

# Exterior Site Illumination Submission - Lighting Plan

(Last update: June 2025)

An Exterior Site Illumination (Lighting) Submission outlines proposed & existing exterior site lighting and demonstrates that installed lighting will avoid, or minimize, negative impact on the local environment and adjacent properties and roadways. For an Exterior Site Illumination Submission, lighting plans demonstrate compliance with local light pollution by-laws, municipal codes, and Dark Sky best practices.

An Exterior Site Illumination (Lighting) Submission is comprised of:

- an exterior site lighting layout, which demonstrates the location, height, and type of exterior light fixtures (ground, wall & ceiling mounted) on the site and proposed buildings, including the location of electrical supply, and
- a photometric plan, which demonstrates the light fixture locations and illumination levels.
  - The photometric analysis and lighting layout plan may be submitted as one combined drawing provided the information provided is legible.
- Lighting details, specifications, schedules, summaries, statistics and/or cut sheets.

## Required by Legislation

The Ontario *Planning Act*.

[Light Pollution By-Law 63-95 \(Municipal Code Chapter 1050\)](#)

## Who should prepare this submission?

An Exterior Site Illumination (Lighting) Submission must be completed by a qualified lighting consultant or electrical engineer with experience in exterior, roadway, and/or parking lot lighting. All reports and drawings must be stamped, signed, and dated by a qualified Professional Engineer, licensed in the Province of Ontario.

## When is this required?

An Exterior Site Illumination (Lighting) Submission may be required as part of the following applications:

- Site Plan and Site Plan Amendments

***Exception:***

The City of Richmond Hill's Light Pollution By-law does **not** apply to street townhouses and residential uses of four dwelling units or less on a single lot; therefore, an exterior site lighting submission is not required in these instances. Refer to Section 3.12 of the [Clean Neighbourhoods By-law No. 63-24](#) for exterior lighting requirements for these types of developments.

## Why do we need this submission?

An Exterior Site Illumination Submission is required to reduce light pollution and mitigate light trespass within the municipality by ensuring:

- compliance with the City's Light Pollution By-law
- lighting does not negatively impact surrounding properties

## How should this be prepared?

An Exterior Site Illumination Submission should at a minimum contain:

### **Introduction**

- Property address
- General site location of the subject property
- Project Name (if applicable)
- Applicant and owner's contact information
- Author name, title, qualifications, company name, and appropriate stamp
- Brief description of the proposed development
- Overview of the study area
- Purpose of the study
- Location and context map

### **Proposal Description and Context**

- A description of the proposal, including development statistics such as: number of units, site area, type of development proposed, height, parking areas, access points, location of amenity areas, hours of use/operation, proposed phasing.
- A description of the existing on-site conditions as well as surrounding areas, roads, natural areas, buildings, parking areas

- Concept Plan for the development including building location, parking, access, amenity areas, grading, and natural features, and any natural hazards.

### Investigation/Evaluation

#### **Site Assessment:**

- Consider site conditions; adjacent conditions & land uses; & local context (including nearby destinations for pedestrians/cyclists and how they might access the site & ecologically sensitive sites)

#### **Planning:**

- Consider site users, activities, & hours of use (current & proposed)

#### **Design:**

- Select shielded (full cut-off) luminaires to avoid uplighting and consider adding devices that facilitate the reduction of illumination during late night/early morning hours when the site is not in full use. Carefully consider fixture placement, orientation, and aiming of luminaires to avoid producing light trespass and glare.

#### **Photometric Analysis:**

- Optimize illumination design to use the minimum amount of light required to:
  - facilitate site use, circulation, navigation, and wayfinding
  - support site security
  - minimize light pollution, sky glow, and glare

### Impacts and Mitigation Measures

- Lighting Equipment Selection
  - Propose shielded luminaires.
  - Select colour temperature or correlated colour temperature (CCT) of 4000K or less, preferably 3000K.
  - Select fixtures with fixed orientation and avoid adjustable fixtures where possible.
  - Add devices such as timers, controls, sensors to reduce and/or turn off lighting when outdoor areas are not in use and/or between 11pm and 5am.
- Placement/Aiming
  - Provide sufficient setbacks between proposed luminaire locations and property lines.
  - Place any unshielded fixtures beneath a permanent canopy e.g., building overhangs (structure would serve as external shielding for an unshielded fixture).
  - If an adjustable fixture is selected, ensure it is aimed inward and downward and locked in place at time of installation. Relay these requirements to Applicants/Owners verbally and/or in maintenance plans/instructions.
  - Plan lights to be aimed downward and inward. Ensure light is not directed up to the sky or out towards neighbouring properties/buildings. Reiterate this information in plans and in instructions to Contractors. Relay these requirements to Applicants/Owners verbally and/or in maintenance plans/instructions.
- Light trespass calculations
  - Conduct light trespass calculations at property perimeter during photometric analysis to verify & address proposed design areas that may contribute to light trespass.

## Recommendations

Where applicable, consider site specific recommendations for additional mitigation measures required due to the special conditions/constraints regarding specific site conditions or adjacent sites/environments – e.g., naturalized environment – proximity to body of water or potential impact on flora/fauna, TRCA regulated area/ORM lands.

## Submission Deliverables - Drawings and Supporting Information

### Lighting Plan:

- Base plan(s) in lighting layout(s) to include location of buildings (including key building envelope elements, such as doors & windows) and structures and delineating hardscaped areas/elements (including walkways, driveways, parking (automobile & bike), curbs, walls, planters, seating & amenity areas, rooftops & upper amenity areas)
  - Consider submitting separate plans for separate floors (e.g., ground floor/level 1 vs. a sixth-floor rooftop amenity area) to ensure clarity of submissions.
- The location, position, type, and quantity of all existing and proposed exterior lighting fixtures.
- The luminaire mounting height (LMH) of all existing and proposed fixtures (from adjacent grade to underside of the fixture).
- The site areas and/or building elements intended to be illuminated.
- That the lighting fixtures, electrical conduit, and areas to be illuminated do not conflict with existing or proposed vegetation.
- Notations that all exterior lighting fixtures are full cut-off to direct illumination downward and dark sky compliant to reduce light pollution, sky glow, glare, and light trespass onto neighbouring properties.
- The number and location of outdoor light fixtures to be equipped with automatic timing devices/sensor/controls, if applicable.
- Any building design or other features which may affect the nature, intensity, or direction of light emission from outdoor light fixtures.
- Luminaire Schedule including label/designation (consistent with plan layout & legend labels/symbols) fixture type, light source type, fixture description, catalog/ordering code, manufacturer, watts, lumens, colour temperature/CCT (Correlated Colour Temperature), LLF (Light Loss Factor).
  - Colour Temperature: For City of Richmond Hill the maximum permissible colour temperature is 4000K. A colour temperature of 3000K is preferred. Please note that to obtain a credit for Sustainability Metric IB-17, proposed fixtures must have a dark sky fixture seal of approval, **or** they must be full cutoff with a colour temperature of 3000K or less.
- Where applicable, include proposed power feeds, pedestals, & transformer locations.

### Photometric Plan:

- Provide a point-by-point photometric analyses for the exterior site for:
  - ground level
  - upper floor outdoor amenity areas/terraces/rooftops

- vertical surfaces to be illuminated (facades, walls, signage)
- Maximum Permissible Horizontal Illuminance:
  - Per the City of Richmond Hill Light Pollution By-law, the maximum permissible average maintained horizontal illuminance of all outdoor areas on a lot shall not exceed 16.14 Lux (1.5 FC (footcandles)).
  - At minimum provide the proposed overall average maintained horizontal illuminance for travelled areas (inclusive of all driveways, drive aisles, walkways, vehicle parking, bike parking, entry areas, amenity areas, play areas, and seating areas).
  - If providing a calculation summary or statistics table for various outdoor areas, include a line/row for the proposed overall average maintained horizontal illuminance for the site that includes the areas listed in the calculation summary/statistics table.
  - Per the City of Richmond Hill Light Pollution By-law, after 11pm, or close of business (whichever is later &/or applicable), the maximum permitted average illuminance is 10.76 Lux (1.0 FC).
    - Include a note on the drawing regarding the measures that will be taken to reduce light levels to permissible levels after 11pm or closing (e.g., controls to dim light fixtures or a timer to shut off lights in unoccupied or closed areas). If any lights will be dimmed or turned off, the respective lights should be indicated on the plan. If light levels will be reduced after 11 pm/closing, or if any lights will be turned off, either:
      - Submit a second photometric analysis with a calculation summary showing proposed illuminance levels between 11pm and 5am, **or**
      - Add a note on the site photometric drawing stating that timers/controls will be installed to reduce the site's overall average maintained horizontal illuminance to 10.76 Lux (1.0 FC) or less between the hours of 11pm and 5am.
  - If the proposed facility will be in operation 24/7 then the allowable maximum is 16.14 Lux (1.5 FC) from dusk to dawn.
- Maximum Permissible Vertical Illuminance:
  - Per the City of Richmond Hill Light Pollution By-law, the maximum permissible average maintained vertical illuminance of vertical surfaces shall not exceed 64.6 Lux (6 FC).
  - For façade illumination or external illumination of signage on a vertical surface, elevations include elevations or renderings with photometric analysis.
  - Demonstrate that the average maintained vertical illuminance of the walls or sign surface does not exceed 64.6 Lux (6 FC).
  - Include a note stating that proposed fixtures must be shielded and locked in position to reduce potential for stray upright or light trespass.
  - Please note that internally illuminated signs are exempt from the Light Pollution By-law. If signage will be internally illuminated, include a note on the submitted plan layouts or elevations stating that signage is to be internally illuminated.
- Provide all illumination levels in Lux. Footcandles may be accepted in some circumstances.
- Mitigate light trespass onto adjacent properties and minimize light spill into adjacent roadways. Do not direct light towards other properties and/or buildings. Direct light

inwards and downwards. Specify luminaires with spill control or house side shields where necessary. Target 0 Lux for property limits interfacing with adjacent properties (particularly residential).

- Include light trespass results (max/min) for the property perimeter in the calculation summary/statistics table.
- Provide readings that extend 6.0m beyond the property lines of the subject site.

**Details:**

- Fixture Cut Sheets
- Manufacturer's data demonstrating the specifications for all proposed lighting fixtures, including the photometric data, designation as IESNA "full cut-off" fixtures, and other descriptive information related to the fixtures (e.g., B.U.G. ratings, flux distribution tables/luminous intensity plot)
- Any additional specifications or details on lighting equipment/devices/accessories that facilitate the reduction of light pollution and trespass.

**Certification Statement:**

- On signed & stamped/sealed plans provide a statement that the proposed lighting design & equipment are compliant with applicable by-laws, codes, and IES & Dark Sky recommended best practices.
  - "I hereby certify that the outdoor lighting equipment and fixtures designed herein comply with the City of Richmond Hill By-law No. 63-95." – Signature of designer or engineer's stamp

**Cost Estimate:**

- The cost estimate for internal site works is to include exterior site lighting. Please provide a cost estimate (including supply and labour) for the site lighting/electrical work. Any exterior/outdoor light fixture that contributes to exterior site illuminance (e.g., light standards, bollards, wall mounted fixtures, ceiling mounted fixtures) constitutes exterior site lighting and is to be included in the cost estimate.
  - Estimate may be itemized or lump sum and may be provided separately or as part of the civil site works estimate.

The submission should also be supplemented by any available City data and experience, as well as reflect the relevant goals and policies in the City Official Plan.

## What else should we know?

A Pre-Submission Meeting with City Planning staff is encouraged prior to submitting a development application. The scope of the Study should be discussed with City staff and/or other agencies as part of the pre-submission process which would generally take place prior to the submission of a *Planning Act* application.

The information on the lighting plan must be coordinated with all other required submission materials and drawings and must follow the standards as outlined in the [Illuminating Engineering Society \(IES\) Standards](#).

**Some pertinent IES Lighting Practices, Recommended Practices, & Guidelines include:**

- LP-2 Designing Quality Lighting for People in Outdoor Environments
- LP-11 Environmental Considerations for Outdoor Lighting
- RP-8 Recommended Practice: Design and Maintenance of Roadway and Parking Facility Lighting
- RP-43 Recommended Practice: Lighting Exterior Applications
- G-1 Guide for Security Lighting for People, Property, and Critical Infrastructure

**Illumination and Other Studies**

- To ensure lighting is well-integrated and addresses the needs of future users while not negatively impacting existing residents/owners/environment, general illumination approach/guidelines should also be considered (site, façade, pedestrian, and private and municipal roadway) earlier in the planning & design process, in tandem with both building and landscaping design at the Architectural Design Control and Urban Design and Sustainability Control level of submission.
- Because lighting informs & supports built form at night (buildings, landscapes, communities), as well as place-making, identity, navigation, wayfinding, and outdoor activities - lighting should be considered in tandem with the Urban Design and Sustainability Control in addition to environmental impacts related to building design – extent of glazing, skylights, energy consumption.

**Illumination and Sustainability Metrics**

A Letter of Commitment is also required for related sustainability metric IB-17. Review proposed illumination in accordance with the requirements for IB-17 in the City's Sustainability Metrics:

[Sustainability Metrics](#)

[Sustainability Metrics Program Guidebook](#)

## **Additional Terms**

To be identified by the City through the pre-submission process.

## **Submission Instructions**

To be submitted in accordance with the [City's requirements for Development Planning Applications](#).

## What other resources are there?

Ontario Professional Planners Institute (OPPI) – [Hire an RPP](#)

Professional Engineers of Ontario – [Why employ a professional engineer?](#)

[International Dark-Sky Association](#)

[International Association of Lighting Designers](#)

[National Council on Qualifications for the Lighting Professions](#)

## About these Terms of Reference

The Exterior Site Illumination Submission requirements may vary depending on the nature of the proposal. Discussion and confirmation as to whether all criteria outlined within these Terms of Reference are appropriate for your development project, will also take place with you and in consultation with any relevant external agencies.

In addition to these Terms of Reference, municipal departments and/or external agencies may require analysis of specific technical components that should be addressed in the study. Confirmation of additional technical requirements, and a checklist identifying detailed standards to be met, in turn may be provided.

### Notes:

If new site lighting is proposed, or if there are any planned additions or changes to existing site lighting, a lighting submission is required for the City's review to ensure compliance with the City's Light Pollution By-Law 63-95 (Municipal Code Chapter 1050).

If the proposed development is revised during the application process, the submission shall reflect the proposed changes to the development layout as well as any resultant changes to proposed lighting through updated plans. (Note: this is subject to the extent of the revisions).

A peer review may be required. The cost of the peer review will be borne by the applicant.

If the Exterior Site Illumination Submission is incomplete, is prepared by an unqualified individual, or does not contain adequate analysis, the applications will be considered incomplete and returned to the applicant.

If the proposed lighting is revised after drawings are approved for site plan agreement, then an as-built lighting plan and updated photometric analysis may be required for submission along with a required Exterior Lighting Compliance Letter prior to the release of lighting-related site work securities.