

# East Street, Reading

Installation : Perimeter Lighting

Project number : 19108

Customer : Norstead

Processed by : CDCE

Date : 27.08.2019

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.

Object : East Street, Reading  
Installation : Perimeter Lighting  
Project number : 19108  
Date : 27.08.2019

## 1 Luminaire data

### 1.1 Thorn, PIAZZA II LED 1690-840 HF ANT [... (96666256)

#### 1.1.1 Data sheet

---

**Manufacturer: Thorn**

**96666256**

#### **PIAZZA II LED 1690-840 HF ANT [STD]**

A robust wall mounted luminaire. Electronic, fixed output control gear. Back plate: die-cast aluminium, painted anthracite. Body: anthracite polycarbonate. Ø20mm cable entry via rear or side conduit entries, BESA compatible. IP65, IK10. Complete with 4000K LED.

Dimensions: 381 x 196 x 305 mm

Total power: 15.4 W

Luminaire luminous flux: 1844 lm

Luminaire efficacy: 120 lm/W

Weight: 2.8 kg

#### **Luminaire data**

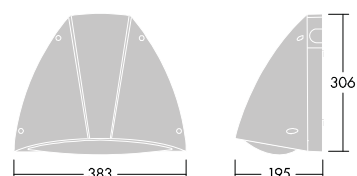
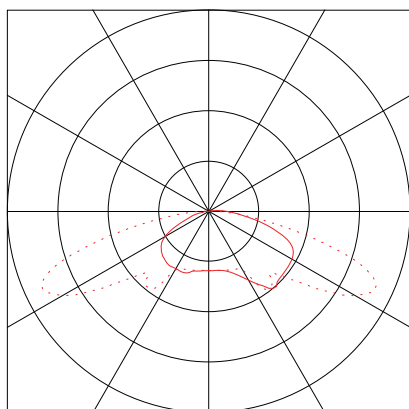
Absolute Photometry

|                    |                    |
|--------------------|--------------------|
| Luminaire efficacy | : 119.74 lm/W      |
| Classification     | : A21 ↓97.7% ↑2.3% |
| CIE Flux Codes     | : 23 54 86 98 100  |
| UGR 4H 8H          | : 33.0 / 39.4      |
| Power              | : 15.4 W           |
| Luminous flux      | : 1844 lm          |

#### **Equipped with**

|                     |           |
|---------------------|-----------|
| Quantity            | : 1       |
| Designation         | : TL_PIA2 |
| Colour              | : 4000    |
| Colour reproduction | : 80      |

Dimensions : 381 mm x 196 mm x 305 mm



Object : East Street, Reading  
Installation : Perimeter Lighting  
Project number : 19108  
Date : 27.08.2019

## 1 Luminaire data

### 1.2 ARES, EMMA 110 LED (ART.117268147)

#### 1.2.1 Data sheet

---

**Manufacturer: ARES**

**ART.117268147      EMMA 110 LED**

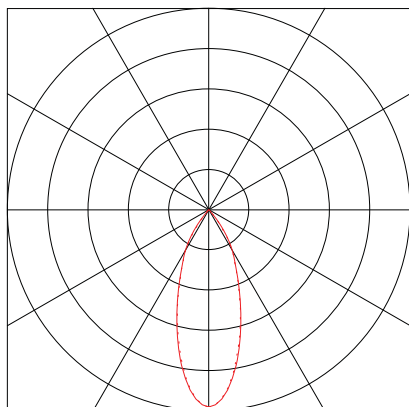
#### **Luminaire data**

Luminaire efficiency : 100%  
Luminaire efficacy : 108.53 lm/W  
Classification : A70 ↓100.0% ↑0.0%  
CIE Flux Codes : 97 99 100 100 100  
UGR 4H 8H : <10.0 / <10.0  
Power : 15 W  
Luminous flux : 1628 lm

Dimensions : Ø110 mm x 400 mm

#### **Equipped with**

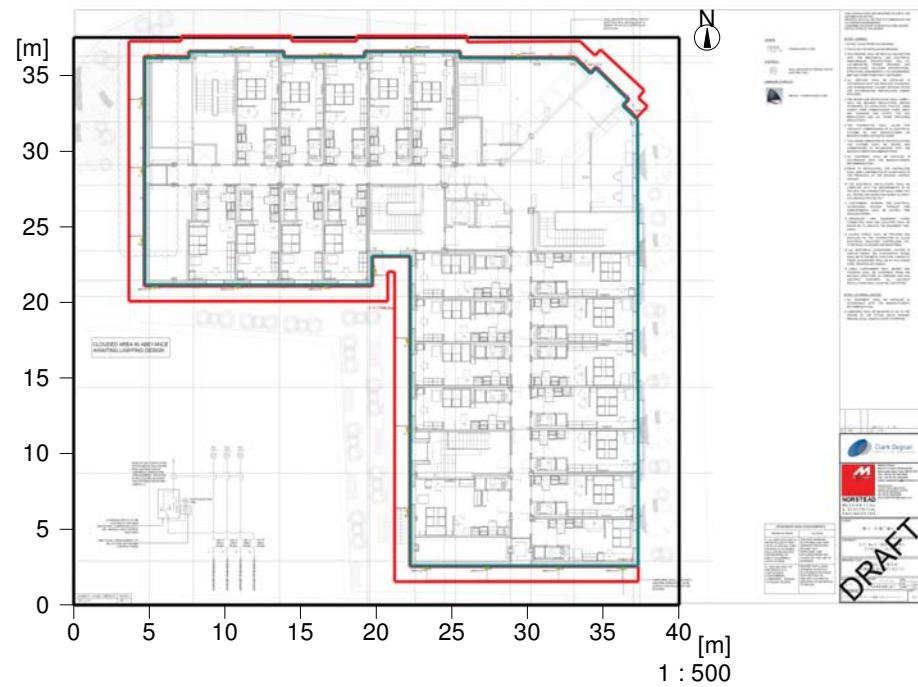
Quantity : 1  
Designation : LA0286/17  
Colour : 0  
Luminous flux : 1628 lm  
Colour reproduction : 0



## 2 Exterior 1

### 2.1 Description, Exterior 1

#### 2.1.1 Floor plan

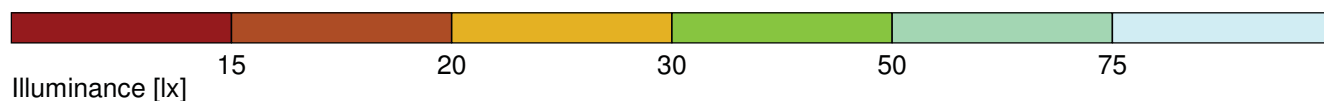
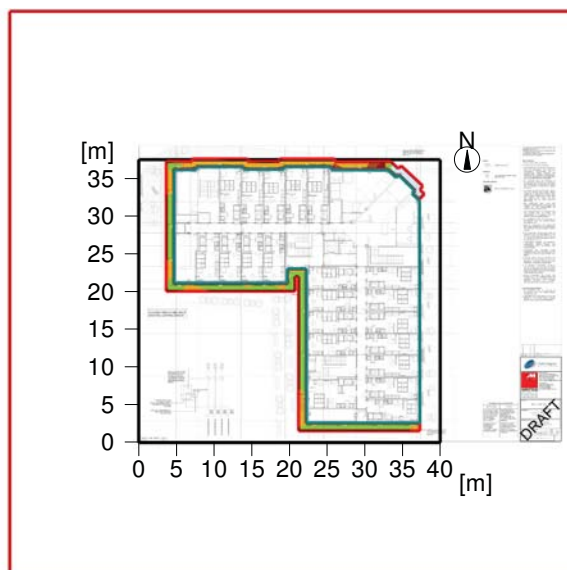


Object : East Street, Reading  
 Installation : Perimeter Lighting  
 Project number : 19108  
 Date : 27.08.2019

## 2 Exterior 1

### 2.2 Summary, Exterior 1

#### 2.2.1 Result overview, Building Perimeter



#### General

|                              |                           |
|------------------------------|---------------------------|
| Calculation algorithm used   | Average indirect fraction |
| Height of evaluation surface | 0.00 m                    |
| Maintenance factor           | 0.80                      |

|                                   |           |
|-----------------------------------|-----------|
| Total luminous flux of all lamps  | 38292 lm  |
| Total power                       | 322.6 W   |
| Total power per area (1500.00 m²) | 0.22 W/m² |

#### Illuminance

|                     |           |               |
|---------------------|-----------|---------------|
| Average illuminance | Eav       | 40 lx         |
| Minimum illuminance | Emin      | 21 lx         |
| Maximum illuminance | Emax      | 229 lx        |
| Uniformity Uo       | Emin/Em   | 1:1.89 (0.53) |
| Diversity Ud        | Emin/Emax | 1:11 (0.09)   |

#### Type No. Make

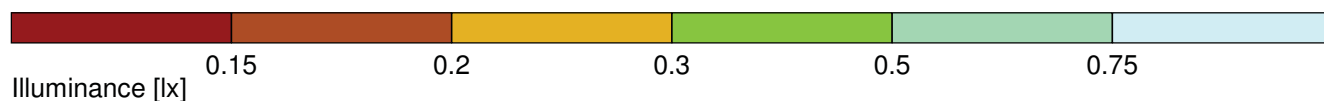
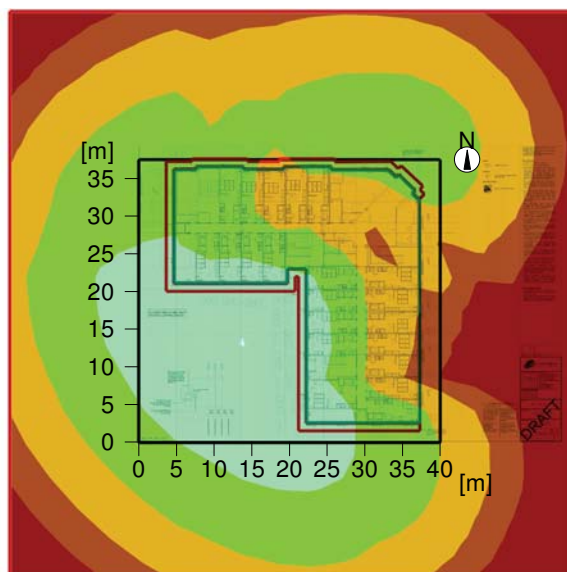
|   |    |                                                      |
|---|----|------------------------------------------------------|
| 1 | 19 | <b>Thorn</b>                                         |
|   |    | Order No. : 96666256                                 |
|   |    | Luminaire name : PIAZZA II LED 1690-840 HF ANT [STD] |
|   |    | Equipment : 1 x TL_PIA2 15 W / 1844 lm               |

|   |   |                                          |
|---|---|------------------------------------------|
| 2 | 2 | <b>ARES</b>                              |
|   |   | Order No. : ART.117268147                |
|   |   | Luminaire name : EMMA 110 LED            |
|   |   | Equipment : 1 x LA0286/17 15 W / 1628 lm |

Object : East Street, Reading  
 Installation : Perimeter Lighting  
 Project number : 19108  
 Date : 27.08.2019

## 2.2 Summary, Exterior 1

### 2.2.2 Result overview, Light Spill (25m AFFL, 20m border)



#### General

|                                   |                           |
|-----------------------------------|---------------------------|
| Calculation algorithm used        | Average indirect fraction |
| Maintenance factor                | 0.80                      |
| Total luminous flux of all lamps  | 38292 lm                  |
| Total power                       | 322.6 W                   |
| Total power per area (1500.00 m²) | 0.22 W/m²                 |

#### Illuminance

|                     |           |               |
|---------------------|-----------|---------------|
| Average illuminance | Eav       | 0.3 lx        |
| Minimum illuminance | Emin      | 0.07 lx       |
| Maximum illuminance | Emax      | 0.75 lx       |
| Uniformity Uo       | Emin/Em   | 1:4.05 (0.25) |
| Diversity Ud        | Emin/Emax | 1:10.3 (0.1)  |

#### Type No. Make

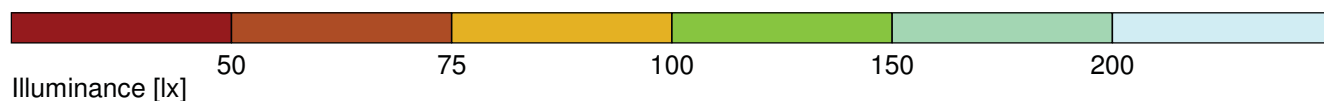
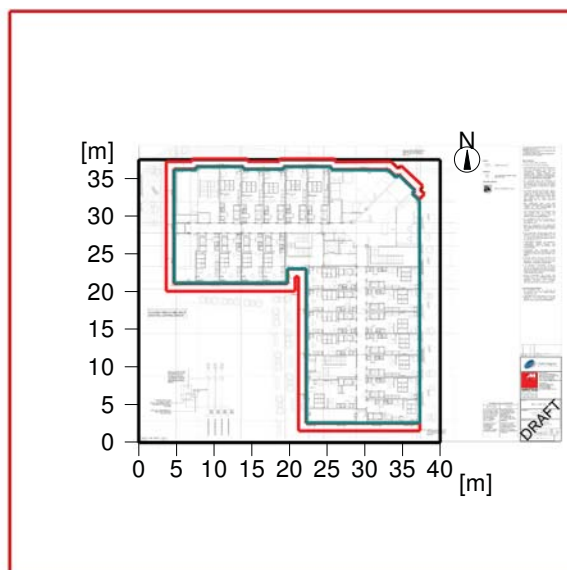
|   |    |                                                      |
|---|----|------------------------------------------------------|
| 1 | 19 | <b>Thorn</b>                                         |
|   |    | Order No. : 96666256                                 |
|   |    | Luminaire name : PIAZZA II LED 1690-840 HF ANT [STD] |
|   |    | Equipment : 1 x TL_PIA2 15 W / 1844 lm               |

|   |   |                                          |
|---|---|------------------------------------------|
| 2 | 2 | <b>ARES</b>                              |
|   |   | Order No. : ART.117268147                |
|   |   | Luminaire name : EMMA 110 LED            |
|   |   | Equipment : 1 x LA0286/17 15 W / 1628 lm |

Object : East Street, Reading  
Installation : Perimeter Lighting  
Project number : 19108  
Date : 27.08.2019

## 2.2 Summary, Exterior 1

### 2.2.3 Result overview, Main Entrance



#### General

|                              |                           |
|------------------------------|---------------------------|
| Calculation algorithm used   | Average indirect fraction |
| Height of evaluation surface | 0.00 m                    |
| Maintenance factor           | 0.80                      |

|                                   |           |
|-----------------------------------|-----------|
| Total luminous flux of all lamps  | 38292 lm  |
| Total power                       | 322.6 W   |
| Total power per area (1500.00 m²) | 0.22 W/m² |

#### Illuminance

|                     |           |               |
|---------------------|-----------|---------------|
| Average illuminance | Eav       | 86 lx         |
| Minimum illuminance | Emin      | 61 lx         |
| Maximum illuminance | Emax      | 117 lx        |
| Uniformity Uo       | Emin/Em   | 1:1.41 (0.71) |
| Diversity Ud        | Emin/Emax | 1:1.92 (0.52) |

#### Type No. Make

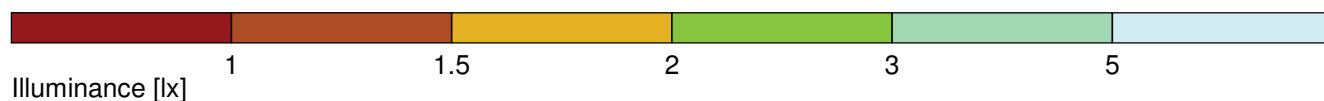
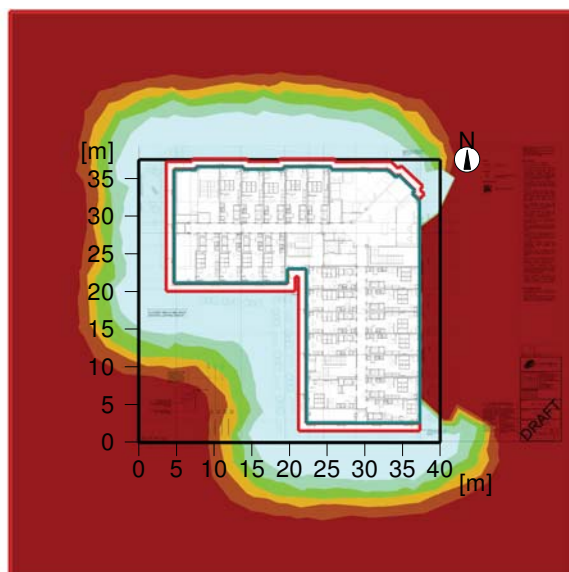
|   |    |                                                      |
|---|----|------------------------------------------------------|
| 1 | 19 | <b>Thorn</b>                                         |
|   |    | Order No. : 96666256                                 |
|   |    | Luminaire name : PIAZZA II LED 1690-840 HF ANT [STD] |
|   |    | Equipment : 1 x TL_PIA2 15 W / 1844 lm               |

|   |   |                                          |
|---|---|------------------------------------------|
| 2 | 2 | <b>ARES</b>                              |
|   |   | Order No. : ART.117268147                |
|   |   | Luminaire name : EMMA 110 LED            |
|   |   | Equipment : 1 x LA0286/17 15 W / 1628 lm |

Object : East Street, Reading  
 Installation : Perimeter Lighting  
 Project number : 19108  
 Date : 27.08.2019

## 2.2 Summary, Exterior 1

### 2.2.4 Result overview, Ground



#### General

|                              |                           |
|------------------------------|---------------------------|
| Calculation algorithm used   | Average indirect fraction |
| Height of evaluation surface | 0.00 m                    |
| Maintenance factor           | 0.80                      |

|                                   |           |
|-----------------------------------|-----------|
| Total luminous flux of all lamps  | 38292 lm  |
| Total power                       | 322.6 W   |
| Total power per area (1500.00 m²) | 0.22 W/m² |

#### Illuminance

|                     |           |             |
|---------------------|-----------|-------------|
| Average illuminance | Eav       | 2.4 lx      |
| Minimum illuminance | Emin      | 0 lx        |
| Maximum illuminance | Emax      | 30.4 lx     |
| Uniformity Uo       | Emin/Em   | 1:--- (---) |
| Diversity Ud        | Emin/Emax | 1:--- (---) |

#### Type No. \ Make

|   |    |                                                                                     |                                                      |
|---|----|-------------------------------------------------------------------------------------|------------------------------------------------------|
| 1 | 19 |  | <b>Thorn</b>                                         |
|   |    |                                                                                     | Order No. : 96666256                                 |
|   |    |                                                                                     | Luminaire name : PIAZZA II LED 1690-840 HF ANT [STD] |
|   |    |                                                                                     | Equipment : 1 x TL_PIA2 15 W / 1844 lm               |

|   |   |                                                                                     |                                          |
|---|---|-------------------------------------------------------------------------------------|------------------------------------------|
| 2 | 2 |  | <b>ARES</b>                              |
|   |   |                                                                                     | Order No. : ART.117268147                |
|   |   |                                                                                     | Luminaire name : EMMA 110 LED            |
|   |   |                                                                                     | Equipment : 1 x LA0286/17 15 W / 1628 lm |