**GLASGOW CITY COUNCIL**
**NEIGHBOURHOODS, REGENERATION SUSTAINABILITY**
**Road Lighting Design Brief (Addendum to Residential Design Guide)**

Requirements for Roads Construction Consent public lighting applications; all submission contents shall include (PDF Format):

1. Lighting Layout Drawing
2. Photometric Calculations (Lighting Reality 'Area' Report)
3. Designer's CDM Design Risk Assessment
4. Completed Lighting CC9
5. Adoption Plan

Refer to supporting design documents:
'Lighting CC9' designers' checklist.
'Standard Drawing Notes' for layout drawings.

Application's to be submitted to - RoadsConstructionConsents@glasgow.gov.uk

Advice on any points should be sought at an early stage with local authority lighting engineer.

## LIGHTING DESIGN

The following parameters are to be used for lighting designed to BS 5489-1:2020.

**Road Surface Type =** C2
**Road Surface Coefficient (Q0)** = 0.07
**Luminaire Maintenance Factor** (LED) = 0.84MF ≤ 6m • 0.92MF ≥ 8m • & 0.92MF for all existing discharge lighting.
**Luminaire Tilt** = 0 deg incline ≤ 6m • 0 deg incline ≥ 8m with a Max. 5 deg incline.
**Luminous Intensity Class** = Minimum 'G3'
**Colour Temperature** = 4000k (Neutral White)

Road Lighting Levels are to be to the selected Lighting Class as indicated in Table 1 below.

**Table 1**
(Local variations may justify an increase in class to cater for public amenity areas, schools, shops etc.)

| **Road Type/ Class** | **Lighting Class (BS EN 13201-2:2015)** | **Comments** |
|---|---|---|
| Motorway & Dual Carriageway ≥ 50 mph | M1 (Table 1) | |
| Primary & Main Distributor | M2 (Table 1) | |
| District Distributor | M3 (Table 1) | |
| Local Distributor | M4 (Table 1) | |
| Minor Traffic Routes | M4 (Table 1) | |
| Residential | P4 (Table 3) | P3 may be considered for some, discuss with local authority lighting engineer. Uo = 0.30 min. |
| City Centre | C1/C2/C3 (Table 2) | Depends on amenity, pedestrian usage etc. Discuss with local authority lighting engineer. |

## LIGHTING DESIGN (cont.)

1. Standard column mounting heights of 5, 6, 8 and 10 metre are to be used.
2. Residential roads, e.g., 5.5 metre carriageway with 2 metre footways, at 6 metre height. When calculation widths exclude this due to demanding a much reduced spacing, 8 metre height should be considered.
3. In many situations a single sided design will result in a similar design spacing as a staggered design, however the staggered design is the preferred option in these situations.
4. All proposed lighting columns and brackets to be designed in accordance with EN 40.
5. Mid-hinged columns should be used on footpaths at 5 metre height.
6. For traffic routes the combinations of 8 metre or 10 metre are the pairings to be considered generally.
7. 5 and 6 metre columns are not to have brackets; and 8 metre columns are also generally post mounted.
8. Note that 8 metre where required and 10 metre columns are to have max 0.5 and 1.0 metre outreach brackets at a max. 5 deg incline, respectively.
9. Conflict areas and residential roads, there has been a relaxation of the layout of columns at road junctions with only position A (the one at the head of the junction) now being a requirement. Refer to BS 5489-1:2020 7.2. The first column into the side road should still be on the same side as position D used to be but the spacing is to suit light levels rather than a prescribed position. Lighting conflict areas on traffic routes at various junction layouts are to be as BS 5489-1:2020 7.5. For other conflict areas on Traffic Routes refer to ILP PLG02.
10. A street lighting unit should be positioned in the vicinity of traffic calming features, such as road hump, speed table etc.
11. Computer generated lighting design calculation (‘Lighting Reality’ report) information demonstrating compliance with all the relevant quality characteristics indicated for the respective Lighting Class (refer Table 1 for guidance) must be provided. These must be in accordance with BS EN13201-3 2015, Calculation of Performance. This information must be provided for each variation of the calculation field, e.g., bends, irregular shapes, etc., and each one must be referenced to the layout plan to indicate clearly the area covered.
12. CLO and D4i compliant drivers are to be used to maintain lumen output within design levels for duration of lamp life.
13. Lighting at Pedestrian Crossings to be in accordance with ILP TR12 document.

## ELECTRICAL DESIGN

1. Electrical installation to be designed in accordance with current edition of BS7671.
2. 3 Core x 16mm² armoured XLPE or MDPE cable (for columns) EU Harmonised colours.
3. 3 Core x 6mm² armoured XLPE or MDPE cable (for signs) EU Harmonised colours.
4. Termination Units (Cut – Outs) to be Double Pole, and fuse ratings to be 6 Amps for 100 Watt, 10 Amps for 150 – 250 Watt and 16 Amps for 400 Watt.
5. HDU Panels to have Type ‘C’ MCBs for outgoing circuits.
6. Switching - Group Control (Westire Set 45-18/55N Digital Programmable Solar Timeclock).
7. Illuminated Traffic Signs (above 20mph limit) to be lit and include miniature photocell.
8. Non-lit retroreflective reboundable self-righting bollards.
9. No cable jointing is permitted on the lighting network. Alterations or remedial works will require new cable.
10. The layout presentation must be shown as the circuit/ cables run, not solely as a duct route layout.

## MATERIALS

### LANTERNS

Lanterns utilising light emitting diode (LED) require to be ZD4i Certified complete with factory pre-wired twin Zhaga-D4i Book 18 sockets (Top & Bottom) as per the manufacturers specifications.

Post-Top – a remote path or shared surface style luminaire with Symmetrical Distribution, one Zhaga B-18 socket shall be fitted on top.

All control gear shall be electronic and be compatible with CMS technology, Certified Zhaga-D4i (ZD4i) compatible for Smart technology with Dali two-way communication and the control gear shall have the capability of being pre-programmed for night-time dimming, as specified by the council for future use.

Elexon Charge Codes (UMSUG) to be indicated for each proposed luminaire.

### PILLARS

Note the Lighting Installation Contractor must check compatibility between Pillars and Panels as they vary individually in size. Allowance must also be made to accommodate the Supply Authority service Cut-Out (200mmm wide x 320mm tall), to be located at the bottom right-hand side of the pillar.

### COLUMNS

Mid-hinged columns are to be used where vehicular access is unavailable for future maintenance. It should be ensured that when folded down no obstructions can interfere with this operation (particularly from future fencing/hedges, etc.) and the lowered lantern should be directly accessible from an adopted area.

## ALTERNATIVE EQUIPMENT

The proposed column and lantern design must be historically accurate and seek to replicate that design. All proposals for the use of alternative equipment must be supported by documentary evidence such as photographs and drawings.

## INSPECTION AND TESTING

On completion, the Contractor shall arrange for their representative to conduct an inspection and test of the lighting installation which shall be witnessed by GCC. Prior to testing, arrangements shall be made to GCC Lighting giving at least 72 hours prior notice prior for the test date to be arranged. The submission of a current edition BS7671 Electrical Installation Certificate is required prior to final acceptance and formal adoption.