and value within the site. Also likely to target both B2 and B8 use classes.
5. This lighting scheme focuses on the alterations to the existing building.
6. The scheme has been designed to ensure that protected species are not harmed by the development, to prevent unnecessary light pollution.
7. The scheme is based on the use of LED luminaires fixed to the building as detailed on the drawing 2064-MBA-EX-SP-DR-E-0001.

2.0 WASTE PLATFORM AREA

1. A waste platform area has been added to the scheme on the northern elevation of the warehouse. This area has resulted in a canopy being introduced requiring additional lighting to the underside of the canopy, this additional lighting is detailed further in this report.

3.0 LIGHTING SOLUTION

1. The lighting solution has been prepared in accordance with the current design standards for exterior lighting – CIBSE LG6 2016 The exterior environment, BS 5489-1:2020 Road Lighting, BS EN 12464-2:2024 Light and lighting - Lighting of outdoor workplaces, ILP Guidance Note 08/23 Guidance Note for Bats and Artificial Lighting at Night in the UK, ILP Guidance Note 01/21 - The Reduction of Obtrusive Light requirements.
2. Care has been taken when selecting the luminaires that ensure the appropriate products will greatly reduce spill light and glare to and around site boundaries and prevent sky glow.
3. Full cut-off luminaires, horizontal, “flat” floodlights and LED modules that are housed in the luminaires’ canopy have been generally selected.

4. Best lighting practice design guidelines have been followed, in order to achieve the criteria outlined in ILP Guidance Note 01/21 - The Reduction of Obtrusive Light, covering Environmental Zones E0 to E4. The site has been designed to Zone E2, owing to its general location.

The critical luminaire angles for minimising sky glow are shown in Table 1.

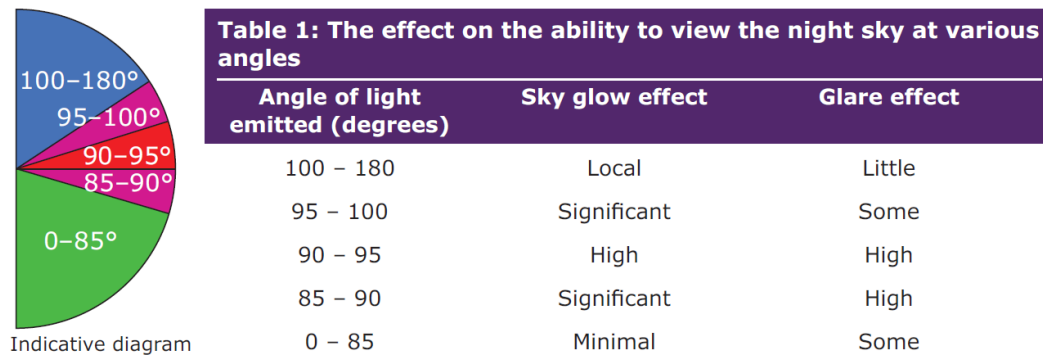


Table 1: Critical Luminaire Angles for Minimising Sky Glow - [1]

5. With the proposed luminaires being strategically placed, the proposed design solution meets the criteria of environmental Zone E2 Low district brightness and a Luminaire Maximum Upward Light Ratio of 2.5%, as indicated respectively in Tables 2 & 3.

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

Table 2: Environmental Zones - [1]

Light technical parameter	Environmental zones				
	E0	E1	E2	E3	E4
Upward light ratio (ULR)/%	0	0	2.5	5	15

Table 3: Maximum Values of Upward Light Ratio (ULR) of Luminaires - [1]

6. Glare has been kept to a minimum by ensuring that the main beam angle of all the luminaires directed towards any potential observer is not more than 70 degrees as indicated in Figure 1.

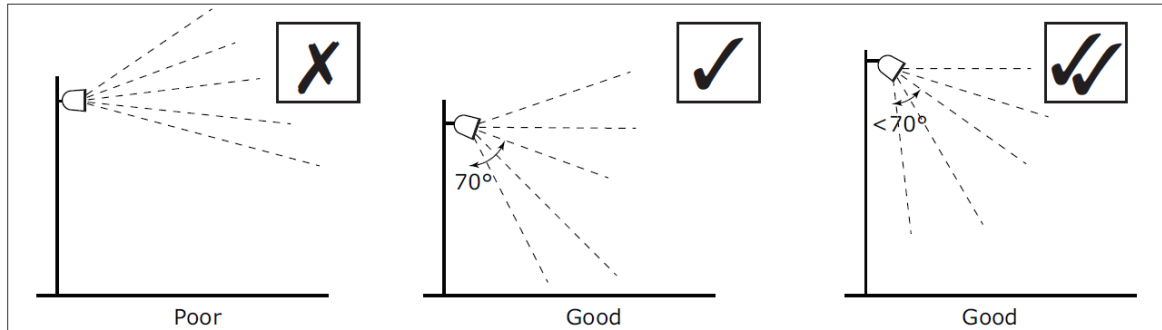


Figure 1: Luminaire Aiming Angles - [1]

In addition, the designed mounting heights and chosen luminaires ensure that greater spacing between luminaires is achieved thus reducing the number of overall lighting points and reducing the spill and glare as indicated in Figures 2 and 3.

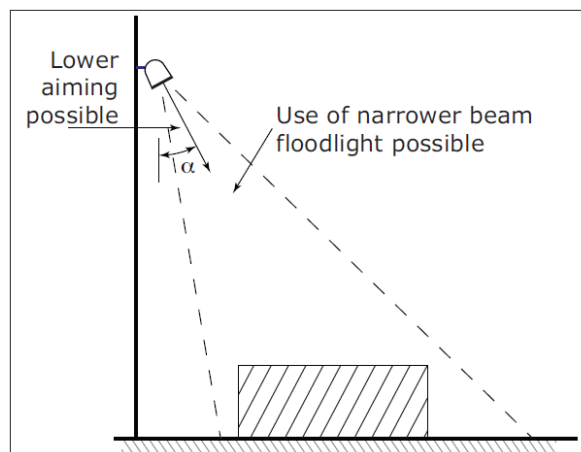


Figure 2: Higher Mounting Height – Less Spill and Glare - [1]

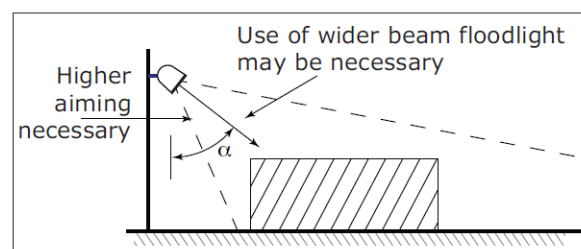


Figure 3: Lower Mounting Height – More Spill and Glare - [1]

7. Lighting pollution on adjacent properties has been kept to a minimum and in accordance with the respective environmental zone categories E2 as indicated in Table 4.

Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Table 4: Maximum Values of Vertical Illumination on Properties – [1]

4.0 DESIGN STATISTICS

- The following table details the design statistics achieved within the various areas of the development and should be read in conjunction with the external lighting drawings provided.

Item	Description	Average (Lux)	Minimum (Lux)	Uniformity Min/Avg
1	Waste Canopy Area – 50/0.40Uo	64 lux	37 lux	0.58

Table 5: Unit Designed Lux Levels

- The results obtained fall in line with the respective guidelines Environmental Zones E2 inclusive as detailed elsewhere in this report.

5.0 LUMINAIRE DETAILS

5.1 CSVT LED BATTEN LUMINAIRE

1. The CSVT bulkhead consists of a 1200mm polycarbonate housing which features a 'poured in place' polyurethane gasket and a frosted polycarbonate lens.
2. The luminaire is sealed to IP65 and rated to IK09.
3. CSVT can be either ceiling or surface mounted.
4. Cable termination is via a factory fitted side-entry M20 cable gland with cut-out areas for top entry termination (suitable sealing provided by others).
5. The design allows for fast installation via the stainless-steel brackets and stainless-steel latches that allow quick access for easy maintenance.
6. Preliminary CIBSE TM66 (CEAM) Rating: 2.2 - Definite/substantial progress to circularity.



Figure 4: CSVT Bulkhead Luminaire

6.0 CONCLUSION

1. The total lighting solution has been carefully generated to ensure the immediate environment has been protected including the properties adjacent to the site.
2. The illumination that would normally be free flowing from site boundaries has been restricted and has been further designed to mitigate any potential impact to properties adjacent to the proposed site.
3. Careful consideration has also been taken to consider glare through integral LED modules with backlight control optics, choice of luminaires and efficient mounting heights.
4. It should be further noted that the service yards and associated area illumination have been designed to meet operational and security requirements whilst ensuring the design takes into consideration and limits any possible impact on the surrounding areas.
5. The lighting has been kept to a practical standard using a mixture of efficient high-quality building and column mounted luminaires which have been chosen to minimize impact on the natural environment.
6. The results obtained fall in line with the respective guidelines Environmental Zones E2.
7. Overall, the proposed development requires appropriate levels of illumination throughout to satisfy the use of the site. This report demonstrates a scheme which meets all the requirements of the user and remains considerate of the local environment in its design and approach.

7.0 REFERENCES

[1] – 2021/01 - Institute of Lighting Professionals – GN 01/21 Guidance Note for the reduction of obtrusive light.

[2] – 2023/08 - Institute of Lighting Professionals – GN 08/23 Guidance Note for Bats and Artificial Lighting at Night in the UK.

8.0 APPENDICES

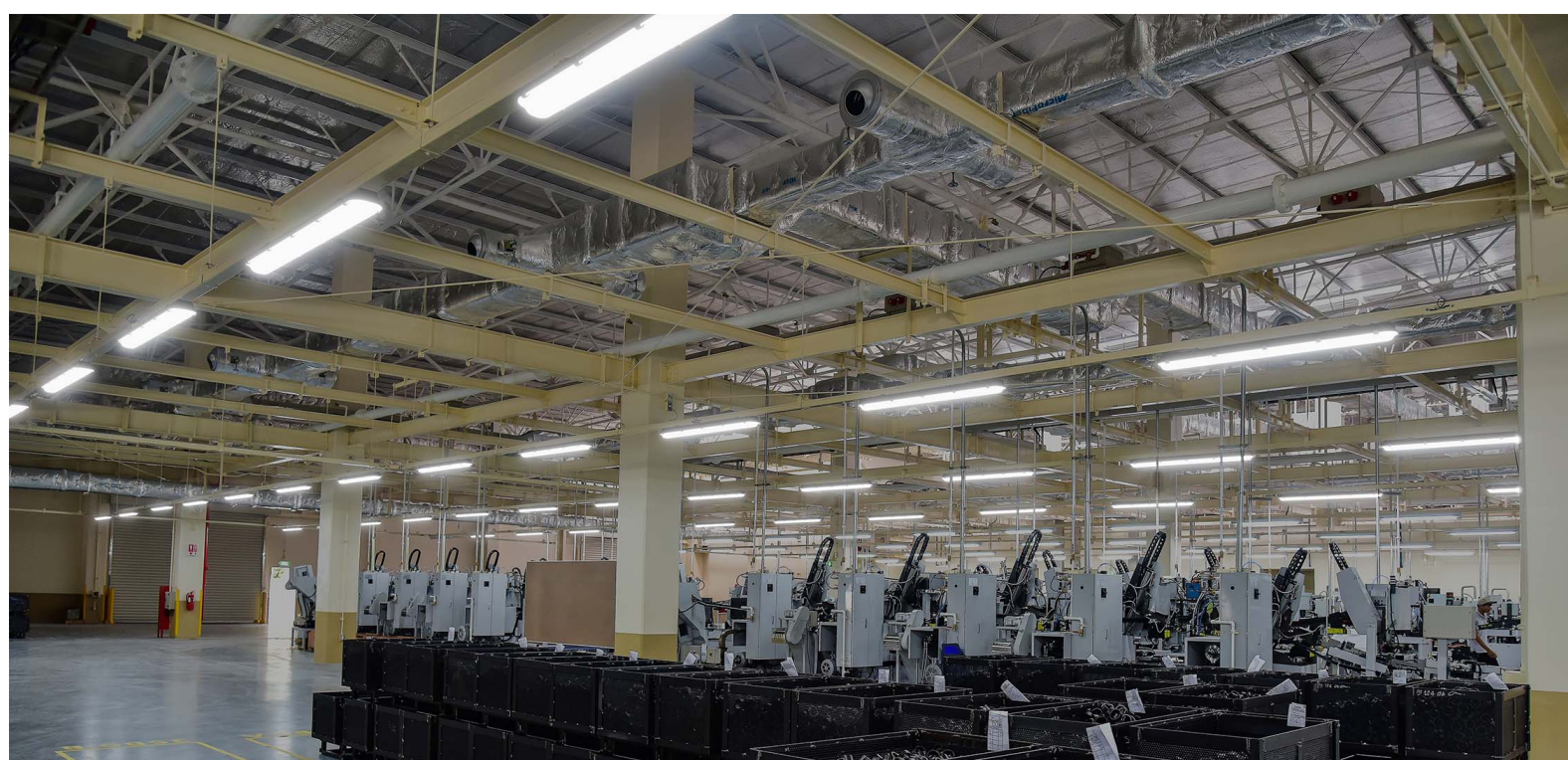
[1] – Luminaire Data Sheets

> Datasheet - INTERNAL - CSVT

CSVT.1.LM0448.M1.SY.SM.C6



Product image may not represent the final configuration stated above.



Product Specification

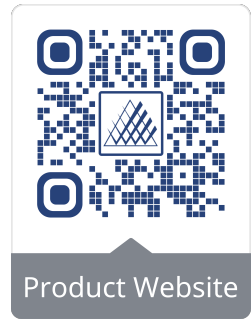


CSVT Holophane Website

Holophane CSVT LED linear batten shall consist of a 1200mm polycarbonate housing which features a 'poured in place' polyurethane gasket and a frosted polycarbonate lens . The luminaire shall be sealed to IP65 and rated to IK09. CSVT can be either ceiling or surface mounted. Cable termination is via a factory fitted side-entry M20 cable gland with cut-out areas for top entry termination (suitable sealing provided by others). The design allows for fast installation via the stainless steel brackets and stainless steel latches that allow quick access for easy maintenance. Preliminary CIBSE TM66 (CEAM) Rating: 2.2 - Definite/substantial progress to circularity.

This specific SKU includes:

- Series 1
- LED light engine producing c.4,000 lm with a nominal 4000K colour temperature, 80CRI
- 1 LED module
- A symmetrical light distribution
- Surface mounting
- Smooth Grey (RAL7035)



Performance

Drive Current from Driver:	625mA
Power:	32W
Fitting Current:	0.14A
Power Factor:	0.96
Fitting Inrush:	20A - 0.18ms
Number of Drivers:	1
1x Driver 1 Inrush:	20A - 0.18ms
Max Drivers per 16A Type B MCB:	18
Max Fittings per 16A Type B MCB:	18
Total Number of LEDs:	128
Minimum Dim Level:	22%
SVM:	0.4
Pst LM:	1
SDCM/MacAdam Ellipse:	3



2.5Kg



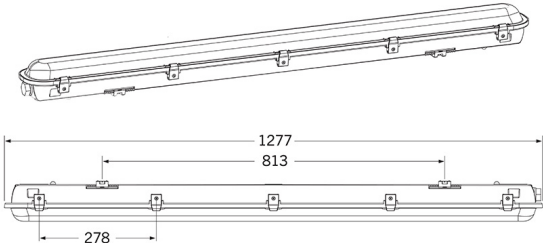
[Installation Guide](#)

Dimensions

CIBSE TM66 - CEAM Rating



dimensions in mm

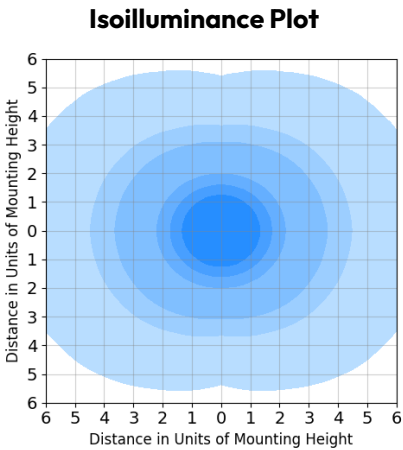
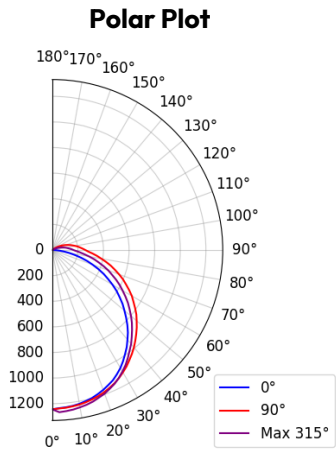


2.2*

2.5 to 4.0	1.5 to 2.5	0.5 to 1.5	0 to 0.5
Excellent circularity	Definite/ substantial progress to circularity	Some circular economy functionality	Very poor circular economy performance

*Preliminary Score

Photometry [↓ IES File](#)

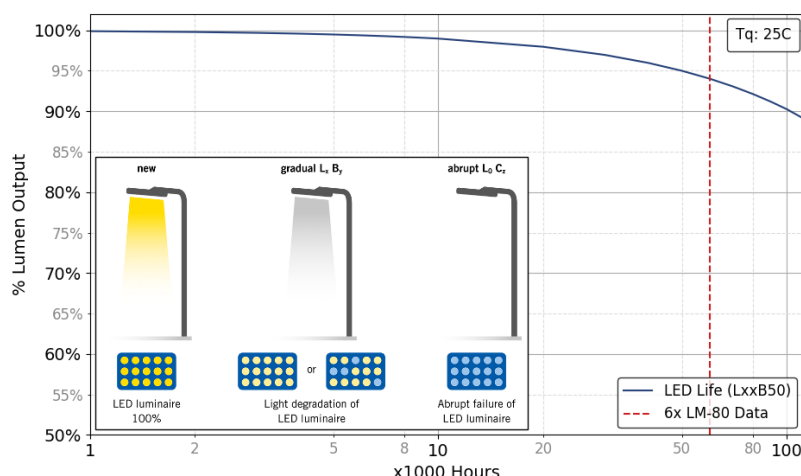


Lumens:	4,328
CCT:	4000K
CRI:	80
IES File:	CSV.T.1.LM0448.M1.SY

LLMF Graph

Colour Temperatures

► 4000K 



For reference purposes, the graph extrapolates beyond the recommended 6x LM-80 data in TM-21, which our calculations are based on.

Colours

Selected Colour

C6 Smooth Grey (RAL7035)

Standard Colours Available

C6 Smooth Grey (RAL7035)

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

Summary

Line No.	Item Ref	Quantity	Catalogue
LUMINAIRE			
10		3	CSV.T.1.LM0448.M1.SY.SM.C6