

PART 1 **GENERAL**

1.1 **REFERENCES**

- .1 American National Standards Institute (ANSI)
 - .1 ANSI C82.1, Electric Lamp Ballasts-Line Frequency Fluorescent Lamp Ballast.
 - .2 ANSI C82.4, Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps.
- .2 American National Standards Institute/Institute of Electrical and Electronics Departmental representatives (ANSI/IEEE)
 - .1 ANSI/IEEE C62.41, Surge Voltages in Low-Voltage AC Power Circuits.
- .3 American Society for Testing and Materials (ASTM)
 - .1 ASTM F1137, Specification for Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners.
- .4 United States of America, Federal Communications Commission (FCC)
 - .1 FCC (CFR47) EM and RF Interference Suppression.

1.2 **RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 45 00 - Testing and Quality Control.

1.3 **SUBMITTALS**

- .1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

1.4 **DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver materials to site in original factory packaging, labeled with manufacturer's name, address.
- .3 Divert unused metal materials from landfill to metal recycling facility.

1.5 **ACCEPTABLE PRODUCTS**

- .1 Luminaires described on the drawings identify quality, performance criteria and other parameters, as indicated for this project. Named fixtures are acceptable with modifications and accessories, as indicated.

- .2 Fixtures from other manufacturers may be acceptable provided:
 - .1 Appearance and lighting performance are similar.
 - .2 Quality is equal or better.
 - .3 Lamp and ballast criteria remain the same.
 - .4 The fixture is provided with modifications and accessories to provide a complete product in keeping with the intent of the project.
 - .5 Approval in writing is obtained from the Departmental Representative to the supplier/manufacturer 5 days prior to tender closing date.

PART 2 PRODUCTS

2.1 LAMPS

- .1 T8 fluorescent lamps: 32W, medium bi-pin, instant start, 3500 K, 30000 hour lamp life, 2950 initial lumens, CRI 80 minimum.
- .2 High pressure sodium lamps: clear, 70 Watt, 24,000 hour lamp life, 6300 initial lumens.

2.2 BALLASTS

- .1 T8 fluorescent ballast: CBM and CSA certified, energy efficient type, IC electronic.
 - .1 Rating: voltage as indicated, 60 Hz, as indicated, for use with 2-32W, T8 octron imperial lamps.
 - .2 RFI/EMI suppression circuit to: FCC (CFR47) Part 18, sub-part C, Class A and Part 15, sub-part B, Class B.
 - .3 Totally encased and designed for 40 °C ambient temperature.
 - .4 Power factor: minimum 98 % with 98% of rated lamp lumens.
 - .5 Crest factor: 1.5 maximum.
 - .6 Capacitor: thermally protected.
 - .7 Thermal protection: non-resettable on coil.
 - .8 Harmonics: 10 % maximum THD.
 - .9 Operating frequency of electronic ballast: 40 khz minimum.
 - .10 Total Circuit Power: 62 Watts.
 - .11 Ballast Factor: greater than 0.88.
 - .12 Sound rated: Class A.
 - .13 Mounting: integral with luminaire.
 - .14 Be warranted by manufacturer for five years.
- .2 High pressure sodium ballast: to ANSI C82.4 design C.
 - .1 Rating: 60Hz voltage as indicated, for use with high pressure sodium lamps, as indicated.
 - .2 Totally encased and designed for 40 °C ambient temperature.

- .3 Power factor: minimum 95 % with 95% of rated lamp lumens.
- .4 Type: reactor or solid state with matching igniter as recommended by manufacturer.
- .5 Input voltage range: plus 10% to minus 10% of nominal.
- .6 Minimum starting temperature: minus 34 °C at 90% line voltage.
- .7 Mounting: outdoor integral with luminaire.
- .8 Current crest factor: 1.7 maximum current.

2.3 FINISHES

- .1 Light fixture finish and construction to meet ULC listings and CSA certifications related to intended installation.

2.4 LUMINAIRES

- .1 As indicated on drawings. Provide 10% spare lamps of each type used (minimum of one).

2.5 OPTICAL CONTROL DEVICES

- .1 As indicated in luminaire schedule on drawings.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 Locate and install luminaires as indicated. Install lamps in all fixtures. Connect to branch circuit.

3.2 LUMINAIRE ALIGNMENT

- .1 Align luminaires mounted individually parallel or perpendicular to building grid lines.

3.3 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 – Common Work Results – Electrical.

END OF SECTION