



# Carmanhall Road SHD 2022

Former Avid Technology International Site  
Carmanhall Road  
Sandyford Industrial Estate  
Dublin 18



Site Lighting Report  
IN2 Project No. D2005  
29<sup>h</sup> July 2022  
Rev03

## Revision History

Date	Revision	Description
15/12/2021	00	Planning Issue
21/03/2022	01	Planning Issue
11/07/2022	02	Project Description Updated
29/07/2022	03	Project Description Updated

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## 1.0 Introduction

IN2 Engineering Design Partnership has been commissioned to complete a Planning Stage Site Lighting Study for the proposed Avid residential scheme at the former 'Avid Technology International' site, to demonstrate that the proposed site lighting design will both enhance the development and maintain safe levels of illumination to circulation areas while minimising light overspill on the neighbouring properties and mitigating the residual impacts that the proposed lighting scheme may have on existing habitats within the site.

This report will provide an overview of the relevant codes and standards applicable to site lighting, in particular the requirements for accessible routes.

The site lighting design is for information only and provides an indication of the intent for the developments site lighting only and the quantities and types of fittings may differ during the design stage.

## 2.0 Executive Summary

The following report contains the design layout and accompanying calculations of the site lighting scheme to the proposed Avid development at the former 'Avid Technology International' site.

The external lighting for this proposed development has been designed to achieve the performance requirements as set out in the following standards

- BS 8300:2018 - Design of an accessible and inclusive built environment
- DLRCC - Public Lighting Installations in Residential and Industrial Areas
- BS 5489-1:2013 Code of Practice for the Design of Road Lighting
- BS EN 13201-2:2015 – Road Lighting Part 2: Performance Requirements
- Institution of Lighting Professionals – Guidance Notes for the Reduction of Obtrusive Light GN01:2011
- CIBSE – Lighting Guide 6: The Exterior Environment
- ETCI National Rules for Electrical Installations I.S 10101:2020
- Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010);
- Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018).

The design criteria set out for this proposed development is based on the lighting requirements of the BS EN 13201-2:2015, BS 5489-1:2013 and BS 8300:2018, as specified in the table below.

Area	Lighting Levels (Lux)	Uniformity (Uo)
Pedestrian Access Routes in the open Environment. Level and gently sloped.	5	0.2
Entrances/exits of buildings.	100	0.4
Stairways and ramps in the open Environment	30	0.2
Stairways and ramps adjacent to the entrances / exits of buildings	100	0.4
Car Parks (light traffic)	5	
Car Park (Medium traffic)	10	
Entrance Road (Main Traffic Routes)	10	0.2

Fig 2.1 – Minimum Lighting Requirements

### 3.0 Development Overview

The proposed Avid residential development is located on the former 'Avid Technology International' site, on Carmanhall road, Sandyford, Dublin 18, As illustrated below in figure 3.1.



Fig 3.1 – Development Site

Atlas GP Limited, intend to apply to An Bord Pleanála for planning permission for a strategic housing development at this site of c.0.99 ha at the 'Former Avid Technology site', at the junction of Blackthorn Road and Carmanhall Road Sandyford, Dublin 18.

The proposed development consists of 334 Build to Rent residential apartment units within 4 no. apartment blocks and as follows:

- 79 No. Studio
- 175 No. 1 bed
- 80 No. 2 bed

- All residential units provided with private balconies/terraces to the north/south/east and west elevations
- Crèche 272 sq.m.
- Residential amenity spaces 893 sq.m. (including resident's gym, business centre, multipurpose room, staff facilities, multimedia/cinema room, shared working space, concierge and games room)
- Height ranging from 5 to 16 storeys (over basement)
- Landscaped communal space in the central courtyard
- Provision of a new vehicular entrance from Ravens Rock Road and egress to Carmanhall Road
- Provision of pedestrian and cycle connections
- 125 No. Car Parking, 6 No. Motorcycle Parking and 447 cycle spaces at ground floor/undercroft and basement car park levels
- Plant and telecoms mitigation infrastructure at roof level

The development also includes 2 no. ESB substations, lighting, plant, storage, site drainage works and all ancillary site development works above and below ground.

## 4.0 Design analysis and Methodology

The site lighting for the proposed Avid development is designed to ensure that the lighting criteria set out in each of the relevant standards listed previously are met or exceeded and that sufficient illumination is provided to ensure that key requirements such as access/egress, enhanced site security and the safe use of paths is provided.

There is a possibility that small numbers of bats could avail of even very minor cracks or crevices for temporary roosting within the site therefore the design has been assessed to establish minimal environmental and ecological impact through glare, sky glow and obtrusive light (light spill) and will adhere to the following characteristics:

- The minimum level of appropriate/required lighting level will be provided within the developed/residential areas.
- Light standards will be fitted with low intensity, horizontal cut-off LED light fittings employing a narrow directional light or cowled light. This will avoid the effect of light spill arising.
- The lighting includes dimming by 30% post curfew hours.
- Light standards and associated lighting will be directed away from areas of open space.
- No floodlighting will be used in the development.

### 4.1 Design Strategy

It is proposed to illuminate the access roads of the development using 6m galvanised steel lighting columns with 'Type X3' post-top mounted LED luminaires as per the luminaire schedule in Appendix A of this report. The luminaires shall be complete with Wide Street optics to ensure a uniform lighting across the development. Each luminaire shall have individual photocell switching to reduce the energy consumption of the proposed lighting scheme.

Lighting shall be provided on the pedestrian pathways and the landscaped space surrounding the development with 'Type 'X4' decorative column LEDs, 4 meters height. The luminaires shall have a mechanical impact rating of IK08 to provide added protection against vandalism.

To complete the design, the wall recessed led Type 'X5' shall be installed on the footbridge and steps located around the site. The recessed lights shall be used to ensure that the minimum lux levels required on steps are achieved in accordance with BS 8300:2018 while minimising the obtrusive light spill onto the ground floor apartments.

Lighting shall be provided to the entrances & exits of the development with 'Type X6' surface mounted decorative amenity LED lighting to meet the required lighting levels.



## 5.0 Design Analysis & Calculation Results.

### 5.1 Main Traffic Routes

The lighting performance of the Main traffic routes and adjacent footpaths around the development have been assessed with fitting Type 'X3' 6-metre (H) lighting columns as per luminaire schedule, Appendix A.

#### 5.1.1 Main Traffic Routes

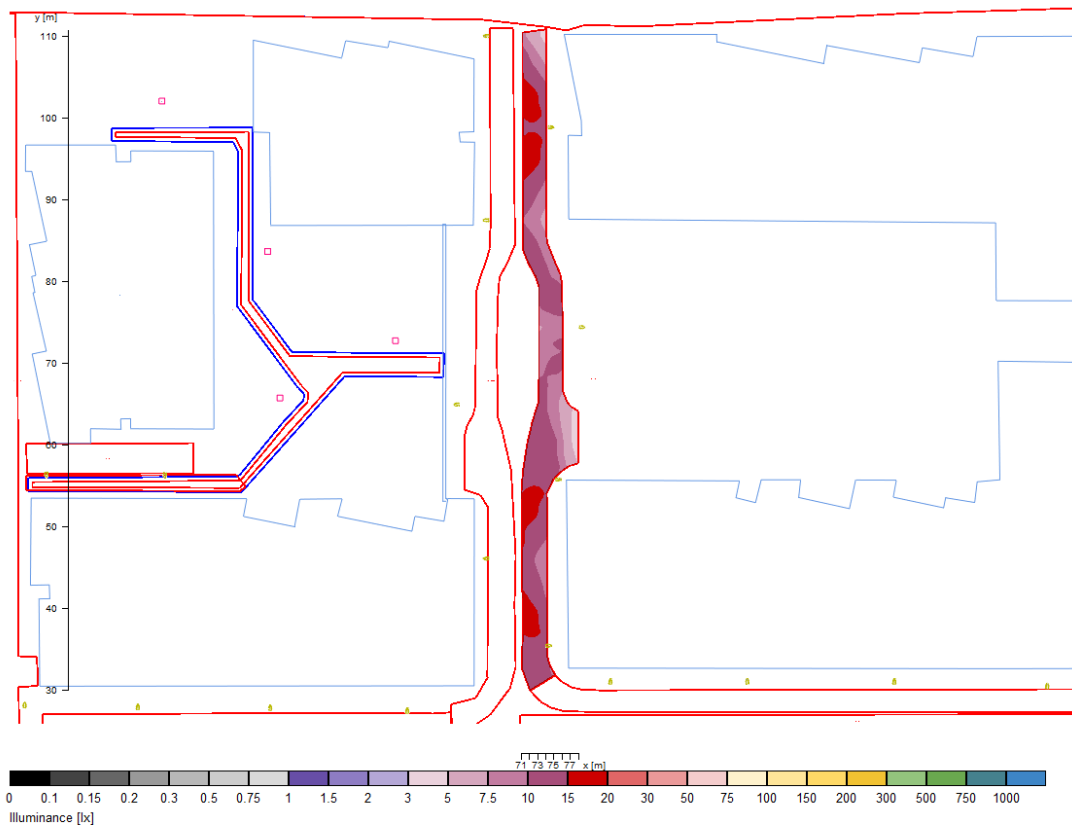


Fig 5.1.1 – Illumination Levels of Traffic Routes

Evaluation	Target	Result	
$E_{AVERAGE}$ (maintained)	10 lux	10.9 lux	PASS
$U_0$ (Uniformity)	0.20	0.35	PASS

Fig 5.1.2 – Analysis Results

5.1.2 Side Traffic Route

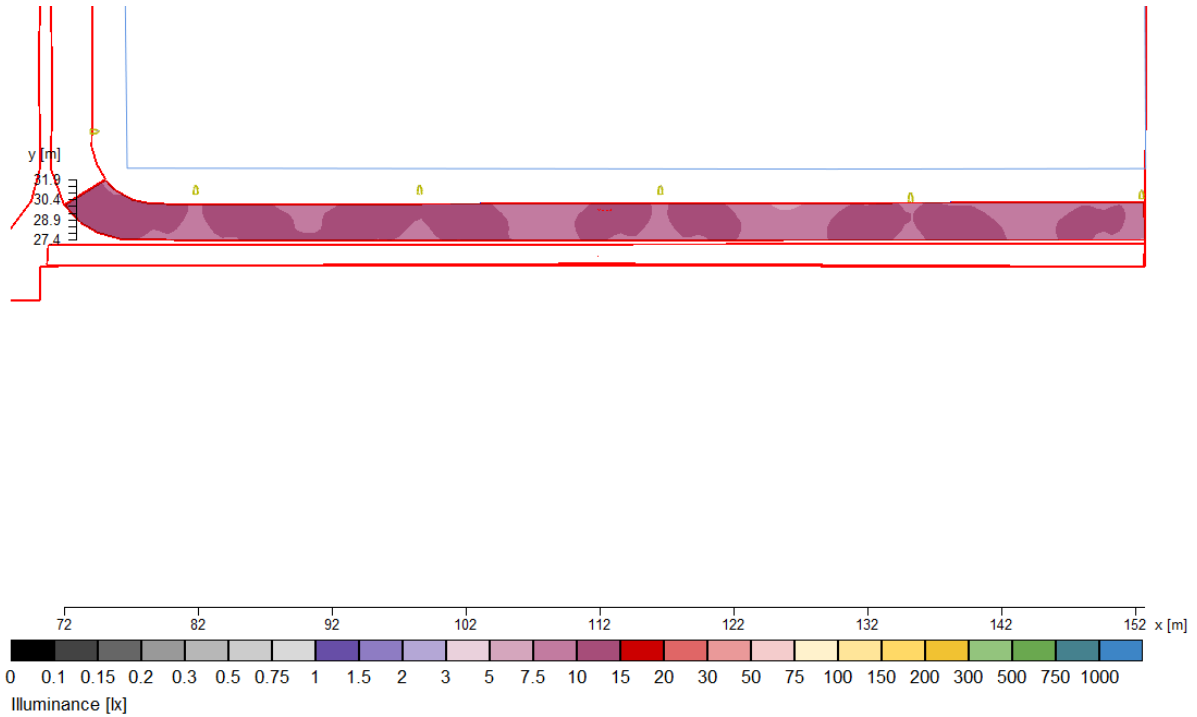


Fig 5.1.3 – Illumination Levels of Traffic Routes

Evaluation	Target	Result	
		$E_{AVERAGE}$ (maintained)	10 lux
$U_0$ (Uniformity)	0.20	0.74	PASS

Fig 5.1.4 – Analysis Results

5.1.3 Central Footpath

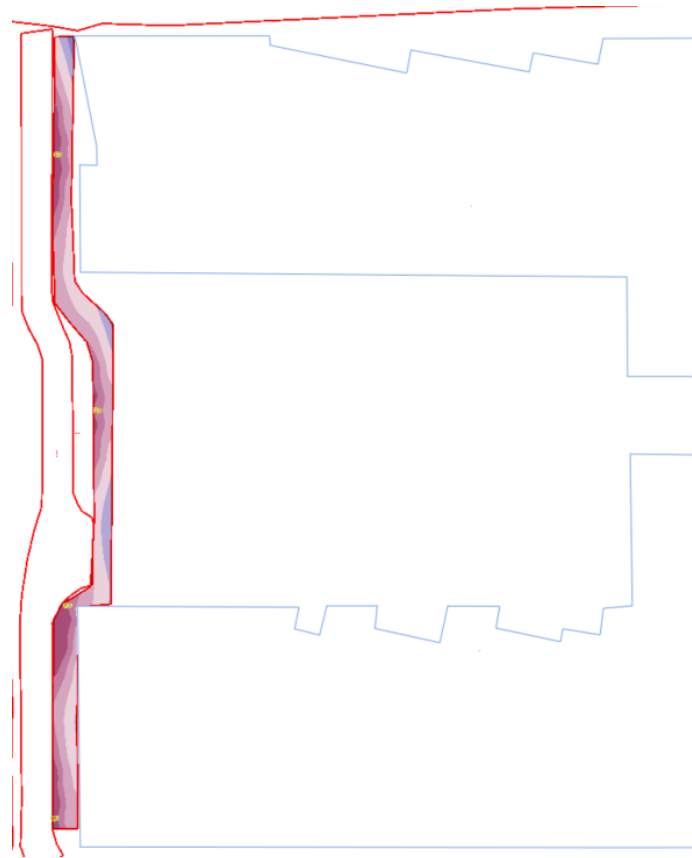


Fig 5.1.5 – Illumination Levels of Footpath

Evaluation	Target	Result	
$E_{AVERAGE}$ (maintained)	5 lux	6 lux	PASS
$U_o$ (Uniformity)	0.20	0.24	PASS

Fig 5.1.6 – Analysis Results

5.1.4 Side Walkway

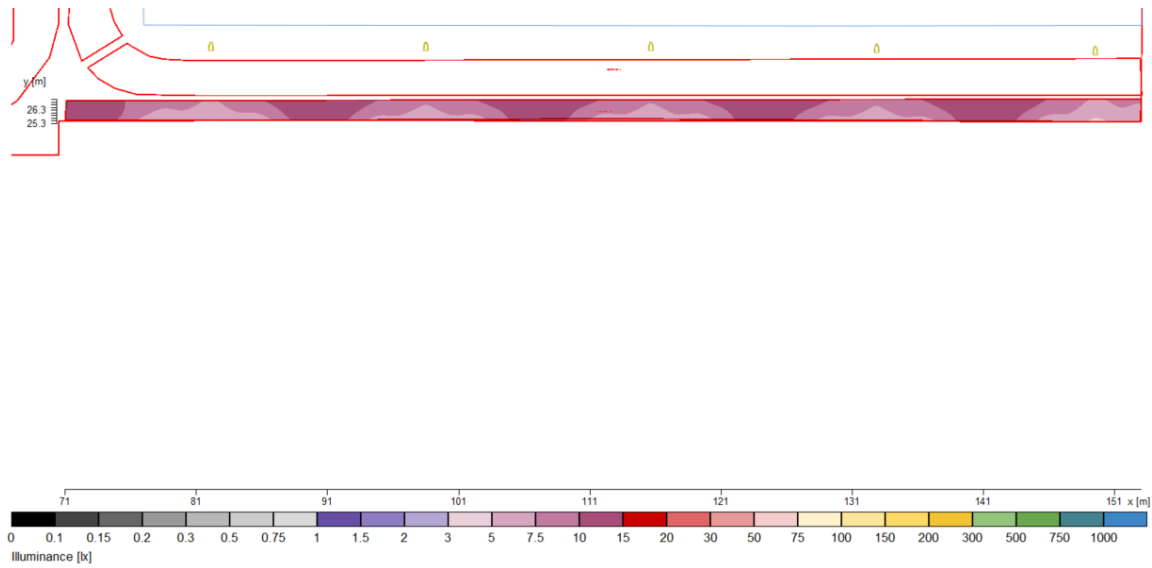


Fig 5.1.5 – Illumination Levels of Footpath

Evaluation	Target	Result	
$E_{AVERAGE}$ (maintained)	5 lux	8.7 lux	PASS
$U_o$ (Uniformity)	0.20	0.52	PASS

Fig 5.1.6 – Analysis Results

## 5.2 Pedestrian Circulation Area

The lighting performance at the Pedestrian Circulation Areas has been assessed with fitting Type 'X4' 4-metre (H) lighting columns as per luminaire schedule, Appendix A.

### 5.2.1 Inner Core Circulation Area

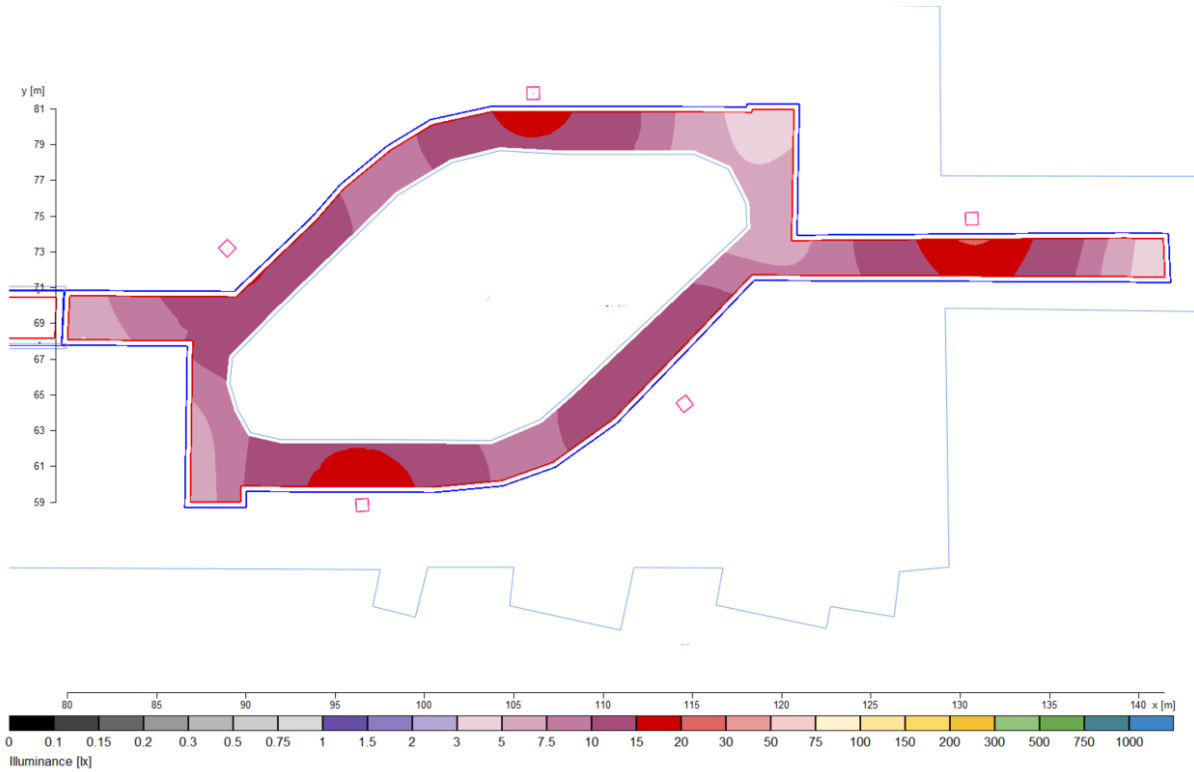


Fig 5.2.1 – Illumination Levels at Pedestrian Walkway

Evaluation	Target	Result	
$E_{AVERAGE}$ (maintained)	5 lux	9.8 lux	PASS
$U_0$ (Uniformity)	0.20	0.33	PASS

Fig 5.2.2 – Analysis Results

### 5.3 Steps and Ramps

The lighting performance of the footbridge's steps and ramps around the development have been assessed with fitting Type 'X5' wall recessed luminaires as per luminaire schedule, Appendix A.

#### 5.3.1 Site Steps

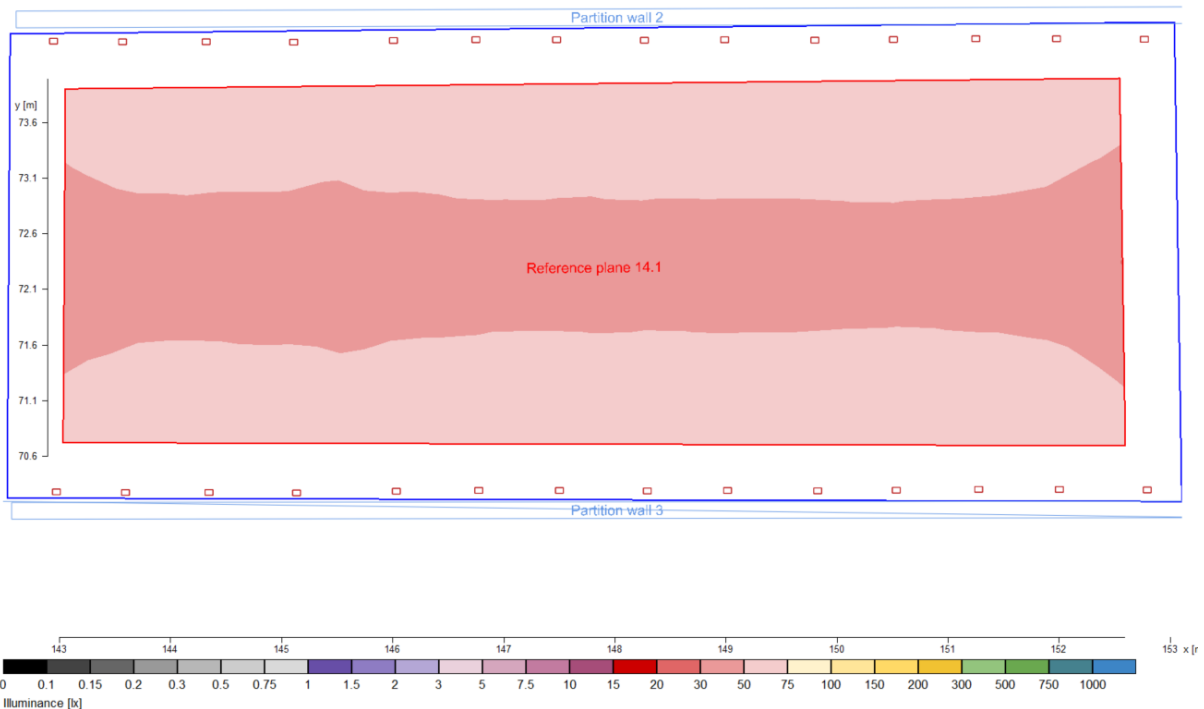


Fig 5.2.3 – Illumination Levels at Steps

Evaluation	Target	Result	
$E_{Min}$	30 lux	31.2 lux	Pass
$E_{AVERAGE}$ (maintained)	30 lux	51.6 lux	PASS
$U_o$ (Uniformity)	0.20	0.33	PASS

Fig 5.2.4 – Analysis Results

5.3.2 Footbridge

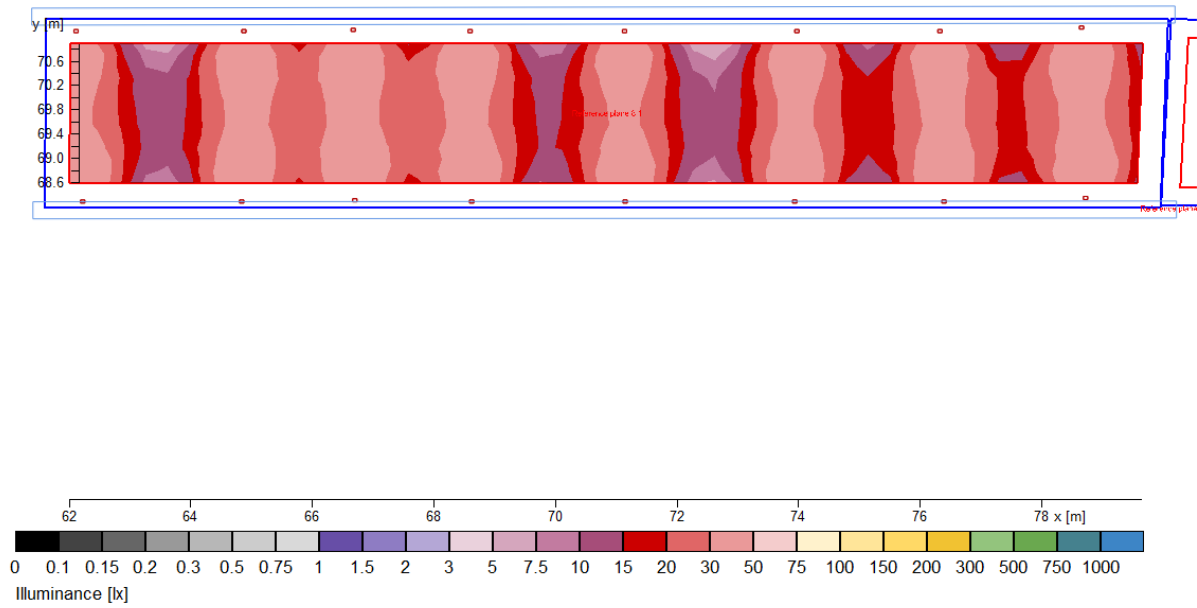


Fig 5.2.3 – Illumination Levels at Footbridge

Evaluation	Target	Result	
		$E_{AVERAGE}$ (maintained)	5 lux
$U_o$ (Uniformity)	0.20	0.26	PASS

Fig 5.2.4 – Analysis Results

## 6.0 Site Lighting 3D Render

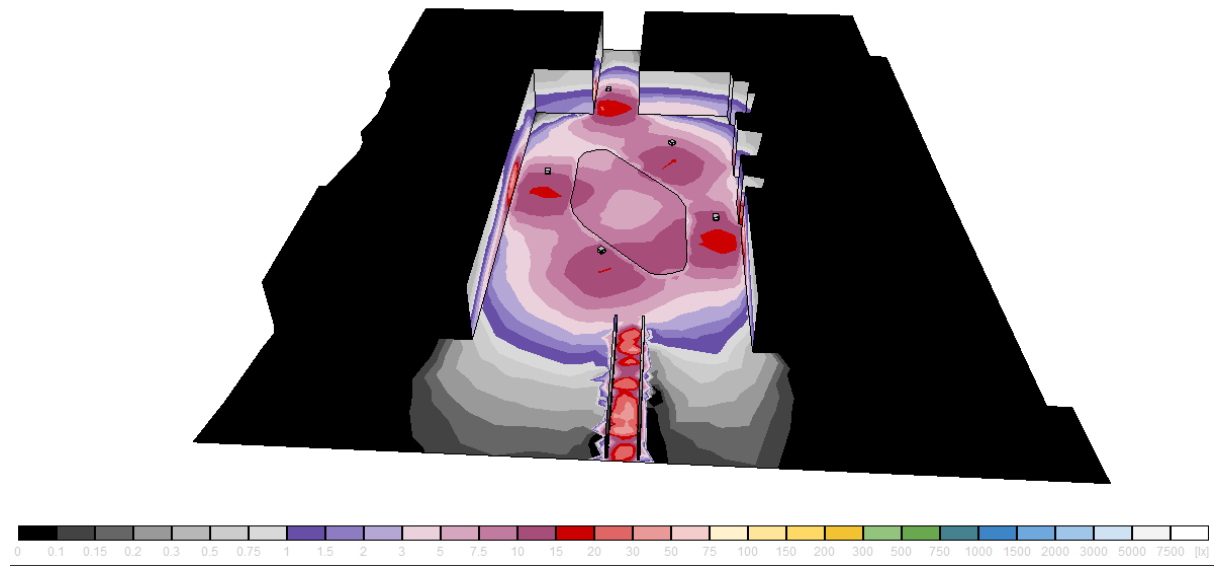


Fig 6.1 – 3D Model indicating Site Illumination Levels

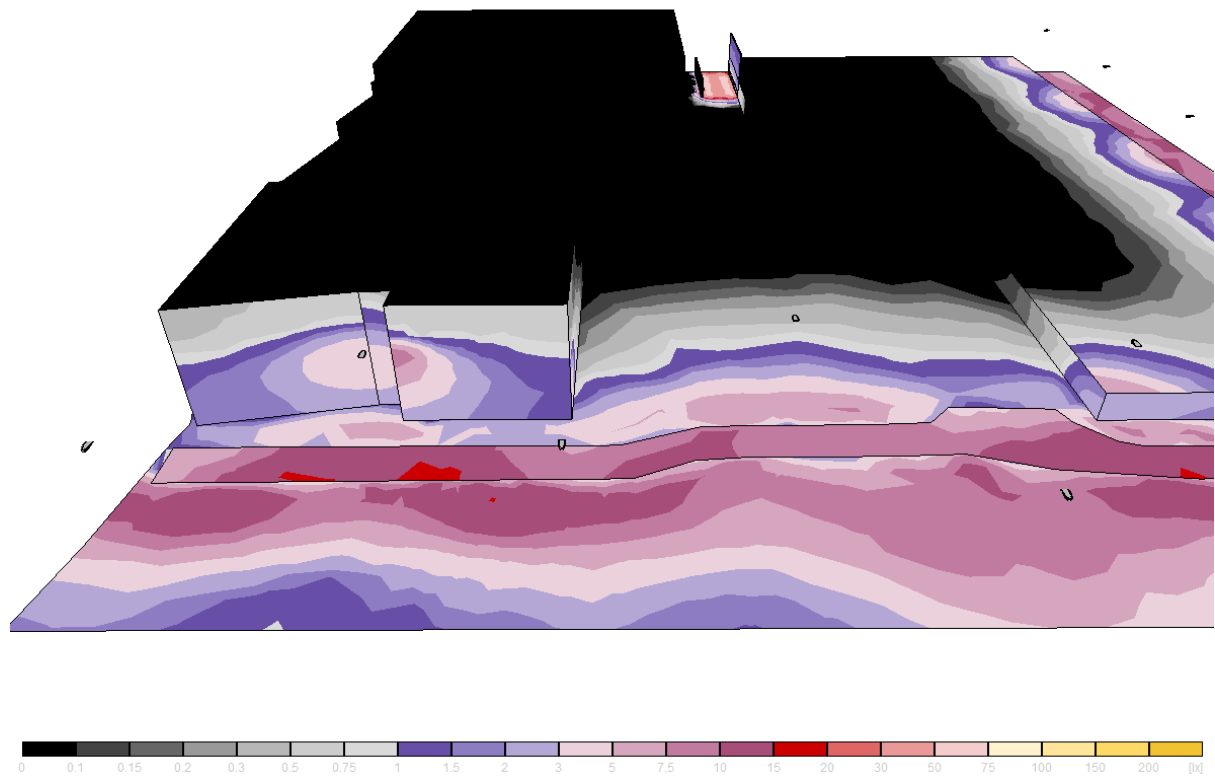


Fig 6.2 – 3D Model indicating Site Illumination Levels



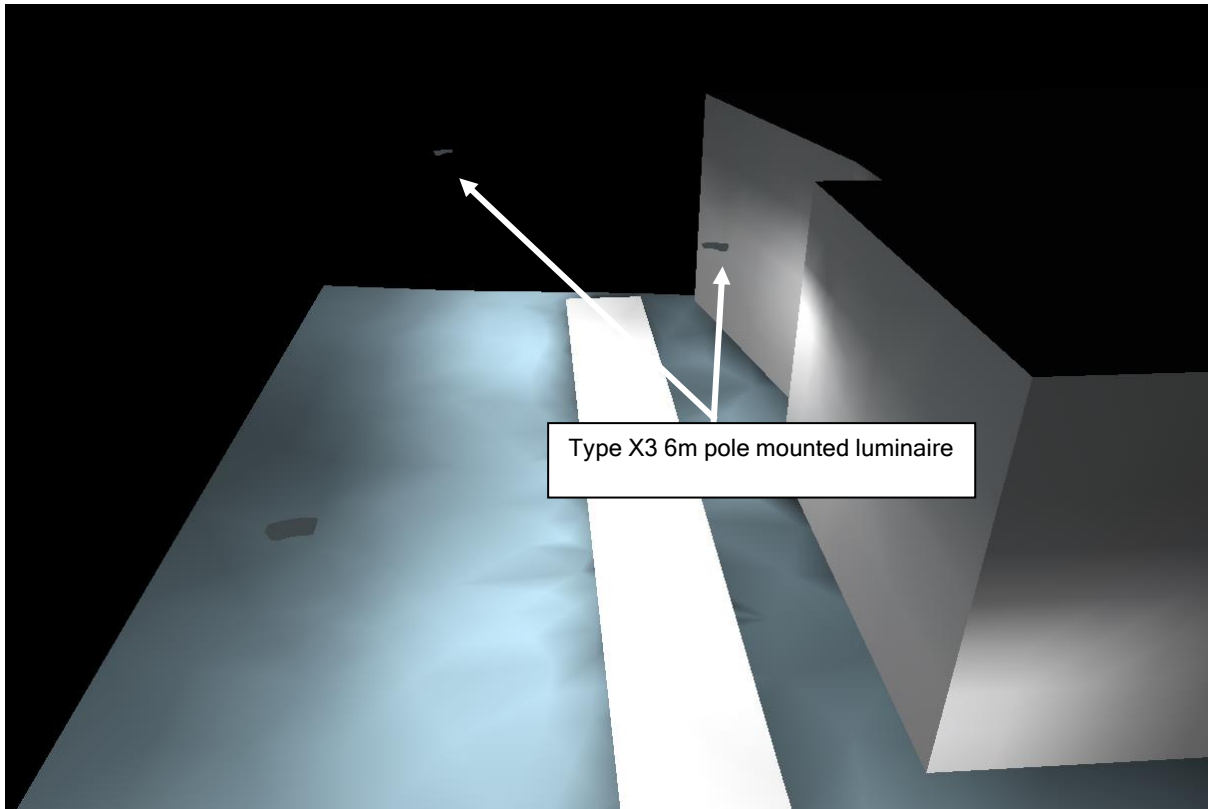


Fig 6.3 – 3D Model indicating Site Illumination Levels

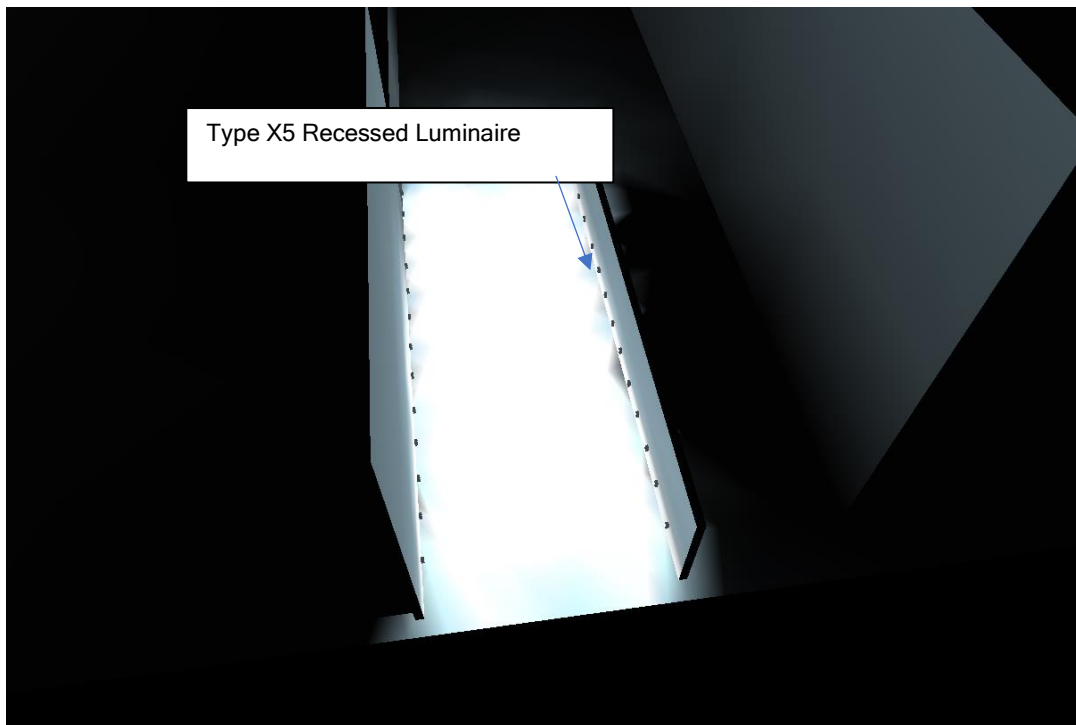


Fig 6.4 – 3D Model indicating Site Illumination Levels

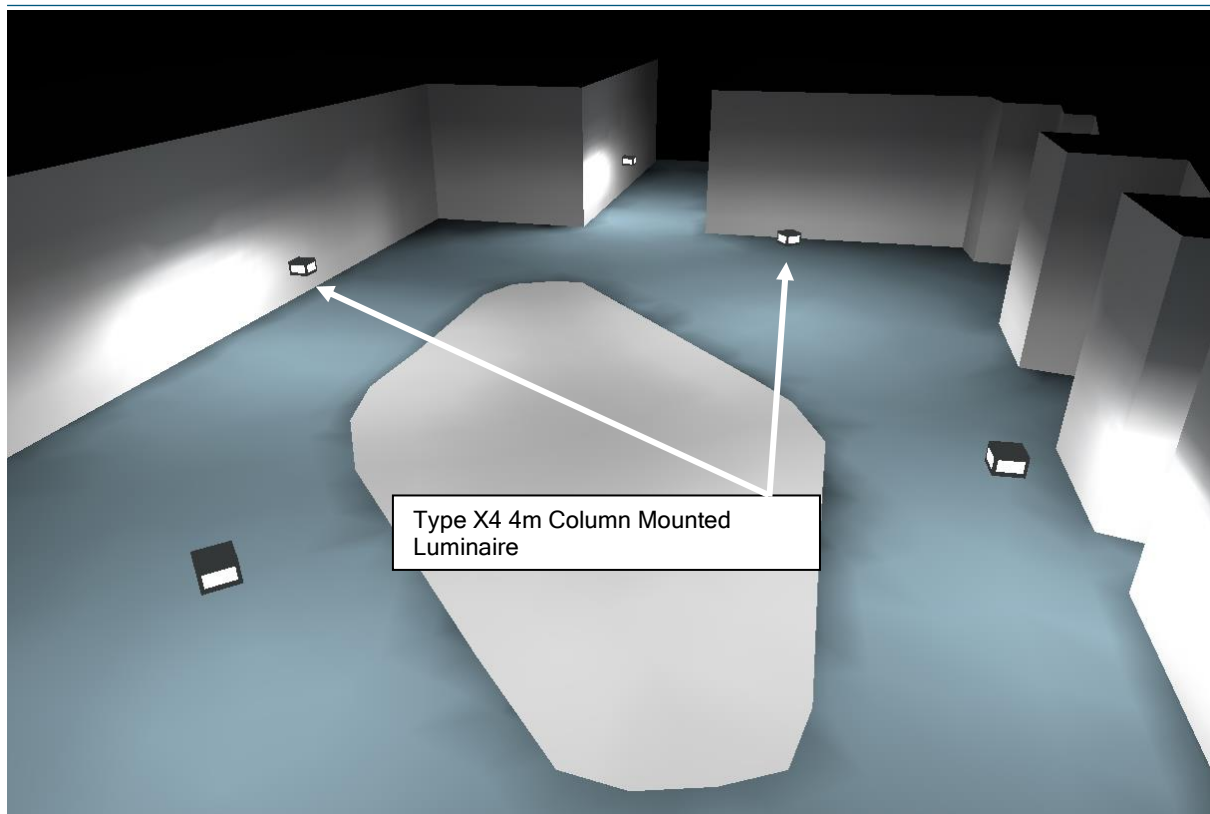


Fig 6.5 – 3D Model indicating Site Illumination Levels

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## 7.0 APPENDIX A – LUMINAIRE SCHEDULE

# Carmanhall Road SHD 2022

Former Avid Technology International Site  
Carmanhall Road  
Sandyford Industrial Estate  
Dublin 18

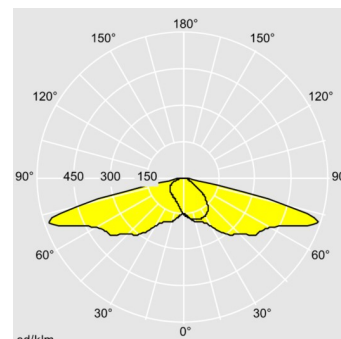
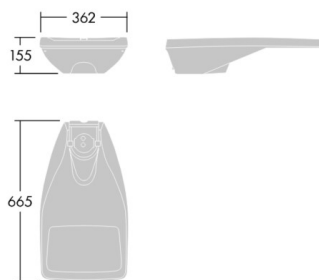


Luminaire Schedule  
IN2 Project No. D2005  
29<sup>th</sup> July 2022  
Rev02

<b>Luminaire Reference</b>	<b>X3</b>	<b>Manufacturer</b>	<b>Thorn / Equal &amp; Approved</b>
Body Description	Die-Cast LM-6 aluminium, IP66, IK08	Recessed/Surface or Wall Mounted	6 metre Pole Mounted
Diffuser Type	Tempered Glass	Lamps	15W LED Lamp
Reflector	Wide Street Optic	Lumen Output	1829 Lumens
Control Gear	230 V, 50 Hz.	Colour of Lamps	3000K
Area of Application	Traffic Routes	Lamp Life	100,000hours
Dimensions (mm)	655mm x 362mm x 155mm	IEC Photometric Code	840/339
Initial Colour Variation	-	IESNA LM 80-80 tested	Yes

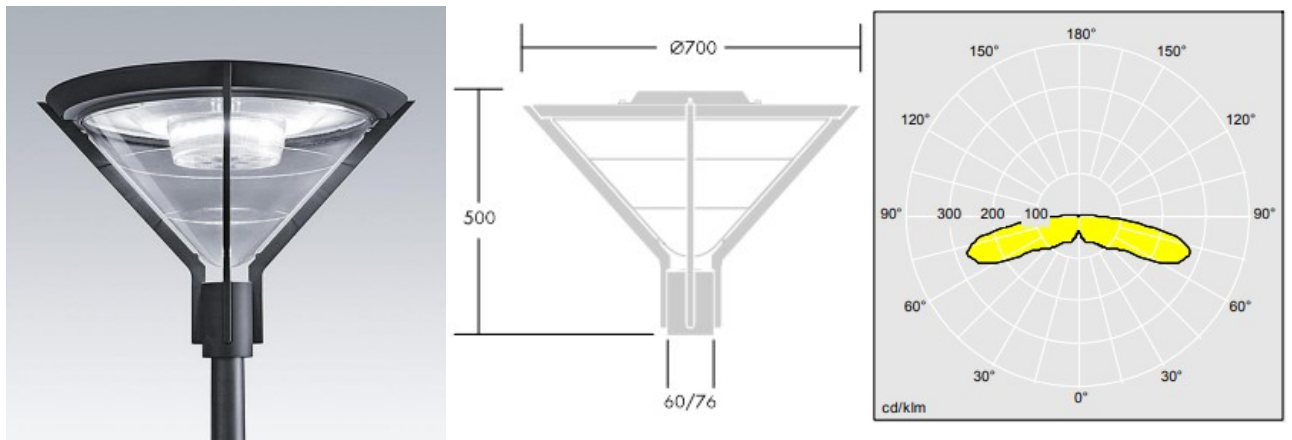
A small size LED road lighting lantern with 12 LEDs driven at 350mA with Wide Street & Comfort optic.

Lumen Depreciation	L90 B10	Power Factor	> 0.9
Colour rendering Index	<70	LED luminaire tested	To be in accordance with IESNA LM-79-08.
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED module tested	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Ten-year manufacturer's warranty to include failure of all luminaire components, inclusive of driver, electronics & LED modules. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		



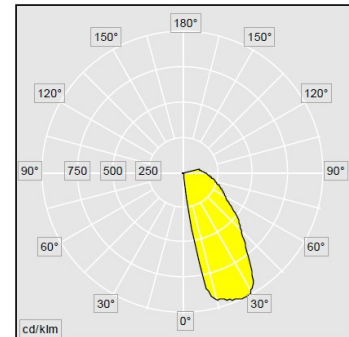
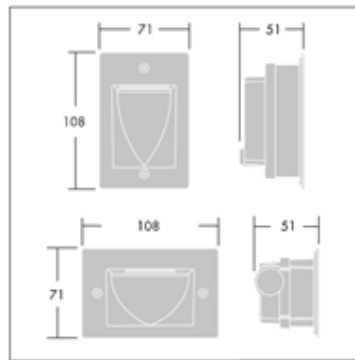
Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

<b>Luminaire Reference</b>	<b>X4</b>	<b>Manufacturer</b>	<b>Thorn / Equal &amp; Approved</b>
Body Description	Die-Cast LM-6 aluminium, IP66, IK08	Recessed/Surface or Wall Mounted	4 metre Pole Mounted
Diffuser Type	Clear Polycarbonate	Lamps	21W LED Lamp
Reflector	Type III Medium Optical Setting	Lumen Output	2876 Lumens
Control Gear	230 V, 50 Hz.	Colour of Lamps	4000K
Area of Application	Pedestrian Routes	Lamp Life	100,000hours
Dimensions (mm)	Ø700mm x 500mm (H)	IEC Photometric Code	840/339
Initial Colour Variation	-	IESNA LM 80-80 tested	Yes
Decorative post-top lantern with symmetric distribution. Equipped with 50% power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. It can be deactivated at installation with an easily accessible internal switch.			
Lumen Depreciation	L90 B10	Power Factor	> 0.9
Colour rendering Index	<70	LED luminaire tested	To be in accordance with IESNA LM-79-08.
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED module tested	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Ten-year manufacturer's warranty to include failure of all luminaire components, inclusive of driver, electronics & LED modules. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		



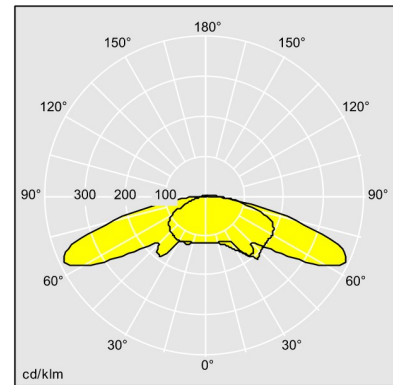
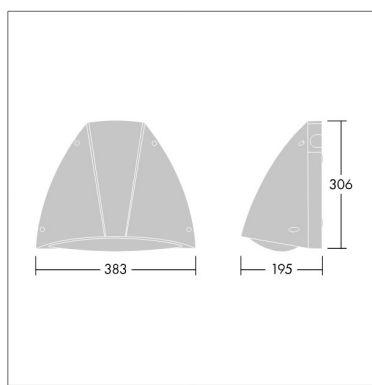
Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

Luminaire Reference	X5	Manufacturer	Thorn or Equal and Approved
Body Description	IP65, die-cast aluminium, painted dark grey. IK05	Recessed/Surface or Wall Mounted	Wall Recessed
Diffuser Type	Polycarbonate	Lamps	4W LED Lamp
Reflector	N/A	Lumen Output	96 lumens
Control Gear	230V, 50-60Hz AC	Colour of Lamps	4000K
Area of Application	Pathways	Lamp Life	50,000 Hrs
Dimensions (mm)	71mm (L) x 108mm (W)x 51mm (H)	IEC Photometric Code	840/339
Initial Colour Variation	N/A	IESNA LM 80-80 tested	Yes
Lumen Depreciation	L70	Power Factor	> 0.9
Colour rendering Index	>70	LED luminaire tested	To be in accordance with IESNA LM-79-08
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED drivers shall conform to	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Three-year on-site warranty to include failure of all luminaire components, inclusive of driver, electronics & LED modules. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		



Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

Luminaire Reference	X6	Manufacturer	Thorn / Equal & Approved
Body Description	IP66, IK10 rated, back plate: Die-cast aluminium painted anthracite, Body: anthracite Polycarbonate,	Recessed/Surface or Wall Mounted	Wall Mounted
Diffuser Type	N/A	Lamps	15.1 W LED
Reflector	N/A	Lumen Output	1815 lumens
Control Gear	230V, 50-60Hz	Colour of Lamps	3000K
Area of Application	Entrance / Exits	Lamp Life	60,000hours
Dimensions (mm)	381mm x 196mm x 305mm	IEC Photometric Code	840/339
Initial Colour Variation	N/A	IESNA LM 80-80 tested	Yes
Robust and decorative wall mounted luminaire suitable for lighting entrance, exits and amenity areas.			
Lumen Depreciation	L70	Power Factor	> 0.9
Colour rendering Index	<80	LED luminaire tested	To be in accordance with IESNA LM-79-08.
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED drivers shall conform to	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Five-year on-site warranty to include failure of all luminaire components, inclusive of driver, electronics & LED modules. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		



Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.





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