
The Factory

Lighting Specification - External

Job No: P2008093
Doc No: MF-BDP-XX-XX-SP-YX-70-8002
Rev: C03
Issue: Contract Issue
Date: 18-10-2021

Project Revision Sheet

Revision	Status / Details	Prepared by	Reviewed by	Date
C01	Contract Issue	NM	CL	16/10/20
C02	Contract Issue	NM	CL	19/01/21
C03	Contract Issue	NM	CL	18/10/21

Contents

70-80-25/130 Outdoor workplace lighting systems 1

70-80-25/130

Outdoor workplace lighting systems

Systems

70-80-25/130 Outdoor workplace lighting systems

1. Description: **Public realm lighting**

Introduction

This document defines the RIBA Stage 4a design strategy for the exterior 'Public Realm' lighting scheme within the Factory scope area and facade mounted lighting. The scope area of the 'public realm' covered in this document is lighting found in open areas of 'Factory Square' and 'Festival Square' and is detailed on drawing 'MF-BDP-XX-EX-DR-E-70-8001'. Lighting below the building, within the undercroft area which has public access is covered in drawings MF-BDP-TH-GF-DR-E-70-8002 Theatre Soffit Lighting Systems and MF-BDP-WH-GF-DR-E-70-8002 Warehouse Soffit Lighting Systems.

The purpose of this specification is to describe the technical and aesthetic aspirations, components and requirements of the public realm and facade lighting scheme.

Key Qualifications

At the time of production (15/10/21) the following overarching qualifications are applicable:

- Due to ongoing facade development further coordination of the Lighting proposals will be required.
- Further coordination of luminaires with landscape, facades, finishes, materials and fixed furniture will be required by others during the next phase of design.
- The lighting scheme utilises LED luminaires, due to the delivery timeline of the project, and the ongoing optimisation of LED technology, it is recommended that the client undertake a full review of all luminaires prior to procurement.
- Fire strategy information available at the time of design is the WSP fire strategy report 'MF-WSP-XX-XX-RP-YD-03-0004', Rev 6/C03, August 2021.

System Drawings & Information

This document is to be read in conjunction with the following Lighting Design documentation and all relevant architectural and electrical engineering design packages:

Lighting Schedules

MF-BDP-XX-XX-SH-YX-70-8007 Luminaire Schedule - External lighting
MF-BDP-XX-XX-SH-YX-70-8008 Lighting Criteria Table
MF-BDP-XX-XX-HS-YX-70-8002 Significant Hazard and Risk Register

Lighting Layout Drawings

MF-BDP-XX-EX-DR-E-70-8001 Public Realm Lighting Systems
MF-BDP-TH-GF-DR-E-70-8002 Theatre Soffit Lighting Systems
MF-BDP-WH-GF-DR-E-70-8002 Warehouse Soffit Lighting Systems

MF-BDP-XX-XX-DR-E-70-8093 North Elevation Lighting Systems
MF-BDP-XX-XX-DR-E-70-8094 East Elevation Lighting Systems
MF-BDP-XX-XX-DR-E-70-8095 South Elevation Lighting Systems
MF-BDP-XX-XX-DR-E-70-8096 West Elevation Lighting Systems

2. Area by Area Description

Lighting Strategy - Outline Description

This outline description is intended to communicate the desired lit intent for each typology of illumination within key spaces, and, as a supplement to the conjunctive information within the SYSTEM DRAWINGS & INFORMATION package.

Factory Square

General illumination will be provided by three 18m columns with multiple head projectors. The projectors shall have shield accessories to help reduced unwanted light spill beyond the site boundary and into internal foyers. Where possible internal louvres will be specified to reduce glare and incident of direct light source vision. There are two projector types with wide and medium beam optics. Medium beam will be used at the highest point of the columns and are focused onto areas closest to the building, utilising the highest point reduces the focus angle to help minimise glare. Wide beam are to be focused onto central areas and areas closest to column base.

Vehicle turning and loading - Factory Square

Enhanced light levels of 50lux are required for vehicle turning and loading in the northern section of the square. This is achieved by additional output capacity from selected projector luminaires that also provide general illumination 'C3' & 'L3'. A scene controller will be required within the truck lift that enables the truck lift operative to increase light levels when loading/unloading is required. Refer to 'Significant Hazard and Risk Register - MF-BDP-XX-XX-HS-YX-70-8002'.

Theatre façade up-light

To provide accent illumination to the lowest façade section linear in-ground luminaires shall be used ('L5'). This luminaire type comes with integral louvres and film to minimise glare. The required output from the luminaire is low which further reduces any disabling glare issues. The final location within the landscape will be determined by the final cladding being designed by Ryder architects. Note fitting orientation is important as the luminaire has a slight asymmetric output which is to be focused towards the façade.

Festival Square

Within the Factory scope line there is a small paved area outside of the building footprint. The lighting strategy for this area is spill light from the adjacent public realm, this approach was approved at stage 3. To ensure enhanced illumination to the cycle parking area three 600mm tall lighting bollards 'L6' shall be provided. To increase the perception of safety the specified bollard from DW Windsor has an optic which provides a slight upward component intended to provide illumination for facial recognition.

Truck lift

To provide general public realm illumination at ground level along the access road, flood lights ('L2') shall be located at parapet level. The fittings have a spreader lens so the orientation of this needs to be considered when installing. The fitting also comes with a shield accessory, this shall be used to reduce spill light onto the vertical concrete surface. Also at parapet level are two 'L3' floodlights illuminating the area in front of the West entrance. These will be dimmed to provide 10lux for everyday operation and have capacity to provide 50lux when the truck lift is in operation. All fittings shall be mounted using mounting brackets fixed within the roof area not the vertical concrete surface. To provide localised illumination to the truck lift control panels located within the vertical door reveals, recessed downlights will be located within the reveal ceiling detail.

Handrail lighting

The short flight of steps will be illuminated by integral handrail lighting. The specified LED's come as a complete metal work system. 'L4'

An IP rated enclosure integrated into, and coordinated with, the landscape shall be required. Manufacturer to advise on dimension of driver

Brick Viaduct / Building corner

The small corner created by the building meeting the brick viaduct will be illuminated by wall mounted downlights mounted to the brickwork. These will be fed from the building using armoured cable. 'L16'

Facade mounted luminaires

Theatre Soffit

General and emergency lighting is provided by linear luminaires 'L12'/'L12CE' which are arranged end-to-end. These fittings offer a through-wire wiring solution. They are to be located within the wider black soffit pattern and fed from one end. The emergency fittings are to come factory set to a fixed output in the event of DALI signal loss, this avoids over lighting.

Undercroft illumination

The light output of the undercroft soffit luminaires shall vary depending on the external ambient light levels. A photocell located on a north facing facade is required to monitor ambient levels. During the commissioning process a range of ambient light levels will be calibrated to trigger changes in dimming levels for undercroft luminaires to ensure gradual transition between target light levels detailed below: During the hours of daylight levels will be higher (250lux) to reduce the appearance of a dark covered area and help adaptation between internal and external spaces.

During the hours of darkness there are two scenarios where light levels are lower:

1. Public realm (building not in use) 15lux
2. Building in use 30-50lux

Warehouse soffit

Soffit mounted floodlights with special shallow mounting brackets shall provide general illumination. Also mounted adjacent to select fittings will be standalone emergency fittings.

Towers soffit

General illumination shall be provided via indirect illumination from column & wall mounted up-lights. 'L14'/'L14CE'

Warehouse gable ends

At the base of each facade recess shall be a vertically mounted uplight 'L8'. Fitting comes with a shield accessory to hide the light source and reduce light pollution.

Service yard - Upper viaduct

The ground level shall be illuminated by 'L1'/'L1CE'/'L9' floodlights aimed perpendicular to the facade. 'L1'/'L1CE' Fittings to be aimed no more than 30deg from the vertical. 'L9' fitting to be aimed perpendicular towards to the middle of the space, approx. 40-45deg, commissioning required

Towers service yard - Ground level

The ground level shall be illuminated by 'L1'/'L1CE' flood lights. Fittings are to be aimed to achieve a uniform horizontal distribution and avoid spill onto facades where possible. A single 'L1' is to be focused beyond the yard onto the public realm outside the access gate.

3. System performance: [70-80-25/225 Outdoor workplace lighting design](#); [70-80-25/230 Maintenance factor calculations for external lighting](#); and [70-80-25/250 Lighting performance](#).
4. Rewireable installation: Required.
5. Concealed installation: Required.
6. Columns and brackets: [90-60-45/320 Steel lighting columns](#).
7. Luminaires: As Document MF-BDP-XX-XX-SH-YX-70-8001 Luminaire Schedule.
8. Controls
 - 8.1. Type: [90-65-25/380 Time switches](#) and [90-65-05/430 Photoelectric control units](#). [90-65-05/302 DALI control system](#)
 - 8.2. Configuration: Individual.
9. System accessories: Submit proposals.
10. Electrical identification: Submit proposals.
11. Execution: [70-80-25/620 Installing external lighting systems](#).

12. System completion:

System performance

70-80-25/225 Outdoor workplace lighting design

1. Design: Submit proposals .
2. Standards: • BS EN 5489-1:2020 Design of Road Lighting - Part 1: Lighting of roads and public amenity areas
 - BS EN 12464-2:2014 - Part 2 Outdoor work places, BSI, 2014
 - Guidance Notes for the Reduction of Obtrusive Light GN01:2011, Institution of Lighting Professionals, 2011
 - Guide to Limiting Obtrusive Light, SLL, 2013
 - Lighting Handbook, SLL 2018
 - The Workplace (Health Safety and Welfare) Regulations, HMSO, 2011
 - DDA BS 8300-1:2018 - Design of an accessible and inclusive built environment; Part 1: External environment - Code of practise, 2018
 - DDA BS 8300-2:2018 - Design of an accessible and inclusive built environment; Part 2: Buildings - Code of practise, 2018
3. Submit the following information: Luminaire layout and mounting detail drawings. luminaire schedule

70-80-25/230 Maintenance factor calculations for external lighting

1. Luminaire cleaning interval: 72 months
2. Lamp replacement strategy: Spot replacement.
3. Maintenance factors: MF = 0.66

70-80-25/250 Lighting performance

1. Task area: As Document MF-BDP-XX-XX-SH-YX-70-8003 Lighting Criteria table.
2. Maintained average illuminance level (lx): As Document MF-BDP-XX-XX-SH-YX-70-8003 Lighting Criteria table.
3. Glare index (maximum): As Document MF-BDP-XX-XX-SH-YX-70-8003 Lighting Criteria table.
4. Uniformity (minimum): As Document MF-BDP-XX-XX-SH-YX-70-8003 Lighting Criteria table.
5. Colour rendering index (Ra): As Document MF-BDP-XX-XX-SH-YX-70-8003 Lighting Criteria table.
6. Colour temperature (K): As Document MF-BDP-XX-XX-SH-YX-70-8001 Luminaire Schedule.

Products

90-60-45/320 Steel lighting columns

1. Manufacturer: As Document MF-BDP-XX-XX-SH-YX-70-8007 Luminaire Schedule.
2. Standard: To [BS EN 40-5](#).
3. Format: Fixed
4. Profile: Tapered.
5. Cross section: Round.
6. Height (nominal): 18 m.
7. Base
 - 7.1. Type: Rooted.

7.2. Root length: TBC by manufacturer

8. Lantern fixing dimension: Multiple mounting locations, refer to manufacturer drawings. Orientation and height of lanterns is important to allow projectors to be aimed/focused towards intended targets.
9. Column door locks and keys: Door lock pattern to be the same for all columns installed. Keys to be the same for each group of columns.
10. Identification: Manufacturer's standard .
11. Accessories: Manufacturer's standard .
12. Execution: [90-60-45/650 Installing lighting columns and brackets](#).

90-65-05/302 DALI control system

1. Manufacturer: Submit proposals . as per main build specification.

90-65-05/430 Photoelectric control units

1. Standard: To [BS 5972](#).
2. Mounting: Location.
There shall be a photocell located on a north facing facade to monitor ambient daylight.
3. Ingress protection (minimum): To [BS EN 60529](#), IP44.

90-65-25/380 Time switches

1. Standards: To [BS EN 60730-1](#) and [BS EN 60730-2-7](#).
2. Integral thermostat: To [BS EN 60730-2-9](#)
3. Accessories:

Execution

70-80-25/620 Installing external lighting systems

1. Standard: In accordance with [BS 7671](#).

90-60-45/650 Installing lighting columns and brackets

1. Installation generally: To [Highways England Specification for highway works, volume 1](#).
2. Foundations: In accordance with [PD 6547](#), section 6.
3. Position: Refer to landscape setting out drawings

Ω End of System

BDP.