

SCHEDULE G

REGULATIONS, STANDARDS AND SPECIFICATIONS FOR THE INSTALLATION OF STREET LIGHTING

Schedule G - Regulations, Standards and Specifications for the Installation of Street Lighting

This is **Schedule G** of the Corporation of the Village of Valemount Subdivision and Development Servicing Bylaw No. 919, 2026.

Corporate Officer

SCHEDULE G – REGULATIONS, STANDARDS AND SPECIFICATIONS FOR THE INSTALLATION OF STREET LIGHTING

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GENERAL

Street Lighting to Be Provided by Owner

Where the provisions of Schedule A require the provision of street lighting, the Owner shall provide street lighting including all service wiring, bases, poles, luminaires, lamps, photo cells, control equipment and all related appurtenances consistent with the regulations, standards and specifications set out in this Schedule, existing laws and where applicable the design requirements set out by the Ministry of Transportation and Transit (MoTT).

Approval of Engineering Drawings Required Prior to Construction

Engineering drawings showing detailed design of the necessary works shall be approved by the Approving Officer before commencement of construction.

The street lighting system shall be designed in accordance with the MoTT Electrical and Traffic Engineering Manual – Section 300 Lighting Design.

Obtrusive light, light trespass, light pollution and environmental zones are key project design issues that will be considered by the Village. The Design Engineer will utilize luminaires and design techniques that will mitigate these issues. All light fixtures shall have full cutoff optics.

Permit Fees to Be Paid by Owner

The Owner shall be responsible for obtaining all required electrical permits, arranging for all electrical inspections covering the work and paying all fees for such permits. A copy of the permits are to be submitted to the Village at the time of application for final approval.

Rules and Regulations

Equipment, installation, wiring methods, and materials used shall be in accordance with the latest edition, including amendments, of the latest edition of the Canadian Electrical Code as adopted by the Province of British Columbia and all bulletins issued thereto. Work shall also be in accordance with all applicable Municipal codes and regulations, Provincial Statutes in effect at the site, and the Fire Safety Act, and WorksafeBC, hereinafter called the Rules and Regulations.

Wherever the drawings or specifications call for material, workmanship, arrangement or construction of a superior quality than is required by the Rules and Regulations, the drawings and specifications shall prevail. Otherwise, should there be a conflict between the Rules and Regulations and the drawings and specifications, the Rules and Regulations shall prevail. The Owner shall obtain, and pay for all permits, and arrange for all electrical inspections covering the work, and pay all other fees and charges, and make all deposits that are in any way connected with the installation of the systems specified as shown on the drawings. The

Owner shall give all necessary notices to authorities having jurisdiction and shall be responsible for keeping all applicable public ordinances.

A Certificate of Inspection by the governing electrical authorities showing that the installation is unconditionally approved shall be provided to the Village before acceptance of any work by the Approving Officer.

Connection to Utility

An allowance for a minimum of 8 street lights per electrical connections shall be made and future extension of the street lighting system should accommodate this requirement.

Each connection to B.C. Hydro will be made to a service box located at a lamp standard.

DESIGN CRITERIA

Levels of Illumination

Roadways shall be illuminated to produce accurate and comfortable nighttime visibility and safety. Pedestrian walkways, bikeways and trails may require illumination if requested by the Approving Officer. The recommended minimum average maintained horizontal illuminance levels, uniformity ratios and veiling luminance ratios used by the Village are listed in the current TAC "Guide for the Design of Roadway Lighting". Illuminance method can be used for pedestrian walkways, bikeways, trails and where a specific circumstance warrants its use such as curved roadways.

Prior to starting a project, the Design Engineer will verify the road classification and the pedestrian activity classification with the Approving Officer. Definitions of these terms may be found in the current TAC "Guide for the Design of Roadway Lighting".

The road classifications, luminance levels, ratios, road and pedestrian activity areas proposed will be listed in a table format on the design drawings. The Design Engineer will calculate all luminance levels and ratios as noted under Lighting Calculations. For calculations where the roadway surface is asphalt, R3, Road Surface Classification will be used.

Lighting Calculations

Lighting calculations will be carried out as follows:

- Lighting calculations are based on the luminance methods described in the current TAC "Guide for the Design of Roadway Lighting". Lighting calculations will be completed using suitable computer lighting design software designed to carry out the required calculations by inputting the luminaire manufacturers IESNA formatted photometrics. The IESNA photometric files for the Village accepted luminaires are available in electronic format through the specific luminaire manufacturer(s) web sites or local supplier.
- Computer lighting calculations for walkways and bikeways (where required) will be undertaken as described in the current TAC "Guide for the Design of Roadway Lighting".

- Lighting calculations will be based on maintained levels using initial rated lamp lumens and the total light loss factor (TLLF) of 0.72. The TLLF will be considered as the total maintenance factor.
- The Approving Officer may require a printed copy of the computer lighting calculations from the Professional Engineer.

Pole Locations

Spacing and location of poles will be governed by road width, road configuration, intersecting property lines, luminaire photometrics, mounting heights and recommended illumination levels. Maintain clearances to overhead and underground utilities in accordance with MMCD specifications and standards. The Canadian Electrical Code, WorksafeBC and the BC Electrical Safety Act will also govern pole spacing and height.

In general, poles shall be installed as follows:

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|--------------------------------|---|
| • downtown/frontage/commercial | opposite or staggered spacing |
| • collector roads | staggered spacing |
| • local roads | spaced one side of streets behind the sidewalk and multi-use pathways |

Where sidewalks are present street light poles will be offset per the Supplementary Detail Drawings road cross-sections. Alternative offsets require the acceptance of the Approving Officer. On existing roadways, where the standard offsets cannot be maintained due to underground utility conflicts, the Design Engineer will make recommendations for alternative locations to the Approving Officer and obtain acceptance prior to proceeding.

Poles shall be checked for conflict with driveways, underground services and fire hydrants.

Street Light Poles

Poles shall be a minimum 11 gauge octagonal steel anchor base type with 1.8, 2.5 or 3.0 m davit and a minimum height of 7.9 m for local roads and 9 m for collector and arterial roads. Poles shall be complete with anchor bolts, nuts and nut covers, handhole and water tight cover assembly, grounding stud and fuse and terminal block assembly. Poles shall be factory hot dipped galvanized coat in accordance with the most recent edition of CAN/CSA-S16.1 and CAN/CSA-G164.

Luminaries and Lamps

When expanding an existing street lighting system, the wattage and mounting height should match those previously installed, if the road classification and pedestrian conflict area are identical; unless otherwise accepted by the Approving Officer. New luminaires shall have full cut-off optics.

Luminaire wattage, distribution type and voltage will be noted on the engineering drawings.

The light source for luminaires will generally be LED. Light sources may differ in designated decorative street lighting areas, however any deviation from LED must be accepted by the Approving Officer.

For development projects requiring pedestrian walkway/bike lighting, the cost for the supply and installation of luminaires, mounting arms and lamps will be borne by the Owner. The Design Engineer will consult with the Approving Officer for specific fixture type, colour and model number information.

For rural standard roads, coordinate with the local electric company to arrange for street lighting on utility poles.

Fixtures to be fully shielded and emit no light above horizontal plane. There shall be no sag or drop lenses, side light panels, uplight panels, etc.. Approved fixtures shall be white light sources (4000k and lower) or may employ amber light sources or filtered LED light sources. Fixtures that do not meet the IDA Fixture Seal of Approval may be allowed on a case-by-case basis with approval from the Approving Officer, as long as they are full cut-off fixtures.

Traffic Signals

Traffic signal designs are highly specialized and, if traffic signals are required for a Subdivision or Development, will therefore be prepared by a Professional Engineer qualified in this area of expertise. Traffic signals will be designed in general accordance with the Ministry of Transportation Electrical and Traffic Engineering Manual. Traffic signal designs will also conform to the British Columbia Motor Vehicle Act and the Manual of Uniform Traffic Control Devices for Canada. Traffic engineering and timing/coordination plans will be provided by the Owner and prepared by a qualified traffic Consulting Engineer with PTOE certification.

Junction Boxes

Junction boxes shall be PVC or concrete. PVC boxes with street lids shall be used in sidewalk areas only. Concrete boxes with street lids shall be used in all areas subject to vehicle traffic. Concrete lids may be used in areas not subject to vehicle traffic. There will be one junction box per street light.

Conductors

All conductors shall be copper and if larger than 10 AWG, shall be stranded.

All insulated conductors shall be colour coded. White shall be used for the mutual conductor.

Conductors run in rigid PVC conduit or in the interior of street light poles shall be wire type as listed in Table 19 of the Canadian Electrical Code for use in raceways (wet location). Adequate slack shall be provided in the pole to permit removal of connected wires and fusing through the handhole for maintenance.

In no case shall the conductor be less than 10 AWG.

Conduit

Rigid PVC conduit shall be acceptable provided that it bears a CSA Certification label and all fittings shall be CSA Certified. PVC conduit shall be installed in strict accordance with the Manufacturer's recommendation, using CSA certified cement. The conduit shall not be bent in the field. Only factory bends shall be acceptable. The minimum conduit size shall be 32 mm diameter.

Ground Rods

Ground rods shall be 19 mm diameter steel with hot forged point, full length galvanized or copperweld and located in the junction box adjacent to each pole.

Fusing

There shall be one in-line (cartridge type) fuse per street light, located within each pole and accessible through the handhole.