

City of Brampton
Engineering and Development Division

Planning and Infrastructure
Services Department



PARKS LIGHTING GUIDELINES APRIL, 2014

UPDATED AUGUST, 2015



BRAMPTON
Flower City

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SECTION 1- PROCESS

1. This Parks Lighting Guidelines document is provided as a direction to parks design consultants as to the overall lighting design intent, approvals and review process to be followed for parks and trail systems within the City of Brampton. This document defines the quality and intent of the products to be specified for parks lighting design. This is not an electrical tender specification and is not to be considered to be a detailed electrical/lighting design specification.
2. An electrical/lighting consultant with recent experience in municipal park lighting design will apply these guidelines/specifications for the preparation of the electrical/lighting tender, construction drawings and specifications. The electrical/lighting consultant will maintain General and Professional Liability Insurance Policies in accordance with City of Brampton requirements.
3. The design drawings and specifications for the lighting systems for walkways and valley land trails will be detailed and will conform to the recommendations of the Illuminating Engineering Society of North America publications *Recommended Practice for Lighting Roadways, Adjacent Bikeways and Pedestrian Ways #RP-8-14* and *Recommended Lighting for Walkways and Class 1 Bikeways #DG-5-94*. The electrical specifications and drawings produced are to form a detailed design package and not a performance based specification.
4. The electrical/lighting consultant will co-ordinate with Hydro One-Brampton to arrange for a cost-effective power supply point, at an operating voltage that will best suit the design application for the specific park service.
5. The completed electrical/lighting drawings and specifications will be submitted concurrently with the second landscape submission to the City of Brampton, Engineering & Development Division, Planning & Infrastructure Services Department for review.
6. All electrical work on the site will be performed by skilled, Ontario College of Trades licensed electrical trades persons employed by electrical contractors holding valid Electrical Contractor Registration Agency licences for work within the Province of Ontario.
7. The workmanship and method of installation will conform to the best standards and practices and will be performed to the approval of the City of Brampton.
8. The work will conform to the latest rules, regulations and definitions of the Ontario Electrical Safety Code and applicable Municipal and Provincial Codes and Regulations and with the requirements of other authorities having jurisdiction in the area where work is to be performed. The standards established by drawings and specifications will not be reduced by applicable codes or regulations.

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9. The electrical/lighting consultant will submit the contract drawings to Hydro One-Brampton along with the load calculations required to obtain the approval of Hydro One-Brampton for installation and permits in advance of the work on site.
10. Furnish necessary certificates as evidence that work installed conforms to the laws and regulations of authorities having jurisdiction.
11. The electrical/lighting consultant will upon project completion secure and supply to the City of Brampton the following:
 - A copy of the electrical contractor's final Certificate of Inspection from the Electrical Safety Authority
 - A copy of manuals and maintenance details
 - A digital and hard copy of detailed "As-Built" drawings (Digital "As-builts" will conform to the requirements stipulated by the City of Brampton)
 - Written certification of the as-built lighting performance criteria

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SECTION 2- ELECTRICAL MATERIALS

1.0 SERVICE ENTRANCE POST

1. The main park lighting service entrance post will be one piece 10 gauge steel, custom fabricated from 254mm square stock and hot dipped galvanized after fabrication.
2. The post will be manufactured to EEMAC 3R standards and will have a solid welded top and a gasketted, hinged flap for access to the main circuit breaker device to be housed in an enclosure rated for service entrance use.
3. The access cover must be tamperproof (not removable), have a heavy duty barrel bolt captive hinge and provisions for the City of Brampton's 75mm body padlock.
4. The post will be as manufactured by Spina Metal Works or equal.
5. Detailed shop drawings will be required for consultant review, prior to manufacture.
6. Refer to detail sheet #SKE-1.

2.0 CONDUIT

1. All wire and cable will be installed in rigid PVC conduit.
2. Conduit installed below grade and below concrete grade slabs will be rigid heavywall PVC, with solvent weld joints and Ontario Electrical Safety Code approved for use above grade. (CSA SPEC C22.2-No. 211.2) Rigid TYPE II PVC underground conduit, ENT, EBII, DBII and poly pipe are not acceptable.
3. The conduit will include a separate code gauge supplementary green stranded T90 grounding conductor, terminating on a ground block at the service entrance isolating device.
4. For all surface conduits, fasten to structural members by means of approved galvanized steel conduit clamps or clips. Wire lashing is not acceptable.
5. Provide a 150 mm wide red or yellow plastic "CAUTION" tape located 300 mm above each buried conduit for the full length of the conduit.
6. All sub-grade conduits will be installed with a minimum of 600mm of cover over the top of the conduit.

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7. Surface conduits to be installed on pedestrian bridges and through tunnels will be rigid aluminium with threaded couplings and connectors. Threaded flexible expansion couplings are required at all bridge access points and at bridge expansion joints.

3.0 WIRE AND CABLE

1. All wire and cable will comprise stranded copper conductors, rated 90 deg. C., 1000 volt minimum, CSA and Ontario Electrical Safety Code approved for wet applications.
2. The wire and cable will be Type RWU stranded and will not be installed at temperatures below 5 degrees Celsius.
3. The wire and cables in feeders, sub-feeders and branch circuits shall be colour-coded in accordance with the Ontario Electrical Safety Code. At each feeder termination point (i.e. handwells, service entrance posts and lighting poles) use the code: Phase A-Red, Phase B-Black, Phase C-Blue, Neutral-White and Ground-Green.
4. All wire and cable will be designed and sized on the drawings. The maximum voltage drop between the furthest outlet of any circuit when fully energized and the main service entrance point to which it is connected will not exceed three percent (3%).
5. Solderless connectors, nylon-jacketed "Vibration-Proof" screw-on wire connectors "Ideal-Wing Nuts" rated 600 volts shall be used for joints in Branch Wiring.

4.0 POLE NUMBERS

1. Provide a self-adhesive pole identification number on each light standard.
2. Pole identification numbers will be Brady #1530-BLACK 1" vinyl on a reflective yellow background.
3. All pole-mounted luminaires located within each park will be sequentially numbered, beginning at the number "1", in order to augment and facilitate the operations of the City of Brampton's Parks Maintenance & Operations, under the Public Works Division of the Planning & Infrastructure Services Department.
4. Numbering to proceed lineally with pole number "1" being the first in the circuit. Numbers are to be physically located on the side of the arm of the luminaire they serve.

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5.0 DISCONNECT SWITCHES

1. Provide fusible and non-fusible switches of the same manufacture NEMA Type "HC" with quick-make, quick-break contacts. Provide holders to accept HRC fuses. Switches to include mechanical cover interlocks and line side barriers.
2. Switches will be CSA "Approved for High Service Factor".
3. Switches will be CSA approved for service entrance use where required.

6.0 SERVICE ENTRANCE CIRCUIT BREAKERS/ENCLOSURES

1. All lighting and power circuits will be protected with main circuit breakers mounted into surface EEMAC 3R enclosures.
2. The circuit breakers will be fixed bolted connection thermal-magnetic, quick-make, quick-break, 40 deg. C., calibrated ULC rated "SWD" switching duty, moulded-case circuit breakers. "Plug-in" breakers are not acceptable. Multi-pole breakers shall be common trip type. Circuit breakers in 347/600 volt panelboards shall be rated 350 volt single pole and 600 volt for two and three pole.

7.0 TIME CLOCKS/PHOTOCELLS

1. All time clocks will be Intermatic #ET1705C or equal electronic, 7-day programmable, single pole single throw with 30 amp rated contacts, 120-277 volt clock operation, automatic daylight saving time (DST) adjustment and a AA battery for reserve clock power.
2. All photocells will be Intermatic #K4000 series, button type mounted in the first walkway luminaire in the circuit. The voltage and other characteristics of the photocell are to be designed for the specific lighting circuit that it is serving.

8.0 EXTERNAL CABINETS

1. Provide EEMAC 3R weather-proof, gasketed control cabinets with concealed hinges and the required mounting.
2. The cabinets are to include welded locking bars that cover and overlap the opening edge of the cabinet doors and be suitable for the City of Brampton's padlock.
3. The lock location must have a welded lock shield to prevent tampering with the lock.

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4. The cabinets are to be primed after fabrication and finished with two coats of water-proof grey enamel paint.

9.0 CONSUMABLE REPLACEMENT COMPONENTS

1. All products will conform to the general design concept of this specification and will operate with generic consumable components readily available from local electrical distributors, whenever possible.

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SECTION 3- WALKWAY LIGHTING ASSEMBLIES

1.0 POLES (New Parks)

1. The poles will be direct buried, pre-stressed coloured (as per City of Brampton standard) concrete with an etched finish. A lifetime manufacturer's warranty will cover all aspects of the pole assembly.
2. All poles will be specified with a cast metal tamper proof handhole cover and a ground wire cast into the concrete.
3. The pole will be coloured spun concrete as specified with the colour being continuous throughout the pole. The use of coloured dye in the surface pole sealer will not be acceptable. Refer to section 4.0 for pole colour.
4. The wire within the pole will be a minimum of #10 RWU copper only.
5. The inside face of the pole will be 1000mm offset of the hard surface edge of the walkway or 2000mm offset for vehicular pavement.
6. Refer to Walkway Lighting Assembly Details #SKE-2 through #SKE-4.

2.0 LUMINAIRES

1. The walkway luminaires will be classified as per IESNA TM-15 and be of one piece die-cast metal alloy construction with a gasketed frame surrounding the LED array and a tenon-mount slipfitter arm. A minimum 10-year manufacturer's warranty will cover all luminaire components.
2. The luminaires will operate with an IP66 rated maximum 25 watt 4000K CCT LED array, an integral electronic driver and will be rated to IESNA TM-21-11 standards for lumen maintenance.
3. The IES TYPE II or TYPE III distribution pattern will be achieved with individual pre-oriented LED injection-moulded acrylic optical assemblies.
4. The luminaires will carry a maximum BUG rating of B1-U0-G1 and will have been tested to IESNA LM-79-08 and LM-80-08 standards.
5. Refer to Section 4.0 for luminaire colour.
6. The minimum luminaire mounting height is 4600mm (15 feet) above finished grade.

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7. The pole spacing is to be determined by the application of the illumination design requirements to the specific walkway and is to further reflect the topography and the relevance of the plant materials along the walkway.
8. The overall walkway will be designed to a 5 lux (.5 foot-candle) maintained average illumination with a .90 maintenance factor and must conform to the recommendations of IESNA publications *Recommended Practice for Lighting Roadways, Adjacent Bikeways and Pedestrian Ways #RP-8-14* and *Recommended Lighting for Walkways and Class 1 Bikeways #DG-5-94*.
9. The average-to-minimum illumination uniformity will not exceed 5:1.

3.0 LIGHTING CONTROL

1. The first luminaire in each walkway lighting circuit will be equipped with an integral button-type photo control to control the complete lighting circuit.

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4.0 TYPICAL WALKWAY LIGHTING ASSEMBLIES

TYPE & APPLICATION	LUMINAIRE	POLE & ARM	COLOUR POLE/LUMINAIRE	DETAIL SHEET
A New Parks	Eaton Lighting #LDRV-TX-E01-X-BK-MA1182-BK	StressCrete #E200-APO-G-E11-TP c/w 140-25/45 or approved equivalent	Pole - Eclipse Black Luminaire - Black	SKE-2
B Special decorative assembly as requested by City of Brampton	Lumec #DMS50-55W32LED4K-R-LEXS-XXX-SMB-BKTX or King Luminaire #K829-FASA-II-60-SSL-8000-XXX-KPL10-BK	StressCrete Canterbury #KYC16-E11-KA32-T-1-36-FINIAL-BK or approved equivalent	Pole – Eclipse Black Luminaire - Black Arm – Black	SKE-3
C Special decorative assembly as requested by City of Brampton for Parking Lots and Driveways	Lumec #DMS50-XXWXXLED4K-R-LEXS-XXX-SMB-BKTX or King Luminaire #K829-FASA-II-XXX-SSL-XX000-XXX-KPL10-BK	StressCrete Canterbury #KYHXX-E11-KA30-T-1-72-FINIAL-BK or approved equivalent	Pole – Eclipse Black Luminaire - Black Arm – Black	SKE-4
C1 Similar to C but base mounted on decorative poured-in-place concrete base in Parking Lot interior space only	Lumec #DMS50-XXWXXLED4K-R-LEXS-XXX-SMB-BKTX or King Luminaire #K829-FASA-II-XXX-SSL-XX000-XXX-KPL10-BK	StressCrete Canterbury #KYHXX-E11-FBP-KA30-T-1-72-FINIAL-BK or approved equivalent mounted on Art-Form “Kellamy” #610R Base Form	Pole – Eclipse Black Luminaire - Black Arm – Black	SKE-5 (Base)

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5.0 GAZEBO LUMINAIRES

- .1 The luminaires for park gazebos will be a ceiling mounted Eaton Lighting “VPL Valet” #VPL-E01-LED-XX-CQ-BK 15” x 11” surface mount, 25 watt, LED luminaire with a custom made wire guard.
- .2 Securely fasten the luminaire to the structural supports of the underside of the gazebo roof with four (4) ¼”-20 machine bolts, fender washers and nuts. Provide suitable galvanized steel mounting brackets to secure the luminaire to the roof structure.
- .3 Supply and install an 18” square by 12” deep galvanized welded wire mesh guard to cover the complete luminaire. The guard will be manufactured from 1” X 1” 10 gauge welded wire mesh and hot dipped galvanized after fabrication. Fasten the guard to the luminaire mounting brackets with four (4) ¼”-20 machine bolts, nuts and fender washers.
4. Provide a closed top for the wire guard to keep birds from entering the guard enclosure. Fasten the guard to the luminaire mounting brackets attached with four (4) ¼”-20 machine bolts and plate washers drilled and tapped into the steel structure.

6.0 PEDESTRIAN TUNNEL LUMINAIRES

- .1 The luminaires for the pedestrian walkways through tunnels and bridge underpasses will be roof or wall mounted Eaton Lighting “VPL Valet” #VPL-E0X-LED-XX-XX-BK 15” x 11” surface mount, LED luminaire with a custom made wire guard.
- .2 Securely fasten the luminaire to the tunnel roof or wall structural as site specifically required with four (4) ¼”X 20 self-drill masonry anchors with machine screws and fender washers.
- .3 The custom made wire guard as manufactured by Wire Guards Inc., Markham will be an 18” square by 12” deep galvanized welded wire mesh guard to cover the complete luminaire and will be manufactured from 1” x 1” 10 gauge welded wire mesh. The guard will be hot dipped galvanized after fabrication.
4. Fasten the guard independently to the structure with a minimum of four (4) ¼”X 20 self-drill masonry anchors with machine screws and fender washers.

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7.0 ALTERNATE LIGHTING PRODUCTS

- .1 The listing of any product within this specification requires that the electrical consultant will specify each item listed of the quality and subject to the qualifications noted.
- .2 All products, materials or equipment which are called for in this guideline specifications by trade name or the name of a particular maker, or by catalogue references, is the material, apparatus or equipment which is to be the basis for the preparation of the design drawings and specifications.
- .3 The names mentioned in these specifications are intended to furnish a definitive basis for the clear description and quality of the products named within the design specification.
- .4 Any similar products may be offered by the electrical consultants as an alternate, with the product differences and any cost differences clearly delineated for final review and comment by the City of Brampton.

END OF GUIDELINES









