Naylor Wombwell

Installation : External Lighting Installation

Project number	:	LP0091
Customer	:	Tech Green - James Allen
Processed by	:	RHB
Date	:	28.05.2015

Project description:
Luminaires used for the following Lighting Scheme shown on the scheme drawings.

All calculations have been based on the information provided on the lighting design form, plus the accompanying drawings and verbal information received.

Emergency scheme is to be checked and confirmed with local building or fire control officer and ultimately approved by the owner of the building. Any emergency calculations that have been completed have been based on 0.5 lux for open areas and 1 lux for escape routes.

Please ensure that this lighting scheme complies with all your requirements before placing order with our sales team.

To minimise energy costs we would recommend the installation of occupancy and daylight sensors together with built in dimmable control gear. These measures offer tremendous potential to reduce energy costs.

The following values are based on exact calculations on calibrated lamps, luminaires and their arrangement. In practice, gradual divergences can occur.

Guarantee claims for luminaire data are excluded.

Relux and the luminaire manufacturers accept no liability for consequential damage and damage which is occasioned to the user or to third parties.

1 Luminaire data

1.1 LED Floodlight 60w (LED Floodlight 60w.ldt)

1.1.1 Data sheet

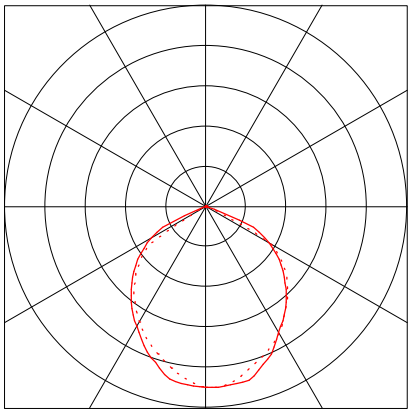
LED Floodlight 60w.ldt **LED Floodlight 60w**

Luminaire data

Luminaire efficiency	:	100%
Luminaire efficacy	:	75.4 lm/W
Classification	:	A50 ↓99.4% ↑0.6%
CIE Flux Codes	:	57 93 100 99 100
UGR 4H 8H (20%, 50%, 70%)		
C0 / C90	:	26.0 / 22.4
Control gear	:	
System power	:	65.73 W
Diameter	:	310 mm
Height	:	10 mm

Equipped with

Quantity	:	1
Designation	:	
Colour	:	4144
Luminous flux	:	4956 lm
Colour reproduction	:	66.4



2 Site

2.1 Description, Site

2.1.1 Luminaire data/Room elements

Product data:

Type No.\Make

1 63 Order No. : LED Floodlight 60w.ldt
Luminaire name : LED Floodlight 60w
Equipment : 1 x / 4956 lm

	Centre point			Rotation angle			Target coordinates		
No.	X [m]	Y [m]	Z [m]	Z [°]	C0 [°]	C90 [°]	Xa [m]	Ya [m]	Za [m]
LED Floodlight 60w LED Floodlight 60w.ldt									
2.1	23.43	102.08	6.00	15.52	0.00	-75.13	45.21	108.13	0.00
2.2	23.43	102.08	5.80	345.70	0.00	-77.52	48.83	95.61	0.00
2.3	23.43	102.08	5.90	312.24	0.00	-75.61	38.89	85.05	0.00
3.1	41.61	120.01	6.00	325.32	0.00	-78.17	65.18	103.70	0.00
3.2	41.61	120.00	5.80	288.70	0.00	-81.30	53.76	84.11	0.00
3.3	41.62	120.00	5.90	271.75	0.00	-76.81	42.38	94.84	0.00
4.1	78.52	125.72	6.00	279.45	0.00	-78.17	83.23	97.45	0.00
4.2	78.52	125.72	5.80	242.82	0.00	-81.30	61.21	92.01	0.00
4.3	78.52	125.72	5.90	202.69	0.00	-78.76	51.13	114.26	0.00
5.1	103.66	114.55	6.00	278.61	0.00	-78.17	107.95	86.21	0.00
5.2	103.66	114.54	5.80	241.99	0.00	-81.30	85.86	81.09	0.00
5.3	103.66	114.54	5.90	201.85	0.00	-78.76	76.11	103.49	0.00
6.1	127.28	100.79	6.00	277.78	0.00	-78.17	131.17	72.40	0.00
6.2	127.28	100.79	5.80	241.16	0.00	-81.30	109.00	67.60	0.00
6.3	127.28	100.79	5.90	201.03	0.00	-78.76	99.57	90.14	0.00
7.1	153.90	69.77	6.00	214.09	0.00	-78.17	130.16	53.71	0.00
7.2	153.89	69.77	5.80	177.46	0.00	-81.30	116.04	71.45	0.00
7.3	153.89	69.77	5.90	137.33	0.00	-78.76	132.07	89.89	0.00
8.1	156.29	26.34	6.00	206.37	0.00	-69.68	141.78	19.15	0.00
8.2	156.29	26.34	5.80	178.38	0.00	-68.03	141.92	26.75	0.00
8.3	156.29	26.34	5.90	155.29	0.00	-70.87	140.84	33.45	0.00
9.1	153.52	11.45	6.00	220.03	0.00	-66.49	142.96	2.57	0.00
9.2	153.52	11.45	5.80	190.64	0.00	-64.20	141.73	9.23	0.00
9.3	153.52	11.45	5.90	157.53	0.00	-65.35	141.64	16.36	0.00
10.1	20.82	78.18	6.00	33.06	0.00	-78.17	44.84	93.81	0.00
10.2	20.82	78.18	5.80	353.49	0.00	-75.52	43.14	75.64	0.00
10.3	20.82	78.18	5.90	307.86	0.00	-70.28	30.93	65.18	0.00
1.1	31.67	11.81	3.50	270.60	0.01	-66.36	31.75	3.82	0.00
1.2	43.65	11.81	3.49	270.60	0.01	-66.36	43.73	3.84	0.00
1.3	55.62	11.81	3.48	270.60	0.01	-66.36	55.71	3.85	0.00
1.4	67.60	11.81	3.48	270.60	0.01	-66.36	67.68	3.87	0.00
1.5	79.58	11.81	3.47	270.60	0.01	-66.36	79.66	3.88	0.00
1.6	91.55	11.81	3.46	270.60	0.01	-66.36	91.64	3.90	0.00
1.7	103.53	11.81	3.46	270.60	0.01	-66.36	103.61	3.91	0.00
1.8	115.51	11.81	3.45	270.60	0.01	-66.36	115.59	3.93	0.00
1.9	127.48	11.81	3.44	270.60	0.01	-66.36	127.57	3.94	0.00
1	12.61	51.67	3.50	180.00	0.00	-67.93	3.97	51.67	0.00
2	12.61	39.37	3.50	180.00	0.00	-67.93	3.97	39.37	0.00
3	12.61	27.07	3.50	180.00	0.00	-67.93	3.97	27.07	0.00
4	12.61	14.77	3.50	180.00	0.00	-67.93	3.97	14.77	0.00
5	12.93	2.47	3.50	180.00	0.00	-67.93	4.30	2.47	0.00
2.1	12.84	52.03	3.50	90.59	0.05	-72.54	12.72	63.16	0.00

2 Site

2.1 Description, Site

2.1.1 Luminaire data/Room elements

2.2	25.57	52.03	3.49	90.59	0.05	-72.54	25.46	63.14	0.00
2.3	38.31	52.03	3.49	90.59	0.05	-72.54	38.28	55.44	2.41
2.4	51.05	52.03	3.48	90.59	0.05	-72.54	51.01	55.44	2.41
2.5	63.79	52.03	3.47	90.59	0.05	-72.54	63.67	63.07	0.00
2.6	76.53	52.03	3.47	90.59	0.05	-72.54	76.43	60.88	0.68
2.7	89.27	52.03	3.46	90.59	0.05	-72.54	89.15	63.03	0.00
2.8	102.00	52.03	3.45	90.59	0.05	-72.54	101.89	63.01	0.00
2.9	114.74	52.03	3.45	90.59	0.05	-72.54	114.63	62.99	0.00
2.10	127.48	52.03	3.44	90.59	0.05	-72.54	127.36	62.97	0.00
3.1	127.70	51.81	4.00	0.29	0.00	-68.16	137.69	51.87	0.00
3.2	127.69	45.16	4.00	0.29	0.00	-68.16	137.68	45.21	0.00
3.3	127.68	38.51	4.00	0.29	0.00	-68.16	137.67	38.56	0.00
3.4	127.67	31.86	4.00	0.29	0.00	-68.16	137.65	31.91	0.00
3.5	127.66	25.21	4.00	0.29	0.00	-68.16	137.64	25.26	0.00
3.6	127.65	18.56	4.00	0.29	0.00	-68.16	137.63	18.61	0.00
3.7	127.64	11.91	4.00	0.29	0.00	-68.16	137.62	11.96	0.00
6	15.24	11.18	3.50	0.17	0.00	-77.27	30.75	11.23	0.00
4.1	38.43	63.93	3.00	89.71	0.02	-70.66	38.48	72.47	0.00
4.2	50.21	63.93	2.99	91.17	0.02	-70.63	50.04	72.44	0.00
4.3	62.00	63.93	2.99	90.00	0.02	-70.65	61.99	72.44	0.00
7	82.48	67.20	3.00	90.32	0.00	-60.43	82.45	72.49	0.00

Structural elements

Virtual measuring surface

No.	xm[m]	ym[m]	zm[m]	Length	Width	Rotation angle z axis	L axis	Q axis
Ref. plane 1.1								
	0.01	-0.03	0.00	156.95	142.40	0.00	0.00	0.05

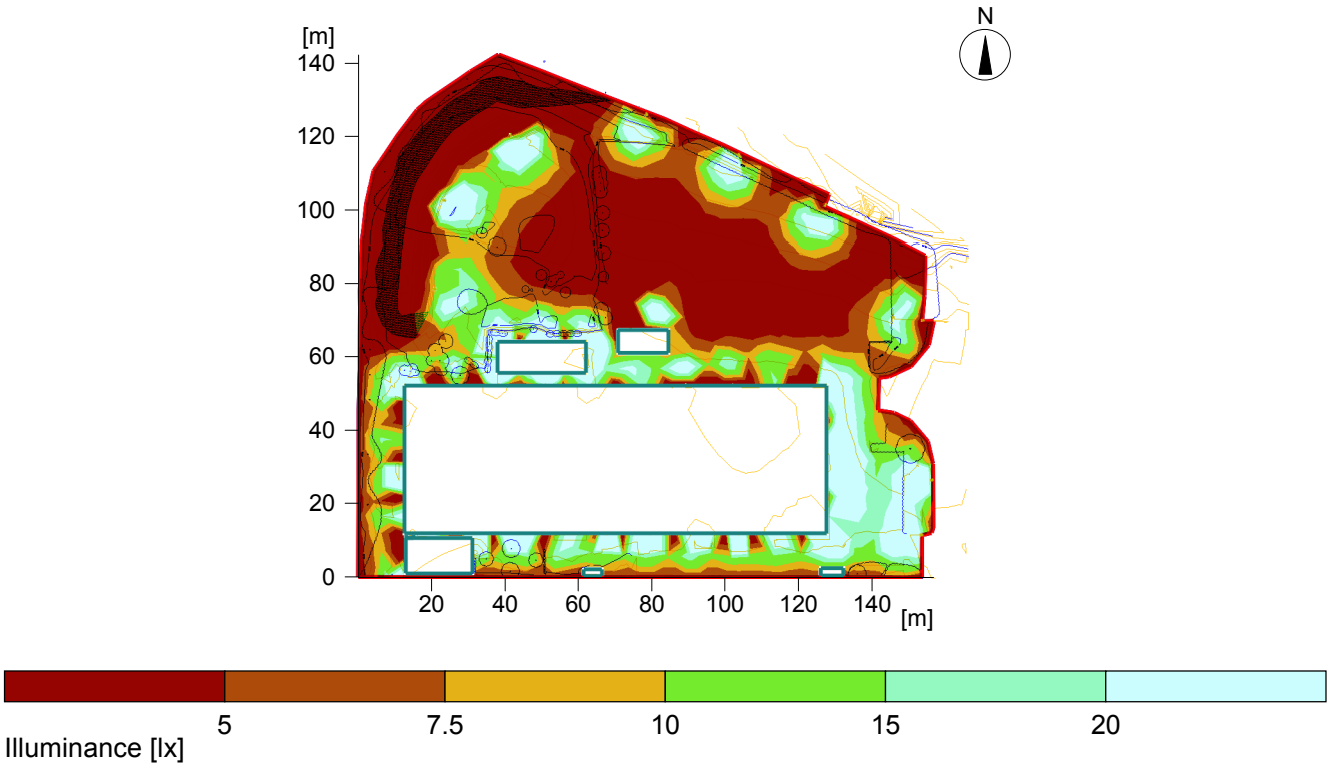
Others

No.	xm[m]	ym[m]	zm[m]	Length	Width	Rotation angle z axis	L axis	Q axis
A 1	12.63	11.86	0.00	115.00	40.12	0.00	0.00	0.00
A 2	13.00	0.92	0.00	18.16	9.64	0.00	0.00	0.00
A 3	13.12	10.56	0.00	1.95	1.30	0.00	0.00	0.00
A 4	61.44	0.25	0.00	5.03	1.82	0.00	0.00	0.00
A 5	126.08	0.37	0.00	6.12	2.00	0.00	0.00	0.00
A 6	38.00	55.44	0.00	24.10	8.47	0.00	0.00	0.00
A 7	70.85	60.89	0.00	13.71	6.20	0.00	0.00	0.00

2 Site

2.2 Summary, Site

2.2.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Maintenance factor	0.80
Total luminous flux of all lamps	297360 lm
Total power	3943.8 W
Total power per area (18287.06 m²)	0.22 W/m² (2.31 W/m²/100lx)

Evaluation area 1	**Reference plane 1.1**
	Horizontal
Em	9.35 lx
Emin	0.18 lx
Emin/Eav (Uo)	0.02
Emin/Emax (Ud)	0.00
Position	0.00 m (rot: 0°/0.05°)

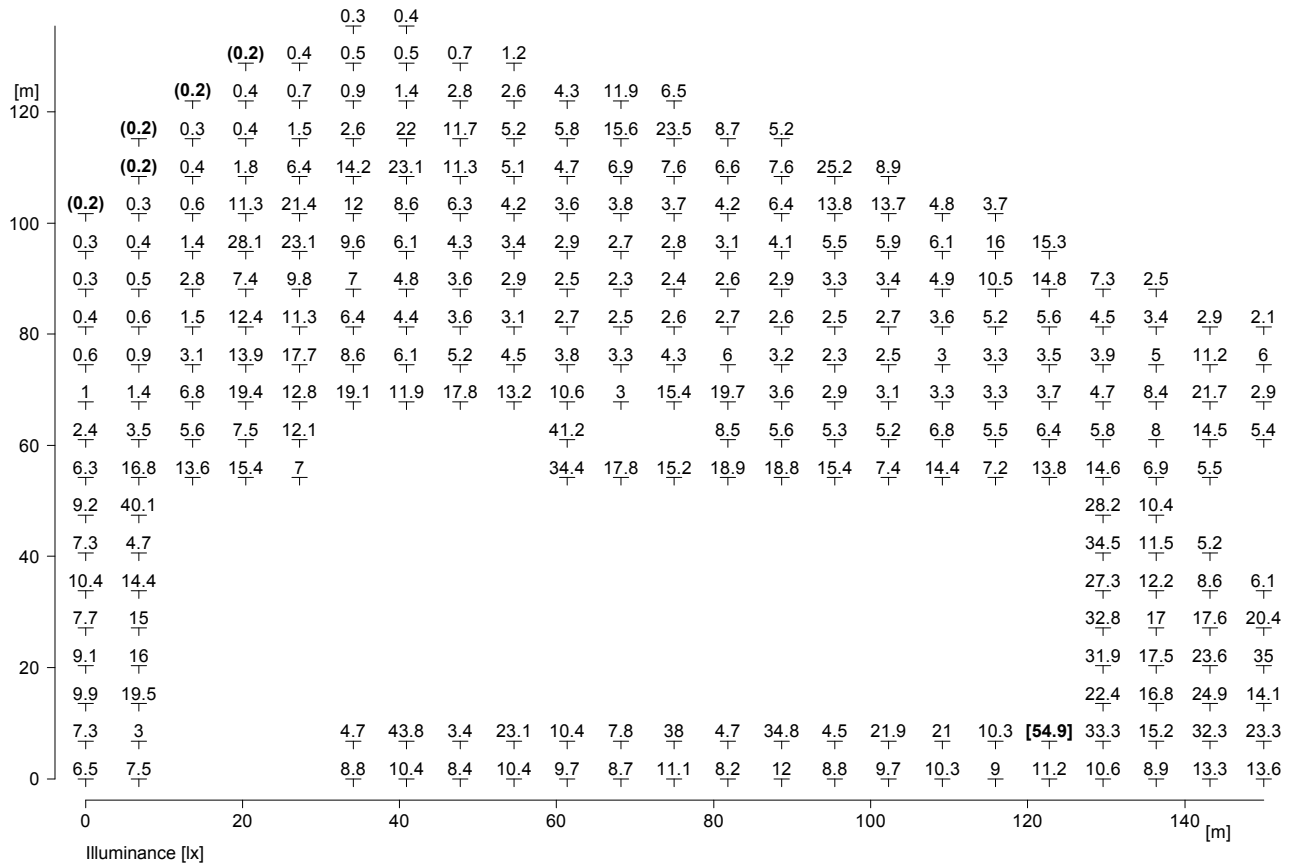
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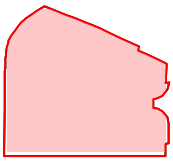
1	60	Order No.	: LED Floodlight 60w.ldt
		Luminaire name	: LED Floodlight 60w
		Equipment	: 1 x / 4956 lm

2 Site

2.3 Calculation results, Site

2.3.1 Table, Reference plane 1.1 (E)

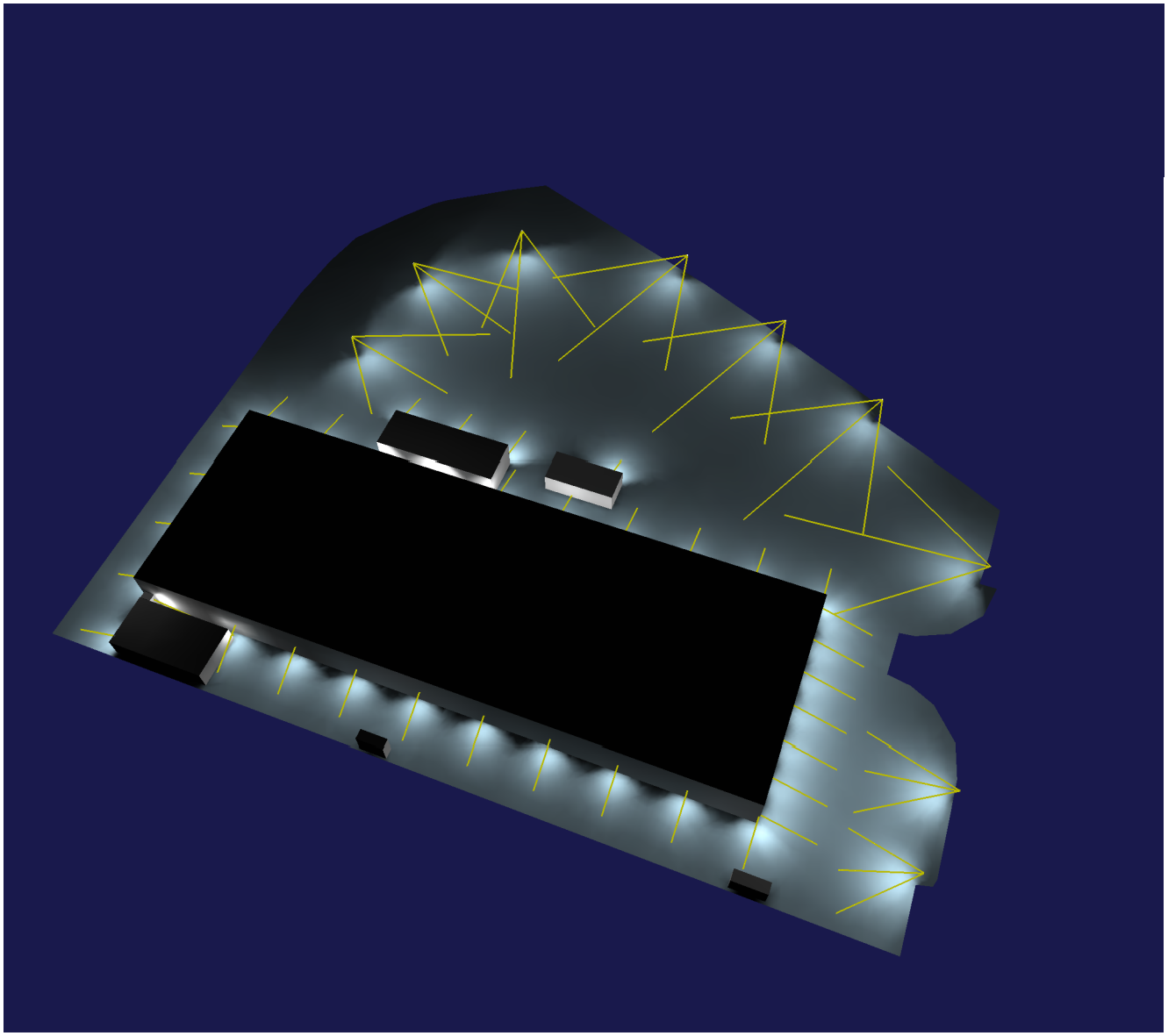




Average illuminance		Eav	: 9.3 lx
Minimum illuminance		Emin	: 0.2 lx
Maximum illuminance		Emax	: 54.9 lx
Uniformity Uo		Emin/Eav	: 1 : 52.57 (0.02)
Diversity Ud		Emin/Emax	: 1 : 308.57 (0.00)

2.3 Calculation results, Site

2.3.2 3D luminance, View 1



Luminance in the scene
Minimum: : 0 cd/m²
Maximum: : 121 cd/m²