

1.0 **GENERAL**

1.1 **Related UBC Guidelines**

- .1 [UBC Vancouver Campus Plan Lighting Guidelines](#)
- .2 [UBC Okanagan Campus Plan](#)

1.2 **Coordination Requirements**

- .1 UBC Energy & Water Services (Vancouver)
- .2 UBC Facilities Electrical (Vancouver)
- .3 UBC Facility Management (Okanagan)

1.3 **Description**

- .1 UBC requirements for Exterior Lighting, Street Lighting and Landscape Lighting.

2.0 **MATERIAL AND DESIGN REQUIREMENTS**

- .1 For each project, exterior lighting must be provided for all lanes, roadways, plazas, walks, steps, etc., to a level sufficient to meet safety requirements of all users. [The requirements outlined in UBC Vancouver Campus Plan Lighting Guidelines \(Vancouver\) and UBC Okanagan Campus Plan \(Okanagan\) shall be utilized for lighting design requirements in the public realm. The IESNA published standards shall be utilized for areas not covered under the Campus Plans.](#) Where public use of the project at night is required, this lighting shall extend beyond the boundaries of the project site to include contiguous access and parking areas.
- .2 Lighting design shall incorporate the principles of sustainability and its products and systems shall be energy conserving, long life, have a low cost of ownership and shall be easily and safely accessible for service and maintenance. If special equipment is required for lighting maintenance then the consultant shall, prior to tender, present a preliminary Lighting System Maintainability Plan to UBC Electrical (Vancouver) / Facility Management (Okanagan) for review and approval. The preliminary plan shall contain a high-level overview of the special equipment and processes required for maintenance of the system. Architectural, Structural and Conveyancing requirements must be confirmed for moving special equipment to and from the locations after construction is completed. The finalized plan will be submitted by the contractor and it shall contain detailed documentation describing the special equipment, maintenance procedure/schedule and spare parts
- .3 Exterior lighting is supplied with electrical energy from nearby buildings. For each project where existing exterior lighting will be impacted by planned new construction, the new project scope shall include all needed adjustments, removals or relocations to the existing systems to ensure continued operation of existing exterior lighting systems beyond the project boundaries, as well as new exterior lighting for the new project. The scope for remediation of existing lighting systems shall be as per the original design intent. All impacted existing systems shall require coordination with UBC Facilities Electrical (Vancouver) / UBC Facility Management (Okanagan). UBC Facilities Electrical / Facilities Management Policies and Procedures shall be followed when investigating and/or modifying existing systems.
- .4 Lighting equipment shall be vandal proof by use of proper design and sufficient mounting height. Specifically, post top units at low mounting height (below 5m) and bollards shall not be used. [Refer to UBC Vancouver Campus Plan Lighting Guidelines for height requirements.](#)

- .5 Retrofits of existing streetlights, where full replacement is not feasible, should provide light of similar quality, color, and illuminance as specified in the lighting plan. When new streetlights are added between existing ones, the luminaires shall be adjusted to ensure appropriate light levels are achieved.
- .6 When existing non-compliant light fixtures are identified for repair or replacement, it is expected that the appropriate compliant fixture will be installed. The only exception is in instances where multiple obsoleted fixtures are contained within a row. In this instance the same non-compliant fixture may be installed and used until there is funding to replace the entire row to the new standard.
- .7 Building highlighting/floodlighting is not permitted. Where feasible, floodlighting of high quality, low glare design installed on building areas inaccessible to the public can be used.
- .8 Landscape (garden-shrub-lawn) type lighting is not acceptable.
- .9 Fixtures that are cast in place into concrete or other permanent finishes are not permitted. Only surface mounted fixtures are permitted in these instances.
- .10 Lighting integrated into handrails and stairs is not permitted.
- .11 Exterior lighting that is powered by a building shall be under the control of the BMS scheduling system. The areas shall be divided into the following (as applicable):
 - .1 Building Mounted Exterior Lighting
 - .2 Walkway/Landscape/Area Lighting
 - .3 Street Lighting
 - .4 Street Lighting Receptacles (Mounted on the pole base)

Each area shall contain its own set of HOA, contactors, relay and pilot light for independent control via the BMS. Refer to Standard Detail E12-1 for an example of 2 areas.
- .12 Exterior lighting shall not be dimmable. DMX, DALI and other lighting control systems shall not be used without an approved variance from UBC Electrical (Vancouver) / Facility Management (Okanagan).
- .13 All conduit systems for street lighting shall be sized for designed conduit fill then increased by 1 trade size. Minimum conduit size shall be 37mm. All conduit and fittings shall be RPVC.
- .14 All conductors for street lighting shall be minimum #8AWG RW90XLPE 1000V rated. Control and power conduits shall not share the same conduit system.
- .15 Boxes used for street or landscape lighting shall be sized as per the CEC. All boxes shall be of concrete construction, come with galvanized steel covers labeled "ELEC" and incorporate a bonding lug.
- .16 No electrical equipment such as transformers, ballasts, starters, drivers, etc. shall be installed in in-ground boxes or any below grade installations.
- .17 Exterior lighting pole bases to be installed minimum 13mm above hard scape and 50mm above soft scape. New light fixture base shall project minimum 50mm above finished soft scape grade.
- .18 Poles shall be steel and be painted with one coat of primer and 2 coats of paint.

- .19 Poles complete with luminaries shall be able to withstand 160 km/h winds.
- .20 All light fixtures provided shall be stock items (no custom made fixtures) readily available from local suppliers. The fixtures are required to be in current production with no plans to cease production and support within a 5 year period.
- .21 The following fixtures are required for to be used in the public realm as per UBC Vancouver Campus Plan Lighting Guidelines:
 - .1 Roads:
 - Lumenpulse Pure 100
Colour Temp: 3000 Kelvin
CRI: 92 or higher
Paint Colour: UBC grey (RAL 7043)
 - .2 Pedestrian Areas:
 - Saturn 2 Cutoff by Se'lux
Pole Type S35; Base Type: S35
Paint Colour: UBC grey (RAL 7043)
 - .3 Ceremonial Routes:
 - Match existing
Pain Colour: UBC Grey (RAL 7043)

END OF SECTION