

Lighting Calculation

Installation : Car Park Lighting

Project number : Eggescliffe School - REV 3
Customer : LEW - Stockton
Processed by : Callum McCall
Date : 22.03.2024

Qvis Lighting Limited

This lighting design is for general guidance only and must not be relied upon when ordering the correct quantities or types of light fittings, as this must be checked and confirmed by you/the installer.

All calculations, unless stated otherwise, have been based upon an open plan area without any obstructions above the working plane.

With regards to CIBSE LG7/BSEN12464 we have shown illuminance levels and ratios for your ultimate approval. UGR and luminance values are all available for your approval if necessary.

It may be necessary in some instances to check UGR values even if the luminance values are below the compliant threshold. Emergency scheme is to be checked and confirmed with a local building/fire control officer and ultimately approved by the owner of the building.

Any emergency calculations that have been completed have been based so far as possible on 0.5 lux for open areas and 1 lux for escape routes. Please be aware of L2 requirements and check that conformity has been met where required. In addition, ensuring that fire tents are used to conform to current building regulations is vital, a quotation for these can be obtained via the sales department.

Please be advised that this Qvis proposal is not suitable for anti-ligature applications, if areas included in this proposal are in need of this type of luminaire, then an alternative supplier will need to be sourced.

Common design parameters have been used in order to carry out all calculations. If any part of the scheme or luminaire choice within the scheme are deemed to be not suitable for the application, please contact us for re-calculations to be carried out prior to an order being placed.

All calculations have been based upon rated lumen outputs supplied by lamp manufacturers and may vary with ambient on-site temperatures.

Please ensure that this lighting scheme complies with all requirements, and if further details/ calculations are required please contact us on the above number.

Final quantities are to be confirmed prior to an order/installation and we will not be held responsible for any errors or omissions.

Qvis is not contracted or paid to supply advice of any kind and it is entirely the responsibility of you/the installer to ensure that the design ultimately meets your requirements and complies with any legal requirements or regulations. Qvis can accept no responsibility or liability if this design does not meet any such requirements.

The following values are based on precise calculations performed on calibrated lamps and luminaires, and their configurations, whereby gradual, unavoidable deviations can occur in practice. All guarantee claims are excluded for the specified data.

This exclusion of liability applies irrespective of the legal grounds for both damages and consequential damages suffered by users and third parties.

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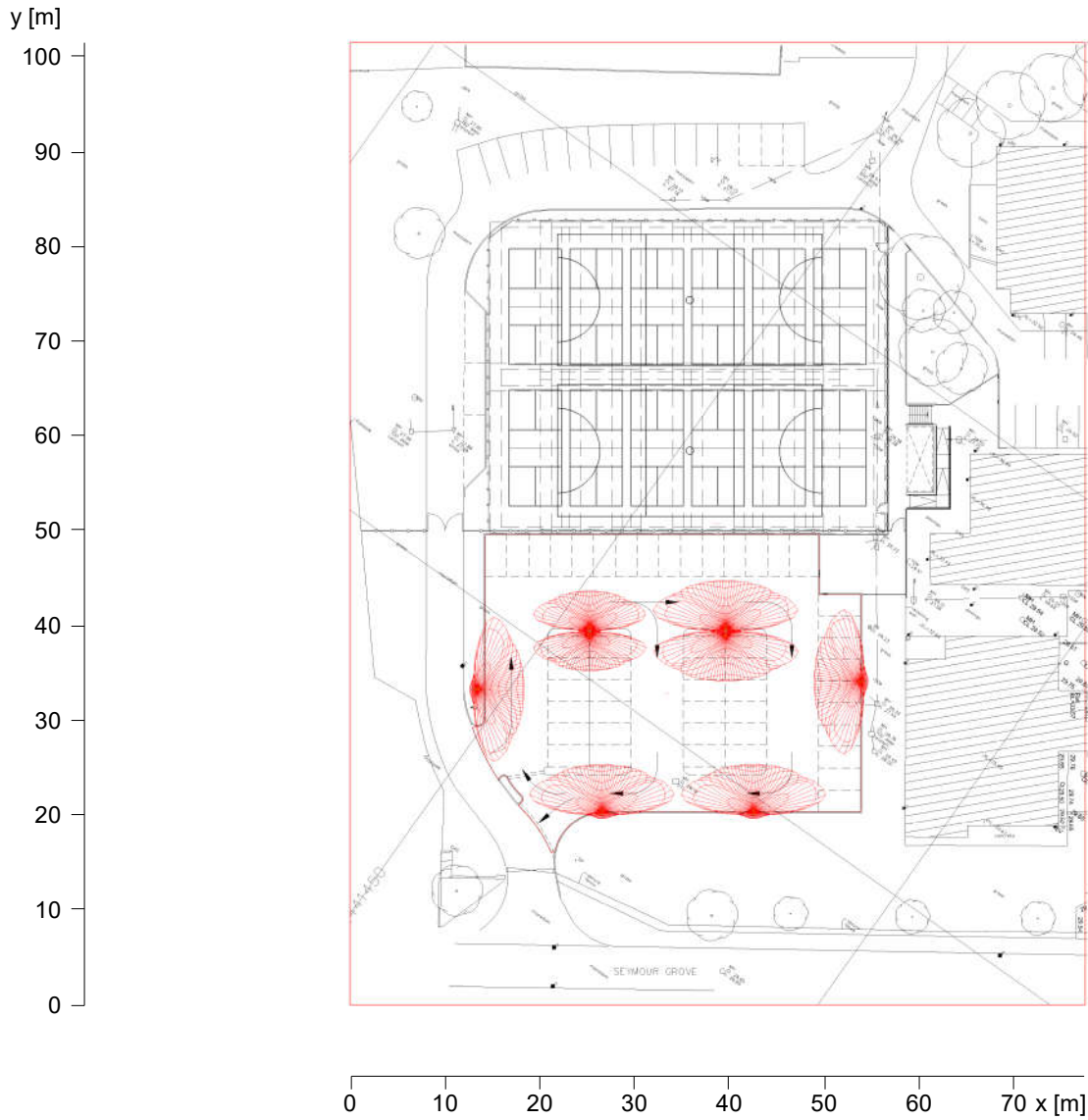
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1 Exterior 1

1.1 Description, Exterior 1

1.1.1 Floor plan

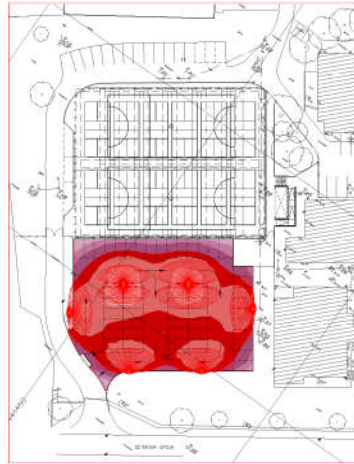


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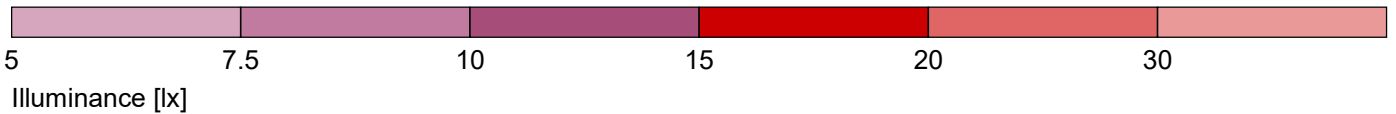
1 Exterior 1

1.2 Summary, Exterior 1

1.2.1 Result overview, Car Park



0 10 20 30 40 50 60 70 x [m]



General


Calculation algorithm used	Average indirect fraction
Height of evaluation surface	0.00 m
Height (phot. centre) [m]:	5.94 m
Maintenance factor	0.80

Total luminous flux	40800 lm
Total power	240 W
Total power per area (7866.25 m ²)	0.03 W/m ²

Illuminance

Average illuminance	\bar{E}_m	20.8 lx
Minimum illuminance	E_{min}	5.3 lx
Maximum illuminance	E_{max}	38.8 lx
Uniformity U_o	E_{min}/\bar{E}_m	1:3.93 (0.25)

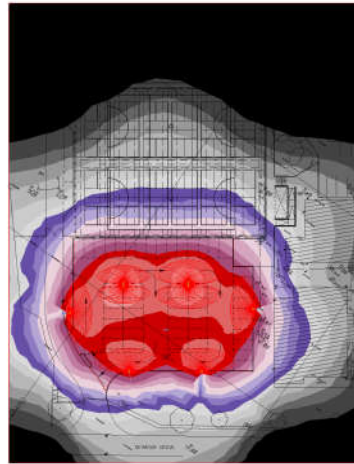
Type No.\Make

1	8 x	Order No.	:
		Luminaire name	: QSTREET2-PRO-30NW/FX
		Equipment	: 1 x LED 30 W / 5100 lm

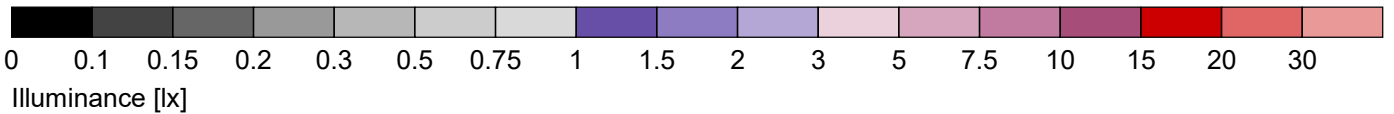
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 Installation : Car Park Lighting
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1.2 Summary, Exterior 1

1.2.2 Result overview, Evaluation area 1



0 10 20 30 40 50 60 70 x [m]



General

Calculation algorithm used	Average indirect fraction
Height (phot. centre)	5.94 m
Maintenance factor	0.80
Total luminous flux	40800.00 lm
Total power	240.0 W
Total power per area (7866.25 m ²)	0.03 W/m ² (0.78 W/m ² /100lx)

Evaluation area 1

\bar{E}_m
 E_{min}
 $E_{min}/\bar{E}_m (U_0)$
 Position

Reference plane 1.1

Horizontal
 3.92 lx
 0.02 lx
 0.00
 0.00 m

Type No.\Make

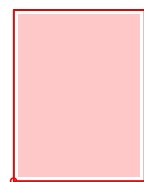
1	8 x	Order No.	:
		Luminaire name	: QSTREET2-PRO-30NW/FX
		Equipment	: 1 x LED 30 W / 5100 lm

1 Exterior 1

1.3 Calculation results, Exterior 1

1.3.1 Table, Reference plane 1.1 (E)

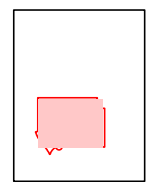
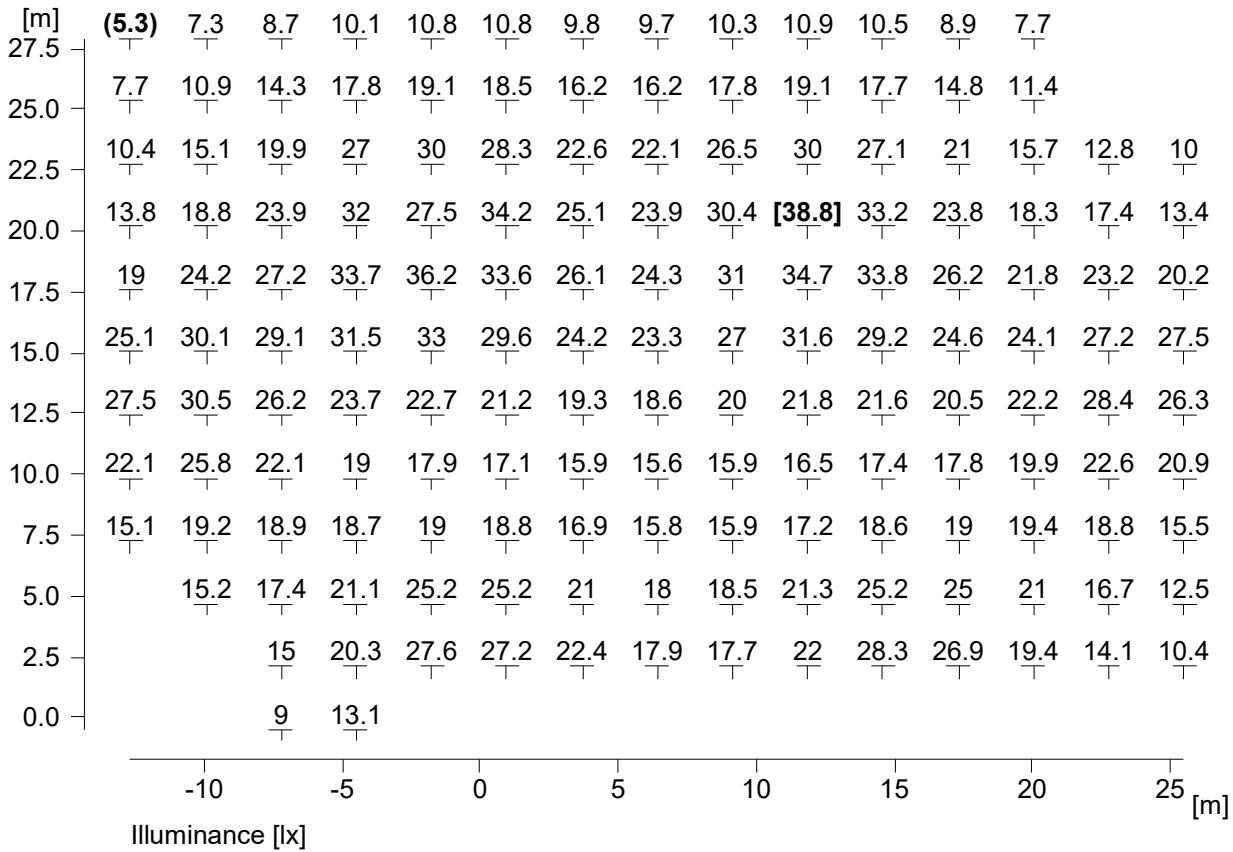
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
90	(0)	(0)	(0)	0.1	0.1	0.1	0.1	0.1	0.1	(0)	(0)	(0)	(0)	(0)
	(0)	(0)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	(0)	(0)	(0)	(0)
80	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1
70	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.1
	0.2	0.3	0.3	0.5	0.6	0.7	0.8	0.7	0.7	0.5	0.4	0.3	0.2	0.2
60	0.4	0.5	0.7	1.2	1.3	1.4	1.4	1.4	1.5	1.3	0.7	0.5	0.4	0.3
	0.7	1	1.7	3.2	3.7	3.3	3.4	3.4	3.4	2.9	1.8	0.9	0.6	0.4
50	0.9	1.7	4.4	7.9	11.1	10.7	10.3	10.7	9.3	6.9	4	1.4	0.7	0.4
	1	2.5	7.7	16.6	29	26.6	21.2	30.8	22.1	13.3	7.4	1.9	0.7	0.3
40	0.8	3.2	14.4	24.5	36.5	32.7	24.9	39.6	26.8	22.2	14.1	2.6	0.7	0.4
	1.3	4.2	21.4	28.1	24.3	21.7	19	22	21.1	26.3	19.6	3.9	1.1	0.6
30	1.3	3.4	11.9	20.2	18.2	17.8	15.8	16.8	18.9	19.4	11	3.2	1.4	0.6
	0.8	2.1	6.9	13.4	23	26.2	18.5	21.6	24.4	15.9	7.5	2.4	0.9	0.4
20	0.4	0.7	2.2	4.2	7.9	9.5	5.7	7.5	5.6	5.7	2.4	0.8	0.4	0.2
	0.2	0.2	0.6	1.3	1.5	1.4	1.1	1.4	1.2	1.3	0.6	0.2	0.2	0.1
10	0.1	0.1	0.2	0.5	0.6	0.6	0.5	0.5	0.5	0.4	0.2	0.1	0.1	0.1
	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1
		10		20		30		40		50		60		70



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 3.9 lx
Minimum illuminance	E_{min}	: 0 lx
Maximum illuminance	E_{max}	: 39.6 lx
Uniformity U_0	E_{min}/\bar{E}_m	: 1 : 228.30 (0.00)

1.3 Calculation results, Exterior 1

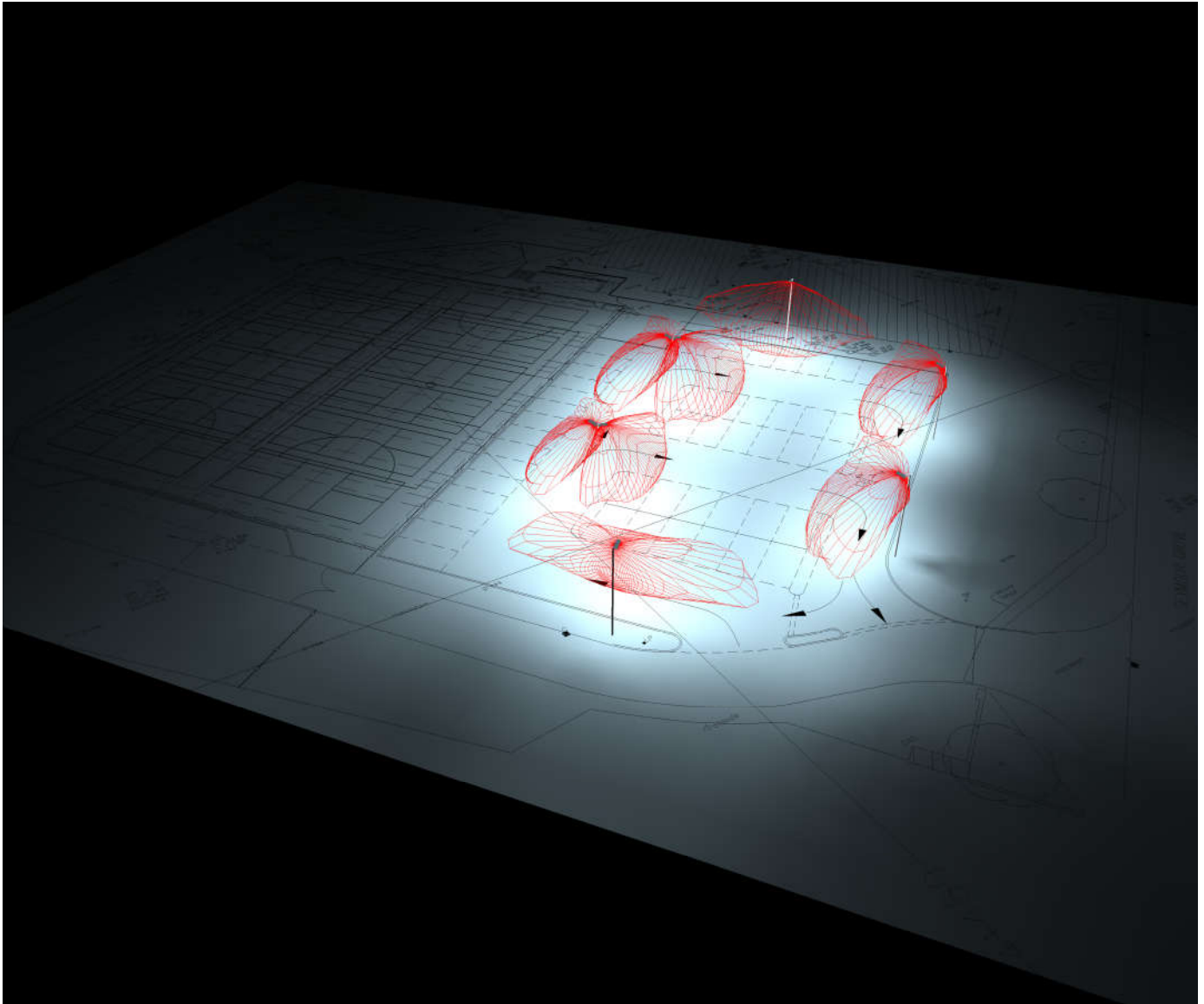
1.3.2 Table, Car Park (E)



Height reference plane		: 0.00 m
Average illuminance	\bar{E}_m	: 20.8 lx
Minimum illuminance	E_{min}	: 5.3 lx
Maximum illuminance	E_{max}	: 38.8 lx
Uniformity U_0	E_{min}/\bar{E}_m	: 1 : 3.93 (0.25)

1.3 Calculation results, Exterior 1

1.3.3 3D luminance, View 1



1.3 Calculation results, Exterior 1

1.3.4 3D pseudo colours, View 1 (E)

