



**Transportation Division  
Roads and Transportation Directorate  
City Hall  
Cork**

## **Public Lighting Design Requirements Guidance Manual**

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## **1. Introduction**

Cork City Council is seeking to foster an improvement in the design and provision of high quality street lighting throughout the urban and sub-urban area in Cork. It is essential that all public lighting schemes comply with the current CEN Code of Practice (2003 issue at time of this revision).

In particular, Cork City Council wishes to promote the installation of energy efficient public lighting schemes. Measures required to achieve this include the use of lanterns with modern optics which would minimize light pollution, optimization of scheme layout, use of modern energy efficient lamps and control gear, implementing dimming and trimming, complying with best practice and taking account of the 'Campaign for Dark Skies' issues where appropriate. Therefore all lighting schemes shall incorporate the requirements of, "Guidance notes for the Reduction of Light Pollution" issued by the Institution of Lighting Engineers and available as a download from its website [www.ile.org.uk](http://www.ile.org.uk).

Cork City Council is seeking to ensure that lighting equipment is selected from the higher quality grade, as against the standard range, of equipment available from various exterior lighting or street lighting manufacturers to enhance the streetscape, ensure longevity and provide an energy efficient lighting scheme.

Street Lighting design has to be undertaken to meet the requirements of the CEN code of practice EN 13201: 2003 and BS5489: 2003. Furthermore, ESB Networks (DSO) requirements for supply shall be undertaken with reference to conditions being established by the Commission for Energy Regulation, CER in Ireland.

The lighting design for all new schemes and modifications to existing developments must cater for the need to up-grade lighting on existing junctions, entrances and access roads in addition to any lighting being provided for the development.

Where suitable, low brightness energy efficient lighting schemes should be considered with a view to enhancing the nighttime scene and improved security with attractive modern street furniture. Cork City Council, Transportation Division shall be consulted at the design stage in this regard.

The installation of schemes in Residential Areas shall comply with the Code of Practice for Public Lighting ET211: 2003, the National for Electrical Installations (ET 101: 2008) current at time of issue and shall include the provision of a Customer Service Pillar(s) in line with the requirements of ESB Networks National Code Of Practice For Customer Interface (current edition).

All queries pertaining to the design of public lighting installations in Cork City should be directed to Cork City Council, Transportation Division as detailed on the cover sheet of these guidelines.

## **2. General Technical Specification & Luminaries**

Cork City Council requires that the following general specifications be followed in the design and installation of public lighting schemes in Cork City.

- Luminaires shall comply with I.S. EN 60598-2-3;
- The lighting scheme shall incorporate SON sources and where approved by Cork City Council, 'white light sources' for the lanterns selected, e.g. Metal Halide Sources. Cork City Council does not accept SOX sources in new public lighting Schemes;
- Cork City Council will consider the use of LED sources where technically and economically feasible;
- All luminaires shall incorporate electronic ballast control gear (\*see note) as manufactured by SELC Ireland or approved similar and shall incorporate SELC solar cell switches as standard. It may be a requirement to incorporate a factory set dimming regime on the electronic ballast. Our common regime is to dim to 70% of output (dim by 30%) from 12am – 7am. Cork City Council, Transportation Division, can advise at design stage. Decorative or period style lanterns shall incorporate SELC sub-miniature solar cell switches
- All photocells should have a **40/20lux** ratio switching;
- All luminaires shall be sealed to the appropriate rating and shall incorporate ingress protection to a minimum of IP65 for the lamp enclosure;
- All luminaires shall have a polycarbonate or toughened safety-glass lens / shallow bowl or approved similar. In any event the proposed luminaire shall have a minimum impact resistance rating of IK08 or greater as defined by EN 50102. This is to ensure a suitable level of robustness of the lens / bowl to vandalism. Most good quality luminaires meet this requirement, however Cork City Council reserve the right to receive confirmation of this from the manufacturer at the Public Lighting Scheme design review stage;
- Cork City Council requires engineering best practice to be applied in the public lighting design of residential and commercial developments. This includes a requirement that public lighting schemes should be designed from junctions and traffic (both Pedestrian and Vehicular) conflict areas back. E.g. T-junctions, pedestrian crossings etc.  
The illuminance / luminance at conflict areas should be of the average level or greater than that specified in BS5489 and EN13201 for the particular design objective rather than the minimum;
- A maintenance factor based on a cleaning cycle of four years shall be incorporated into the design. In the event that this information is not available from the lamp and / or luminaire manufacturer(s) a maintenance factor of not more than 0.8 shall be applied to all public lighting scheme designs utilising SON sources. Cork City Council may require a

different maintenance factor to be applied in areas of high pollution, vandalism etc. This shall be advised at the design review stage;

- Steps should be illuminated from the bottom up to highlight the step edges, e.g. the lighting column should be erected at the bottom of the steps where possible and practicable. In some cases it may also be necessary to erect columns along the length of the steps;
- Cork City Council aims to keep the number of diverse luminaire models within reasonable limits in its inventory. This is to allow economies of scale to be achieved in the maintenance (replacement, spares etc.) of its public lighting assets. Cork City Council, Transportation Division recommends the use of the following luminaires in new and / or upgrades of public lighting schemes. Cork City Council already has significant numbers of the following good quality luminaires in its inventory. Use of other luminaires (including others supplied by listed suppliers), whilst not prohibited, requires the explicit approval of Cork City Council, Transportation Division:

- **50/70 Watt SON Source Luminaries**

Siteco SQ50

Urbis Sapphire 1, Urbis Sapphire 2, Urbis Evolo2

Philips Mini Iridium, Philips Mini Koffer<sup>2</sup>

DW Windsor Akord Cone, DW Windsor Akord Bullet (City Centre Locations)

- **100/150 Watt SON Source Luminaires**

Siteco SQ100

Urbis Sapphire 2, Urbis Sapphire 3, Urbis Evolo3

Philips Iridium, Philips Koffer<sup>2</sup>, Philips Selenium, Philips Modena

DW Windsor Optima Excel (where a more decorative fitting is suitable)

NERI Heron (predominantly city centre only)

- **250 Watt SON Source Luminaires**

Siteco SQ100, Siteco SQ200

Urbis Sapphire 3

Philips Iridium, Philips Modena, Philips Koffer<sup>2</sup>, Philips TrafficVision

NERI Heron

Note. 250 Watt luminaires are generally only used where the use of 150 Watt fittings result in a greater overall scheme total wattage.

Cork City Council may also consider luminaires produced by other suppliers / manufacturers provided that the proposed lantern meets the minimum technical requirements as set out in this document, with a demonstrated regard for thermal management of heat for electronic ballast and as reliable as those recommended and being economically feasible to maintain.

**Note:** All luminaries being used on the proposed scheme shall incorporate **electronic ballast** control gear in all lanterns up to 150W. This is a well established lighting control technology as manufactured by SELC Ireland amongst others specifically for street lighting use. Electronic ballast control ensures greater efficiency, Energy Saving and enhanced lamp lifetimes with consistent performance. Cork City Council, Transportation Division is aware of a number of instances where Luminaire suppliers are only in a position to supply proprietary electronic control gear. In this regard Council approval shall be obtained at the design review stage.

### 3. Public Lighting Columns and Brackets

Tapered tubular or tapered hexagonal / octagonal / hexadecagon (16-sided) galvanised lighting columns shall be selected for use on new schemes and all columns shall be galvanized on both the inside and outside to BS EN ISO 1461: 1999. Public lighting columns shall be designed to the BS-EN 40 family of standards, Viz.:

(a)	IS EN 40-1:1992	Lighting Columns. Definitions and terms.
(b)	IS EN 40-2:2004	Lighting Columns. General requirements and dimensions.
(c)	IS EN 40-3-1:2000	Lighting Columns. Design and verification. Specification for characteristic loads.
(d)	IS EN 40-3-3:2003	Lighting Columns. Design and verification. Verification by calculation.
(e)	IS EN 40-3-2:2000	Lighting Columns. Design and verification. Verification by testing.
(f)	IS EN 40-5:2002	Lighting Columns. Requirements for steel lighting columns.
(g)	BS PD 6547:2004	Guidance on the use of BS EN 40-3-1 and BS EN 40-3-3
(h)	IS EN 1991-1-4:2005	Eurocode 1: Part 1.4. Basis of design and actions on structures. Actions on structures. Wind actions.
(i)	BD 94/07	DMRB Vol.2 Highway Structures Design (Substructures and Special Structures), Materials. Section 2 Special Structures Part 1 BD 94/07 Design of Minor Structures (Formerly BD 26/99 & 26/04)
(j)	NRA BD 26/04	NRA Addendum to BD 26/04

\* **Note:** Where contradictions or ambiguities arise between the standards, the standard listed higher in the order of precedence shall govern.

Columns being installed at city centre locations or at locations as directed by Cork City Council shall have a finish with a proprietary paint to an agreed BS or RAL colour which takes account of the surrounding environment and shall be installed as agreed by Cork City Council, Transportation Division at the design review stage.

The lighting column manufacturer shall be registered with and certified by either NSAI, British Standards Institute of Quality Assurance Services or Lloyds Register Quality Assurance  
Transportation Division

Register for the design, manufacture, supply and verification of road lighting columns and brackets under their quality assessment schedule to ISO 9001.

The quality assurance certification shall relate to the specific lighting column material being proposed. Cork City Council reserves the right to request proof of certification from the proposed column manufacturer.

- Plain tubular stepped columns, widely used to date, are not acceptable to Cork City Council. (This condition applies to all Public Lighting Schemes designed since the issue of Revision 1 of this document in January 2009).
- An earthing connection shall be provided in the base compartment. The fastening screw for this connection shall be stainless steel with an M8 coarse thread.
- The structural loading on the columns and brackets shall be calculated by the proposed column manufacturer / supplier in accordance with IS EN 40-3-1, using the Rationalised Wind Factor calculation as described in BS PD 6547.

The Rationalised Wind Factor (RWF) shall be: 587N/m<sup>2</sup> and the exposure category shall be Category II.

(Note: Calculations using the 60 minute storm or the 3 second gust wind speed will not be acceptable.)

- The structural design of the columns and brackets shall be verified by calculation by the proposed column manufacturer / supplier in accordance with IS EN 40-3-3.

The partial safety factors used in the calculations shall be:

Partial safety factor for materials	1.15
Partial safety factor for dead loads	1.20
Partial safety factor for live loads	1.40

Developers shall take into consideration the location at which a public lighting column is to be installed with a view to the following:

- The level of vandalism likely, more robust columns are required in areas of high instances of vandalism. Cork City Council Transportation Division shall be consulted on this point prior to selection of column;
- Columns that are to be installed in locations inaccessible to a maintenance truck, e.g. on steps / embankments / narrow laneways etc. shall be of a hinged design to allow for maintenance;
- Outreach brackets are to be used in all instances except where Cork City Council Transportation Division explicitly permit direct pole top mounting of luminaires;

- Outreach Bracket designs are to be approved prior to installation, particularly where decorative brackets are being used;
- Public Lighting columns and ducts to be taken in charge for maintenance by Cork City Council shall not be erected on ground likely to remain private / inaccessible, e.g. private gardens, ESB / Bord Gais Substation enclosures etc;
- Account shall be taken of any traffic management measures that may be required during the installation of public lighting schemes including compliance with Chapter 8 of the Traffic Signals Manual published by the Department of Transport. This includes the requirement that a traffic management plan by a holder of a current valid Traffic Management Designer CSCS card and implemented on site by a current valid FÁS CSCS Signing, Lighting and Guarding on roads license holder;
- Any non-lighting equipment (including signs etc.) may only be installed on public lighting columns with the explicit permission of Cork City Council Transportation Division or ESB Networks where applicable. All column design calculations shall consider the inclusion of a sign measuring 300mm x 300mm for wind loading of calculations;
- Proposed column suppliers shall confirm that their columns have a fatigue design life of a minimum of 25 years in accordance with IS EN 40-3-3;
- When rooted columns are proposed, the column planting depth to be treated with a bituminous preservative on both inside and outside surfaces. The bitumen shall extend to 250mm above ground level;
- A marine plywood baseboard is to be fitted in each column. Three coats of intumescent varnish shall be applied to the baseboard in order to prevent fire propagation. The varnish shall be as manufactured by Hamron (type WD-05) or approved equivalent. The rate of coverage shall be 2.5 square metres per litre in order to provide class 0 protection. The clearance between baseboard and inside face of door when secured to be not less than 100mm;
- The column and bracket assemblies shall conform with the deflection requirements of Class 2 as defined in IS EN 40-3-3;
- Design calculations are subject to review by Cork City Council and shall be submitted with proposed public lighting scheme designs if requested;
- Cork City Council may require banner arms to be installed on public lighting columns at main city centre locations. The dimensions of these banners shall be specified and both the column and foundation shall be designed and proposed to Cork City Council for approval.



#### **4. Cable Design and Electrical Service Design**

The electrical services design for the scheme shall be undertaken to comply with the relevant sections of ETCI National Rules, viz ET: 101 and ET: 211. In particular the requirements set out in section 714 of ET: 101 as well as all of the requirements set out in ET: 211 shall be complied with. The detailed cable design shall be undertaken to match the calculated electrical load which would typically allow between 4 and 8 fittings to be supplied per phase. The provision of earth loop / fault level calculations and circuit disconnection (fuse rupture times) shall also be completed at the design stage. Public lighting schemes requiring cable lengths in excess of 200 meters require careful design to meet the earth loop impedance requirements of ET: 101.

Disconnection / fuse rupture times shall be in compliance with those set out in ET: 101 (National Rules for Electrical Installations) rather than those specified in BS 7671 for Public Lighting and Street Furniture.

**Note:** In some cases Cork City Council may refer the electrical services designer to other Irish, UK or European Electrical Design Standards, e.g. BS7671 (UK wiring Regulations and / or associated guidance notes) etc.

- In all cases install power supply cable from the following shall be installed:
  - SWA Cable to BS 6346 (0.6 / 1kV);
  - SWA Cable to BS5467 / I.S. 273 (0.6 / 1kV);
  - NYCY cable to DIN VDE 0276 – 603 (0.6 / 1kV).
- Where ESB high voltage cables (11 KV / 22 KV) cables run in parallel with Public Lighting cables in ducts a minimum segregation of 300 mm shall be maintained. Where ESB high voltage cables and Public Lighting Cables cross they shall do so at right angles. The requirement of crossing at right angles also applies to gas mains;
- Fuses and circuit breakers shall have a minimum rupture capacity of 16 kA;
- Generally, the main customer service pillar customer fuse rating shall not be greater than 25 Amps;
- C-Type circuit breakers shall be used;
- The use of circuit breakers (MCB's) in public lighting columns is not permitted by Cork City Council, Transportation Division. Fused isolators / disconnectors, such as Lucy MC040SLF fused isolators / fused cut outs, shall be used in Public Lighting Columns.
- Public Lighting cables shall not be jointed in inaccessible locations particularly where water ingress is likely. Inspection chambers / draw pits shall be installed at both sides of under carriageway crossings, at every 50m length of duct and at every change of direction > 30°;

- The availability of electricity supplies shall be confirmed by the Distribution System Operator (DSO) ESB Networks prior to design of the public lighting scheme;
- Where upgrades to public lights on overhead network poles is being undertaken electrical isolation boxes (IP 65) (as produced by Killarney Plastics Limited) shall be fitted on the supply connection to each luminaire. These isolator boxes shall be approved for use by ESB Networks and shall meet the requirements set out in the National Code of Practice for Customer Interface as published by ESB Networks. Cork City Council can advise the Developer with further information if required;
- All upgraded luminaries shall be controlled via an integral photocell and not make use of the switchwire as was the practice the past. The switchwire shall be removed when and where required by Cork City Council or ESB Networks;
- Main road public lighting schemes shall have power supply infrastructure installed with a minimum of 25% spare capacity (Maximum Installed Capacity at Customer Service Pillar, Cables to be sized for 25% additional load and at least 25% additional length) to allow for future extension. The spare capacity requirements shall be advised by Cork City Council at the design review phase;
- Cork City Council does not accept public lighting schemes that are centrally controlled from a contactor in the interest of energy conservation, scheme reliability and public safety. As mentioned previously, each luminarie shall have a photocell or sub-miniature photocell.

The installation of schemes in Residential Areas shall comply with the Code of Practice for Public Lighting ET211: 2003. All public lighting schemes shall include the provision and installation of a Customer Service Pillar (Micro Pillar).

**5. Small Civil Works – Access Chambers & Ducts**

- Public Lighting ducting shall be 100mm diameter red polythene with smooth interior to IS 135 Class B / BS5306 Class B. Ducts shall be buried to the correct depths as specified in the ETCI National Rules (ET: 101). Minimum cable bending radii shall be observed;

**Note:** UK standards specify orange ducts for Public Lighting cables; this is not compliant with the Irish ET: 101 requirements that red ducts be used for public lighting cables;

- Decorative Inspection Chamber: All access chamber covers on the footpath to cater for a change of direction shall be ductile iron as per Cavanagh Celtic or similar approved with frame opening 600mm x 600mm to EN 124 B125 with M16 stainless steel locking bolt or similar approved. Lock shall make provision for nut and bolt if damaged. Tapping of the frame is not permitted. If similar approved it shall be certified by an accredited Third party;
- Large Inspection Chamber: All access chamber covers on the footpath to cater for a change of direction shall be ductile iron with galvanized steel frame as per Cavanagh Antelope JB5 or similar approved with frame opening 615mm x 615 mm to EN 124 B125 marked “Public Lighting” or “Traffic” with M16 stainless steel locking bolt, or similar approved. Lock shall make provision for replacement of bolt and nut if damaged. Tapping of frames is not permitted. Cover & frame shall be certified by an accredited Third party;
- Medium Inspection Chamber: Access chamber covers on the footpath for straight through services shall be ductile iron with galvanized steel frame as per Cavanagh Viper Traffic JB2 or similar approved with frame opening 720mm x 260 mm to EN 124 B125 marked “Public Lighting” or “Traffic” with M16 stainless steel locking bolt or similar approved. Lock shall make provision for replacement of bolt and nut if damaged. Tapping of frames is not permitted. Cover and frame shall be certified by an accredited Third party;
- Small Inspection Chamber: Access chamber covers on the footpath for straight through services shall be ductile iron with galvanized steel frame as per Cavanagh Viper Traffic JB1 or similar approved with frame opening 385mm x 260 mm to EN 124 B125 marked “Public Lighting” or “Traffic” with M16 stainless steel locking bolt or similar approved. Lock shall make provision for the replacement of bolt and nut if damaged. Tapping of frames is not permitted. Cover and frame shall be certified by an accredited Third party;
- All Inspection Chambers on carriageways shall have the same dimensions as those listed small, medium and large above. In all cases the chamber shall be to EN 124 Group 4. High strength engineering brick or in situ concrete may be used to make up the manhole walls directly under the frame. Standard concrete blocks or bricks will **not** be allowed. Chamber covers and frames shall be manufactured by Kavanagh Foundry. Where alternative chamber covers are used they shall be approved by a suitably licensed third party (NSAI, Lloyds Register or British Standards Institute of Quality Assurance Services). The engineering bricks shall comply with BS EN 772 (formerly British Standard 3921:

1985). Mortar shall have 1:3 cement sand dry volume ratios. The sand shall comply with BS EN 13139, BS 1200: 1996;

- ESB Networks Mini-Pillars and Customer Service Pillars (Public Lighting Micro-Pillars) shall be installed a minimum of 2m apart. If this is not physically possible and only with the explicit permission of ESB Networks and Cork City Council Transportation Division these may be installed closer together and equipotentially bonded in accordance with ET: 101. **In all cases it is forbidden to utilise the same chamber to service both an ESB Networks (DSO) Mini-Pillar and Customer Service Pillar (Micro-Pillar).** If this is found to be the case ESB Networks will likely refuse to connect the Customer Service Pillar and Cork City Council will not be in a position to take the Scheme in charge.

## 6. Electrical Supply (Metered & Un-Metered)

The electrical supply shall incorporate an un-metered supply for schemes with an energy demand of less than 2kVA or a metered supply point in an approved galvanised steel cabinet (stainless steel cabinet in city centre locations) as appropriate. The connection from the ESB mini-pillar to the meter cabinet shall be provided through a continuous length of red coloured polythene ducting (100mm diameter) at a depth of 600mm. The details on Customer Service Pillar's may be found in The National Code of Practice at [www.esb.ie/esbnetworks](http://www.esb.ie/esbnetworks)

The Developer shall bear the cost of the new electrical power supply connection and shall pay for all outstanding energy bills up to the date the scheme is taken in charge (this is generally the first Monday of the calendar month). For the avoidance of doubt, new electricity supply connections are to be applied for in the name of the Developer and not Cork City Council Transportation Division. ESB Networks will not make a new connection in the name of Transportation Division without the approval of Transportation Division.

### i. Un-Metered – Schemes less than 2 KVA

- a) Red coloured duct (100mm diameter depending on length of run), with smooth interior wall, polythene ducting shall be installed to cater for supplies to any micro-pillars specified from the un-metered supply cabinet;
- b) Red coloured 100mm duct, with smooth interior wall, polythene ducting shall be installed to cater for connections to each of the columns.

### ii. Metered Supplies – Schemes greater than 2 KVA

- a) Red coloured duct (100mm diameter depending on length of run), with smooth interior wall, polythene ducting shall be installed to cater for supplies to metered supply cabinet;

- b) Red coloured 100mm duct, with smooth interior wall, polythene ducting shall be installed to cater for supplies to micro-pillars from the metered supply cabinet.

In the case of metered supplies, it is recommended that location of the meter cabinet be selected to cater for all further up-grades to lighting, traffic signals and signs etc. in the area with details to be agreed with ESB Networks.

An additional 100mm twin wall orange duct shall be install in tandem with the public lighting ducting when and where directed by Cork City Council. This shall be advised at the design phase.

The electrical contractor shall provide a Completion Certificate for the public lighting scheme and shall be responsible for progressing the application for supply to completion and switch-on of the scheme. The customer copy of the electrical test certificate shall be retained and submitted to Cork City Council, Transportation Division with the completed take in charge form as detailed below.

## **7. Lighting Engineering Consultants**

The Transportation Division has a list of engineering consultants, among others, who are in a position to undertake the Lighting and Electrical Supply Design for street lighting, sports lighting and or floodlighting schemes in accordance with the CEN code of practice, national rules for electrical installation “ETCI regulations” and Cork City Council requirements.

The Developer can contact the Transportation Division of Cork City Council for information.

## **8. Street Lighting – Equipment Manufacturers and Suppliers**

Lighting schemes implemented by Cork City Council have included equipment manufactured by various suppliers. The Developer can contact the Transportation Division of Cork City Council for information.

## **9. Electrical Contractors**

Electrical Contractors shall be in a position to supply and install a complete Public Lighting scheme to comply with ETCI National Rules and shall be responsible for coordinating the application to ESB Networks for the connection and to an energy supplier for the supply of electrical power. The Developer shall bear the cost of the new connection fee and will pay the energy bill until the scheme is taken in charge by Cork City Council Transportation Division.

Cork City Council has a panel of five electrical contractors that are used for Public Lighting Works undertaken by or on behalf of the Roads and Transportation Directorate. These are listed in the appendix.

## **10. Temporary Lighting**

In the cases where a Development will include for the replacement of a public lighting scheme Cork City Council may require that a temporary public lighting scheme be installed whilst construction works are undertaken. Instances where this may be required include but are not limited to:

- Where building supported public lighting fittings are removed to facilitate the development;
- Where extensive excavations are likely on “brown field sites” or where demolition of existing buildings is taking place. (In this case Cork City Council and / or ESB Networks may deem that the risk of a live underground cable being excavated and damaged is high and arrange that the cable is isolated. In this case the Developer shall be responsible for the provision of temporary public lighting until such time as the new scheme is installed and commissioned).

Temporary lighting installations must take account of section 704 of the National Rules for Electrical Installations pertaining to construction sites. Account also needs to be taken of the positioning and angles of temporary lights so as to minimize glare and prevent dazzling drivers and pedestrians.

**Note: Public Lights may only removed with the permission of Cork City Council. The Developer shall, prior to removing a public light, commission into service and maintain operational temporary lighting until such time as he replaces the removed light(s) with a new scheme. Failure to do this will likely result in the Developer being liable in the event of any Public Liability claim against him / the Council where public lighting is cited as a contributing factor.**

## **11. Night Time Lighting of Buildings and Structures**

Proposals to light buildings and bridges of particular merit are of interest to Cork City Council in an effort to promote an enhancement to the night-time scene in Cork. These Guidelines have been drawn up as part of a strategy to ensure that lighting schemes are designed & implemented in line with sustainable development policies.

- It is envisaged that the design proposals would meet Best Practice criteria to provide a “Low Brightness” approach to lighting thus ensuring that an energy efficient scheme can put in place from the outset;
- The design should be undertaken by a professional lighting designer, being a service that is often made available by Engineering and Architectural Consultants, in liaison with lighting equipment manufacturers;
- Selective highlighting of a building or feature should be considered as against floodlighting. It is often the case that far too much light is projected onto a building destroying an appreciation of its architecture;

- LED lighting and fiber-optic sources can be used to highlight architectural features with much lower energy levels being required to deliver the desired impact. Luminaires should incorporate electronic control gear to improve energy efficiency and improve the operational lifetime of lamps;
- Choose lamp type and colour temperature sympathetic to the building material being lit. In general terms, high pressure sodium used on its own is a poor choice for many building materials, as it flattens textures and some colors;
- Avoid using a small number of high wattage, wide-angle luminaires which will flatten the façade and wash out its features;
- Avoid mounting fittings parallel to the building – improved modeling of buildings will usually be achieved by lighting at an angle;
- Daytime appearance of fittings and cable is an important consideration – if possible try to conceal fittings behind shrubs, trees or building features;
- Consider glare to people inside the building looking out through windows – down-lighting and spotlights or ground recessed fittings located at close-offset positions to the wall or building will usually avoid such glare;
- Where possible, spotlights or floodlights should be fitted with louvers and cowls to control the beam and avoid sideways light spill;
- Ensure that beams do not spill over the roof or around the side walls as this will create light pollution or glare nuisance to neighbours;
- For schemes being proposed for church buildings, the feasibility of providing back-lighting of the Stained Glass windows could be considered if the particular feature is visible to the public;
- Amenity lighting may also have to be considered at the design stage to compensate for glare and ensure safe access to the building after dark when the floodlighting is in operation;
- It is proposed that copies of the Floodlighting Design would be handed over the Engineering Consultant or to the Electrical Contractor, as nominated by the church authority or building owner, with a view to agreeing a detailed design and providing a budget estimate for the proposal;
- Typically, copies of the following Ordnance Survey Ireland Maps and drawings identifying the site location and elevation details would be required to undertake a Lighting design:

OS Site Location Map Scale 1:1000

OS Site Detail Drawing Scale 1:500 or 1:250

Front Elevation of the Building & Side Elevations of the building if necessary.

- Floodlighting schemes should in general be designed to switch-on at dusk with photo-cell control and be switched off at mid-night using a time-clock;
- It is accepted that floodlighting schemes can be modified to take account of changes recommended at the final installation stage as a result of on-site trials and therefore some details may have be confirmed at that stage;
- A visualization software suite shall be utilized to demonstrate the floodlighting scheme on submission of the design.

Cork City Council, through the Transportation Division is available to discuss proposed floodlighting schemes in the city with a view to insuring that a “Low Brightness” approach is adopted. Lighting Design for new and replacement schemes should take account of these Guidelines to ensure that attractive energy efficient schemes are implemented.

## **12. Floodlighting Schemes**

Where floodlighting schemes of playing fields, pitches or courts etc. are being proposed by sports clubs, schools etc. it should be noted that these are subject to the planning process. Cork City Council has the following requirements in the implementation of such schemes:

- The energy efficiency of the proposed scheme must be central to the design process. The use of modern energy efficient floodlighting lamps and control gear is required. This will have obvious benefits to the scheme owners;
- Use shall ideally be used of a competent lighting designer, this may include the use of the lighting suppliers in-house design service;
- The choice of light source will depend on the type of colour rendering required;
- The scheme designer shall demonstrate to Cork City Council by way of a design submission that minimizes light pollution, eliminates as far as is possible light spill into neighboring property and takes account of the “Campaign for Dark Skies”;
- The scheme designer will aim to minimize or eliminate glare from the proposed lighting scheme;
- The scheme designer shall take account of the location of the proposed scheme in relation to the requirement for an aircraft warning light on the top of the light support structure (e.g. in the case of high structures). In this regard the Irish Aviation Authority may need to be consulted;



- Account shall be taken pertaining maintainability of the scheme following commissioning including site access etc;
- The flood lighting scheme shall incorporate the facility to cater for training rather than against competition events, viz. the scheme shall allow for a reduced level of lighting to be achieved when full illumination levels are not required. This is in the interest of reducing energy consumption.

### **13. Review of Public Lighting Schemes**

Street lighting designs must be submitted to Cork City Council, Transportation Division for approval in line with Planning Conditions prior to commencement of construction on site. Transportation Division will advise the Developer if the proposed public lighting layout meets the requirements of this guidance document and the standards specified within it. The lighting design details submitted for approval shall comprise the following:

- Lighting layout drawings (in .dwg format to allow for design verification);
- Public lighting specification;
- Appropriate Standard Construction Details (SCD's);
- Electrical drawings (schedules and layouts);
- Details of proposed columns and brackets;
- Public Lighting Design Report (see note).

Cork City Council will on receipt of the submitted material advise if any changes are required and if the scheme is acceptable to proceed to construction stage.

Cork City Council, Transportation Division endeavors to advise of its review of public lighting scheme designs within three to four weeks of receipt of all required information.

Note: Cork City Council use Lighting Reality software for public lighting scheme design undertaken in house. In this regard, Public Lighting designs in .RTMA format shall be submitted to the Council at the design review stage and if applicable again at the take in charge stage.

#### **14. Taking in Charge**

The taking in charge of a lighting scheme is a separate procedure whereby the Developer shall satisfy Cork City Council and the DSO (ESB Networks) that the scheme conforms to the ETCI National Rules for Electrical Installations, and the Developer shall also satisfy Cork City Council that the layout and levels of lighting conforms to the CEN Code of Practice.

The take in charge form is available on the Cork City Council website. A Developer wishing to have a public lighting scheme taken in charge for energy and maintenance shall complete this form and submit it to Cork City Council, Transportation Division, along with the following (if not previously submitted):

- As built Lighting layout drawings (in .dwg format to allow for design verification);
- Appropriate Standard Construction Details (SCD's);
- As Built Electrical drawings (schedules and layouts);
- Public Lighting design;
- A signed copy of the electrical test certificate for the public lighting installation (A copy of the signed original will suffice);
- An energy supply bill showing the account cleared.

Cork City Council, Transportation Division, endeavors to undertake an inspection of a public lighting scheme following receipt of a correctly completed request for take in charge of public lighting schemes within three to four weeks.

On completion of the inspection which will typically be undertaken by both City Council Staff and / or Maintenance Contractor staff (or another electrically competent agent of Cork City Council), we shall compile a snagging list of outstanding issues if any are found.

When the Developer confirms that the snagging list has been completed a further inspection will be undertaken. In the event that the snagging list has not been completed to the satisfaction of Cork City Council, Transportation Division, the Developer shall be informed. Should further intrusive inspections be required, Cork City Council reserves the right to charge the inspection cost to the Developer, to be paid prior to commencement of the inspection. This shall be charged at the discretion of Cork City Council, Transportation Division at a rate of not less than €200 Excl VAT per inspection. Inspections requiring significant time and resources may be charged at a higher rate at the discretion of Cork City Council.

When Cork City Council confirms that the public lighting scheme is in a suitable condition to be taken in charge, it shall inform the Developer by means of a formal letter. The Planning and Development Directorate (which oversees the entire take in charge procedure for developments) may request that the Public Lighting Scheme in a development is taken in charge at the same time as the remainder of the Public Domain in that development.

Typically in this case Cork City Council, Transportation Division, requires that the Public Lighting Scheme be maintained operational and in the same condition as it was when the snagging list was completed to Transportation Divisions satisfaction by the Developer.

Cork City Council will also require that each column and customer service pillar installed have “Cork City Council” style label attached with a numbering scheme agreed with the Developer at the taking in charge stage. This is to allow for maintenance coordination, column / luminaire identification and recording of the individual column in Cork City Council’s Public Lighting Asset Management Database.

## **15. Further Information**

Cork City Council reserves the authority to ensure that public lighting schemes are installed to the required Code of Practice before the scheme can be taken in charge with the purpose of providing for energy and maintenance costs.

Further requests for information should be directed to Cork City Council, Transportation Division (Electrical Engineering Section). We can give further guidance on public lighting scheme design layouts etc. and answer questions pertaining to the two public lighting standards covered in this guidance manual, viz. BS5489: 2003 and EN 13201: 2003.

Cork City Council Transportation Division wish to work with Developers to help deliver high quality, energy efficient, public lighting installations which meet the relevant standards and which improve the general ambiance of the city and help to reduce energy consumption.

The electrical section is also available to advise on any other electrical installations that may require Cork City Council input and are contactable as follows:

Traffic Division (Electrical Engineering Section),  
Roads and Transportation Directorate,  
Cork City Council,  
City Hall,  
Cork.

Phone: 021 492 4452  
Fax: 021 492 4495  
email: [traffic@corkcity.ie](mailto:traffic@corkcity.ie)

## Appendix

### Electronic ballast manufacturers

The following manufacturers, among others, are in a position to supply electronic ballasts for street lighting lanterns:

SELC Ireland Limited,  
Industrial Estate,  
Belmullet,  
Co. Mayo,  
Phone: (097) 81 200  
email: [info@selc.ie](mailto:info@selc.ie)  
web: [www.selc.ie](http://www.selc.ie)

### Street Lighting – Columns & Equipment Manufacturers and Suppliers

#### Lighting Design

Lighting schemes implemented by Cork City Council have included equipment manufactured by various suppliers including the following;

#### **DW Windsor Lighting & Valmont Public Lighting Columns**

Street & Park Equipment Co Ltd.,  
P.O. Box 2134, Swords,  
Co. Dublin.  
Contact: Colm Carton,  
Phone: (01) 840 0633,  
email: [info@streetandpark.com](mailto:info@streetandpark.com)  
web: [www.streetandpark.com](http://www.streetandpark.com)

#### **NERI Lighting:**

NERI Lighting, Bradgate Lighting & Furnishings Ltd.,  
PO Box 45837 London E11 2WN  
Contact: Brian Bradley  
Phone: (0044) 7860 58 3361  
email: [neri@bradgateltd.com](mailto:neri@bradgateltd.com)  
web: [www.neri.biz](http://www.neri.biz)

#### **Philips Lighting:**

Philips Electronics Ireland Ltd.  
Philips House  
South County Business Park, Leopardstown  
Dublin 18  
Contact: John McNally  
Phone: (087) 964 2146  
email: [john.mcnally@philips.com](mailto:john.mcnally@philips.com)  
web: [www.philips.ie](http://www.philips.ie)

**Siteco Lighting:**

Contact: Patrick Lawlor  
Phone: (086) 234 1625,  
email: [patrick.lawlor@live.ie](mailto:patrick.lawlor@live.ie)  
web: [www.siteco.co.uk](http://www.siteco.co.uk)

**Urbis Lighting:**

Urbis Lighting Ltd.,  
Mountseaton,  
Camolin,  
Co Wexford.  
Contact: Patrick Redmond  
Phone: (054) 83 711 or (086) 235 6356  
email: [sales@urbislighting.com](mailto:sales@urbislighting.com)  
web: [www.urbislighting.com](http://www.urbislighting.com)

**Veelite**

Light.ie,  
Kilbarry,  
Waterford.  
Contact: Jeralee O'Byrne:  
Phone: (051) 875 399  
email: [info@light.ie](mailto:info@light.ie)  
web: [www.light.ie](http://www.light.ie)

**Suppliers of Lighting Columns & Brackets only:****Lampost Construction Components Ltd.,**

Greenore,  
Co. Louth.  
Contact: Oliver Murphy  
Phone: (042) 937 3554 / (042) 937 3283  
email: [lampost@iol.ie](mailto:lampost@iol.ie)  
web: [www.lampost.ie](http://www.lampost.ie)  
(Tapered hexagonal and 16-sided columns)

**'Spectralyte' Composite GRP Columns**

Road Sign Services,  
31 North Avenue,  
Mount Merrion,  
Co. Dublin.  
Contact: Richard Strahan  
Phone: (01) 283 2823 or (087) 242 3634  
email: [info@roadsignservices.ie](mailto:info@roadsignservices.ie)  
web : [www.roadsignservices.ie](http://www.roadsignservices.ie)

**Public Lighting Contractors for new works and non-network mounted inventory upgrades****Sean Ahern Electrical Ltd.,**

16 Southlink Park,  
Ballycurreen, Cork.  
Contact: Michael Ahern  
Phone: (021) 427 3227  
email: [info@ahernelec.ie](mailto:info@ahernelec.ie)  
web: [www.ahernelec.ie](http://www.ahernelec.ie)

**Al Read Electrical Co. Ltd.,**

Damastown Way,  
Damastown Industrial Park,  
Mulhuddart, Dublin 15.  
Contact: Paul Read  
Phone: (01) 861 4844 or (087) 252 3560  
email: [paulread@readelectrical.com](mailto:paulread@readelectrical.com)  
web: [www.alreadelectrical.com](http://www.alreadelectrical.com)

**O'Sheas Electrical Ltd.,**

Euro Business Park,  
Little Island, Co. Cork.  
Contact: Brian Nolan  
Phone: (021) 451 0700  
email: [bnolan@joneseng.com](mailto:bnolan@joneseng.com)  
web: <http://sites.joneseng.com/osheas/company/>

**Utility Solutions Ireland Ltd,**

Beenreigh,  
Abbeydorney, Co. Kerry.  
Contact: Peter McCarthy  
Phone: (066) 7135710  
email: [usi@tli.com](mailto:usi@tli.com)  
web: [www.tli.ie](http://www.tli.ie)

**Public Lighting Contractors for ESB network mounted inventory upgrades**

Airtricity Utility Solutions Ltd.,  
7/8 Waterfront Business Park,  
Little Island, Cork.  
Contact: Sharon Crowley  
Phone: (021) 452 0135  
email: [sharon.crowley@airtricitysolutions.com](mailto:sharon.crowley@airtricitysolutions.com)  
web: [www.airtricitysolutions.com](http://www.airtricitysolutions.com)

